Ref: BMY/LF 300001(2)

15th December 2021

Parkview
Level 7, 60 Union Street
PYRMONT NSW 2009

Attention: James Mackenzie

Dear James,

IVANHOE ESTATE STAGE 1B – CIVIL DESIGN STATEMENT

We hereby certify that the OSD design depicted on the drawings prepared by ADW Johnson reference 300001(A1)-ENG-001-462 revision 2, complies with all conditions of consent SSD 8903 and is generally in accordance with Council's DCP 2014 Part 4.5 Macquarie Park Corridor, Part 8.2 Stormwater Management and AS 3500.3 - 2021.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,

Nathan Delaney
Senior Civil Engineer
MIEAust CPENG NER
ADW Johnson Pty Ltd
Central Coast

DRAFT

ADW JOHNSON PTY LIMITED
ABN 62 129 445 398

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AADLER PTY LTD
P: 02 8007 6895
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ABN: 46 162 373 819

19th January 2022

Oxford Electrical Group
Unit 15, 20-30 Stubbs St
Silverwater NSW 2128

Attention: George Helou

ELECTRICAL DESIGN CERTIFICATE
IVANHOE ESTATE – BUILDING A1
LOT 11, DP 861433, MACQUARIE PARK, NSW 2114

Engineering Disciplines: Electrical

We hereby certify that engineering design and specification produced to date satisfy the performance requirement of the National Construction Code of Australia in that they comply with the current *Deemed-To-Satisfy Provisions* for the engineering works applicable to the above noted premises.

This certification excludes engineering works previously installed in the building and for which interfacing or extension has been applied.

Signed on behalf of Aadler Pty Ltd

Regards

John Farag
Director
Aadler Pty Ltd

AADLER PTY LTD
P: 02 8007 6895
W: www.Aadler.com.au
ABN: 46 162 373 819

SPECIFIC STANDARDS AND RELEVANT CLAUSES		
ESSENTIAL SERVICE	**BCA CLAUSE No**	**RELEVANT AUSTRALIAN STANDARD**
Emergency Lighting	Part E4.2 & E4.4	AS 2293.1 -2018
Exit Signs	Part E4.5, E4.6, 4.7 & E4.8	AS 2293.1 – 2018
Artificial Lighting & Power	Part J6	BCA-2019
Artificial Lighting	Part F4.4	AS 1680.0 – 2009
Electrical Reticulation and Design		AS / NZS 3000 - 2018

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ABN: 46 162 373 819

Electrical Services Drawing Register		
Document No	**Title**	**Rev.**
E000	ELECTRICAL SYMBOLS LEGEND & DRAWING SCHEDULE	A
E100	BASEMENT 03 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	D
E101	BASEMENT 02 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	E
E102	BASEMENT 01 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	D
E103	LOWER GROUND - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	D
E104	GROUND FLOOR - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	C
E105	LEVEL 01 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	D
E106	LEVEL 02 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	D
E107	LEVEL 03 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	E
E108	LEVEL 04 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E109	LEVEL 05 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E110	LEVEL 06 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E111	LEVEL 07 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E112	LEVEL 08 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E113	LEVEL 09 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E114	LEVEL 10 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E115	LEVEL 11 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E116	LEVEL 12 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E117	LEVEL 13 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E118	LEVEL 14 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E119	LEVEL 15 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E120	LEVEL 16 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E121	LEVEL 17 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E122	LEVEL 18 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E123	LEVEL 19 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E124	LEVEL 20 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E125	LEVEL 21 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E126	LEVEL 22 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E127	LEVEL 23 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E128	ROOF LEVEL 24 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT	B
E300	MAIN SINGLE LINE DIAGRAM AND CABLE SCHEDULE	B
E301	METER PANEL AND DISTRIBUTION BOARD SCHEMATICS-	A
E303	MAIN SECURITY SCHEMATIC	A
E600	TYPICAL APARTMENT 1B (TYPE 01)	E
E601	TYPICAL APARTMENT 2B1 (TYPE 01)	E
E602	TYPICAL APARTMENT 3BP (TYPE 02)	F
E603	TYPICAL APARTMENT 1B (TYPE 02)	B
E604	TYPICAL APARTMENT 1B (TYPE 03)	B
E605	TYPICAL APARTMENT 1B (TYPE 04)	B
E606	TYPICAL APARTMENT 1B (TYPE 05)	B
E607	TYPICAL APARTMENT 2B2+ (TYPE 01)-	B
E608	TYPICAL APARTMENT 2B2 (TYPE 02)	B
E609	TYPICAL APARTMENT 2B2 (TYPE 03)	B
E610	TYPICAL APARTMENT 2B2 (TYPE 04)	B
E611	TYPICAL APARTMENT 2B2 (TYPE 05)	B
E612	TYPICAL APARTMENT 2B2 (TYPE 06)	B
E613	TYPICAL APARTMENT 2B2 (TYPE 07)	B
E614	TYPICAL APARTMENT 2B2 (TYPE 01)	B
E615	TYPICAL APARTMENT 2B2 (TYPE 01A)	B

AADLER PTY LTD
P: 02 8007 6895
W: www.Aadler.com.au
ABN: 46 162 373 819

Electrical Services Drawing Register		
Document No	**Title**	**Rev.**
E616	TYPICAL APARTMENT 2B2 (TYPE 08)-	B
E617	TYPICAL APARTMENT 2B1 (TYPE 02)	B
E618	TYPICAL APARTMENT 3B1 (TYPE 01)	B
E619	TYPICAL APARTMENT ST	B
E620	TYPICAL APARTMENT 2BP (TYPE 01)	B
E621	TYPICAL APARTMENT 2BP (TYPE 02)	B
E622	TYPICAL APARTMENT 2BP (TYPE 03)	B
E623	TYPICAL APARTMENT 2BP (TYPE 04)	B
E624	TYPICAL APARTMENT 3BP (TYPE 03)	B
E625	TYPICAL APARTMENT 3BP (TYPE 01)	B

Bates Smart
Architects Pty Ltd
ABN 68 094 740 986

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melb@batessmart.com

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Surry Hills NSW 2010 Australia
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12th January 2022

Architecture
Interior Design
Urban Design
Strategy

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Design Consultant Statement
For Construction Certificate

Project: Lot A1, Ivanhoe Estate, Macquarie Park NSW 2113
SSD Application Number: 8903
Reference: Construction Certificate CC3 – Remaining Structure
Description: Certification by Design Consultant for Structural Construction Certificate

In my professional opinion and to the best of my knowledge the design documents prepared by Bates Smart for the purposes of Construction Certificate CC3, are consistent with the Consent Drawings architectural design intent.

This statement in no way relieves any other parties contributing to the design or providing instructions or advice in relation to the design of their obligation to ensure consistency with the Consent Drawings and Conditions.

I am an appropriately qualified and competent person practising in the relevant area of work.

This statement refers specifically to DA conditions listed below and references other documents tabled at the end of this document.

Items from Crown Certificate Checklist:

B14 and B15 – In relation to building A1 design we confirm the finishes and claddings specified comply with the requirements of the BCA 2019 Amendment 1.

B26 - The GFA of A1 does not exceed the 21,580m2.
Please refer to drawings A50.A1.001[A] and A50.A1.004[B].

B27 – Maximum height – Building height for A1 does not exceed RL 138.3m.
We confirm that the roof height of building A1 does not exceed RL 138.3m and that any elements above this level are consistent with the requirements of condition B28 as amended by S4.55(1A).

B37 – The visible light reflectivity (VLR) from building facade materials does not exceed 20 per cent in order to minimise glare.

B68 – Installation of water efficient Fixtures and Fittings – All toilets specified are 4 Star Rating under the WELS scheme and are of water efficient dual flush capacity. Refer attached WELS certificates. To also meet the requirements of BASIX Report produced by WSP Titled Lot A1 – Ivanhoe Estate (Dated August 2020) and relevant conditions of the consent.

B69 – All Shower Heads specified are to be a minimum of 4 Star WELS rated. Refer attached WELS certificates. To also meet the requirements of BASIX Report

produced by WSP Titled Lot A1 – Ivanhoe Estate (Dated August 2020) and relevant conditions of the consent.

B69 – All Taps specified are a minimum of 5 Star WELS rated. Refer attached WELS certificates. To also meet the requirements of BASIX Report produced by WSP Titled Lot A1 – Ivanhoe Estate (Dated August 2020) and relevant conditions of the consent.

B77 – There is a maximum of 208 residential parking spaces, 13 visitor car spaces and a minimum of 12 childcare centre parking spaces in building A1. Refer to GA Plans for reference.

B81 – Number of bicycle parking spaces –Building A1 has 269 bike parking spaces and 14 visitor bike parking spaces. Refer to GA Plans for reference. All resident bike parking spaces are intended to be provided within basement storage cages. Visitor bike parking spaces are intended to be provided within the basement carpark.

B82 – The layout, design and security of bicycle facilities either on-street or off-street is capable to comply with the minimum requirements of Australian Standard AS 2890.3 — 2015.



Matthew Allen
Director
Registered Architect #8498

Referenced documents

Title	**Revision date**
KWF NatHERS and Section J Constructions – WSP letter	1 April 2020
BASIX Report produced by WSP Titled Lot A1 – Ivanhoe Estate	August 2020
BCA Report produced by Mc Kenzie Group titled BCA Assessment	14th Feb 2020

Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Dishwashers

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	D02336 (V)
Licence Number	1222
Brand	SMEG
Model name	DWAI6214X2
Model code	DWAI6214X2
Program name	Normal Eco
Rated capacity	14
Water consumption (for rating purpose)	11.3
WC to appear on label	11.3
Water efficiency star rating	5
Status	Expiring
Expiry date	22/01/2022



Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Tap Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	T30046
Licence Number	1483
Brand	AXUS
Model name	Axus Pin lever sink mixer
Model code	AX01350
Subtype	Mixing taps
Flow controller	Flow controller end-of-line
Nominal flow rate	3.2
WC to appear on label	3.5
Water efficiency star rating	6
Status	Expiring
Expiry date	22/01/2022



Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Tap Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	T36200
Licence Number	1483
Brand	ARCISAN
Model name	Venn wall basin set with 220mm spout
Model code	VE018220
Subtype	Combined tap Three hole
Flow controller	Flow controller end-of-line
Nominal flow rate	4.4
WC to appear on label	4.5
Water efficiency star rating	6
Status	Expiring
Expiry date	22/01/2022



Parkview Constructions

Level 7, 60 Union Street

Pyrmont NSW 2009

19th November 2021

Re: PARISI Shower Column 4 Star WELS approval – P2.08-D2W

Dear Antonio,

I am writing this letter to advise that the PARISI shower column submitted to Parkview Constructions for the Ivanhoe will be a 4-Star WELS product.

The hand shower and shower head, independently, have passed all relevant tests and are currently registered with WELS as 4 Star products. The shower column requires its own registration with both products combined. This registration is currently in progress with an expected completion time to be 4-6 weeks.

Upon completion of the registration, PARISI will issue the 4-Star WESL certificate, along with the associated website link for this product to Parkview Constructions.

In closing, we take this opportunity to thank Parkview Constructions for partnering with PARISI, via HNC, for another development. We are excited to be part of the team for Ivanhoe.

Yours sincerely,

Franco Parisi

Director – PARISI Bathware Pty Ltd

Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Showers

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	S15260
Licence Number	0022
Brand	PARISI BATHROOMWARE
Model name	ENVY
Model code	P2.HS-3
Subtype	Hand-held
Function	Multi-function
Hose	With hose
Flow controller	Flow controller in hose/elbow
Nominal flow rate	6.33
WC to appear on label	6.5
Water efficiency star rating	4 (> 6.0 but <= 7.5 plus spray force and coverage tests)
Status	Expiring
Expiry date	22/01/2022



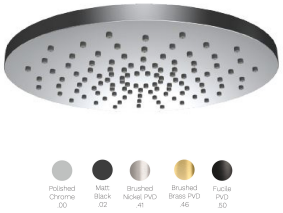
Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Showers

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	S15127 (V)
Licence Number	0022
Brand	PARISI BATHROOMWARE
Model name	ENVY
Model code	P2.SH.A245.50
Subtype	Head only (excludes hand showers)
Function	Single function
Hose	Flow controller fitted
Nominal flow rate	6.62
WC to appear on label	7.0
Water efficiency star rating	4 (> 6.0 but <= 7.5 plus spray force and coverage tests)
Status	Expiring
Expiry date	22/01/2022



Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Showers

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	S15349
Licence Number	0022
Brand	PARISI BATHROOMWARE
Model name	ENVY
Model code	PP.SR.
Subtype	Hand-held
Function	Multi-function
Hose	With hose
Flow controller	Flow controller in hose/elbow
Nominal flow rate	6.76
WC to appear on label	7.0
Water efficiency star rating	4 (> 6.0 but <= 7.5 plus spray force and coverage tests)
Status	Expiring
Expiry date	22/01/2022



Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Tap Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	T28293
Licence Number	1483
Brand	AXUS
Model name	Axus laundry sink mixer
Model code	AX01650
Subtype	Mixing taps
Flow controller	Flow controller end-of-line
Nominal flow rate	4.42
WC to appear on label	4.5
Water efficiency star rating	6
Status	Expiring
Expiry date	22/01/2022



Water Efficiency Labelling and Standards (WELS) Scheme

Australian Government

Lavatory Equipment

The following product has been registered according to the requirements of the WELS standard (AS/NZS 6400:2016 Water efficient products—Rating and labelling).

WELS registration number	L06579
Licence Number	0022
Brand	PARISI BATHROOMWARE
Model name	Linfa
Model code	PN770
Subtype	Pan only
Pan type	Floor mounted
Trap type	P trap
Full flush	4.5
Half flush	3
Nominal average flush	3.2
Average flush to appear on label	3.2
Water efficiency star rating	4
Status	Registered
Expiry date	22/01/2022



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12th January 2022

Architecture
Interior Design
Urban Design
Strategy

Antonio Screnci
Project Manager
Parkview Constructions
Level 7, 60 Union Street
Pyrmont NSW 2009

BATESSMART.™

Design Statement - SEPP 65 Design Verification for Structural Construction Certificate – CC3 – Remaining Structure

Dear Antonio,

In my professional opinion and to the best of my knowledge, I verify that the development as shown in the plans and specifications issued by Bates Smart in respect of which the construction certificates were issued, are consistent with the design quality principles set out in Schedule 1 of State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development.

For the purposes of this certification:

Project
Ivanhoe Estate,
Lot A1
Macquarie Park
NSW 2113
SSD Application Number: 8903

Yours sincerely
Bates Smart Architects Pty Ltd

Matthew Allen
Director
Registered Architect #8498

Ref: BMY/LF 300001(2)

15th December 2021

Parkview
Level 7, 60 Union Street
PYRMONT NSW 2009

Attention: James Mackenzie

Dear James,

IVANHOE ESTATE A1 OSD – CIVIL DESIGN STATEMENT

We hereby certify that the OSD design depicted on the drawings prepared by ADW Johnson reference 300001(A1)-OSD-001-462 revision 1, complies with all conditions of consent SSD 8903 and is generally in accordance with Council's DCP 2014 Part 4.5 Macquarie Park Corridor, Part 8.2 Stormwater Management and AS 3500.3 - 2021.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,



Nathan Delaney
Senior Civil Engineer
MIEAust CPENG NER
ADW Johnson Pty Ltd
Central Coast

ADW JOHNSON PTY LIMITED
ABN 62 129 445 398

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www.adwiohnson.com.au

1 DESIGN CERTIFICATE – PHASE 4A

Date: *21/12/2021*

To: *Mackenzie Group Consulting*
ABN 77 092 469 344
of Level 6, 189 Kent Street,
Sydney NSW 2000
(Principal Certifier)

and *Parkview Constructions Pty Limited*
ABN 41 078 064 963
of Level 6, 235 Pyrmont St,
Pyrmont NSW 2009
(Builder)

From: *enstruct group pty ltd*
ABN 32 094 570 671
of Level 4, 2 Glen Street, Milsons Point NSW 2061
(Consultant)

With respect to the completed For Construction Documentation, Specifications and Schedules (Documentation) submitted by the Consultant which are the subject of this Design Certificate and pursuant to the provisions of the ***National Construction Code (NCC) 2019 Amdt 1, Vol 1 Clause A2.3****, we hereby certify as* ***Evidence of Suitability*** *that:*

1. *The Documentation in Schedule A is in accordance with the structural requirements of the relevant Australian Standards, the National Construction Code (NCC), the Environmental Planning and Assessment Regulations, the relevant Fire Performance Solution Report, the relevant conditions of the Development Consent and best practice deign principles and which are attached to this Certificate as* ***Schedule A;***
2. *The Documentation is in accordance in particular with the following:*

Standard or Performance	***Year***
NCC Part B Structure Provisions, Performance Requirements	*2019 Amdt 1*
NCC Part C, Fire Resistance, Performance Requirements	*2019 Amdt 1*
AS/NZS 1170.0 General Principles	*2002*
AS/NZS 1170.1 (R2016) Permanent, Imposed & Other Actions	*2002*
AS/NZS 1170.2:(R2016) Wind Actions	*2011*
AS 1170.4 (R2018) Earthquake Actions in Australia	*2007*
AS 3700 Masonry Structures	*2018*
AS 4100 (R2016) Steel Structures	*1998*
AS 3600 Concrete Structures	*2018 Amdt 2*
Affinity Fire Engineering Report 172103_A1	

3. *In providing this Design Certificate, we have relied upon the Evidence of Suitability Certificates from other Consultants or from Design and Construct (D&C) Subcontractors. We certify as part of this Design Certificate that we have reviewed these Evidence of Suitability Certificates and their associated Documentation. We confirm that the structural input design parameters presented in the aforementioned documentation have been reviewed only, and that detailed design calculations have not been checked. Our review does not reduce the contractor's responsibility for design and certification.*
4. *The Documentation together with the structural design to the remaining stages has been completed to a degree deemed necessary that this Design Certificate and its associated Documentation has considered the structure holistically;*
5. *In providing this Design Certificate, we have specifically relied upon the following Evidence of Suitability Certificates from other Consultants or Design and Construct (D&C) Subcontractors for the following structural elements – as* ***Schedule B****.*

Drawings *– as* ***Schedule A****.*

Element *Suspended Concrete Slabs, Conventionally & Post Tension Reinforced*

Company *Interspan (NSW) Pty Ltd* ***ABN*** *13 119 013 928*
Address *Suite 5.04 77 Dunning Ave, Rosebery, NSW 2018*
Date of Certificate *21/12/2021*
NCC *NCC Vol 1 2019 Amdt 1*

Standard or Performance Referenced	***Year***
NCC Part B Structure Provisions, Performance Requirements	*2019 Amdt 1*
NCC Part C, Fire Resistance, Performance Requirements	*2019 Amdt 1*
AS/NZS 1170.0 General Principles	*2002*
AS/NZS 1170.1 (R2016) Permanent, Imposed & Other Actions	*2002*
AS/NZS 1170.2:(R2016) Wind Actions	*2011*
AS 1170.4 (R2018) Earthquake Actions in Australia	*2007*
AS 3600 Concrete Structures	*2018*
AS/NZS 4672.1 Steel Prestressing Materials - General Requirements	*2007*
AS/NZS 4672.2 Steel prestressing materials - Testing Requirements	*2007*
AS/NZS 1314 (R2016) Prestressing Anchorages	*2003*
AS 1349 (R2018) Bourdon Tube Pressure and Vacuum Gauges	*1986*
AS 2670.1 (R2016) Evaluation Human Exposure Vibration General Requirements	*2001*

I am an appropriately qualified and competent person in this area and as such can certify that the design and performance of the design systems which are detailed on the attached structural drawing list have been designed to comply with the above.

My qualifications and accreditations are listed below

Signed for and on behalf of the Consultant:

Full Name	Patrick Arthur Shephard
Qualifications & Accreditations	BE (Civil and Arch) Hons , CPEng MIEAust NER, VBA, DBP: DEP0000043
Company	enstruct group pty ltd | DEP0000819
ABN	32 094 570 671
Address	Level 4, 2 Glen Street, Milsons Point NSW 2061

Signature ..... *Date* 20/12/2021

SCHEDULE A – CONSULTANT DOCUMENT REGISTER (AS ATTACHED)

SCHEDULE B – EVIDENCE OF SUITABILITY CERTIFICATES FROM OTHER CONSULTANTS AND D&C SUBCONTRACTORS

Schedule A

Building A1 - Ivanhoe Estate Structural Drawing List -CC3

SHEET NUMBER	SHEET NAME	REVISION
000-00	COVER SHEET	2
000-01	DRAWING LIST	2
001-01	GENERAL NOTES	2
005-01	COLUMN SCHEDULE SHEET 1	3
005-02	COLUMN SCHEDULE SHEET 2	3
005-03	COLUMN SCHEDULE SHEET 3	4
005-04	COLUMN SCHEDULE SHEET 4	4
005-05	COLUMN SCHEDULE SHEET 5	3
005-31	COLUMN DETAILS SHEET 1	4
005-41	COLUMN TRANSITION DETAILS SHEET 1	2
005-42	COLUMN TRANSITION DETAILS SHEET 2	1
005-51	TYPICAL R.C. WALL DETAILS SHEET 1	2
005-52	TYPICAL R.C. WALL DETAILS SHEET 2	2
005-53	TYPICAL R.C. WALL DETAILS - PENETRATIONS	2
005-54	TYPICAL R.C. WALL LINK BEAM DETAILS	2
005-55	TYPICAL OUTRIGGER WALLS TO PRECAST COLUMN DETAILS	1
005-61	CORE WALL ELEVATIONS SHEET 1	2
005-62	CORE WALL ELEVATIONS SHEET 2	1
005-63	CORE WALL ELEVATIONS SHEET 3	1
005-64	CORE WALL ELEVATIONS SHEET 4	3
005-65	CORE WALL ELEVATIONS SHEET 5	1
005-66	CORE WALL ELEVATIONS SHEET 6	1
005-67	CORE WALL ELEVATIONS SHEET 7	2
005-68	CORE WALL ELEVATIONS SHEET 8	1
005-69	CORE WALL ELEVATIONS SHEET 9	1
005-70	CORE WALL ELEVATIONS SHEET 10	2
005-71	CORE WALL ELEVATIONS SHEET 11	2
005-72	CORE WALL ELEVATIONS SHEET 12	2
005-73	CORE WALL ELEVATIONS SHEET 13	2
005-74	CORE WALL ELEVATIONS SHEET 14	3
005-75	CORE WALL ELEVATIONS SHEET 15	2
005-76	CORE WALL ELEVATIONS SHEET 16	2
005-77	CORE WALL ELEVATIONS SHEET 17	1
005-78	CORE WALL ELEVATIONS SHEET 18	1
005-79	CORE WALL ELEVATIONS SHEET 19	1
005-80	CORE WALL ELEVATIONS SHEET 20	1
005-81	CORE WALL ELEVATIONS SHEET 21	1
005-82	CORE WALL ELEVATIONS SHEET 22	1
005-83	CORE WALL ELEVATIONS SHEET 23	1
005-84	CORE WALL ELEVATIONS SHEET 24	1
005-85	CORE WALL ELEVATIONS SHEET 25	1

005-86	CORE WALL ELEVATIONS SHEET 26	1
005-87	CORE WALL ELEVATIONS SHEET 27	1
005-88	CORE WALL ELEVATIONS SHEET 28	1
006-31	TYPICAL PRECAST DETAILS SHEET 1	1
009-21	STAIR ELEVATIONS SHEET 1	2
009-22	STAIR ELEVATIONS SHEET 2	2
009-23	STAIR ELEVATIONS SHEET 3	1
009-24	STAIR ELEVATIONS SHEET 4	1
009-25	STAIR ELEVATIONS SHEET 5	1
009-31	TYPICAL STAIR DETAILS	2
010-31	TYPICAL BLOCKWORK DETAILS SHEET 1	1
010-32	TYPICAL BLOCKWORK DETAILS SHEET 2	1
010-33	TYPICAL BLOCKWORK DETAILS SHEET 3	1
010-34	TYPICAL BLOCKWORK DETAILS SHEET 4	1
010-35	TYPICAL BLOCKWORK DETAILS SHEET 5	1
012-01	CORE KEYBOX PART PLANS SHEET 1	2
012-02	CORE KEYBOX PART PLANS SHEET 2	1
012-03	CORE KEYBOX PART PLANS SHEET 3	1
012-04	CORE KEYBOX PART PLANS SHEET 4	1
099-00	LOWER GROUND GENERAL ARRANGEMENT	1
099-31	LOWER GROUND SECTIONS AND DETAILS SHEET 1	1
099-32	LOWER GROUND SECTIONS AND DETAILS SHEET 2	1
099-33	LOWER GROUND SECTIONS AND DETAILS SHEET 3	1
099-34	LOWER GROUND SECTIONS AND DETAILS SHEET 4	1
099-41	LOWER GROUND SUBSTATION PART PLAN AND SECTIONS SHEET 1	1
099-42	LOWER GROUND SUBSTATION PART PLAN AND SECTIONS SHEET 2	1
100-00	GROUND FLOOR GENERAL ARRANGEMENT	1
100-31	GROUND FLOOR SECTIONS AND DETAILS SHEET 1	1
100-32	GROUND FLOOR SECTIONS AND DETAILS SHEET 2	1
101-00	LEVEL 01 GENERAL ARRANGEMENT	1
101-31	LEVEL 01 SECTIONS AND DETAILS SHEET 1	1
101-32	LEVEL 01 SECTIONS AND DETAILS SHEET 2	1
101-33	LEVEL 01 SECTIONS AND DETAILS SHEET 3	1
101-51	LEVEL 01 STEEL AWNING PART PLANS AND SECTIONS	1
102-00	LEVEL 02 GENERAL ARRANGEMENT	1
103-00	LEVEL 03 GENERAL ARRANGEMENT	1
104-00	LEVEL 04 GENERAL ARRANGEMENT	1
105-00	LEVEL 05 GENERAL ARRANGEMENT	1
106-00	LEVEL 06 GENERAL ARRANGEMENT	1
107-00	LEVEL 07 GENERAL ARRANGEMENT	1
108-00	LEVEL 08 GENERAL ARRANGEMENT	1
109-00	LEVEL 09 GENERAL ARRANGEMENT	1
110-00	LEVEL 10 GENERAL ARRANGEMENT	1
111-00	LEVEL 11 GENERAL ARRANGEMENT	1
112-00	LEVEL 12 GENERAL ARRANGEMENT	1
113-00	LEVEL 13 GENERAL ARRANGEMENT	1
114-00	LEVEL 14 GENERAL ARRANGEMENT	1

115-00	LEVEL 15 GENERAL ARRANGEMENT	1
116-00	LEVEL 16 GENERAL ARRANGEMENT	1
117-00	LEVEL 17 GENERAL ARRANGEMENT	1
118-00	LEVEL 18 GENERAL ARRANGEMENT	1
119-00	LEVEL 19 GENERAL ARRANGEMENT	1
120-00	LEVEL 20 GENERAL ARRANGEMENT	1
121-00	LEVEL 21 GENERAL ARRANGEMENT	1
122-00	LEVEL 22 GENERAL ARRANGEMENT	1
123-00	LEVEL 23 GENERAL ARRANGEMENT	1
123-31	LEVEL 23 SECTIONS AND DETAILS SHEET 1	1
124-00	LEVEL 24 GENERAL ARRANGEMENT	1
299-00	LOWER GROUND LOADING DIAGRAM	1
299-10	LOWER GROUND CONTRUCTION LOADING DIAGRAM	1
299-20	LOWER GROUND LATERAL SHEAR LOADING DIAGRAM	1
300-00	GROUND FLOOR LOADING DIAGRAM	1
300-10	GROUND FLOOR CONSTRUCTION LOADING DIAGRAM	1
300-20	GROUND FLOOR LATERAL SHEAR LOADING DIAGRAM	1
301-00	LEVEL 01 LOADING DIAGRAM	1
301-10	LEVEL 01 CONSTRUCTION LOADING DIAGRAM	1
301-20	LEVEL 01 LATERAL SHEAR LOADING DIAGRAM	1
302-00	LEVEL 02 LOADING DIAGRAM	1
302-10	LEVEL 02 CONSTRUCTION LOADING DIAGRAM	1
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303-00	LEVEL 03 LOADING DIAGRAM	1
303-10	LEVEL 03, 05 & 07 CONSTRUCTION LOADING DIAGRAM	1
303-20	LEVEL 03 LATERAL SHEAR LOADING DIAGRAM	1
304-00	LEVEL 04 & 06 LOADING DIAGRAM	1
304-10	LEVEL 04 & 06 CONSTRUCTION LOADING DIAGRAM	1
304-20	LEVEL 04 LATERAL SHEAR LOADING DIAGRAM	1
305-00	LEVEL 05 & 07 LOADING DIAGRAM	1
305-20	LEVEL 05 LATERAL SHEAR LOADING DIAGRAM	1
306-20	LEVEL 06-08 LATERAL SHEAR LOADING DIAGRAM	1
308-00	LEVEL 08, 10, 12 & 14 LOADING DIAGRAM	1
308-10	LEVEL 08, 10, 12 & 14 CONSTRUCTION LOADING DIAGRAM	1
309-00	LEVEL 09, 11, 13 & 15 LOADING DIAGRAM	1
309-10	LEVEL 09, 11, 13 & 15 CONSTRUCTION LOADING DIAGRAM	1
309-20	LEVEL 09 LATERAL SHEAR LOADING DIAGRAM	1
310-20	LEVEL 10-22 LATERAL SHEAR LOADING DIAGRAM	1
316-00	LEVEL 16, 18, & 20 LOADING DIAGRAM	1
316-10	LEVEL 16, 18, & 20 CONSTRUCTION LOADING DIAGRAM	1
317-00	LEVEL 17, 19, & 21 LOADING DIAGRAM	1
317-10	LEVEL 17, 19, & 21 CONSTRUCTION LOADING DIAGRAM	1
322-00	LEVEL 22 LOADING DIAGRAM	1
322-10	LEVEL 22 CONSTRUCTION LOADING DIAGRAM	1
323-00	LEVEL 23 LOADING DIAGRAM	1
323-20	LEVEL 23 LATERAL SHEAR LOADING DIAGRAM	1
324-00	LEVEL 24 LOADING DIAGRAM	1

DESIGN CERTIFICATE – FASE 4A

SUSPENDED POST TENSION SLABS AT BASEMENT LEVELS Lower Ground to Level 24

Date: *21/12/2021*

To: *Mackenzie Group Consulting*
ABN 77092469344
of Level 6, 189 Kent Street, Sydney NSW, Australia 2000
(Principal Certifier)

and *Parkview Constructions Pty Limited*
ABN 41 078 064 963
of Level 7, 60 Union St,
Pyrmont NSW 2009
(Builder)

From: *Interspan (NSW) Pty Ltd*
ABN 13 119 013 928
of Suite 5.04 77 Dunning Ave
Rosebery, NSW 2018

With respect to the completed For Construction Documentation, Specifications and Schedules (Documentation) submitted by the Consultant which are the subject of the documentation under the Agreement, and pursuant to the provisions of the ***National Construction Code (NCC) 2019 Amdt 1, Vol 1 Clause A2.3****, we hereby certify as* ***Evidence of Suitability*** *that:*

1. *The completed Documentation is in accordance with industry-accepted design, the relevant Australian Standards, the National Construction Code (NCC), the Environmental Planning and Assessment Regulations, the relevant Fire Performance Solution Report, the relevant conditions of the Development Consent and best practice deign principles and which are attached to this Certificate as* ***Schedule A;***

2. *The completed Documentation is in accordance in particular with the following:*

Standard or Performance Referenced	***Year***
NCC Part B1 Structure Provisions, Performance Requirements	*2019*
NCC Part C, Fire Resistance, Performance Requirements	*2019*
AS/NZS 1170.0 General Principles	*2002*
AS/NZS 1170.1 (R2016) Permanent, Imposed & Other Actions	*2002*
AS/NZS 1170.2:(R2016) Wind Actions	*2011*
AS 1170.4 (R2018) Earthquake Actions In Australia	*2007*
AS 3600 Concrete Structures (Amd 2)	*2018*
AS/NZS 4672.1 Steel Prestressing Materials - General Requirements	*2007*
AS/NZS 4672.2 Steel prestressing materials - Testing Requirements	*2007*
AS/NZS 1314 (R2016) Prestressing Anchorages	*2003*
AS 1349 (R2018) Bourdon Tube Pressure and Vacuum Gauges	*1986*
AS 2670.1 (R2016) Evaluation Human Exposure Vibration General Requirements	*2001*

3. *I am a properly qualified, in accordance with Schedule 1 of the Building Professionals Regulation 2007 and Building Professionals Act 2005 (together with the Building and Development Certifiers Act 2018 and the Building and Development Certifiers Regulation 2019) and have a good working knowledge of the relevant codes and standard referenced above.*

My qualifications and accreditations are listed below

Signed for and on behalf of Interspan (NSW)Pty Ltd

Full Name	*Kim Anh Thi Vu*
Qualifications & Accreditations	*BE (Civil & Structural), PhD, FIEAust, CPEng, NER2901435, DEP0000222*
Company	*Interspan (NSW) Pty Ltd*
ABN	13 119 013 928
Address	*Suite 5.04 77 Dunning Ave, Rosebery, NSW, 2018*

Signature



Date 21/12/2021

Interspan
Specialist Concrete Slab Solutions

INTERSPAN PTY LTD

DOCUMENT TRANSMITTAL REGISTER

Project No.:	INPT20373	Project:	IVANHOE BUILDING A1 MACQUARIE PARK	Office:	Sheet No.: 1

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Document description:	Doc No.	Revisions
GENERAL NOTES	INT-PT-001	
BASEMENT 2 - POUR 1 & 2 SECTION DETAILS	INT-PT-010	
BASEMENT 2 - POUR 3 & 4 SECTION DETAILS	INT-PT-011	
BASEMENT 1 - POUR 1 & 2 SECTION DETAILS	INT-PT-013	
BASEMENT 1 - POUR 3 & 4 SECTION DETAILS	INT-PT-014	
LOWER GROUND FLOOR SECTIONS	INT-PT-052	
BASEMENT 2 - GENERAL ARRANGEMENT PLAN	INT-PT-100	
BASEMENT 2 - POUR 1 POST TENSIONING PLAN	INT-PT-111	
BASEMENT 2 - POUR 1 BOTTOM REINFORCEMENT PLAN	INT-PT-112	
BASEMENT 2 - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-113	
BASEMENT 2 - POUR 2 POST TENSIONING PLAN	INT-PT-121	
BASEMENT 2 - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-122	
BASEMENT 2 - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-123	
BASEMENT 2 - POUR 3 POST TENSIONING PLAN	INT-PT-131	
BASEMENT 2 - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-132	
BASEMENT 2 - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-133	
BASEMENT 2 - POUR 4 POST TENSIONING PLAN	INT-PT-141	
BASEMENT 2 - POUR 4 BOTTOM REINFORCEMENT PLAN	INT-PT-142	
BASEMENT 2 - POUR 4 TOP REINFORCEMENT PLAN	INT-PT-143	
BASEMENT 1 - GENERAL ARRANGEMENT PLAN	INT-PT-150	
BASEMENT 1 - POUR 1 POST TENSIONING PLAN	INT-PT-151	
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BASEMENT 1 - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-153	
BASEMENT 1 - POUR 2 POST TENSIONING PLAN	INT-PT-161	
BASEMENT 1 - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-162	
BASEMENT 1 - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-163	
BASEMENT 1 - POUR 3 POST TENSIONING PLAN	INT-PT-171	
BASEMENT 1 - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-172	
BASEMENT 1 - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-173	
BASEMENT 1 - POUR 4 POST TENSIONING PLAN	INT-PT-181	
BASEMENT 1 - POUR 4 BOTTOM REINFORCEMENT PLAN	INT-PT-182	
BASEMENT 1 - POUR 4 TOP REINFORCEMENT PLAN	INT-PT-183	
RAMP BASEMENT 3 TO BASEMENT 2 - REINFORCEMENT PLAN	INT-PT-192	
RAMP BASEMENT 2 TO BASEMENT 1 - REINFORCEMENT PLAN	INT-PT-193	
RAMP BASEMENT 1 TO LOWER GROUND - REINFORCEMENT PLAN	INT-PT-194	
RAMP AT GRID 8 & 9 - REINFORCEMENT PLAN	INT-PT-195	

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LOWER GROUND - GENERAL ARRANGEMENT PLAN	INT-PT-200	
LOWER GROUND - POUR 1 POST TENSIONING PLAN	INT-PT-211	
LOWER GROUND - POUR 1 BOTTOM REINFORCEMENT PLAN	INT-PT-212	
LOWER GROUND - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-213	
LOWER GROUND - POUR 2 POST TENSIONING PLAN	INT-PT-221	
LOWER GROUND - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-222	
LOWER GROUND - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-223	
LOWER GROUND - POUR 3 POST TENSIONING PLAN	INT-PT-231	
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LOWER GROUND - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-233	
LOWER GROUND - POUR 4 POST TENSIONING PLAN	INT-PT-241	
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LOWER GROUND - POUR 6 TOP REINFORCEMENT PLAN	INT-PT-263	
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GROUND - POUR 1 POST TENSIONING PLAN	INT-PT-311	
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GROUND - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-322	
GROUND - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-323	
GROUND - POUR 3 POST TENSIONING PLAN	INT-PT-321	
GROUND - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-332	
GROUND - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-333	
GROUND - POUR 4 POST TENSIONING PLAN	INT-PT-341	
GROUND - POUR 4 BOTTOM REINFORCEMENT PLAN	INT-PT-342	
GROUND - POUR 4 TOP REINFORCEMENT PLAN	INT-PT-343	

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LEVEL 1 - GENERAL ARRANGEMENT PLAN	INT-PT-400	
LEVEL 1 - POST TENSIONING PLAN	INT-PT-411	
LEVEL 1 - BOTTOM REINFORCEMENT PLAN	INT-PT-412	
LEVEL 1 - TOP REINFORCEMENT PLAN	INT-PT-413	
LEVEL 2 - GENERAL ARRANGEMENT PLAN	INT-PT-500	
LEVEL 2 - POST TENSIONING PLAN	INT-PT-511	
LEVEL 2 - BOTTOM REINFORCEMENT PLAN	INT-PT-512	
LEVEL 2 - TOP REINFORCEMENT PLAN	INT-PT-513	
LEVEL 3 - GENERAL ARRANGEMENT PLAN	INT-PT-600	
LEVEL 3 - POST TENSIONING PLAN	INT-PT-611	
LEVEL 3 - BOTTOM REINFORCEMENT PLAN	INT-PT-612	
LEVEL 3 - TOP REINFORCEMENT PLAN	INT-PT-613	
LEVEL 4 - GENERAL ARRANGEMENT PLAN	INT-PT-700	
LEVEL 4 - POST TENSIONING PLAN	INT-PT-711	
LEVEL 4 - BOTTOM REINFORCEMENT PLAN	INT-PT-712	
LEVEL 4 - TOP REINFORCEMENT PLAN	INT-PT-713	
LEVEL 5 - GENERAL ARRANGEMENT PLAN	INT-PT-800	
LEVEL 5 - POST TENSIONING PLAN	INT-PT-811	
LEVEL 5 - BOTTOM REINFORCEMENT PLAN	INT-PT-812	
LEVEL 5 - TOP REINFORCEMENT PLAN	INT-PT-813	
LEVEL 6 - GENERAL ARRANGEMENT PLAN	INT-PT-900	
LEVEL 6 - POST TENSIONING PLAN	INT-PT-911	
LEVEL 6 - BOTTOM REINFORCEMENT PLAN	INT-PT-912	
LEVEL 6 - TOP REINFORCEMENT PLAN	INT-PT-913	
LEVEL 7 - GENERAL ARRANGEMENT PLAN	INT-PT-1000	
LEVEL 7 - POST TENSIONING PLAN	INT-PT-1011	
LEVEL 7 - BOTTOM REINFORCEMENT PLAN	INT-PT-1012	
LEVEL 7 - TOP REINFORCEMENT PLAN	INT-PT-1013	
LEVEL 8 - GENERAL ARRANGEMENT PLAN	INT-PT-1100	
LEVEL 8 - POST TENSIONING PLAN	INT-PT-1111	
LEVEL 8 - BOTTOM REINFORCEMENT PLAN	INT-PT-1112	
LEVEL 8 - TOP REINFORCEMENT PLAN	INT-PT-1113	
LEVEL 9 - GENERAL ARRANGEMENT PLAN	INT-PT-1200	
LEVEL 9 - POST TENSIONING PLAN	INT-PT-1211	
LEVEL 9 - BOTTOM REINFORCEMENT PLAN	INT-PT-1212	
LEVEL 9 - TOP REINFORCEMENT PLAN	INT-PT-1013	
LEVEL 10 - GENERAL ARRANGEMENT PLAN	INT-PT-1300	
LEVEL 10 - POST TENSIONING PLAN	INT-PT-1311	
LEVEL 10 - BOTTOM REINFORCEMENT PLAN	INT-PT-1312	
LEVEL 10 - TOP REINFORCEMENT PLAN	INT-PT-1313	

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LEVEL 11 - GENERAL ARRANGEMENT PLAN	INT-PT-1400	
LEVEL 11 - POST TENSIONING PLAN	INT-PT-1411	
LEVEL 11 - BOTTOM REINFORCEMENT PLAN	INT-PT-1412	
LEVEL 11 - TOP REINFORCEMENT PLAN	INT-PT-1413	
LEVEL 12 - GENERAL ARRANGEMENT PLAN	INT-PT-1500	
LEVEL 12 - POST TENSIONING PLAN	INT-PT-1511	
LEVEL 12 - BOTTOM REINFORCEMENT PLAN	INT-PT-1512	
LEVEL 12 - TOP REINFORCEMENT PLAN	INT-PT-1513	
LEVEL 13 - GENERAL ARRANGEMENT PLAN	INT-PT-1600	
LEVEL 13 - POST TENSIONING PLAN	INT-PT-1611	
LEVEL 13 - BOTTOM REINFORCEMENT PLAN	INT-PT-1612	
LEVEL 13 - TOP REINFORCEMENT PLAN	INT-PT-1613	
LEVEL 14 - GENERAL ARRANGEMENT PLAN	INT-PT-1700	
LEVEL 14 - POST TENSIONING PLAN	INT-PT-1711	
LEVEL 14 - BOTTOM REINFORCEMENT PLAN	INT-PT-1712	
LEVEL 14 - TOP REINFORCEMENT PLAN	INT-PT-1713	
LEVEL 15 - GENERAL ARRANGEMENT PLAN	INT-PT-1800	
LEVEL 15 - POST TENSIONING PLAN	INT-PT-1811	
LEVEL 15 - BOTTOM REINFORCEMENT PLAN	INT-PT-1812	
LEVEL 15 - TOP REINFORCEMENT PLAN	INT-PT-1813	
LEVEL 16 - GENERAL ARRANGEMENT PLAN	INT-PT-1900	
LEVEL 16 - POST TENSIONING PLAN	INT-PT-1911	
LEVEL 16 - BOTTOM REINFORCEMENT PLAN	INT-PT-1912	
LEVEL 16 - TOP REINFORCEMENT PLAN	INT-PT-1913	
LEVEL 17 - GENERAL ARRANGEMENT PLAN	INT-PT-2000	
LEVEL 17 - POST TENSIONING PLAN	INT-PT-2011	
LEVEL 17 - BOTTOM REINFORCEMENT PLAN	INT-PT-2012	
LEVEL 17 - TOP REINFORCEMENT PLAN	INT-PT-2013	
LEVEL 18 - GENERAL ARRANGEMENT PLAN	INT-PT-2100	
LEVEL 18 - POST TENSIONING PLAN	INT-PT-2111	
LEVEL 18 - BOTTOM REINFORCEMENT PLAN	INT-PT-2112	
LEVEL 18 - TOP REINFORCEMENT PLAN	INT-PT-2113	
LEVEL 19 - GENERAL ARRANGEMENT PLAN	INT-PT-2200	
LEVEL 19 - POST TENSIONING PLAN	INT-PT-2211	
LEVEL 19 - BOTTOM REINFORCEMENT PLAN	INT-PT-2212	
LEVEL 19 - TOP REINFORCEMENT PLAN	INT-PT-2213	
LEVEL 20 - GENERAL ARRANGEMENT PLAN	INT-PT-2300	
LEVEL 20 - POST TENSIONING PLAN	INT-PT-2311	
LEVEL 20 - BOTTOM REINFORCEMENT PLAN	INT-PT-2312	
LEVEL 20 - TOP REINFORCEMENT PLAN	INT-PT-2313	

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LEVEL 21 - GENERAL ARRANGEMENT PLAN	INT-PT-2400	
LEVEL 21 - POST TENSIONING PLAN	INT-PT-2411	
LEVEL 21 - BOTTOM REINFORCEMENT PLAN	INT-PT-2412	
LEVEL 21 - TOP REINFORCEMENT PLAN	INT-PT-2413	
LEVEL 22 - GENERAL ARRANGEMENT PLAN	INT-PT-2500	
LEVEL 22 - POST TENSIONING PLAN	INT-PT-2511	
LEVEL 22 - BOTTOM REINFORCEMENT PLAN	INT-PT-2512	
LEVEL 22 - TOP REINFORCEMENT PLAN	INT-PT-2513	
LEVEL 23 - GENERAL ARRANGEMENT PLAN	INT-PT-2600	
LEVEL 23 - POST TENSIONING PLAN	INT-PT-2611	
LEVEL 23 - BOTTOM REINFORCEMENT PLAN	INT-PT-2612	
LEVEL 23 - TOP REINFORCEMENT PLAN	INT-PT-2613	
LEVEL 24 - GENERAL ARRANGEMENT PLAN	INT-PT-2700	
LEVEL 24 - POST TENSIONING PLAN	INT-PT-2711	
LEVEL 24 - BOTTOM REINFORCEMENT PLAN	INT-PT-2712	
LEVEL 24 - TOP REINFORCEMENT PLAN	INT-PT-2713	

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The Manager
Parkview Construction Pty Ltd
Level 6, 235 Pyrmont Street
Pyrmont NSW 2000

9th February 2022

CORRES/REF: 13039/C004

Attention: MR ANTONIO SCRENCI

Dear Sir,

RE: **FIRE PROTECTION SERVICES**
'IVANHOE BUILDING A1'
RESIDENTIAL DEVELOPMENT
IVANHOE ESTATE
MACQUARIE PARK NSW 2113

We herewith confirm our intention to provide design documentation incorporating the necessary parameters to satisfy the minimum requirements for Fire Protection Systems within the *'Residential Development'*. The nominated design criteria will be applied to achieve the standard of measure as specified in the relative Australian Standards & the deemed to satisfy provisions of the Building Code of Australia, specified herein.

Building Classification

Carpark: Class 7a
Storage: Class 7b
Residential: Class 2
Childcare: Class 9b

Building Code of Australia

BCA 2019 Amendment 1 is applicable to this project

BCA Standards of Performance

Combined Sprinkler & Hydrant System	AS2118.6 – 2012 & BCA Spec E1.5
Automatic Fire Sprinkler System	AS2118.1 – 2017 & BCA Spec E1.5
Fire Hydrant System	AS2419.1 – 2005 & BCA Spec E1.3
Sound System & Intercom System for Emergency Purposes	AS 1670.4 – 2018 & BCA Spec E4.9
Fire Detection and Alarm system	AS1670.1 – 2018 & BCA Spec E2.2a
Fire Alarm system (Sprinkler Interfacing)	AS 1670.1 – 2018
Alarm Signaling Equipment	AS1670.3-2004
Portable Fire Extinguishers	AS2444 – 2001 & BCA spec E1.6
Fire Control Centre	BCA spec E1.8

FIRE ENGINEERING

Report No & Ref. 172103_A1_FER_02 Dated 02/02/2022 by Affinity Fire Engineering

DESIGN DRAWINGS

I **Rony Tannous** of **Innovative Fire Services** am satisfied that the below plans and specifications relating to the fire safety systems correctly identifies both the Performance Requirements and the Deemed-to-Satisfy provisions of the Building Code of Australia, in accordance with Clause 136AA(2)(c)(ii) of the Environmental Planning and Assessment Regulation 2000.

The basis of our design development comprises the following Fire Protection Services drawings: -

IFS-F-W-001, IFS-F-W-002, IFS-F-W-003, IFS-F-W-101, IFS-F-W-102, IFS-F-W-103, IFS-F-W-104, IFS-F-W-105, IFS-F-W-106, IFS-F-W-107, IFS-F-W-108, IFS-F-W-109, IFS-F-W-110, IFS-F-W-111, IFS-F-W-112, IFS-F-W-113, IFS-F-W-114, IFS-F-W-115

IFS-F-D-001, IFS-F-D-002, IFS-F-D-201, IFS-F-D-202, IFS-F-D-203, IFS-F-D-204, IFS-F-D-205, IFS-F-D-206, IFS-F-D-207, IFS-F-D-208, IFS-F-D-213, IFS-F-D-221, IFS-F-D-227, IFS-F-D-228

On completion, the system will be assessed for functionality & code compliance and a subsequent final fire safety certificate form 15 will be issued under the Environmental planning and assessment regulations 2000 confirming the system was found to be functional & in proper working order at the time of the inspection.

I possess indemnity insurance to the satisfaction of the building owner or my principal

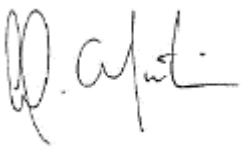
Full Name of Designer:	Rony Tannous		
Qualifications:	Mech Eng Assoc. Diploma, Fitter & Machinist, Contractors Lic. No.199100C, 20 Years Fire Protection Experience, F.P. Association Gold Member 16064, Listed F.P.A. Fire Safety Assessor Register Competent Fire Safety Practitioner CFSP No. FSD45336		
Address of Designer:	Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208		
Business Phone No:	61 2 9502 2900	**Fax No.**	61 2 9502 2284
Name of Employer:	Innovative Fire Services Pty Ltd		

Full Name of Designer:	Wayne Martin		
Qualifications:	30 Years Fire Protection Designer/Project Manager Experience, License Electrical/Water Plumber No 16159S Competent Fire Safety Practitioner CFSP No. FSD45370		
Address of Designer:	Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208		
Business Phone No:	61 2 9502 2900	**Fax No.**	61 2 9502 2284
Name of Employer:	Innovative Fire Services Pty Ltd		

Yours faithfully
INNOVATIVE FIRE SERVICES PTY. LTD.



Rony Tannous
GENERAL MANAGER



Wayne Martin
ELECTRICAL MANAGER

The Manager
Parkview Construction Pty Ltd
Level 6, 235 Pyrmont Street
Pyrmont NSW 2000

3rd December 2021

CORRES/REF: 13039/C002

Attention: MR ANTONIO SCRENCI

Dear Sir,

RE: **FIRE PROTECTION SERVICES**
'IVANHOE BUILDING A1'
RESIDENTIAL DEVELOPMENT
IVANHOE ESTATE
MACQUARIE PARK NSW 2113

We herewith confirm our intention to provide design documentation incorporating the necessary parameters to satisfy the minimum requirements for Fire Protection Systems within the *'Residential Development'*. The nominated design criteria will be applied to achieve the standard of measure as specified in the relative Australian Standards & the deemed to satisfy provisions of the Building Code of Australia, specified herein.

Building Classification

Carpark: Class 7a
Storage: Class 7b
Residential: Class 2
Childcare: Class 9b

Building Code of Australia

BCA 2019 Amendment 1 is applicable to this project

BCA Standards of Performance

Combined Sprinkler & Hydrant System	AS2118.6 – 2012 & BCA Spec E1.5
Automatic Fire Sprinkler System	AS2118.1 – 2017 & BCA Spec E1.5
Fire Hydrant System	AS2419.1 – 2005 & BCA Spec E1.3
Sound System & Intercom System for Emergency Purposes	AS 1670.4 – 2018 & BCA Spec E4.9
Fire Detection and Alarm system	AS1670.1 – 2018 & BCA Spec E2.2a
Fire Alarm system (Sprinkler Interfacing)	AS 1670.1 – 2018
Alarm Signaling Equipment	AS1670.3-2004
Portable Fire Extinguishers	AS2444 – 2001 & BCA spec E1.6
Fire Control Centre	BCA spec E1.8

FIRE ENGINEERING

Report No & Ref. 172103_A1_FER_DRAFT_01 Dated 22/11/2021 by Affinity Fire Engineering

DESIGN DRAWINGS

I **Rony Tannous** of **Innovative Fire Services** am satisfied that the below plans and specifications relating to the fire safety systems correctly identifies both the Performance Requirements and the Deemed-to-Satisfy provisions of the Building Code of Australia, in accordance with Clause 136AA(2)(c)(ii) of the Environmental Planning and Assessment Regulation 2000.

The basis of our design development comprises the following Fire Protection Services drawings: -

IFS-F-W-001, IFS-F-W-002, IFS-F-W-003, IFS-F-W-101, IFS-F-W-102, IFS-F-W-103, IFS-F-W-104, IFS-F-W-105, IFS-F-W-106, IFS-F-W-107, IFS-F-W-108, IFS-F-W-109, IFS-F-W-110, IFS-F-W-111, IFS-F-W-112, IFS-F-W-113, IFS-F-W-114, IFS-F-W-115

IFS-F-D-001, IFS-F-D-002, IFS-F-D-201, IFS-F-D-202, IFS-F-D-203, IFS-F-D-204, IFS-F-D-205, IFS-F-D-206, IFS-F-D-207, IFS-F-D-208, IFS-F-D-213, IFS-F-D-221, IFS-F-D-227, IFS-F-D-228

On completion, the system will be assessed for functionality & code compliance and a subsequent final fire safety certificate form 15 will be issued under the Environmental planning and assessment regulations 2000 confirming the system was found to be functional & in proper working order at the time of the inspection.

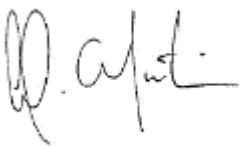
I possess indemnity insurance to the satisfaction of the building owner or my principal

Full Name of Designer:	Rony Tannous		
Qualifications:	Mech Eng Assoc. Diploma, Fitter & Machinist, Contractors Lic. No.199100C, 20 Years Fire Protection Experience, F.P. Association Gold Member 16064, Listed F.P.A. Fire Safety Assessor Register Competent Fire Safety Practitioner CFSP No. FSD45336		
Address of Designer:	Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208		
Business Phone No:	61 2 9502 2900	**Fax No.**	61 2 9502 2284
Name of Employer:	Innovative Fire Services Pty Ltd		
Full Name of Designer:	Wayne Martin		
Qualifications:	30 Years Fire Protection Designer/Project Manager Experience, License Electrical/Water Plumber No 16159S Competent Fire Safety Practitioner CFSP No. FSD45370		
Address of Designer:	Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208		
Business Phone No:	61 2 9502 2900	**Fax No.**	61 2 9502 2284
Name of Employer:	Innovative Fire Services Pty Ltd		

Yours faithfully
INNOVATIVE FIRE SERVICES PTY. LTD.



Rony Tannous
GENERAL MANAGER



Wayne Martin
ELECTRICAL MANAGER

Our Ref 02507-L009

Contact Gary Chan

20 December 2021

Principal Certifying Authority
c/- Parkview Constructions Pty. Limited
Level 7, 60 Union Street
Pyrmont NSW 2009

Attention: James Mackenzie

C & M CONSULTING ENGINEERS

C & M Consulting Engineers Pty Ltd
ABN 21 118 134 240
Suite 26, 11-13 Brookhollow Avenue
Norwest NSW 2153
PO Box 7849
Norwest NSW 2153
T: (02) 9680 3100
F: (02) 9634 6989
E: info@cmce.com.au

BUILDING A1, MIDTOWN MACPARK IVANHOE ESTATE, MACQURIE PARK
(RYDE CITY COUNCIL – DA NO. SSD8903)

DESIGN CERTIFICATE CC3 – HYDRAULIC SERVICES

We confirm that the design of the Hydraulic Services for the subject development was carried out by this firm and is presented on our Drawings listed below.

Hydraulic Services

DRAWING NUMBER	DRAWING NAME	REVISION
02507-A1-HY-001	NOTES AND LEGEND	01
02507-A1-HY-201	BASEMENT 3 PLAN	05
02507-A1-HY-202	BASEMENT 2 PLAN	01
02507-A1-HY-203	BASEMENT 1 PLAN	01
02507-A1-HY-301	LOWER GROUND FLOOR PLAN	01
02507-A1-HY-302	GROUND FLOOR PLAN	01
02507-A1-HY-303	LEVEL 1 PLAN	01
02507-A1-HY-304	LEVEL 2 PLAN	01
02507-A1-HY-305	LEVEL 3 PLAN	01
02507-A1-HY-306	LEVEL 4 PLAN	01
02507-A1-HY-307	LEVEL 5 PLAN	01
02507-A1-HY-308	LEVEL 6 PLAN	01
02507-A1-HY-309	LEVEL 7 PLAN	01
02507-A1-HY-310	LEVEL 8 PLAN	01
02507-A1-HY-311	LEVEL 9 PLAN	01
02507-A1-HY-312	LEVEL 10 PLAN	01
02507-A1-HY-313	LEVEL 11 PLAN	01
02507-A1-HY-314	LEVEL12 PLAN	01
02507-A1-HY-315	LEVEL 13 PLAN	01
02507-A1-HY-316	LEVEL 14 PLAN	01
02507-A1-HY-317	LEVEL 15 PLAN	01
02507-A1-HY-318	LEVEL 16 PLAN	01
02507-A1-HY-319	LEVEL 17 PLAN	01
02507-A1-HY-320	LEVEL 18 PLAN	01
02507-A1-HY-321	LEVEL 19 PLAN	01

02507-A1-HY-322	LEVEL 20 PLAN	01
02507-A1-HY-323	LEVEL 21 PLAN	01
02507-A1-HY-324	LEVEL 22 PLAN	01
02507-A1-HY-325	LEVEL 23 PLAN	01
02507-A1-HY-326	ROOF PLAN	01
02507-A1-HY-400	TYPICAL UNITS LAYOUT	01
02507-A1-HY-401	POTABLE COLD WATER SCHEMATIC	01
02507-A1-HY-402	HOT WATER SCHEMATIC	01
02507-A1-HY-403	SANITARY PLUMBING SCHEMATIC 1	01
02507-A1-HY-404	SANITARY PLUMBING SCHEMATIC 2	01
02507-A1-HY-405	STORMWATER SCHEMATIC	01
02507-A1-HY-406	SIPHONIC DRAINAGE SCHEMATIC	01
02507-A1-HY-500	GENERAL DETAILS 1	01
02507-A1-HY-501	GENERAL DETAILS 2	01

We certify that the design has been carried out in accordance with:

- Ryde City Council's Development Consent Conditions;
- NCC – National Construction Code – 2019 Amdt 1 – Volume 1, Building Code of Australia
- NCC – National Construction Code – 2019 Amdt 1 – Volume 3, Plumbing Code of Australia
- AS3500 – 2018 – Plumbing and Drainage Code;
- AS2441 – 2005 – Installation of Fire Hose Reels;
- BASIX Certificate No. 893728M_02;
- The current standards of good industry practice.

This certificate shall not be construed as relieving any other party of their legal responsibilities or contractual obligations.

Yours faithfully



Gary Chan
DipEng(Hydraulic), DipEng(Civil), C14 Reg. No. BDC04511, Member of HCAA and QBCC,
Design Practitioner Reg. No. DEP0000137, Principal Design Practitioner Reg. No. PDP0000052
Hydraulic Engineer - Director
C & M Consulting Engineers Pty Ltd

Statutory Declaration

OATHS ACT 1900, NSW, EIGHTH SCHEDULE

I, the undersigned, do solemnly and sincerely declare that:

I have made all reasonable searches, investigations and enquiries as required by a reasonable practitioner of my profession/trade in the circumstances of giving this certificate and pursuant to those searches, investigations and enquiries, and applying my trade/professional skill and knowledge, certify that:

a. the essential fire safety measures for installation in the named building, as set out at Annexure A to this declaration, have been designed and documented in accordance with the provisions of the Building Code of Australia, the relevant Australian Standards and other standard of performance as indicated.

b. The design was carried out by an appropriately qualified and competent person from our company who is practising in the relevant area of work with recognised relevant experience in the area of work being certified.

c. My employer is holding appropriate current professional indemnity insurance to the satisfaction of the building owner or the principal authorising the design work being certified.

and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1900*.

Declared at: Suite 802, 299 Sussex Street, Sydney on **08/02/2022**
[place] *[date]*



in the presence of an authorised witness, who states:

I, **Zlatan Ivankovic** a
[name of authorised witness] *[qualification of authorised witness]*

certify the following matters concerning the making of this statutory declaration by the person who made it: *[* please cross out any text that does not apply]*

1. ~~*I saw the face of the person *OR* *I did not see the face of the person because the person was wearing a face covering, but I am satisfied that the person had a special justification[1] for not removing the covering, and~~
2. *I have known the person for at least 12 months ~~*OR* *I have confirmed the person's identity using an identification document and the document I relied on was~~ ……..…….
[*describe identification document relied on]*



[signature of authorised witness] **08/02/2022**
[date]

ANNEXURE A

DESIGN CERTIFICATE - Essential Fire Safety Measures

Site Details:						
Level/Unit no./ Flat no.		Street no. / Street name:	**1 Ivanhoe Place**			
Suburb:	**Macquarie Park**	State:	**NSW**	Postcode:	**2113**	
Description of Work:	**Design For carpark ventilation and associated ventilation and air conditioning for Apartments in Tower**					

Details of development / building approval:		
DA:	DA no. (incl. all subsequent modification approvals)	Consent authority:
	SSD 89003	**Minister for Planning & Public Spaces**

Certification:

Item No.	**Tick box for items to be certified** (✓)	**Proposed Items of Work or Services to be installed or constructed in the building**	**Enter the intended design standard of performance** (eg: BCA E2.2; AS1668.1, Fire Eng. Solutions, etc) **Refer to relevant version of Australian Standards and other standards of performance referenced in the applicable BCA version for this project.**	
			BCA Clause (BCA 2019 Amendment 1)	**Relevant Australian Standard or Other Standard**
1.	✓	Building elements required to satisfy prescribed fire-resistance levels	Part C & Spec C1.1	Recommendations under Fire Engineering Report (FER)no.172103_A1_FER_02 , Rev 2, dated 2nd Feb 2022, prepared by Scientific Fire Services, by Thomas O'Dwyer.
2.	✓	Fire dampers	BCA Clause C3.15	AS 1668.1-2015 (Amdt 1) & tested prototypes for specific application and manufacturer's spec.
3.	✓	Fire seals protecting openings in fire-resisting components of the building	BCA Clauses C3.12, C3.13, C3.15, Spec A2.4 & Spec C3.15	AS 1530.4-2014[see Note 1], AS 4072.1-2005 (Amdt 1)[see Note 4], ISO 540-2008 & tested prototypes for specific application and manufacturer's spec. Recommendations under Fire Engineering Report (FER)no.172103_A1_FER_02 , Rev 2, dated 2nd Feb 2022, prepared by Scientific Fire Services, by Thomas O'Dwyer.
4.	✓	Materials and assemblies required to have fire hazard properties	BCA Clause C1.10, Spec C1.10	AS/NZS 1530.3-1999, AS 4254.1-2012, AS 4254.2-2012, AS 5637.1-2015
5.	✓	Mechanical air handling systems (including automatic shut down)	BCA Spec C2.5, C3.15, E2.2, F4.12, Spec E2.2a, NSW E2.2b & NSW Table E2.2b	AS/NZS 1668.1-2015 (Amdt 1), & AS 1668.2-2012 (Amdt 1 & 2) Recommendations under Fire Engineering Report (FER)no.172103_A1_FER_02 , Rev 2, dated 2nd Feb 2022, prepared by Scientific Fire Services, by Thomas O'Dwyer.
6.	✓	Pressurising Systems	BCA Clauses C2.12, D1.7, E2.2, Spec E1.8 & Spec E2.2a	AS/NZS 1668.1-2015 (Amdt 1), & Recommendations under Fire Engineering Report (FER)no.172103_A1_FER_02 , Rev 2, dated 2nd Feb 2022, prepared by Scientific Fire Services, by Thomas O'Dwyer.

Item No.	Tick box for items to be certified (✓)	Proposed Items of Work or Services to be installed or constructed in the building	Enter the intended design standard of performance (eg: BCA E2.2; AS1668.1, Fire Eng. Solutions, etc)	
			Refer to relevant version of Australian Standards and other standards of performance referenced in the applicable BCA version for this project.	
			BCA Clause (BCA 2019 Amendment 1)	Relevant Australian Standard or Other Standard

Note 1:
For AS1530 Parts 1 to 4:
a) Until 1 May 2022, subject to the note to AS4072.1, reports relating to tests carried out under earlier editions of AS1530 Parts 1 to 4 remain valid.
b) Reports relating to tests carried out after the date of an amendment to a Standard must relate to the amended Standard.

Note 2:
For AS1670.1, AS1670.3 and AS1670.4:
a) Until 1 May 2022 either the current edition or the previous editions of the documents listed in Table 1.8 of AS1670.1, AS1670.3 and AS1670.4 may be used to meet the requirements of AS1670.1, AS1670.3 and AS1670.4 as applicable.
b) From 1 May 2022 only the edition of the documents listed in Table 1.8 of AS1670.1, AS1670.3 and AS1670.4 that existed at the time of publication of the primary document may be used.

Note 3:
For AS3786:
a) Tests carried out under AS3786—2014 Amendment 1 remain valid.
b) Reports based on AS3786 relating to tests carried out after the NCC reference date for AS3786—2014 Amendment 2 must relate to the amended Standard.

Note 4:
For AS4072.1, until 1 May 2022, systems tested to AS1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS4072.1.

The following details must be provided in full:

Name:	Qing Ye	Qualification:	NER 3631369 / NSW Fair Trading (DEP0000275)
Company Name:	Premium Consulting Engineers	ABN No:	366 2772 4029
Company Address:	Suite 802, 299 Sussex Street, Sydney, NSW 2000	Tel:	0426 076 689
Signature:		Position Title:	Mechanical Engineer
		Date:	08/02/2022

DESIGN CERTIFICATE – Energy Efficiency – Mechanical

Site Details:						
Level/Unit no./ Flat no.		Street no. / Street name:	**1 Ivanhoe Place**			
Suburb:	**Macquarie Park**	State:	**NSW**	Postcode:	**2113**	
Description of Work:	**Design For carpark ventilation and associated ventilation and air conditioning for Apartments in Tower**					

Details of development / building approval:		
DA:	DA no. (incl. all subsequent modification approvals)	Consent authority:
	SSD 89003	**Minister for Planning & Public Spaces**

Certification:

Item No.	**Tick box for items to be certified** (✓)	**Proposed Items of Work or Services to be installed, implemented and/or constructed in the building/development**	**Enter the intended design standard of performance** (e.g.: BCA E2.2; AS1668.1, DA Condition nos., etc) **Refer to relevant version of Australian Standards and other standards of performance referenced in BCA 2019 Amendment 1 as applicable to the project.**
1.	✓	Energy Efficiency (Air-Conditioning and Ventilation Systems)	BCA Part J5, J(A)3

The following details must be provided in full:

Name:	Qing Ye	Qualification:	NER 3631369 / NSW Fair Trading (DEP0000275)
Company Name:	Premium Consulting Engineers	ABN No:	366 2772 4029
Company Address:	Suite 802, 299 Sussex Street, Sydney, NSW 2000	Tel:	0426 076 689
Signature:		Position Title:	Mechanical Engineer
		Date:	08/02/2022

DESIGN CERTIFICATE - Mechanical Services Design
(Including Ventilation, Acoustics, Fire Precautions, Smoke Hazard Management)

Site Details:						
Level/Unit no./ Flat no.		Street no. / Street name:	**1 Ivanhoe Place**			
Suburb:	**Macquarie Park**	State:	**NSW**	Postcode:	**2113**	
Description of Work:	**Design For carpark ventilation and associated ventilation and air conditioning for Apartments in Tower**					

Details of development / building approval:		
DA:	DA no. (incl. all subsequent modification approvals)	Consent authority:
	SSD 89003	**Minister for Planning & Public Spaces**

Certification:

I, the undersigned, certify that:

1. The following mechanical ventilation services/systems:

   All mechanical ventilation services/ systems that relate to the above development (with the exception of the areas describe explicitly in space below):

   that form part of the proposed development has been designed and documented in accordance with normal engineering practice and have been coordinated with the relevant DA consent conditions and Construction Certificate Plans approved for construction. The design has also been checked to comply with the requirements of:

   - The relevant clauses of the Building Code of Australia (BCA 2019 Amendment 1);
   - The relevant Australian Standards listed in the BCA, in particular AS 1668.1-2015 & AS 1668.2-2012;
   - All requirements under current Public Health Act and Public Health Regulations;
   - All conditions based on the recommendations of the New South Wales Fire Brigades;
   - Required acoustic provisions as required under Part F of the BCA, DA consent conditions and relevant Council DCP/LEP requirements;
   - Alternative Solution(s) / Fire Engineering Design Report(s)

Report no. and date:	Fire Engineering Report no. 172103_A1_FER_02 Final Issue dated 02 February 2022	Report by:	Affinity Fire Engineering

2. I am an appropriately qualified practising mechanical ventilation services designer / engineer and have:

   a) Appropriate current professional indemnity insurance (taken up by me or my employer as appropriate) to the satisfaction of the building owner or the principal authorising the design work; AND, one or more of the following:
   b) Appropriate tertiary qualifications in Mechanical Engineering, OR
   c) Corporate membership of the Institution of Engineers Australia in Mechanical Engineering discipline or equivalent, OR
   d) Relevant experience (of minimum 5 years) in the area of work being certified.

List of Certified Mechanical Services Design Drawing: (Attach separate certified drawing schedule if necessary):

Drawing No.	Rev.	Drawing Title	Date
A1-ME-0-001-01	02	COVER SHEET & DRAWINGS LIST	07/02/22
A1-ME-0-002-01	01	EQUIPMENT SCHEDULES	16/12/21
A1-ME-0-003-01	01	FIRE DAMPER & GRILLES SCHEDULES	16/12/21
A1-ME-4-B03-01	01	BASEMENT 3 VENTILATION LAYOUT	16/12/21
A1-ME-4-B02-01	02	BASEMENT 2 VENTILATION LAYOUT	02/02/22
A1-ME-4-B01-01	03	BASEMENT 1 VENTILATION LAYOUT	02/02/22
A1-ME-1-BLG-01	04	LOWERGROUND VENTILATION LAYOUT	02/02/22
A1-ME-1-L00-01	04	GROUND LEVEL VENTILATION LAYOUT	02/02/22
A1-ME-1-L00-02	01	GROUND FLOOR CHILDCARE	03/02/22
A1-ME-1-L01-01	02	LEVEL 1 AIR CONDITIONING LAYOUT	02/02/22
A1-ME-1-L02-01	01	LEVEL 2 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L03-01	01	LEVEL 3 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L04-01	01	LEVEL 4 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L05-01	01	LEVEL 5 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L06-01	01	LEVEL 6 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L07-01	01	LEVEL 7 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L08-01	01	LEVEL 8 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L09-01	01	LEVEL 9 AIR CONDITIONING LAYOUT	16/12/21

A1-ME-1-L10-01	01	LEVEL 10 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L11-01	01	LEVEL 11 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L12-01	01	LEVEL 12 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L13-01	01	LEVEL 13 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L14-01	01	LEVEL 14 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L15-01	01	LEVEL 15 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L16-01	01	LEVEL 16 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L17-01	01	LEVEL 17 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L18-01	01	LEVEL 18 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L19-01	01	LEVEL 19 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L20-01	01	LEVEL 20 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L21-01	01	LEVEL 21 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L22-01	01	LEVEL 22 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L23-01	01	LEVEL 23 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-L24-01	01	LEVEL 24 AIR CONDITIONING LAYOUT	16/12/21
A1-ME-1-2-01	01	AIR SCHEMATICS SHEETS 1	16/12/21
A1-ME-1-2-02	01	AIR SCHEMATICS SHEETS 2	16/12/21
A1-ME-4-B01-02	01	BASEMENT 1 BUILDERSWORK	16/12/21
A1-ME-4-B02-02	01	BASEMENT 2 BUILDERSWORK	16/12/21
A1-ME-4-B03-02	01	BASEMENT 3 BUILDERSWORK	16/12/21
A1-ME-4-BLG-02	01	LOWERGROUND BUILDERSWORK	16/12/21
A1-ME-4-L00-02	01	GROUND FLOOR BUILDERSWORK	16/12/21
A1-ME-5-01	01	ELEVATION 1 BUILDERSWORK	16/12/21
A1-ME-5-02	01	ELEVATION 2 BUILDERSWORK	16/12/21
A1-ME-5-03	01	ELEVATION 3 BUILDERSWORK	16/12/21
A1-ME-5-04	01	ELEVATION 4 BUILDERSWORK	01/02/22
A1-ME-5-05	01	ELEVATION 5 BUILDERSWORK	16/12/21
A1-ME-5-07	01	ELEVATION 7 BUILDERSWORK	16/12/21
A1-ME-5-08	01	ELEVATION 8 BUILDERSWORK	16/12/21
A1-ME-5-09	01	ELEVATION 9 BUILDERSWORK	16/12/21
SK-001	01	CORE PLANS PENETRATION - BLG, G00	16/12/21
SK-002	01	CORE PLANS PENETRATION - L01, L02, L03-14	16/12/21
SK-003	01	CORE PLANS PENETRATION - L15-L22	16/12/21
SK-004	01	CORE PLANS PENETRATION - L23-L24	16/12/21
SK-005	01	CARPARK EXHAUST LOUVRE DETAILS	16/12/21
SK-006	01	LOBBY RELIEF SUBDUCT SECTION	16/12/21
	A	MECHANICAL D&C SPECIFICATION	15/12/21

The following details must be provided in full:

Name:	Qing Ye	Qualification:	NER 3631369 / NSW Fair Trading (DEP0000275)
Company Name:	Premium Consulting Engineers	ABN No:	366 2772 4029
Company Address:	Suite 802, 299 Sussex Street, Sydney, NSW 2000	Tel:	0426 076 689
Signature:		Position Title:	Mechanical Engineer
		Date:	08/02/2022

DESIGN CERTIFICATE – FASE 4A

SUSPENDED POST TENSION SLABS AT BASEMENT LEVELS Lower Ground to Level 24

Date: *21/12/2021*

To: *Mackenzie Group Consulting*
ABN 77092469344
of Level 6, 189 Kent Street, Sydney NSW, Australia 2000
(Principal Certifier)

and *Parkview Constructions Pty Limited*
ABN 41 078 064 963
of Level 7, 60 Union St,
Pyrmont NSW 2009
(Builder)

From: *Interspan (NSW) Pty Ltd*
ABN 13 119 013 928
of Suite 5.04 77 Dunning Ave
Rosebery, NSW 2018

With respect to the completed For Construction Documentation, Specifications and Schedules (Documentation) submitted by the Consultant which are the subject of the documentation under the Agreement, and pursuant to the provisions of the ***National Construction Code (NCC) 2019 Amdt 1, Vol 1 Clause A2.3****, we hereby certify as* ***Evidence of Suitability*** *that:*

1. *The completed Documentation is in accordance with industry-accepted design, the relevant Australian Standards, the National Construction Code (NCC), the Environmental Planning and Assessment Regulations, the relevant Fire Performance Solution Report, the relevant conditions of the Development Consent and best practice deign principles and which are attached to this Certificate as* ***Schedule A;***

2. *The completed Documentation is in accordance in particular with the following:*

Standard or Performance Referenced	***Year***
NCC Part B1 Structure Provisions, Performance Requirements	*2019*
NCC Part C, Fire Resistance, Performance Requirements	*2019*
AS/NZS 1170.0 General Principles	*2002*
AS/NZS 1170.1 (R2016) Permanent, Imposed & Other Actions	*2002*
AS/NZS 1170.2:(R2016) Wind Actions	*2011*
AS 1170.4 (R2018) Earthquake Actions In Australia	*2007*
AS 3600 Concrete Structures (Amd 2)	*2018*
AS/NZS 4672.1 Steel Prestressing Materials - General Requirements	*2007*
AS/NZS 4672.2 Steel prestressing materials - Testing Requirements	*2007*
AS/NZS 1314 (R2016) Prestressing Anchorages	*2003*
AS 1349 (R2018) Bourdon Tube Pressure and Vacuum Gauges	*1986*
AS 2670.1 (R2016) Evaluation Human Exposure Vibration General Requirements	*2001*

3. *I am a properly qualified, in accordance with Schedule 1 of the Building Professionals Regulation 2007 and Building Professionals Act 2005 (together with the Building and Development Certifiers Act 2018 and the Building and Development Certifiers Regulation 2019) and have a good working knowledge of the relevant codes and standard referenced above.*

My qualifications and accreditations are listed below

Signed for and on behalf of Interspan (NSW)Pty Ltd

Full Name	*Kim Anh Thi Vu*
Qualifications & Accreditations	*BE (Civil & Structural), PhD, FIEAust, CPEng, NER2901435, DEP0000222*
Company	*Interspan (NSW) Pty Ltd*
ABN	13 119 013 928
Address	*Suite 5.04 77 Dunning Ave, Rosebery, NSW, 2018*

Signature



Date 21/12/2021

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Specialist Concrete Slab Solutions

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GENERAL NOTES	INT-PT-001	
BASEMENT 2 - POUR 1 & 2 SECTION DETAILS	INT-PT-010	
BASEMENT 2 - POUR 3 & 4 SECTION DETAILS	INT-PT-011	
BASEMENT 1 - POUR 1 & 2 SECTION DETAILS	INT-PT-013	
BASEMENT 1 - POUR 3 & 4 SECTION DETAILS	INT-PT-014	
LOWER GROUND FLOOR SECTIONS	INT-PT-052	
BASEMENT 2 - GENERAL ARRANGEMENT PLAN	INT-PT-100	
BASEMENT 2 - POUR 1 POST TENSIONING PLAN	INT-PT-111	
BASEMENT 2 - POUR 1 BOTTOM REINFORCEMENT PLAN	INT-PT-112	
BASEMENT 2 - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-113	
BASEMENT 2 - POUR 2 POST TENSIONING PLAN	INT-PT-121	
BASEMENT 2 - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-122	
BASEMENT 2 - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-123	
BASEMENT 2 - POUR 3 POST TENSIONING PLAN	INT-PT-131	
BASEMENT 2 - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-132	
BASEMENT 2 - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-133	
BASEMENT 2 - POUR 4 POST TENSIONING PLAN	INT-PT-141	
BASEMENT 2 - POUR 4 BOTTOM REINFORCEMENT PLAN	INT-PT-142	
BASEMENT 2 - POUR 4 TOP REINFORCEMENT PLAN	INT-PT-143	
BASEMENT 1 - GENERAL ARRANGEMENT PLAN	INT-PT-150	
BASEMENT 1 - POUR 1 POST TENSIONING PLAN	INT-PT-151	
BASEMENT 1 - POUR 1 BOTTOM REINFORCEMENT PLAN	INT-PT-152	
BASEMENT 1 - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-153	
BASEMENT 1 - POUR 2 POST TENSIONING PLAN	INT-PT-161	
BASEMENT 1 - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-162	
BASEMENT 1 - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-163	
BASEMENT 1 - POUR 3 POST TENSIONING PLAN	INT-PT-171	
BASEMENT 1 - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-172	
BASEMENT 1 - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-173	
BASEMENT 1 - POUR 4 POST TENSIONING PLAN	INT-PT-181	
BASEMENT 1 - POUR 4 BOTTOM REINFORCEMENT PLAN	INT-PT-182	
BASEMENT 1 - POUR 4 TOP REINFORCEMENT PLAN	INT-PT-183	
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RAMP BASEMENT 2 TO BASEMENT 1 - REINFORCEMENT PLAN	INT-PT-193	
RAMP BASEMENT 1 TO LOWER GROUND - REINFORCEMENT PLAN	INT-PT-194	
RAMP AT GRID 8 & 9 - REINFORCEMENT PLAN	INT-PT-195	

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LOWER GROUND - GENERAL ARRANGEMENT PLAN	INT-PT-200	
LOWER GROUND - POUR 1 POST TENSIONING PLAN	INT-PT-211	
LOWER GROUND - POUR 1 BOTTOM REINFORCEMENT PLAN	INT-PT-212	
LOWER GROUND - POUR 1 TOP REINFORCEMENT PLAN	INT-PT-213	
LOWER GROUND - POUR 2 POST TENSIONING PLAN	INT-PT-221	
LOWER GROUND - POUR 2 BOTTOM REINFORCEMENT PLAN	INT-PT-222	
LOWER GROUND - POUR 2 TOP REINFORCEMENT PLAN	INT-PT-223	
LOWER GROUND - POUR 3 POST TENSIONING PLAN	INT-PT-231	
LOWER GROUND - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-232	
LOWER GROUND - POUR 3 TOP REINFORCEMENT PLAN	INT-PT-233	
LOWER GROUND - POUR 4 POST TENSIONING PLAN	INT-PT-241	
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LOWER GROUND - POUR 5 POST TENSIONING PLAN	INT-PT-251	
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LOWER GROUND - POUR 6 BOTTOM REINFORCEMENT PLAN	INT-PT-262	
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GROUND - GENERAL ARRANGEMENT PLAN	INT-PT-300	
GROUND - POUR 1 POST TENSIONING PLAN	INT-PT-311	
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GROUND - POUR 3 POST TENSIONING PLAN	INT-PT-321	
GROUND - POUR 3 BOTTOM REINFORCEMENT PLAN	INT-PT-332	
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LEVEL 1 - GENERAL ARRANGEMENT PLAN	INT-PT-400	
LEVEL 1 - POST TENSIONING PLAN	INT-PT-411	
LEVEL 1 - BOTTOM REINFORCEMENT PLAN	INT-PT-412	
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LEVEL 2 - GENERAL ARRANGEMENT PLAN	INT-PT-500	
LEVEL 2 - POST TENSIONING PLAN	INT-PT-511	
LEVEL 2 - BOTTOM REINFORCEMENT PLAN	INT-PT-512	
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LEVEL 5 - TOP REINFORCEMENT PLAN	INT-PT-813	
LEVEL 6 - GENERAL ARRANGEMENT PLAN	INT-PT-900	
LEVEL 6 - POST TENSIONING PLAN	INT-PT-911	
LEVEL 6 - BOTTOM REINFORCEMENT PLAN	INT-PT-912	
LEVEL 6 - TOP REINFORCEMENT PLAN	INT-PT-913	
LEVEL 7 - GENERAL ARRANGEMENT PLAN	INT-PT-1000	
LEVEL 7 - POST TENSIONING PLAN	INT-PT-1011	
LEVEL 7 - BOTTOM REINFORCEMENT PLAN	INT-PT-1012	
LEVEL 7 - TOP REINFORCEMENT PLAN	INT-PT-1013	
LEVEL 8 - GENERAL ARRANGEMENT PLAN	INT-PT-1100	
LEVEL 8 - POST TENSIONING PLAN	INT-PT-1111	
LEVEL 8 - BOTTOM REINFORCEMENT PLAN	INT-PT-1112	
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LEVEL 9 - GENERAL ARRANGEMENT PLAN	INT-PT-1200	
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LEVEL 9 - TOP REINFORCEMENT PLAN	INT-PT-1013	
LEVEL 10 - GENERAL ARRANGEMENT PLAN	INT-PT-1300	
LEVEL 10 - POST TENSIONING PLAN	INT-PT-1311	
LEVEL 10 - BOTTOM REINFORCEMENT PLAN	INT-PT-1312	
LEVEL 10 - TOP REINFORCEMENT PLAN	INT-PT-1313	

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LEVEL 11 - POST TENSIONING PLAN	INT-PT-1411	
LEVEL 11 - BOTTOM REINFORCEMENT PLAN	INT-PT-1412	
LEVEL 11 - TOP REINFORCEMENT PLAN	INT-PT-1413	
LEVEL 12 - GENERAL ARRANGEMENT PLAN	INT-PT-1500	
LEVEL 12 - POST TENSIONING PLAN	INT-PT-1511	
LEVEL 12 - BOTTOM REINFORCEMENT PLAN	INT-PT-1512	
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LEVEL 13 - GENERAL ARRANGEMENT PLAN	INT-PT-1600	
LEVEL 13 - POST TENSIONING PLAN	INT-PT-1611	
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LEVEL 13 - TOP REINFORCEMENT PLAN	INT-PT-1613	
LEVEL 14 - GENERAL ARRANGEMENT PLAN	INT-PT-1700	
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LEVEL 16 - GENERAL ARRANGEMENT PLAN	INT-PT-1900	
LEVEL 16 - POST TENSIONING PLAN	INT-PT-1911	
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LEVEL 17 - GENERAL ARRANGEMENT PLAN	INT-PT-2000	
LEVEL 17 - POST TENSIONING PLAN	INT-PT-2011	
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LEVEL 17 - TOP REINFORCEMENT PLAN	INT-PT-2013	
LEVEL 18 - GENERAL ARRANGEMENT PLAN	INT-PT-2100	
LEVEL 18 - POST TENSIONING PLAN	INT-PT-2111	
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LEVEL 21 - GENERAL ARRANGEMENT PLAN	INT-PT-2400	
LEVEL 21 - POST TENSIONING PLAN	INT-PT-2411	
LEVEL 21 - BOTTOM REINFORCEMENT PLAN	INT-PT-2412	
LEVEL 21 - TOP REINFORCEMENT PLAN	INT-PT-2413	
LEVEL 22 - GENERAL ARRANGEMENT PLAN	INT-PT-2500	
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LEVEL 22 - BOTTOM REINFORCEMENT PLAN	INT-PT-2512	
LEVEL 22 - TOP REINFORCEMENT PLAN	INT-PT-2513	
LEVEL 23 - GENERAL ARRANGEMENT PLAN	INT-PT-2600	
LEVEL 23 - POST TENSIONING PLAN	INT-PT-2611	
LEVEL 23 - BOTTOM REINFORCEMENT PLAN	INT-PT-2612	
LEVEL 23 - TOP REINFORCEMENT PLAN	INT-PT-2613	
LEVEL 24 - GENERAL ARRANGEMENT PLAN	INT-PT-2700	
LEVEL 24 - POST TENSIONING PLAN	INT-PT-2711	
LEVEL 24 - BOTTOM REINFORCEMENT PLAN	INT-PT-2712	
LEVEL 24 - TOP REINFORCEMENT PLAN	INT-PT-2713	

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TRAFFIX
TRAFFIC & TRANSPORT PLANNERS

Suite 2.08, 50 Holt St
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills NSW 2012

t: (02) 8324 8700
w: www.traffix.com.au

director: Graham Pindar
acn: 065132961
abn: 66065132961

Reference: 20.470r01v01

29 November 2021

Parkview Pty Ltd
Level 7, 60 Union Street
Pyrmont NSW 2009

Attention: Mohamed Yaccoub

DESIGN STATEMENT – Miscellaneous Works / Services

Site Details					
Street No. / Street Name	Building A1, Midtown Macquarie Park, Ivanhoe Estate				
Suburb	Macquarie Park	**State**	NSW	**Postcode**	2060
Description of Work	Design Statement for Construction Certificate				

Details of Development			
DA	**Consent No. (incl. all subsequent S96 approvals)**	**Consent Authority**	**Date of Consent/s**
	SSD 8903	Minister for Planning and Public Spaces	30 April 2020

This design statement is based on the following 'For Construction' drawings prepared Bates Smart.

- A03.A1.001 General Arrangement Plan Basement 01 Issue 4 dated 11.11.2021
- A03.A1.002 General Arrangement Plan Basement 02 Issue 3 dated 11.11.2021
- A03.A1.003 General Arrangement Plan Basement 03 Issue 3 dated 11.11.2021
- A03.A1.0LG General Arrangement Plan Lower Ground Issue T dated 04.11.2021
- A03.a1.100 General Arrangement Plan Ground Floor Issue Q dated 04.11.2021

Reference should be made to **Table 1** below this design statement for details regarding the:

- relevant conditions of consent addressed by this certification;
- relevant controls or standards; and
- associated design responses.

I, the undersigned, confirm that the abovementioned drawings have been drafted in accordance with the relevant Australian Standards (AS 2890.1, AS 2890.2 and AS 2890.3) as applicable. It is noted that these standards can be flexibly applied depending upon individual circumstances. In this regard, I consider any concessions to the standard to be of a minor nature and such concessions do not detract unacceptably from the operational safety or efficiency of the development.

I also confirm that I am an appropriately qualified and competent person practising in the relevant area of work. I have recognised relevant experience in the area of work being certified. I hold appropriate current professional indemnity insurance to the satisfaction of the building owner or the Principal that is authorising the work being certified.

Name	Hayden Dimitrovski	**Qualification**	BE (Civil)
Company Name	TRAFFIX Pty Ltd	**ABN No**	66 065 132 961
Company Address	Suite 2.08, 50 Holt Street Surry Hills NSW 2010	**Telephone**	02 8324 8700

Yours faithfully,

Traffix



Hayden Dimitrovski
Senior Engineer

Table 1 – Consent Conditions and Design Response

Condition No.	Proposed Items of Works or Services to be installed, implemented and/or constructed in the building/development	Relevant Control / Standard	Response
B77	**NUMBER OF CAR PARKING SPACES** A maximum of 208 residential car parking spaces and 13 visitor car parking spaces and a minimum of 12 childcare centre car parking spaces are to be provided for Building A1. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate.	Council Requirement	**Compliance** The proposed design includes the provision of 233 off-street car parking spaces across four basement levels, as follows: • Lower Ground – 25 parking spaces (13 visitor spaces and 12 child care space) • Basement Level 1 – 46 residential parking spaces • Basement Level 2 – 79 residential parking spaces • Basement Level 3 – 83 residential parking spaces Therefore, the development provides a compliant parking provision in accordance with the condition.
B80	**LAYOUT OF CAR PARKING AREAS** The layout of the proposed car parking areas within each building (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) must be in accordance with AS 2890.1-2004, AS2890.6-2009 and AS 2890.2 - 2002 for heavy vehicle usage. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate.	AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.3 (2015)	**Compliance** The development complies with the requirements of AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.3 (2015) with each aspect described in detail below: *Parking Spaces* All standard perpendicular parking spaces are provided with a minimum length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m in accordance with the requirements of AS 2890.1 (2004). There are 13 spaces marked as a small car space and are provided with a minimum width of 2.3m and minimum length of 5.0m in accordance with AS 2890.1 (2004). All standard parallel parking spaces are provided with a minimum width of 2.4m, minimum length of 5.9m and aisle width of 3.3m with an additional 300mm of length for spaces between two obstructions. All spaces are provided with the parking envelope as specified in Figure 5.2 of AS 2890.1 and a 1.0 metre aisle extension for parking spaces at the end of a blind aisle. *Ramps* The ramp from Lower Ground Floor to Basement 1 provides a compliant design in accordance with AS 2890.1 (2004) to allow access for the public to access visitor and child care centre parking. This ramp has a maximum grade of 1:5 (20%) with 2.0m long transitions at a grade of 1:8 (12.5%) to ensure scraping does not occur. The ramps from between the basement levels are provided with a maximum grade f 1:4 (25%) with 2.0m long transitions at a grade of 1:8 (12.5%) in accordance with the requirements of AS 2890.1 (2004) for residential car parks.

Table 1 – Consent Conditions and Design Response

Condition No.	Proposed Items of Works or Services to be installed, implemented and/or constructed in the building/development	Relevant Control / Standard	Response
B80	**LAYOUT OF CAR PARKING AREAS** The layout of the proposed car parking areas within each building (including, driveways, grades, turn paths, sight distance requirements in relation to landscaping and/or fencing, aisle widths, aisle lengths, and parking bay dimensions) must be in accordance with AS 2890.1-2004, AS2890.6-2009 and AS 2890.2 - 2002 for heavy vehicle usage. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate.	AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.3 (2015)	*Vehicular Access* The vehicular access has been designed to accommodate vehicles up to the size of the 11.0m long Council waste collection vehicle. Swept path analysis was used to determine the widths of the entry and exits for left in and left out movements. This is permitted under AS 2890.2 (2018) for access design and the swept path analysis is provided in **Attachment 1** for reference demonstrating the largest vehicle can enter and exit the site. *Loading Bay* The loading bay is provided on the turntable which allows for the 11.0m long waste collection vehicle to enter and exit the development in a forward direction. The dimensions of this area comply with the requirements of AS 2890.2 (2018) with a minimum 300mm clearance between the vehicle and any obstruction greater than 150mm in height. *Head Height Clearance* The development provides a minimum 4.5m head height clearance from the vehicular access to the Loading bay on Lower Ground Floor, which accommodates Council's waste collection vehicle and is in accordance with AS 2890.2 (2018). The basement levels trafficable areas for vehicles up to the size of a B99 vehicle are provided with a minimum head height clearance 2.2m in accordance with AS 2890.1 (2004). **Areas for sign off by others** All accessible and adaptable parking spaces are to be signed off by the access consultant.,

Table 1 – Consent Conditions and Design Response

<table>
<tr><th>Condition No.</th><th>Proposed Items of Works or Services to be installed, implemented and/or constructed in the building/development</th><th>Relevant Control / Standard</th><th>Response</th></tr>
<tr><td>B81</td><td>NUMBER OF BICYCLE PARKING SPACES

The minimum number of bicycle parking spaces to be provided for the development shall comply with the table below. Details confirming the bicycle parking numbers must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate.

<table><tr><th>Bicycle parking allocation: Building A1</th><th>Number</th></tr><tr><td>Residential</td><td>269</td></tr><tr><td>Visitor</td><td>14</td></tr></table></td><td>Council Requirement</td><td>Compliance

The development provides the following bicycle parking arrangement:

• Each residential dwelling is provided with a storage cage, which can accommodate a bicycle which equates to 269 residential bicycle parking spaces.

• A bicycle rack is provided on Lower Ground which accommodates 14 bicycle parking spaces for visitors to the development.

Therefore, the development a compliant bicycle parking provision in accordance with the Condition of Consent.</td></tr>
<tr><td>B82</td><td>FACILITIES FOR CYCLISTS

The layout, design and security of bicycle facilities either on-street or off-street must comply with the minimum requirements of Australian Standard AS 2890.3- 2015. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate for each building.</td><td>AS 2890.3 (2015)</td><td>Compliance

The bicycle parking spaces are provided with a minimum width of 500mm, a minimum length of 1.8m and minimum aisle width of 1.5m in accordance with the requirements of AS 2890.3 (2015).</td></tr>
</table>

Date 8/12/2021

To whom it may concern ,

Project Midtown A1 Mac Residences

Macquarie Park 2113 (Lot 11 and 12 DP861433)

DA SSD8903

Project building description

The building will consist of

Class 2 Residential, Class 7a Carpark, Class 7b Storage and Class 9b Childcare

Ground Level will consist of a tenancy which is intended to be used as a Class 9b childcare facility. Above ground will consist of residential Class 2 apartments extending up to Level 23. The design keeps a relatively typical layout up to Level 22 where the floor plate steps in to afford larger terrace areas and 2-storey apartments between Levels 22 and 23. The building has an effective height (75.85m).

With a population estimate of 538 people above the ground floor.

With a proposed population above ground floor 538 people as resident accommodation the specification of the number of lifts and capacity is specified by the customer specification.

Lift specification drawings

L-31N 11686-1B

L 31N 11686- 2B

L 31N 11686 3A

L 31N 11686 4B

L 31N 11686 5B

L 31N 11686 6A

L 31N 11689 1A

L 31N 11689 2A

Otis Elevator Company
O: +61 2 83382700
OTISLINE 24 hour Service 1800626847
email@otis.com

A.B.N. 56 002 873 065
L23, 363 George Street
Sydney, NSW 2000, Australia
otis.com

The purpose of this letter is to provide confirmation on the compliance of proposed Lifts at the building 1 A at the Ivanhoe estate These lifts are a Gen2® Premier 5 17 D 1275Kg at 2.5m/s model type machine room-less traction elevator as well as one 1275Kg duty 1.0 m/s unit 17D model type These lifts complies with Australian Standard AS1735.1-2016 and with NCC 2019 amendment 1 as noted below

C3.10 Openings in fire-isolated lift shafts

Lift entrances comply with C3.10 and meet the 1-hour fire test requirement

With certification tests listed below these 1000 mm wide entrances can achieve a 2 hour integrity requirement – 120- for all lifts

Fire test details below

BRANZ	1200	2400	CO	ADS Centre Opening Door - Groutless narrow frame	Variations to frames for Goutless and Australian code	FAR4194 ADS Groutless.pdf	20/06/2014

ADS Centre Opening Door - Groutless narrow frame	Current NE:	True	
Document Number:	FAR4194 ADS Groutless.pdf	Qty of Sheets:	10
Doc Date:	20/06/2014	Expiry Date:	/
Width:	1200	Height:	2400
Entrance Type:	CO	Wall Type:	Wet
Rating:	120	Authority:	BRANZ
Test Drawing No:		Test Date:	15/12/2011
Test Status:	Pass	Test Report Number:	

Otis Elevator Company
O: +61 2 83382700
OTISLINE 24 hour Service 1800626847
email@otis.com

A.B.N. 56 002 873 065
L23, 363 George Street
Sydney, NSW 2000, Australia
otis.com

Test Standard:	BS476.22 , AS1530.4	Sightguard type:	No
Closer type:		Lock type:	
Frame Type:	Narrow	Hangers:	
Remarks:	Variations to frames for Goutless and Australian code		

E3.1 Lift installations

The lift shaft complies with the NCC requirements with respect to access to the foyer and emergency egress from the foyer and car emergency lighting requirements

2. Lift cars exposed to solar radiation

Lift cars are enclosed in concrete shafts so solar radiation is negligible

A small vent has been requested to allow ventilation of the machine and control gear

3. Lift car emergency lighting

The lift car lighting will meet the 20Lux with a 2 hour back up supply.

5. Lift foyer access

This will need to be reviewed by the owner and builder to ensure egress

Where there is a security foyer in a building, access may be via locked security doors provided—

(a) security doors revert to the unlocked state in the event of—
(i) power failure; or
(ii) fire alarm; and
(b) locked foyer areas are monitored by closed circuit television and intercom system to a 24 hour staffed location.

6. Emergency access doors in a single enclosed lift shaft

No blind sections of the shaft so these are not required

E3.2 Stretcher facility in lifts

Lift complies with the stretcher car size requirements at 1400 wide and 2000mm deep

E3.3 Warning against use of lifts in fire

Lift design complies with BCA requirements regarding warning against use of lifts in fire. These warning notices are engraved in the hall fixture panels

.

E3.4 Emergency lifts

Lifts 31N 11686- 11688 within the one shaft will all be considered emergency lifts with WIP to all units.

E3.5 Landings

Lift design complies with BCA requirements provided egress issues of lobby size and access to fire stairs meets code requirements.

D1.6 Dimensions of exits and paths of travel to exits

Access and egress to and from lift well landings Comply with the performance sections of the section D as per the fire report from AFFINITY | Fire Engineering Report 22/11/2021 | Draft Issue | 172103_A1_FER_DRAFT_01

D1.7 Travel via fire-isolated exits

Exists have been assessed as part of the Affinity fire assessment report to meet the performance requirements of the NCC 2019- amendment 1

D1.17 Access to lift pits

Pit depth is 1900mm so the access will be the lowest landing. No access door required

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E3.6a. Limitations of Use

Lift design complies with NCC requirement Car sizes meet stretcher car size requirements

E3.6b Application of lift features

Handrail design complies with NCC requirement with 1 Handrail within the car

Car dimension as designed meets the minimum car size requirements

Lighting is in accordance with AS1735.12 -1999

Audible information to passengers is in accordance with AS1735.12 -1999

Audible and visual indication at each landing is in accordance with AS1735.12 1999

Audible information with regard to sound levels is in accordance with AS1735.12 1999

E3.7 Fire service controls

Fire service controls comply with NCC clause requirement. For lifts 1 , 2 & 3 31N 11686, 31N 11687 and 31 N 11688

Where lifts serve any *storey* above an *effective height* of 12m, the following must be provided:

(a) A fire service recall control switch complying with E3.9 for—

(i) a group of lifts; or

(ii) a single lift not in a group that serves the *storey*.

(b) A lift car fire service drive control switch complying with E3.10 for every lift.

E 3.9 Fire service recall control switch

Fire service recall control switch complies with NCC clause requirement . For lifts 1 , 2 31N 11686, 31N11687 and 31 N 11688

(a) Each group of lifts must be provided with one fire service recall control switch *required* byE3.7 that activates the fire service recall operation at (e). The switch must—

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(i) be located at the landing nominated by the *appropriate authority*; and

(ii) be labelled "FIRE SERVICE" in indelible white lettering on a red background; and

(iii) have two positions with an "OFF" and an "ON" position identified; and

(iv) be operable only by the use of a key that is removable in either the "OFF" position or the "ON" position.

(b) Adhesive labels must not be used for compliance with (a)(ii) and (a)(iii).

(c) The key in (a)(iv) must be able to turn all fire service recall control switches in the building and must have a different key combination to other keys used for lifts in the building.

(d) The fire service recall operation must be activated by—

(i) switching the fire service recall control switch in (a) to "ON"; or

(ii) a signal from a fire management system approved by the *appropriate authority*.

(e) The activation of the fire service recall operation at (d) must—

(i) cancel all registered car and landing calls; and

(ii) inactivate all door reopening devices that may be affected by smoke; and

(iii) ensure lift cars travelling toward the nominated floor continue to the nominated floor without stopping; and

(iv) ensure lift cars travelling away from the nominated floor stop at or before the next available floor without opening the doors (either automatically or by the door open button), reverse direction and travel without stopping to the nominated floor; and

(v) for lifts stopped at a floor other than the nominated floor, close the doors and travel without stopping to the nominated floor; and

(vi) ensure that lifts stay at the nominated floor with doors open; and

(vii) permit all lifts to return to normal service if the fire service recall control switch at

(a) is switched to the "OFF" position during or after the fire service recall operation.

(f) The requirements of (e) do not apply to lifts on inspection service or when the lift car fire service control switch *required* by E3.10 is in the "ON" position.

(g) Lifts having manual controls must signal an alert to the lift for the lift to return to the nominated floor containing the recall switch that activated the signal.

E3.10 Lift car fire service drive control switch

Lift car fire service drive control switch complies with NCC clause requirement. For lifts 1 , 2 &3 31N 11686 – 31N 11688

(a) The lift car fire service drive control switch *required* by E3.7 must be activated from within the lift car. The switch must—

(i) be located between 600 mm and 1500 mm above the lift car floor; and

(ii) be labelled "FIRE SERVICE" by indelible white lettering on a red background; and

(iii) have two positions with an "OFF" and an "ON" position identified; and

(iv) operate only by the use of a key that is removable in either the "OFF" position or the "ON" position.

(b) Adhesive labels must not be used for compliance with (a)(ii) or (a)(iii).

(c) When the lift car fire service drive control switch at (a) is turned to the "ON" position, the lift must—

(i) not respond to the fire service recall control switch; and

(ii) cancel all registered lift car and landing calls; and

(iii) override all lift car call access control systems; and

(iv) inactivate all door reopening devices that may be affected by smoke; and

(v) allow the registration of lift car call by lift car call buttons, however the lift doors must not close in response to the registration of lift car calls; and

(vi) activate door closing by constant pressure being applied on the "door close" button unless the button is released before the doors are fully closed, in which case the doors must reopen and any registered lift car calls must be cancelled; and

(vii) when the doors are closed, move the lift in response to registered lift car calls while allowing additional lift car calls to also be registered; and

(viii) travel to the first possible floor in response to registered lift car calls and cancel all registered lift car calls after the lift stops; and

(ix) ensure doors do not open automatically, rather by constant pressure being applied on the "door open" button unless the button is released before the doors are fully open, in which case the doors must re-close; and

the requirements of (c)(i) to (c)(ix) do not apply to a lift operating on inspection service.

(d) A multi-deck lift installation must have systems in place that—

(i) are able to communicate to the fire officer that the fire service drive control switch will not operate until all decks have been cleared of passengers; and

(ii) ensure there is an appropriate method of clearing all deck landings of passengers; and

(iii) maintain all doors to deck landings not containing the fire service control switch closed and inoperative while the lift is on fire service drive control.

E 3.1 Lift shaft specification comply's based on concrete construction of shaft as shown in the layout drawings as listed above

J6.7 Lift energy

The lifts complies with this section meeting the idle standby power requirements ISO 25745-2 level 2 and energy efficiency of ISO 25745-2 energy class A

Design Registration

The Gen2® passenger elevator is registered with Worksafe New South Wales, Design Registration Number

NSW	LEM6-248637_20.pdf	Premier5 up to 1600kg @ 2.5m/s EN81-20	15/10/2020

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ASNZ3000

All electrical works on lift side of lift isolation circuit breaker will be in accordance with ASNZ3000 2018.

Yours faithfully
OTIS ELEVATOR COMPANY PTY LTD

Name: Chris Jones
Title: Product Quality and Codes manager

Signed: Chris Jones Date: 12/9/2021

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DESIGN CERTIFICATE - REFUSE CHUTE SYSTEM

Type of certificate:	☒ **Design**
Project details:	Ivanhoe Estate, Stage 1, Building A1, Macquarie Park NSW 2113
Aspect of work / scope of certification:	Complete design of refuse chute system as per contracted scope of work

Basis of certification & Reference Documentation:	**Measure**	**Standard of Performance**
	• NCC 2019	• Clause A2.2 & C3.13
	• Department of Environment and Climate Change Better Practice Guide for Waste Management in Multi-Unit Dwellings	• Designed in accordance with the requirements of the Better Practice Guide
	• Testing Authority Report	• RIR_FAS180410.4.0 (EXOVA Warringtonfire)
	• AS1530.4-2014	• FRL-/120/30
	• AS 2118.1-2017	• Provisions made available for sprinklers at every 2nd level on a floor-by-floor basis (as required), in addition to a sprinkler provision at the head of the chute
	• Manufactures Specifications	• Installed as per the manufacture's specifications & tested prototype
	• AS4024.1	• Meets minimum requirements of (applicable sections) standard
	• BCA Compliance Assessment Report	• F1554.01 FER Rev 05

Exclusions:	Access Panels & Fire doors
Company Details	Elephants Foot Waste Compactors Pty Ltd 44 – 46 Gibson Ave, Padstow, NSW 2211 ABN: 70 001 378 294
Competent person details	
Full Name:	Alex De Frontignac
Signature:	
Date:	13/01/2022

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Project 86043.05
12 May 2021
R.003.Rev0
AK

Geotechnical Monitoring Plan
Proposed A1 Building
Ivanhoe Place, Macquarie Park

1. Introduction

This Geotechnical Monitoring Plan (GMP) sets out the proposed geotechnical monitoring requirements during basement excavation works for the proposed A1 Building of the Ivanhoe Estate at Ivanhoe Place, Macquarie Park. This GMP has been prepared to address condition B46(b) of the Development Consent by the Minister for Planning and Public Spaces (Ref: SSD 8903 dated 2020), so that the Certifier can consider issuing a Crown Building Works Certificate (CBWC).

The proposed bulk excavation level (BEL) is about RL 50 m AHD, which will require a maximum depth of cut of about 17 m. The upper part of the excavation will be supported by a soldier pile retaining wall incorporating shotcrete infill panels, with a mixture of temporary ground anchors, buttresses and corner struts. The lower part of the excavation will generally be unsupported through sandstone bedrock.

A geotechnical investigation was previously carried out by Douglas Partners (DP) at the site for Stage 1 of this development (Ref: 86043.01.R.002.Rev0 dated 22 December 2017), which included three rock-cored boreholes to depths of between 18.1 m and 23.5 m. The deepest of the cored boreholes was drilled adjacent to Herring Road, which is classified as a State Road that is therefore managed by Roads and Maritime Services (RMS) of Transport for NSW (TfNSW). RMS (TfNSW) requirements for monitoring of the excavation (Ref: Technical Direction GTD 2020/01 of 2 July 2020) therefore apply with respect to the effect of the proposed excavation on the public road.

2. Objectives

The objectives of the GMP are to ensure that the proposed development on the site does not adversely affect neighbouring properties, including the structural integrity of neighbouring structures and infrastructure, the groundwater regime and the comfort of residents living adjacent to the proposed development with respect to vibrations.

The plan has been separated into the following three sections to monitor the following effects of the proposed development:

- **Geotechnical** – movement or settlement of temporary and permanent works and structures, excavation support, and adequacy of foundation materials;
- **Hydrogeological** – potential changes of the groundwater;
- **Vibration** – vibrations generated by excavation works.

The Principal Contractor for the proposed development is responsible for implementing the measures outlined in this plan. The contractor shall engage the services of suitably qualified and experienced professionals for the required monitoring activities.

3. Available Information

The GMP is based upon the following information:

- Structural Drawing No Series A1-ST-002 by Enstruct Group Pty Ltd dated 9 April 2021;
- Report on Geotechnical Investigation by DP (Ref: 86043.01.R.002.Rev0 dated 22 December 2017);
- Report on Groundwater Monitoring by DP (Ref: 86043.01.R.005.Rev0, dated 30 July 2018)
- Analysis Summary Report by DP (Ref: 86043.05.R.001.Rev1 dated 22 April 2021);
- Previous DP monitoring results of vibration levels generated by various items of excavation equipment operating within the Sydney region in sedimentary rocks of the Triassic Period.

4. Geotechnical Monitoring

The key geotechnical aspects which require monitoring on this project are as follows:

- stability of excavations;
- stability of adjacent existing buildings; and
- adequacy of the foundation materials to provide support to footings.

Geotechnical monitoring along the Herring Road site frontage is to be undertaken in accordance with RMS Technical Direction GTD 2020/01 dated 2 July 2020.

Prior to the start of demolition and excavation work on the site, it is recommended that dilapidation surveys be undertaken on the neighbouring buildings in order to document any existing defects so that any potential claims for damage, due to construction-related activities, can be accurately assessed. The stability of the adjacent structures is dependent on the stability of the proposed basement excavation.

For monitoring stability of both the excavation and the existing buildings, visual inspections by a suitably qualified and experienced geotechnical engineer or engineering geologist will be carried out at regular intervals, as construction progresses, together with regular instrumented survey of the excavation and the existing structures. Following the inspections and/or review of the survey data, installation of temporary or permanent rock face support, comprising rock bolts/anchors, may be required to stabilise potentially unstable blocks formed at the intersection of joints or of a joint with the excavation face.

The geotechnical engineer is to inspect the excavation of footings to confirm the bearing capacity of the rock.

4.1 Geotechnical Monitoring Procedure

The steps shown in Table 1 are recommended, with Hold Points identified where information should be provided to the structural or geotechnical engineers prior to continuing with the works.

Table 1: Summary of Geotechnical Monitoring Activities

Step	Description	Hold Point
Prior to Commencement of Works		
1	The Principal Contractor and any relevant subcontractors should familiarise themselves with the structural engineer's drawings, the geotechnical reports and this monitoring plan.	
2	Undertake dilapidation (building/structure condition) reports for neighbouring buildings and road infrastructure.	
Shoring Installation		
1	Final design drawings will nominate minimum pile socket lengths and/or minimum toe depths. Establish site survey and datum to allow accurate measurement of pile depth.	
2	Inspection of the shoring system (including plunge columns) to confirm works have been carried out in accordance with the geotechnical aspects of the design drawings. It is recommended that about 10% of the piles should be inspected with at least the first two to three piles witnessed in their entirety.	
3	Progressively install monitoring targets near the top and bottom of each shoring wall and at 10 m lateral spacing and at the 1/4, middle and 3/4 points along the vertical rock face. Install survey targets on the nearest structure. Carry out a baseline survey of all monitoring targets (two independent sets to confirm measurement consistency) immediately after the target installation.	Hold Point
4	Install two inclinometers along the Herring Road frontage, either in selected shoring piles or behind the shoring wall, but in either case the inclinometers are to be taken to a depth of 3 m below the BEL and should both be located within the middle-third of the lateral alignment of the cut face. Take baseline readings of both inclinometers (comprising two independent sets to confirm measurement consistency) before commencement of any excavation works.	Hold Point

Step	Description	Hold Point
During Excavation		
1	At weekly intervals - Registered surveyor to measure lateral and vertical movements of the survey targets along the walls of adjacent buildings. Results should be notified to the structural and geotechnical engineers, as indicated in Table 2. If either lateral or vertical movements exceed the 'alarm' trigger levels at the top of the shoring wall, then excavation should stop, and the information should be provided to the geotechnical and structural engineers for their advice.	Hold Point
2	Builder to carry out daily visual inspections of the shoring and buildings to check for any signs of ground movement/instability.	
3	Undertake one set of inclinometer readings for each inclinometer at the following intervals: • after excavation to the first row of anchors or struts (before anchor/struts installation); • after excavation to subsequent rows of anchors or struts (before anchor/struts installation); • after excavation to the pile toe (where above bulk excavation level) • at bulk excavation level then fortnightly thereafter for two months, then monthly thereafter; • once basement slabs have been constructed and anchors/struts are de-commissioned; and • one month following completion of basement structure or after three consecutive measurements not less than a week apart showing no further movement, whichever is the later.	Hold Point
4	Readings of survey targets shall be undertaken at weekly intervals, including any new targets that have been progressively installed as excavation proceeds. The relative movement between the survey markers at the same plan locations shall also be reported.	Hold Point
5	Inspection of anchor/strut installation by an experienced geotechnical engineer or engineering geologist to confirm anchors/struts have been installed as per the design drawings.	Hold Point
6	Inspection of anchor stressing (proof-testing and lock-off) by an experienced geotechnical engineer or engineering geologist to confirm anchors have been tested and stressed as per the design drawings.	Hold Point
7	At maximum 1.5 m depth intervals - Progressive inspection of any unsupported cut faces by an experienced geotechnical professional to identify any adversely inclined structures (e.g. joints) or previously undetected conditions and features, which may require additional support. If the geotechnical engineer or engineering geologist considers that additional stabilisation measures are required then these measures should be implemented to the satisfaction of the geotechnical engineer prior to continuing with the excavation.	Hold Point
8	Inspection of the end bearing conditions of the shoring piles after the pile toes are exposed, no later than 0.5 m excavation below the pile toe levels.	Hold Point
9	Additional stabilisation measures may be required and implemented to the satisfaction of the geotechnical engineer prior to continuing with the excavation. This may include adoption of special excavation methods (e.g. smaller drops before inspection, or excavation in panels) prior to excavation below the toe of the shoring pile wall.	Hold Point

Step	Description	Hold Point
After Excavation		
1	Inspection of the base of the excavation at bulk excavation level by geotechnical engineer to assess the geotechnical conditions.	Hold Point
2	Inspection of all shallow footing excavations below the bulk excavation level by an experienced geotechnical engineer or engineering geologist to confirm that the bearing capacity meets the requirements of the design, including spoon testing of the footings (requiring 50 mm diameter core holes to be drilled by the contractor through the base of the footings 24 hours ahead of inspections to 1.5 x the footing width), to check defect spacing and confirm the rock classification. The frequency of spoon testing will be dependent on the design bearing pressure adopted.	Hold Point
2	At weekly intervals - Registered surveyor to measure lateral and vertical movements of the survey targets along the walls of adjacent buildings for at least 2 weeks.	
3	Undertake one set of inclinometer readings for each inclinometer at the following intervals: • once basement slabs have been constructed and anchors / struts are de-commissioned; and • one month following completion of basement structure or after three consecutive measurements not less than a week apart showing no further movement, whichever is the later.	
4	Inspection of anchor de-stressing by experienced geotechnical engineer or engineering geologist to confirm that the anchors have been de-stressed and disconnected from the structure	Hold Point

4.2 Movement Trigger Levels

The movement trigger levels for the shoring walls at different locations are based on the predicted wall deflections by DP (Report Ref: 86043.05.R.001.Rev1, dated 22 April 2021) due to both the earth pressure induced movements in soils and weathered rocks, as well as the in-situ stress relief movements in strong rock. The threshold levels adopted are provided in Table 2.

Table 2: Movement Trigger Levels for Shoring Walls

Threshold Level	% of Agreed Limit	Magnitude of Deflection			Required Action
		SR1	SR2, SR10, SR12SR	SR3, SR4, SR5	
Alert Level	Up to 80%	<16mm	<12mm	<24mm	Notification of structural and geotechnical engineer. Excavation can continue.
Action Level	81% to 100%	16-20mm	12-15mm	24-30mm	Notification of structural and geotechnical engineer, and TfNSW within 24 hours. Review monitoring data and increase monitoring frequency to an agreed level. Excavation can continue.
Alarm Level	Over 100%	>20mm	>15mm	>30mm	Excavation to stop and agreed contingency measures to be implemented, as advised by structural and geotechnical engineer.

TfNSW must be informed immediately when 'alarm' trigger levels for shoring wall movement are exceeded on the Herring Road frontage.

4.3 Contingency Plans

If the subsurface conditions encountered during the excavation are different to those indicated in the geotechnical report, both the geotechnical and structural engineers must be immediately informed. The geotechnical and structural engineers should then inspect the site and re-design the foundations, excavation support (i.e. shoring) or another feature, if required.

Contingency measures for shoring wall movements will depend on the nature of the trigger level exceedance. Measures could include backfilling against the shoring wall, installation of additional anchors, and installation of internal props/bracing.

Note that all monitoring devices should always be kept in operating condition. Construction works shall be suspended where more than 30% of the devices are not operational.

5. Groundwater

Based on the available information the permanent groundwater table is below approximately RL 50.0 m AHD. Therefore, for compliance with the consent conditions, monitoring of groundwater levels outside of the basement excavation, weekly measurement of groundwater and discharge water quality and weekly measurements of pumped volumes shall be recorded once bulk excavation proceeds below RL 50.5 m AHD.

Vertical strip/core drains should be installed behind the shoring wall to collect all seepage that may occur from discontinuities and bedding planes in the rock mass and to direct the seepage to the subfloor drainage system, from where it can be removed using “sump-and-pump” methods.

Table 3: Summary of Groundwater Monitoring Activities

Step	Description	Hold Point
Prior to Bulk Excavation below RL 50.5 m AHD		
1	Installation of two groundwater monitoring wells outside of the basement by the geotechnical engineer, for measurement of water levels and at least one week of readings taken.	Hold Point
After Bulk Excavation below RL 50.5 m AHD		
1	Daily measurement of water levels at the monitoring bores during construction by the geotechnical engineer. Measurements may be undertaken daily by datalogger, and reported at weekly or monthly intervals, if there is no significant change in the weekly measurements of pumped groundwater/seepage volumes, unexplained by rainfall events, as excavation proceeds.	
2	Weekly measurement of groundwater and discharge water quality during construction by the environmental engineer/scientist	
3	Weekly measurements of pumped groundwater/seepage volumes during construction by Principal Contractor.	

5.1 Contingency Plans

If the results of groundwater quality measurements indicate an impact on existing groundwater conditions, or on disposal requirements for the pumped water, a plan must be developed to mitigate any impacts on existing groundwater conditions, and to provide treatment to meet the appropriate groundwater disposal requirements.

Previous groundwater monitoring indicates a natural groundwater fluctuation of approximately 0.7 m in this area. Groundwater levels that fall by more than 0.4 m below initial groundwater levels should trigger a hydrogeological assessment of the records of pumped groundwater volumes, records of pumped groundwater/seepage volumes and weather/climatic factors. A plan may need to be developed to reduce groundwater take if the groundwater fall is considered to be due to the excavation.

If the groundwater monitoring wells are damaged or destroyed during the excavation works below RL 50.5 m AHD, then the monitoring well must be replaced prior to additional excavation. Provided that the detailed excavation has been completed for at least one month, then replacement of the monitoring well shall be undertaken unless the data already collected indicates no significant groundwater impact.

6. Vibration Monitoring

6.1 Acceptable Limits

A review of the site features indicated that the existing buildings on the adjacent properties are not "sensitive structures". Therefore an allowable vibration limit of 8 mm/s Vector Sum Peak Particle Velocity (VSPPV) at the foundation level is suggested. The proposed allowable vibration limit at the foundation level of adjacent buildings is also adequate to reduce the risk of structural damage to buildings and road assets on the adjacent properties, including buried services. However, vibration sensitivity of the services should be confirmed with the asset owners prior to excavation. The limit may need to be adjusted to reflect the asset requirements, response of neighbouring structures during excavation and vibration dosage once the neighbouring building is occupied.

This takes into account both structural damage and human comfort criteria given in relevant Standards (e.g. ISOAS 2670, EPA guidelines, German DIN4150 Standard and Australian Standard AS 2187-2 (2006)).

A vibration trial may be required to size equipment at the commencement of excavation into rock. The trial may indicate that minimum offset distances are required for the preferred plant, or that alternative excavation methods are required.

6.2 Monitoring Procedures

For this site it is recommended that the vibration monitoring is undertaken by carrying out an initial trial of excavation equipment; and if the trial indicates that the vibration limits could be exceeded then installing a permanent monitoring system which will allow 'self-management' of vibrations by the contractor.

Geophones should be installed on or near the base of the walls of the neighbouring buildings. The geophones should be firmly attached to the building's structure or footings and should be connected to a data monitor, which is capable of measuring vibrations to 0.5 mm/sec PPVi or less. The monitor shall be set up to record all vibrations which exceed 5 mm/sec. A warning light or sound signal shall be attached to the monitor, which is configured with an alarm threshold of 8 mm/sec PPVi to warn the excavation contractor of vibration exceedances.

Table 3 shows the steps recommended, with Hold Points identified, where information should be provided to the structural or geotechnical engineers prior to continuing with the works.

Table 4: Summary of Vibration Monitoring Activities.

Step	Description	Hold Point
Prior to Commencement of Bulk Excavation Works		
1	Undertake a vibration trial using the largest machine of each equipment category (e.g. rock breaker, bulldozer with ripping tyne, rock saw) to be used in order to determine the minimum buffer distances to neighbouring structures for each equipment type. Geotechnical engineer to advise on whether proposed equipment is likely to exceed allowable vibration levels and whether continuous monitoring is required.	Hold Point
2	If the vibration trial indicates that vibration limits may be exceeded by the proposed works then geophones and monitors are to be installed and configured to undertake continuous unattended monitoring of vibrations. Install geophone at the base of the neighbouring structure closest to the excavation works. Connect geophone to data monitor and install a flashing light or sound warning signal. Set warning light to trigger at 8 mm/s VSPPV	
During Excavations		
1	If continuous monitoring is required (see Step 1) – data from the monitor is to be uploaded weekly, with direct feedback to site personnel of the number of recorded events exceeding the Allowed Limit. Reports should include a tabulation of times and levels of any events exceeding a recording threshold of 8 mm/s VSPPV, for correlation with site activity records. The weekly vibration monitoring reports should be forwarded to the geotechnical engineer for review.	
2	If the number of exceedances on any day is more than 10 then the excavation works shall stop, and the geotechnical engineer shall be notified. The geotechnical engineer will investigate the causes of the exceedances and provide advice on measures to avoid further vibration exceedances	Hold Point

6.3 Contingency Plans

If the vibration trials indicate that continuous monitoring is required, then the monitor shall be configured such that either an SMS message is sent automatically to nominated mobile phones (including the monitoring entity and the site manager), or a flashing light or sound signal is triggered when the vibrations at the base of the neighbouring structure exceed 8 mm/s VSPPV. If the SMS message is sent or the warning signal is triggered, then the machinery operator should reduce the force generated by his equipment or move further away from the neighbouring structure.

Occasional exceedances may be allowed, however, if an exceedance occurs, an inspection should be made of the potentially affected building and excavation should only resume if no vibration-induced damage can be seen.

If the warning light is being triggered frequently (e.g. >10 times/day), excavation works are to stop, the geotechnical engineer is to be notified and a site visit carried out by the geotechnical engineer to investigate the cause of the exceedances. A change in excavation method may be recommended as a result of the inspection, or on the basis of recorded vibration data.

7. Limitations

Douglas Partners (DP) has prepared this Geotechnical Monitoring Plan (GMP) for this project at Herring Road, Macquarie Park in accordance with DP's proposal dated 10 May 2021 and acceptance received from Tim Saviane of Mainland Civil Pty Ltd dated 10 May 2021. The work was carried out under DP's Conditions of Engagement. This GMP is provided for the exclusive use of Mainland Civil Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or be relied upon for other projects or purposes on the same or another site or by a third party. Any party so relying upon this GMP beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this GMP DP has necessarily relied upon information provided by the client and/or their agents.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This GMP must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this GMP.

This GMP, or sections from this GMP, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Atha Kapitanof
Associate

Reviewed by

Bruce McPherson
Principal

Attachments: About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Ref: BMY/LF 300001(1)

9th November 2020

Frasers Property Limited
Level 3, Building C, 1 Homebush Bay Drive
RHODES NSW 2138

Attention: Chris Koukoutaris

Dear Chris,

IVANHOE ESTATE STAGE 1A – CIVIL DESIGN STATEMENT

We hereby certify that the civil design depicted on the drawings prepared by ADW Johnson reference 300001(1)-ENG-001-902 revision H, complies with all conditions of consent SSD 8903 and is generally in accordance with Council's DCP 2014 Part 4.5 Macquarie Park Corridor, Part 8.5 Public civil Works, Part 8.2 Stormwater Management and the Public Domain Technical Manual Section 6 – Macquarie Park Corridor.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,

Nathan Delaney
Senior Civil Engineer
MIEAust CPENG NER
ADW Johnson Pty Ltd
Central Coast

ADW JOHNSON PTY LIMITED
ABN 62 129 445 398

Central Coast
5 Pioneer Avenue, Tuggerah NSW 2259
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www.adwiohnson.com.au

NSW GOVERNMENT | Fair Trading

This form relates to obligations under the *Design and Building Practitioners Act 2020* and supporting Regulation

Design Compliance Declaration—multiple regulated designs

Instructions for completing this form

You must complete all Parts of this form.

This form is for multiple regulated designs, and the details must be given in Part 2 of this form in relation to each regulated design to which this form applies.

Where this form requires you to summarise information on which you intend to rely to support your answer, you must describe that information in sufficient detail for the Secretary to fully understand the basis of your answer.

Where this form indicates that material must be attached to the form, you must number each attachment sequentially and identify the number of that attachment in the relevant answer.

The drawing title, number and variation should correspond with the detail in the title block for the design to which this declaration relates.

Part 1. Details

For registered body corporates, give full names of the registered individuals and the corporation on behalf of which the declaration is made.

Design Practitioner name

Nathan Delaney

Body corporate name (if applicable)

N/A

Registration number of Design Practitioner signing

DEP0001781

Registration number of body corporate (if applicable)

N/A

ABN/ACN

62 129 445 398

Phone

(02) 4305 4300

Email address

nathand@adwjohnson.com.au

Drawing title	Drawing number	Variation number
OSD Tank Details Sheet 1	300001(A1)-CV-461	1
OSD Tank Details Sheet 2	300001(A1)-CV-462	1

Part 2. Declaration matters

I, Nathan Delaney,

Name

Senior Engineer,

Title *acting on behalf of Corporation Name (if relevant)*

have prepared the attached regulated designs.

I declare:

1. Each regulated design for which this design compliance declaration is being made complies with the requirements of the *Building Code of Australia*.

   ☐ Yes ☐ No

2. Each regulated design for which this design compliance declaration is being made integrates details of other aspects of building work to which the design relates, and other regulated designs for the work, in order to achieve compliance with the *Building Code of Australia*.

   ☐ Yes ☐ No

   If yes, provide details or attach information about the other regulated designs that have been integrated into the regulated design for which this design compliance declaration is being made.

   Architectural layout has been provided as a base to locate the tank

3. Other standards, codes or requirements have been applied in preparing one or more of the regulated designs.

   ☐ Yes ☐ No

   If yes, provide details or attach information about the standards, codes or requirements that have been applied.

   Ryde City Council DCP, AS 3500

4. A building product referred to in each regulated design would, if used in a manner consistent with the design, achieve compliance with the *Building Code of Australia*.

   ☐ Yes ☐ No

   If yes, describe or attach information about how the building product would achieve compliance with the *Building Code of Australia*, including the relevant provisions of the *Building Code of Australia*.

   N/A - the design is for the spatial dimensions only

5. I have sought and considered specialist advice in preparing each regulated design.

☐ Yes ☐ No

If yes, provide the name and contact details of the person who provided you with the specialist advice.

6. The regulated designs involve a performance solution.

☐ Yes ☐ No

If yes, provide details of the performance solution and the name and contact details of the person who prepared the performance solution report if this declaration is not for the report.

The hydraulic design of the OSD tank was prepared in a report by ADW Johnson reference 300001 - REP - Stormwater Management Plan - Stage 1 [G].

7. Each regulated design accords with the *Regulated Design Guidance Material* relevant to the design.

☐ Yes ☐ No

Part 3. Signature

Signature	Title	Date
	Senior Engineer	

Save Print

This form relates to obligations under the *Design and Building Practitioners Act 2020* and supporting Regulation.
For more information visit the NSW Fair Trading website:
www.fairtrading.nsw.gov.au/housing-and-property/changes-to-class-2-buildings

1 October 2021

Alex Ciecko
Building Surveyor
Level 6, 189 Kent
Sydney NSW 2000

D +61 2 8298 6800
M 0427 102 666 |
E aciecko@mckenzie-group.com.au

Dear Alex,

CONDITION B79 PROVIDE A MIINIMUM OF 12 CAR SHARE SPACES IN ASSOCIATION WITH STAGE 1

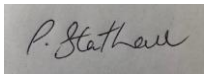
Please see extract from Consent SSD 8903:

B79. A minimum of 12 car share spaces must be provided within the site in association with Stage 1.

In accordance with Planning Condition B79: Frasers Ivanhoe Pty Ltd confirm that Condition B79 will be complied with and a minimum of 12 car share spaces will be provided within the Stage 1 works. (Please refer to the attached plans for the location of the 12 Car share parking spaces.)

For any queries feel free to contact me on the details below.

Kind Regards,



Peter Statham
Project Manager
Frasers Property Australia Pty Limited
T +61 2 9767 2071
E Peter.Statham@fraserspropery.com.au

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E000		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347

BUILDING A1 IVANHOE ESTATE MACQUARIE PARK, NSW 2113
ELECTRICAL SYMBOLS LEGEND & DRAWING SCHEDULE

LIGHTING

- B1 — HANECO DURALITE 36 W (4000K) IP66 LED BATTEN. WHERE SHOWN WITH EMERGENCY SYMBOL TO INCLUDE INTEGRAL MAINTAINED EMERGENCY PACK. EMERGENCY CLASSIFICATION: C0:D80, C90:D50 M: WHERE SHOWN TO INCLUDE INTEGRATED MOTION SENSOR.
- B2 — 600 mm LED BATTEN LUMINAIRE. WHERE SHOWN WITH EMERGENCY SYMBOL TO INCLUDE MAINTAINED EMERGENCY PACK. FINAL SELECTION TBC. M: WHERE SHOWN TO INCLUDE INTEGRATED MOTION SENSOR.
- DE — EMERGENCY LED DOWNLIGHT. TO BE UTILISED INSIDE FIRE CONTROL ROOM ABOVE PLAN TABLE. FINAL SELECTION TBC.
- D1 — RECESSED LED DOWNLIGHT TYPE 01. MINIMUM IP20 RATED.
- D2 — RECESSED LED DOWNLIGHT TYPE 02. MINIMUM IP44 RATED.
- D3 — RECESSED LED DOWNLIGHT TYPE 03. MINIMUM IP20 RATED.
- D4 — DIRECTIONAL DOWNLIGHT TYPE 04. MINIMUM IP20 RATED.
- W1 — WALL LIGHT TYPE 01. MINIMUM IP56 RATED.
- W2 — WALL LIGHT TYPE 02. MINIMUM IP20 RATED.
- P1 — PENDANT LIGHT TYPE 01.
- L1 — LED STRIP TYPE 01.
- L2 — LED STRIP TYPE 02.

EMERGENCY & EXIT LIGHTING

- EXIT — SINGLE POINT OR COMPUTER MONITORED DOUBLE SIDED (or SINGLE SIDED ABOVE DOOR) MAINTAINED EXIT SIGN WITH 'MOVING PERSON' PICTOGRAM, COMPLETE WITH INTEGRAL TESTING FACILITY FINAL SELECTION BY CLIENT
- EXIT — ?W SINGLE POINT OR COMPUTER MONITORED SINGLE SIDED MAINTAINED EXIT SIGN WITH 'MOVING PERSON' PICTOGRAM & ARROW IN DIRECTION SHOWN, COMPLETE WITH INTEGRAL TESTING FACILITY FINAL SELECTION BY CLIENT
- EXIT — ?W SINGLE POINT OR COMPUTER MONITORED DOUBLE SIDED MAINTAINED EXIT SIGN WITH 'MOVING PERSON' PICTOGRAM & ARROWS IN DIRECTION SHOWN, COMPLETE WITH INTEGRAL TESTING FACILITY FINAL SELECTION BY CLIENT
- RECESSED LED SPITFIRE NON-MAINTAINED EMERGENCY LIGHT.MINIMUM CLASSIFICATION: D32 FINAL SELECTION BY CLIENT.

SWITCHING & CONTROLS

- # — SWITCH & SWITCH WIRE. L = LARGE TOGGLE TYPE AT 1000AFFL. WP = WEATHERPROOF (IP56 RATED). 2W = TWO WAY SWITCH
- INT — FAN INTERLOCK WITH LIGHT SWITCH
- PIR — 360° MOVEMENT DETECTOR
- PE — PE CELL

SINGLE LINE DIAGRAM

- ISOLATOR/SWITCH
- CIRCUIT BREAKER. 4P DENOTES 4 POLE
- AIR CIRCUIT BREAKER
- RCD CIRCUIT BREAKER
- ISOLATOR
- CONTACTOR
- FUSE WITH SUPPLY SIDE
- M — SUPPLY AUTHORITY METER
- SD — SURGE DIVERTER
- BUSBAR LINK
- 3P ATS — AUTOMATIC TRANSFER SWITCH. 3P DENOTES 3 POLE SWITCHING
- MTS — MANUAL TRANSFER SWITCH
- ILLUMINATED INDICATOR
- PFC — POWER FACTOR CORRECTION
- PFR — PHASE FAILURE RELAY
- DPM — DIGITAL POWER METER
- ENM — EMBEDDED NETWORK METER
- SINGLE PHASE
- TWO PHASE
- THREE PHASE
- CURRENT TRANSFORMER
- TERMINAL
- SCHEMATIC LINE
- ## — CABLE REFERENCE
- INTERFACE CABLING
- ENCLOSURE

DRY FIRE SERVICES

- SMOKE ALARM
- THERMAL ALARM

POWER

- MAIN SWITCH BOARD (MSB)
- EXISTING MAIN SWITCH BOARD (MSB)
- DISTRIBUTION BOARD (DB)
- EXISTING DISTRIBUTION BOARD (DB)
- MECHANICAL SERVICES SWITCHBOARD (MSSB) (BY MECHANICAL TRADE) ELECTRICAL TRADE TO PROVIDE SUB-MAIN. MECHANICAL TRADE TO TERMINATE AT MSSB
- FIP — FIRE INDICATOR PANEL
- P300 — POWER CABLE BASKET. P300 DENOTES WIDTH IN mm
- P300 — FIRE RATED POWER CABLE BASKET. P300 DENOTES WIDTH IN mm
- SINGLE 10 Amp GENERAL PURPOSE OUTLET
- DOUBLE 10 Amp GENERAL PURPOSE SOCKET OUTLET
- 3N — PERMANENTLY CONNECTED OUTLET COMPLETE WITH ISOLATOR. 3N DENOTES THREE PHASE PLUS NEUTRAL. 1N DENOTES ONE PHASE PLUS NEUTRAL
- SS # — STARTER SOCKET. # DENOTES No. OF SOFT-WIRED OUTLETS TO BE SUPPLIED FROM THIS STARTER SOCKET
- MP — METER PANEL
- DBX-XXX — CIRCUIT DESIGNATION. CIRCUIT NUMBER. CIRCUIT TYPE (P=POWER L=LIGHTING). DISTRIBUTION BOARD NUMBER U=UPS DB
- FB — RECESSED FLOOR BOX

SITE SERVICES

- P — POWER PIT XXX mm (W) x XXX mm (L) x XXX mm (D)
- E — E — ELECTRICAL CONDUIT
- C — COMMS PIT XXX mm (W) x XXX mm (L) x XXX mm (D)
- C — C — COMMS CONDUIT

COMMUNICATIONS

- C1 — COMMUNICATIONS OUTLET. 1 x RJ45 OUTLET WITH ONE (1) 4 PAIR CAT 6 CABLING
- C2 — COMMUNICATIONS OUTLET. 2 x RJ45 OUTLET WITH TWO (2) 4 PAIR CAT 6 CABLING
- C3 — COMMUNICATIONS OUTLET. 3 x RJ45 OUTLET WITH THREE (3) 4 PAIR CAT 6 CABLING
- C4 — COMMUNICATIONS OUTLET. 4 x RJ45 OUTLET WITH FOUR (4) 4 PAIR CAT 6 CABLING. LR= DENOTES CABLES TO LOCAL RACK (PROVIDE DIFFERENT COLOUR CABLE & JACKS)
- CC — COMMS CABINET
- C300 — COMMS CABLE BASKET. C300 DENOTES WIDTH IN mm
- OLT — FIBRECORP - GPON OPTICAL LINE TERMINAL
- FDB — FIBRECORP - 32 WAY FIBRE SPLITTER
- ONT — FIBRECORP - OPTICAL NETWORK TERMINAL

MATV

- LAUNCH AMPLIFIER. 'JAYCATZ LT-3252' OR EQUAL
- X W S — SIGNAL SPLITTER 5 - 2050 MEGAHERTZ (X INDICATED NUMBER OF OUTPUTS)
- 75ohm 'F' CONNECTOR TELEVISION OUTLET (TYPICAL)
- H V — SATELITE DISH: 'JONSA D-JOS090F/1P'
- MODULATOR — DVB-T SINGLE INPUT SD DIGITAL MODULATOR. 'DIGI-MOD RL-DM1100' OR EQUAL
- MULTI-TAP — MULTI-TAP SPLITTER
- FOXTEL APPROVED VHF ANTENNA & MAST
- FOXTEL APPROVED UHF ANTENNA & MAST
- PTV — TWO (2) CO-AXIAL TELEVISION OUTLETS EXTENDED FROM LOCAL SPLITTER WITH RG6 QUADSHIELD CO-AXIAL CABLING INCLUDING RJ45 OUTLET & ASSOCIATED CABLING. ALL CABLING SHALL BE HSTV COMPATIBLE.
- TV — CO-AXIAL TELEVISION OUTLET EXTENDED FROM LOCAL SPLITTER WITH RG6 QUADSHIELD CO-AXIAL CABLING. CABLING LONGER THAN 30m SHALL BE RG11 QUADSHIELD. ALL CABLING SHALL BE HDTV COMPATIBLE.
- MATV — MATV SPLITTER

SECURITY

- CCTV CAMERA
- CR — CARD READER
- E/R — ELECTRIC DOOR STRIKE & REED COMBINATION
- ES — ELECTRIC DOOR STRIKE
- R — REED SWITCH
- SEC — SECURITY PANEL (HEAD END)
- M/R — MAGNETIC LOCK & REED COMBINATION
- PUSH TO EXIT BUTTON
- BG — BREAK GLASS

ABBREVIATIONS

AB	ABOVE BENCH MOUNTED
AC	AIR CONDITIONING UNIT
AFFL	ABOVE FINISHED FLOOR LEVEL
BB	BELOW BENCH MOUNTED
BWU	BOILING WATER UNIT
BCWU	BOILING/CHILLED WATER UNIT
CF	COFFEE MACHINE
CL	CLEANER (RCD PROTECTED)
CM	CEILING MOUNTED
CP	CAPTIVE OUTLET
CS	CEILING SPACE MOUNTED
CT	COOKTOP
DF	DRINKING FOUNTAIN
DR	DRYER
DSL	DIESEL GENERATOR BACKED UP
DW	DISHWASHER
E	EXISTING
EX	EXHAUST
F	FRIDGE
FL	FLOOR LAMP
FM	FLOOR MOUNTED
GI	GAS IGNITER
HL	HIGH LEVEL
HWU	HOT WATER UNIT
IS	ISOLATOR
J	JOINERY MOUNTED
KEF	KITCHEN EXHAUST FAN
L	LARGE TOGGLE TYPE
MB	MOTORISED BLIND
MW	MICROWAVE
N	NEW
PAC	PACKAGED AC UNIT IN CEILING SPACE
PL	PLASMA SCREEN
PJ	PROJECTOR
PS	PROJECTOR SCREEN
R	RED
RH	RANGE HOOD
RCD	RCD PROTECTED
SP	SPECIAL PURPOSE
ST	STAINLESS STEEL
TEF	TOILET EXHAUST FAN
TL	TABLE LAMP
U	UPS BACKED UP
UB	UNDER BENCH MOUNTED
UF	MOUNTED WITHIN RAISED FLOOR
VM	VENDING MACHINE
WAP	WIRELESS ACCESS POINT
WG	WIREGUARD
WM	WALL MOUNTED
WMC	WASHING MACHINE
WP	WEATHERPROOF
WS	WORKSTATION MOUNTED
+1500	MOUNTING HEIGHT AFFL

DRAWING SCHEDULE

E000	ELECTRICAL SYMBOLS LEGEND & DRAWING SCHEDULE
E100	BASEMENT 03 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E101	BASEMENT 02 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E102	BASEMENT 01 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E103	LOWER GROUND FLOOR - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E104	GROUND FLOOR - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E105	LEVEL 01 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E106	LEVEL 02 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E107	LEVEL 03 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E108	LEVEL 04 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E109	LEVEL 05 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E110	LEVEL 06 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E111	LEVEL 07 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E112	LEVEL 08 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E113	LEVEL 09 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E114	LEVEL 10 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E115	LEVEL 11 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E116	LEVEL 12 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E117	LEVEL 13 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E118	LEVEL 14 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E119	LEVEL 15 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E120	LEVEL 16 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E121	LEVEL 17 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E122	LEVEL 18 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E123	LEVEL 19 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E124	LEVEL 20 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E125	LEVEL 21 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E126	LEVEL 22 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E127	LEVEL 23 - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E128	LEVEL 24 ROOF - LIGHTING, POWER, COMMUNICATIONS & SECURITY LAYOUT
E300	MAIN SINGLE LINE DIAGRAM AND CABLE SCHEDULE
E301	DISTRIBUTION BOARD AND METER PANEL SCHEMATICS
E302	MAIN COMMUNICATIONS SCHEMATIC
E303	MAIN SECURITY SCHEMATIC
E600	TYPICAL APARTMENT TYPE 1B (TYPE 01)
E601	TYPICAL APARTMENT TYPE 2B1 (TYPE 01)
E602	TYPICAL APARTMENT TYPE 3BP (TYPE 02)
E603	TYPICAL APARTMENT TYPE 1B (TYPE 02)
E604	TYPICAL APARTMENT TYPE 1B (TYPE 03)
E605	TYPICAL APARTMENT TYPE 1B (TYPE 04)
E606	TYPICAL APARTMENT TYPE 1B (TYPE 05)
E607	TYPICAL APARTMENT TYPE 2B2+ (TYPE 01)
E608	TYPICAL APARTMENT TYPE 2B2 (TYPE 02)
E609	TYPICAL APARTMENT TYPE 2B2 (TYPE 03)
E610	TYPICAL APARTMENT TYPE 2B2 (TYPE 04)
E611	TYPICAL APARTMENT TYPE 2B2 (TYPE 05)
E612	TYPICAL APARTMENT TYPE 2B2 (TYPE 06)
E613	TYPICAL APARTMENT TYPE 2B2 (TYPE 07)
E614	TYPICAL APARTMENT TYPE 2B2 (TYPE 01)
E615	TYPICAL APARTMENT TYPE 2B2 (TYPE 01A)
E616	TYPICAL APARTMENT TYPE 2B2 (TYPE 08)
E617	TYPICAL APARTMENT TYPE 2B2 (TYPE 02)
E618	TYPICAL APARTMENT TYPE 2B2 (TYPE 01)
E619	TYPICAL APARTMENT TYPE ST
E620	TYPICAL APARTMENT TYPE 2BP (TYPE 01)
E621	TYPICAL APARTMENT TYPE 2BP (TYPE 02)
E622	TYPICAL APARTMENT TYPE 2BP (TYPE 03)
E623	TYPICAL APARTMENT TYPE 2BP (TYPE 04)
E624	TYPICAL APARTMENT TYPE 3BP (TYPE 03)
E625	TYPICAL APARTMENT TYPE 3BP (TYPE 01)

Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
SINCE 2010
OXFORD ELECTRICAL GROUP

OXFORD ELECTRICAL GROUP
A: Unit 15, 20-30 Stubbs St, Silverwater, NSW 2128
P: (02) 9002 3377
E: admin@oxfordgroup.com.au

Rev.	Date	Description	Des.	Verif.	Appd.
B	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
A.	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.

AADLER

Drawn	A.H.	Date 10.02.2022
Checked	J.F.	Date 10.02.2022
Designed	A.H.	Date 10.02.2022
Verified	J.F.	Date 10.02.2022
Approved	J.F.	10.02.2022

Aadler Pty. Ltd.

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1, IVANHOE ESTATE, MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES, ELECTRICAL SYMBOLS LEGEND & DRAWING SCHEDULE

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	N.T.S.	B1

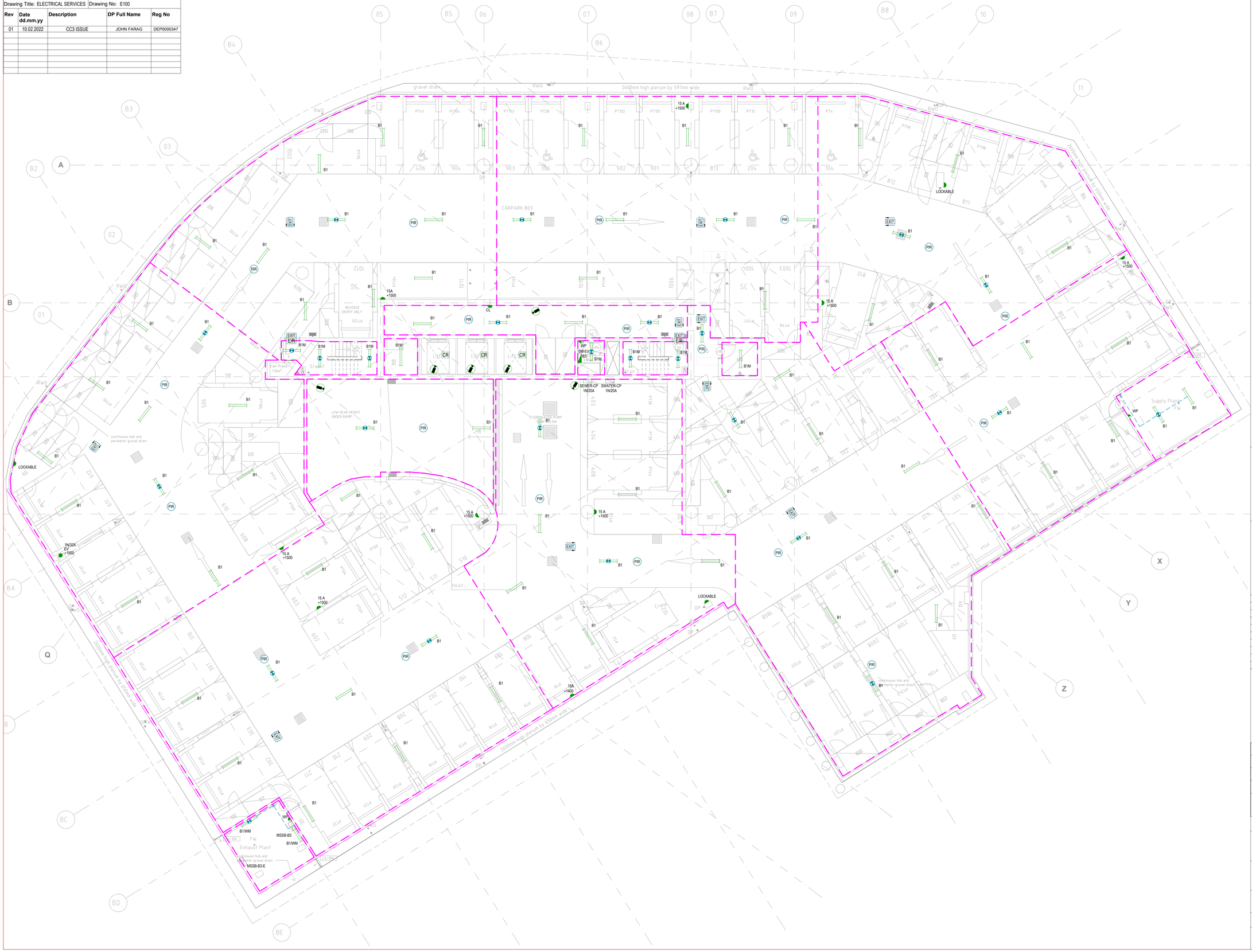
Drawing Number: E000

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E100

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
SINCE 2010
OXFORD ELECTRICAL GROUP

OXFORD ELECTRICAL GROUP
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E: admin@oxfordgroup.com.au

Rev.	Date	Description	Des.	Verif.	Appd.
F	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
E	03.02.2022	FOR CONSTRUCTION	A.H.	J.F.	J.F.
D	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	03.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
B	05.08.2021	ISSUE FOR COORDINATION	A.H.	J.F.	J.F.
A	23.07.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
BASMENET 03 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

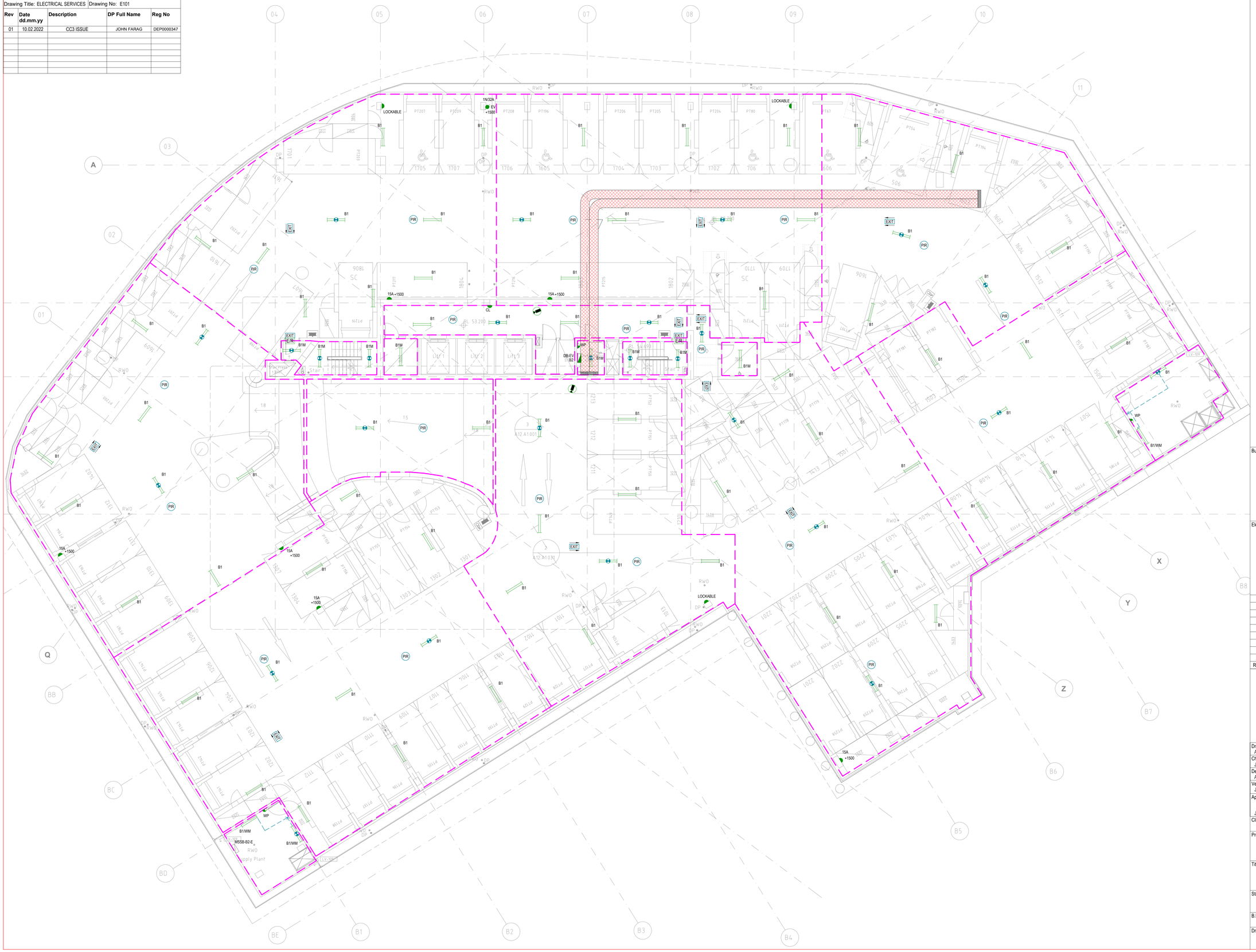
B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E100

Revision: F

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E101		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
SINCE 2015

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Rev.	Date	Description	Des.	Verif.	Appd.
F	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
E	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
D	03.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	23.09.2021	FOR COORDINATION	A.H.	J.F.	J.F.
B	05.08.2021	ISSUED FOR COORDINATION	A.H.	J.F.	J.F.
A	23.07.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022	Aadler Pty. Ltd.
Checked J.F.	Date 10.02.2022	This document is produced by Aadler Pty. Ltd. solely for the benefit of and use by the nominated client in accordance with the terms of the agreed fee proposal. Aadler Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by the third party on the content of this document.
Designed A.H.	Date 10.02.2022	
Verified J.F.	Date 10.02.2022	
Approved J.F.	10.02.2022	

Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
BASMENET 02 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

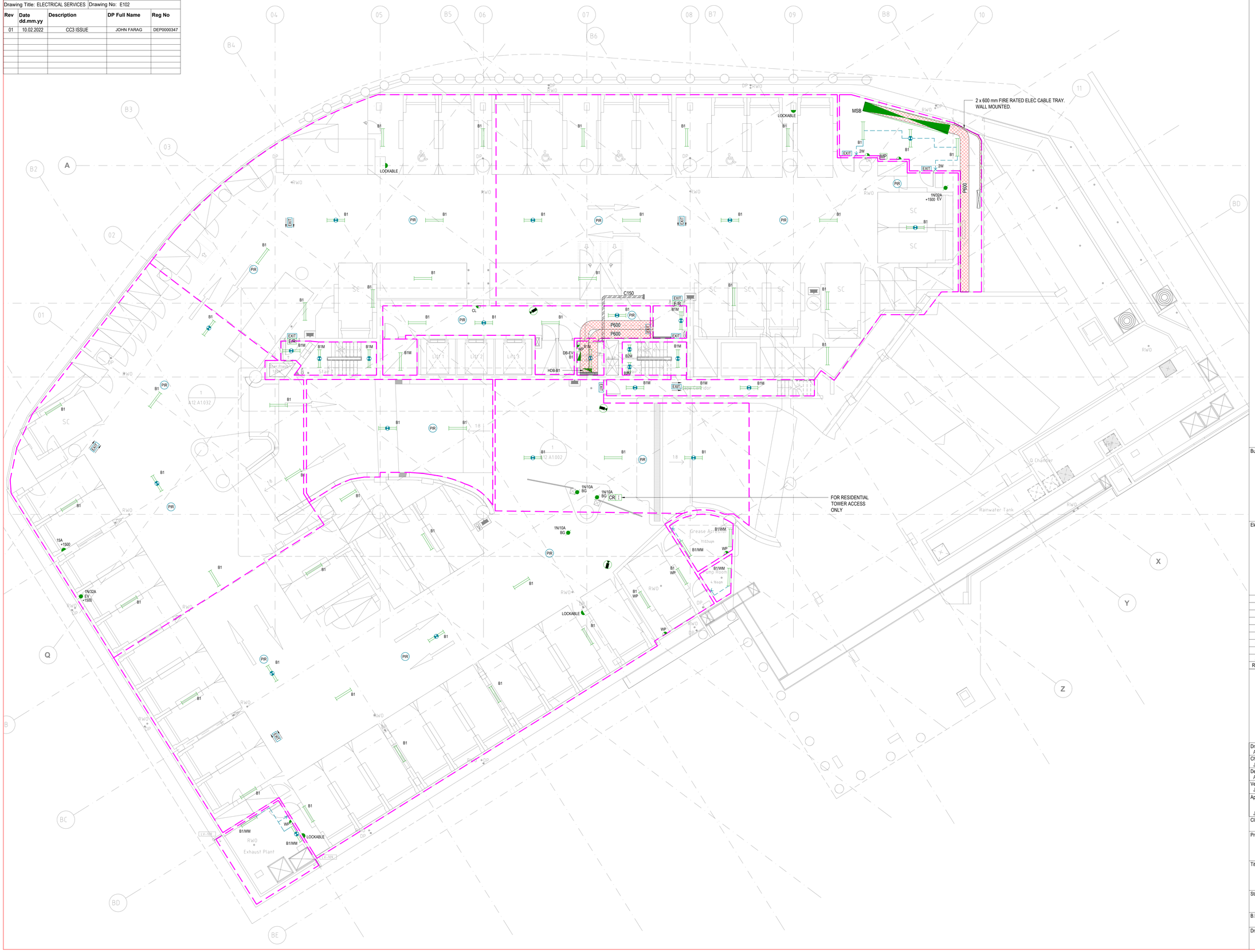
Drawing Number: E101

Revision: F

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E102

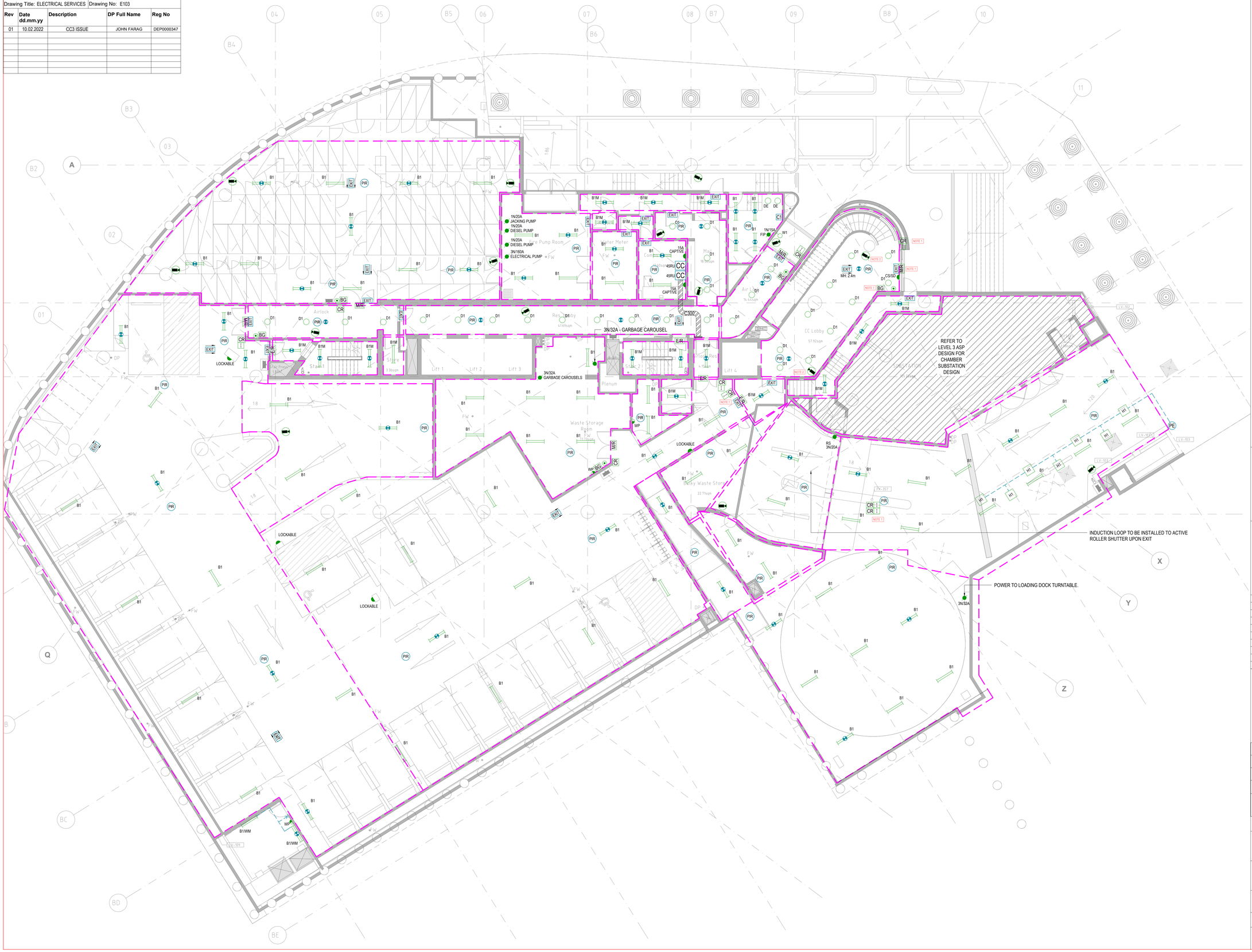
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E103

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



NOTES:

1. CONTRACTOR TO PROVIDE CABLING PATHWAY FOR ALL ACCESS CONTROL TO CHILD CARE ONT LOCATION. CARD READER, INTERCOM, ELECTRIC STRIKES MAGNETIC LOCKS, REED SWITCHES, BREAK GLASS, PUSH TO EXIT BUTTONS AND ASSOCIATED CABLING TO BE INSTALLED AT A LATER DATE BY FITOUT CONTRACTOR.

2. CCTV CAMERA TO BE CABLED BACK TO CHILDCARE CENTRE ONT LOCATION FOR CONNECTION AT A LATER DATE TO CHILDCARE SECURITY SYSTEM.
3. REFER TO E200 SERIES DRAWINGS FOR EXTERNAL AND LANDSCAPE LIGHTING.

Builder

PARKVIEW

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Rev.	Date	Description	Des.	Verif.	Appd.
E	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
D	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	03.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
B	16.09.2021	FOR COORDINATION	A.H.	J.F.	J.F.
A	06.09.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LOWER GROUND - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

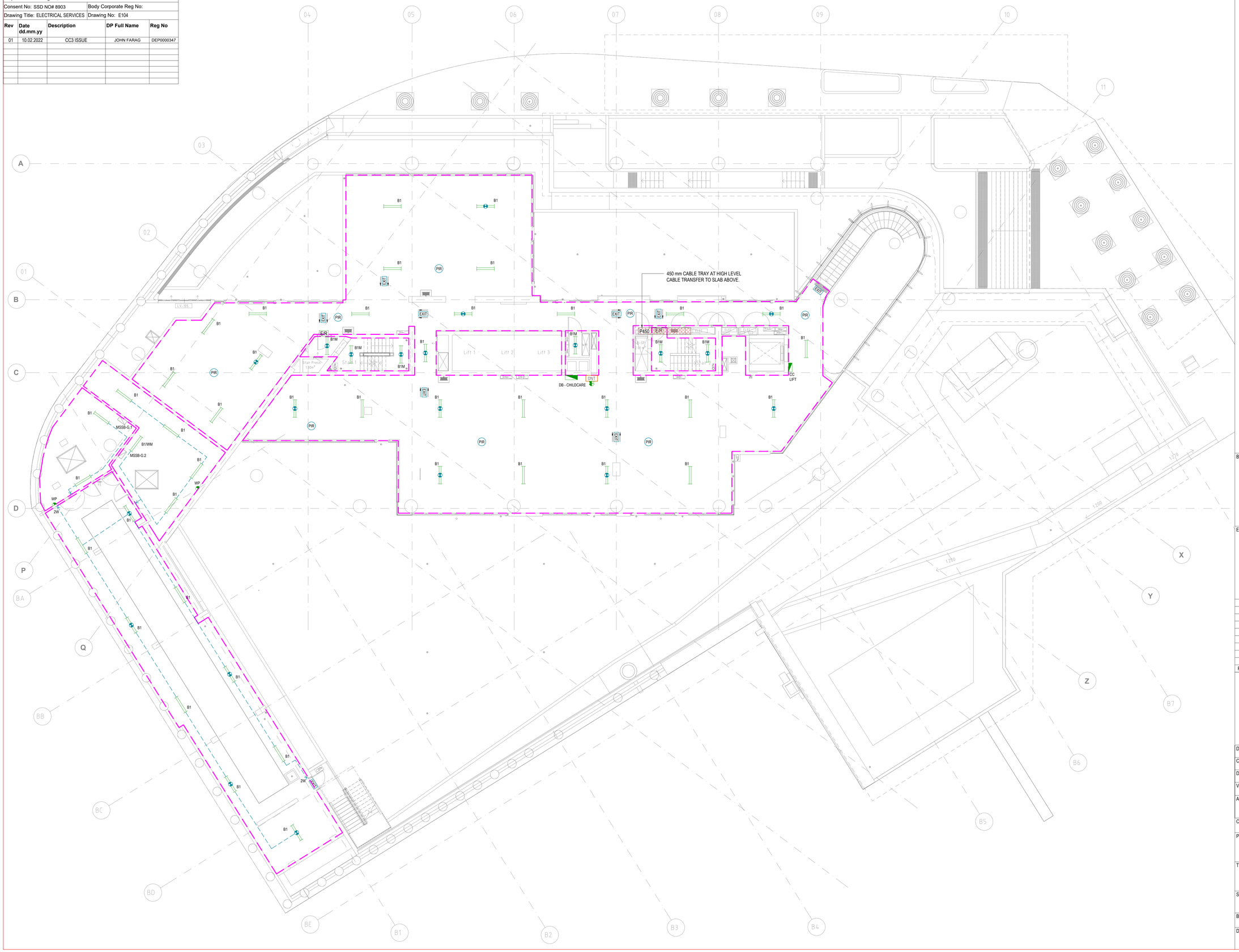
Drawing Number: E103

Revision: E

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E104

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



NOTES:

1. CONTRACTOR TO PROVIDE CABLING PATHWAY FOR ALL ACCESS CONTROL TO CHILD CARE ONT LOCATION. CARD READER, INTERCOM, ELECTRIC STRIKES MAGNETIC LOCKS, REED SWITCHES, BREAK GLASS, PUSH TO EXIT BUTTONS AND ASSOCIATED CABLING TO BE INSTALLED AT A LATER DATE BY FITOUT CONTRACTOR.
2. CCTV CAMERA TO BE CABLED BACK TO CHILDCARE CENTRE ONT LOCATION FOR CONNECTION AT A LATER DATE TO CHILDCARE SECURITY SYSTEM.
3. REFER TO E200 SERIES DRAWINGS FOR EXTERNAL AND LANDSCAPE LIGHTING.

Builder

PARKVIEW

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Rev.	Date	Description	Des.	Verif.	Appd.
D	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
C	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
B	03.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	06.09.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn	A.H.	Date 10.02.2022
Checked	J.F.	Date 10.02.2022
Designed	A.H.	Date 10.02.2022
Verified	J.F.	Date 10.02.2022
Approved	J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
GROUND FLOOR - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

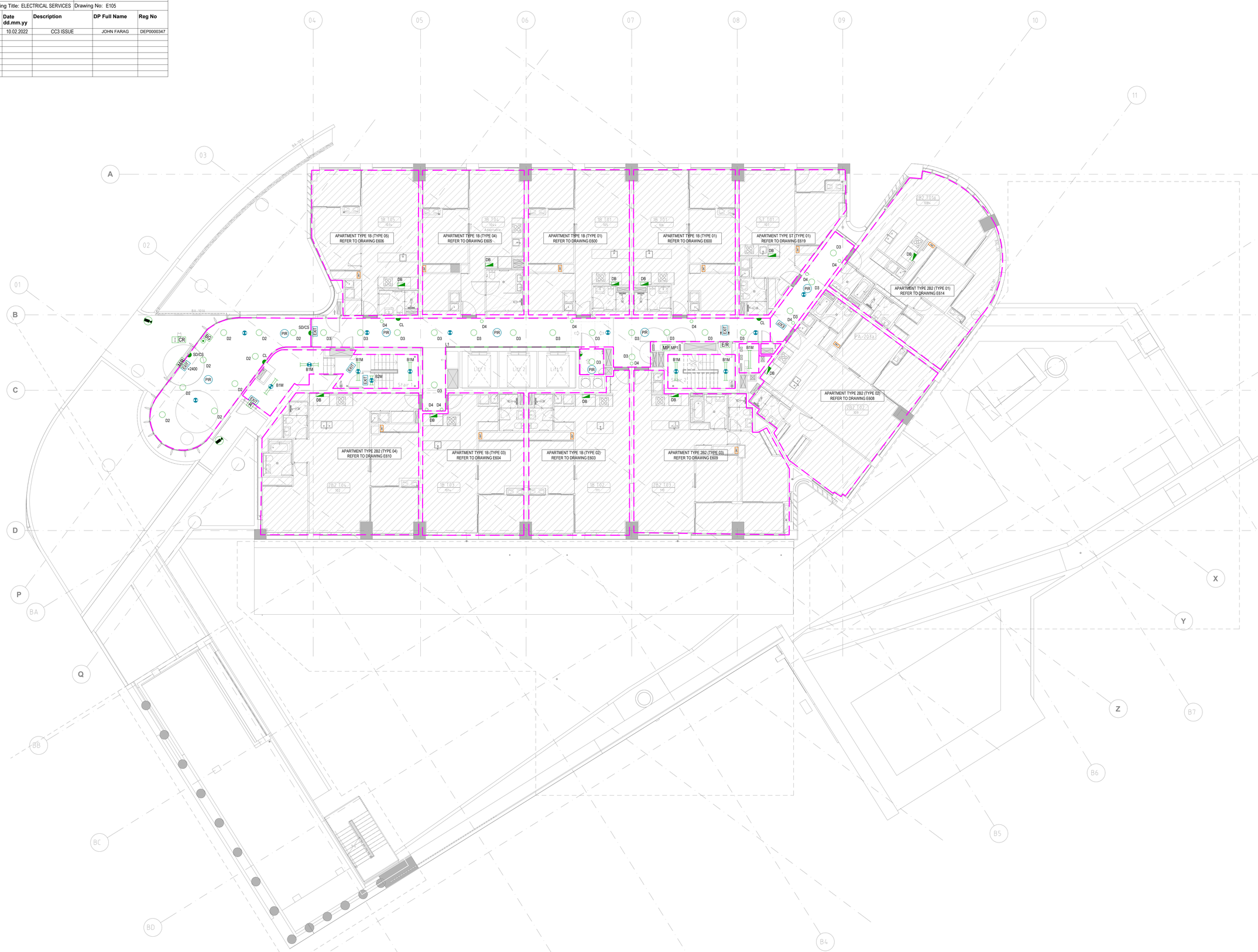
Drawing Number: E104

Revision: D

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E105

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



NOTES:

1. REFER TO E200 SERIES DRAWINGS FOR EXTERNAL AND LANDSCAPE LIGHTING.

Builder

PARKVIEW

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Rev.	Date	Description	Des.	Verif.	Appd.
E	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
D	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	25.10.2021	FOR APPROVAL	A.H.	J.F.	J.F.
B	19.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.
A	05.10.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 01 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E105

Revision: E

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E106

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
E	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
D	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	25.10.2021	FOR APPROVAL	A.H.	J.F.	J.F.
B	19.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.
A	05.10.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn	A.H.	Date 10.02.2022
Checked	J.F.	Date 10.02.2022
Designed	A.H.	Date 10.02.2022
Verified	J.F.	Date 10.02.2022
Approved	J.F.	Date 10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 02 - LIGHTING, POWER,
COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E106

Revision: E

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E107

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

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Rev.	Date	Description	Des.	Verif.	Appd.
F	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
E	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
D	25.10.2021	FOR APPROVAL	A.H.	J.F.	J.F.
C	19.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.
B	28.09.2021	FOR COORDINATION	A.H.	J.F.	J.F.
A	15.09.2021	PRELIMINARY	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 3 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

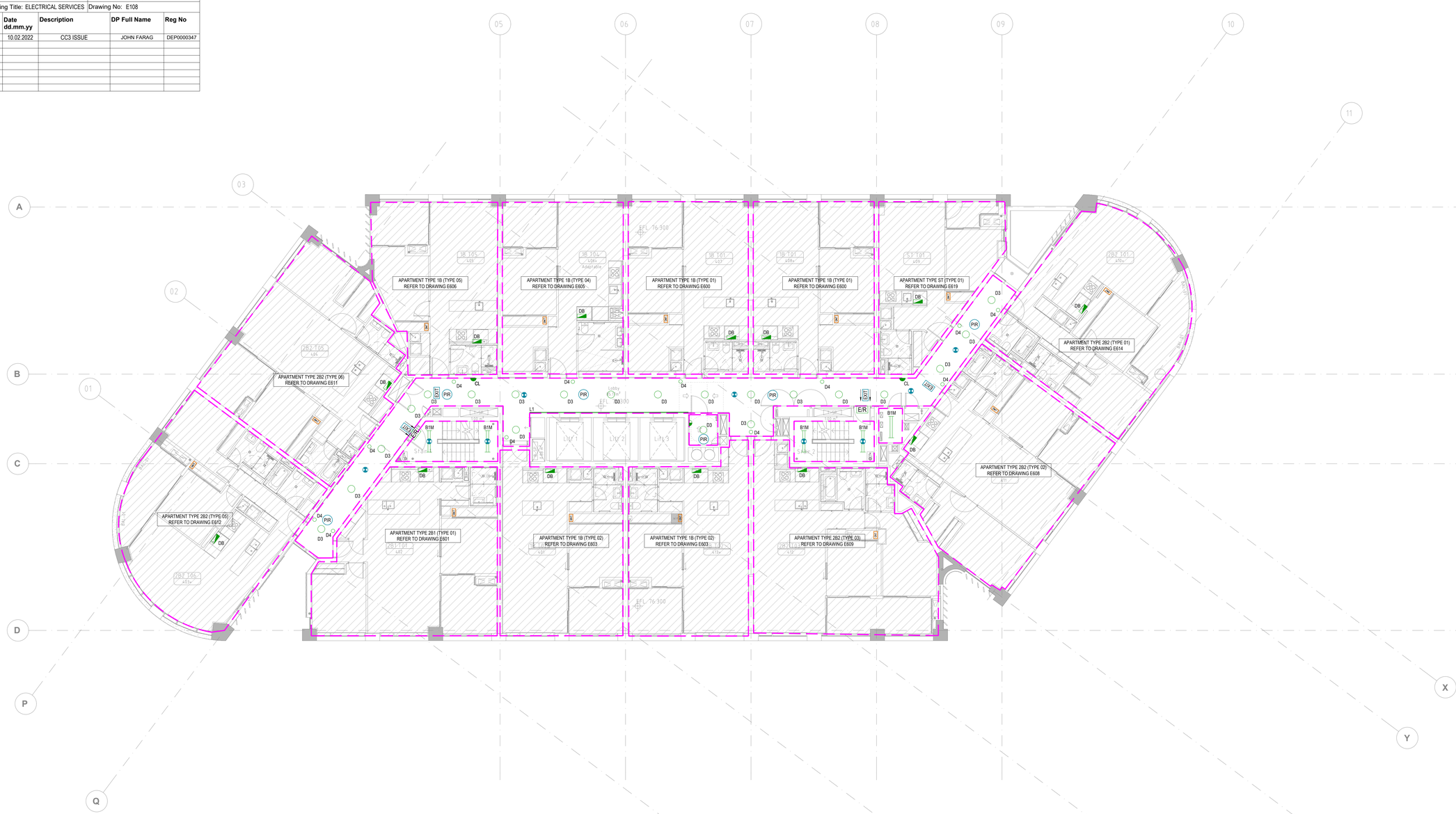
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E107

Revision: F

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E108		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 04 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

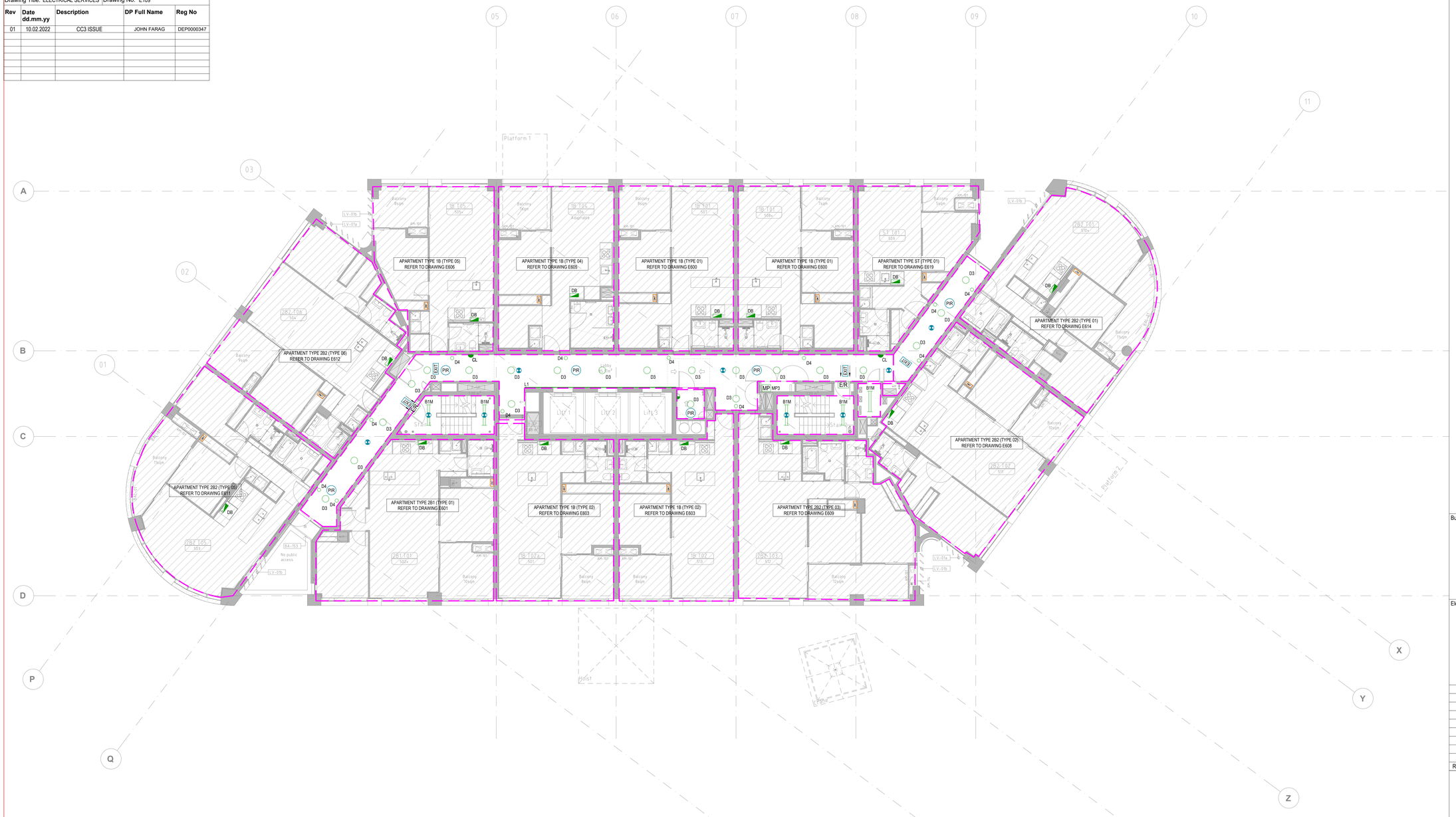
Drawing Number: E108

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E109

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 05 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E109

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E110

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 06 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

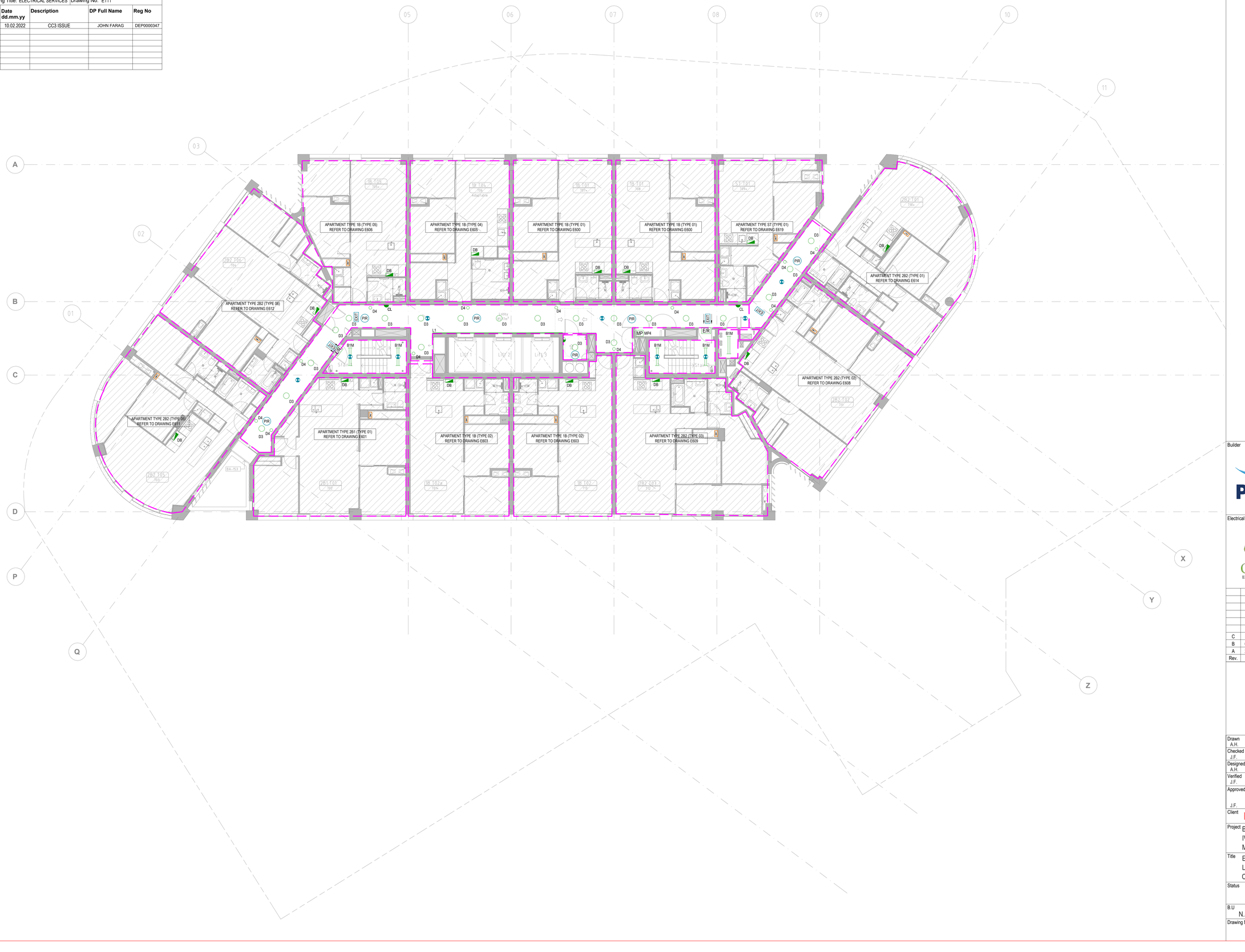
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E110

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E111		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
SINCE 2010
ELECTRICAL GROUP

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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 07 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

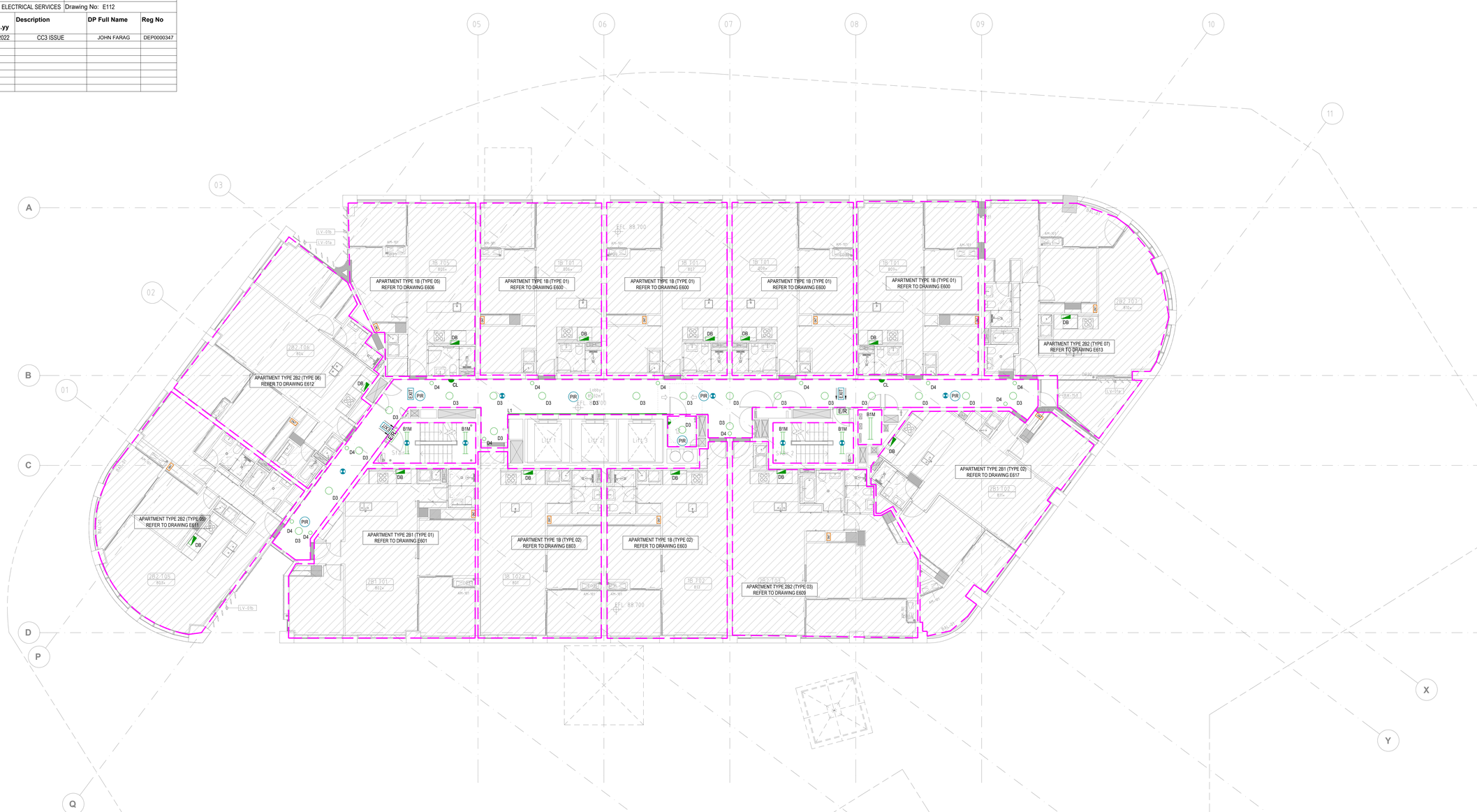
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E111

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E112		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

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Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 08 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

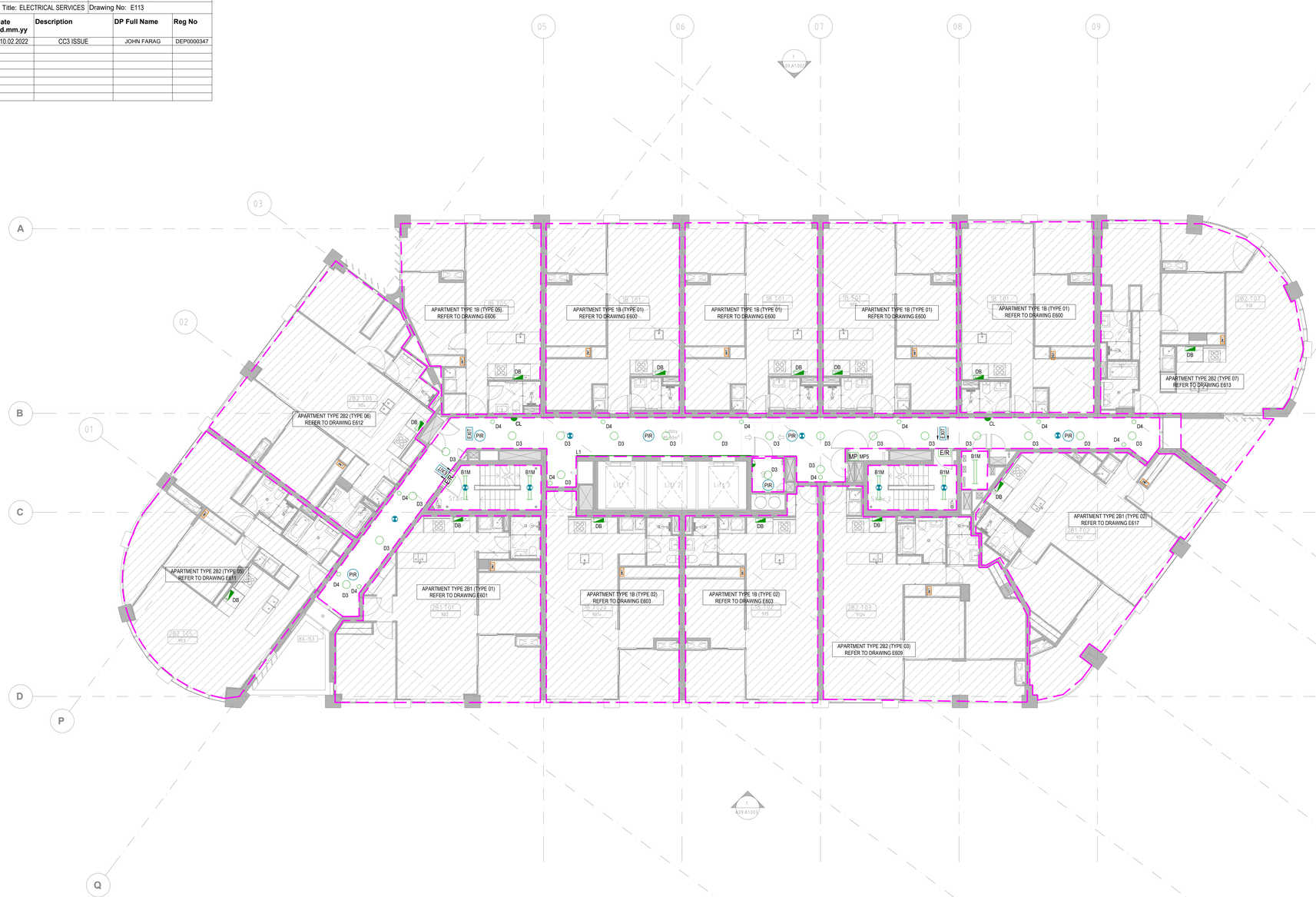
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E112

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E113		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Checked J.F.	Date 10.02.2022	This document is produced by Aadler Pty. Ltd. solely for the benefit of and use by the nominated client in accordance with the terms of the agreed fee proposal. Aadler Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by the third party on the content of this document.
Designed A.H.	Date 10.02.2022	
Verified J.F.	Date 10.02.2022	
Approved J.F.	10.02.2022	

Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 09 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

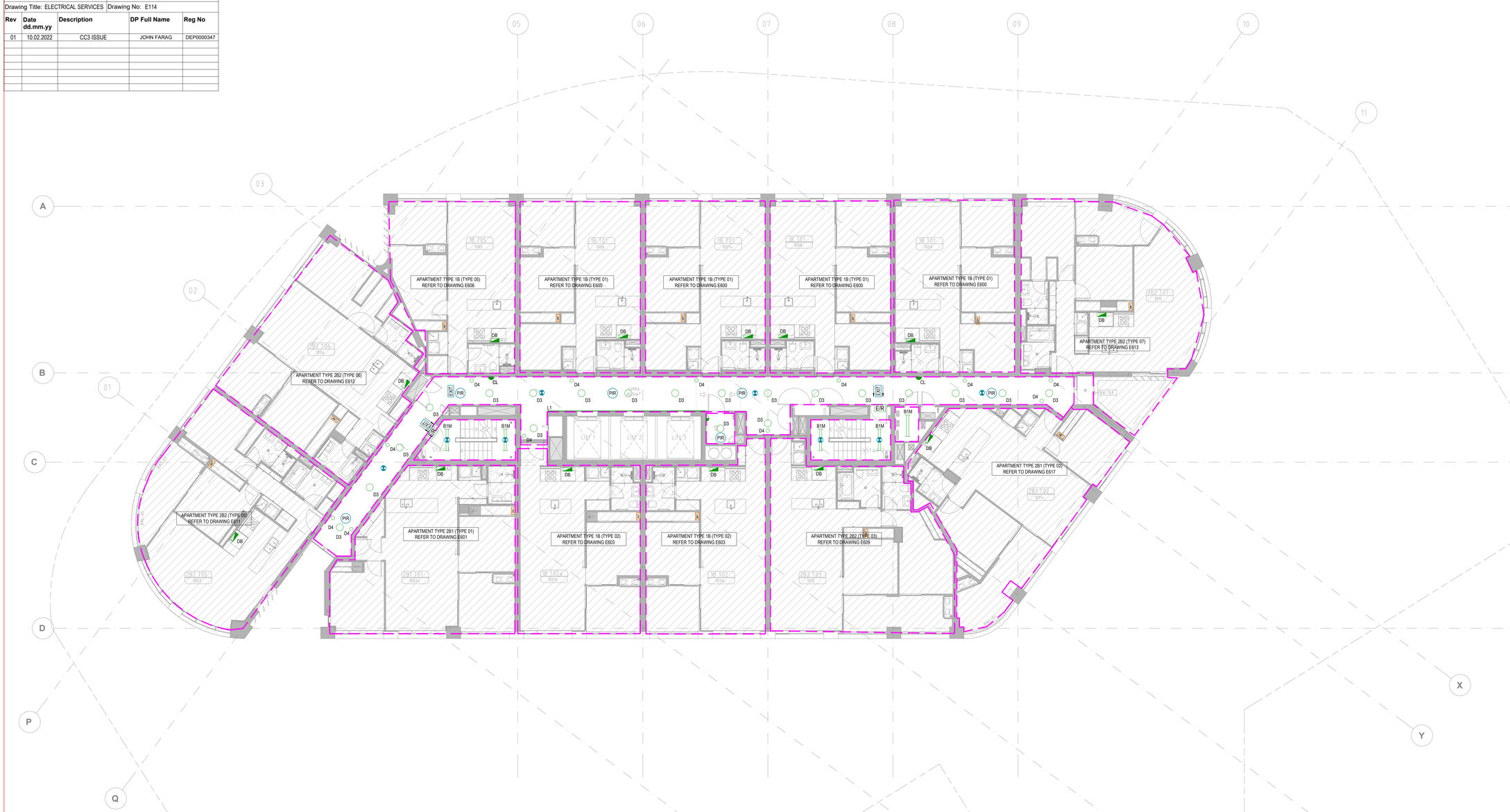
B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E113

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E114		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 10 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E114

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E115		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



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Rev.	Date	Description	Des.	Verif.	Appd.
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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

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Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 11 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E115

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E116		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



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Rev.	Date	Description	Des.	Verif.	Appd.
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B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 12 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
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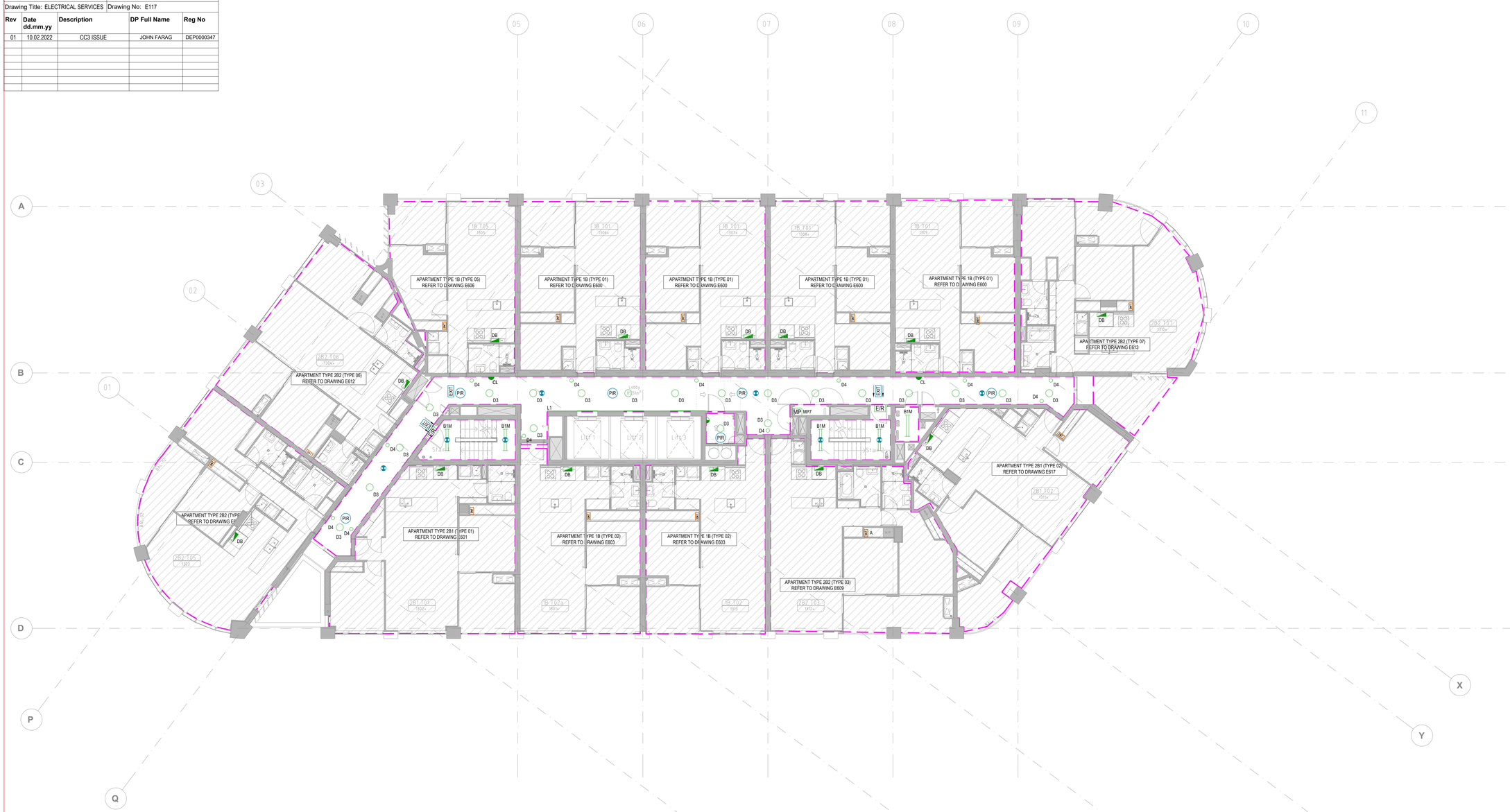
Drawing Number: E116

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E117

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn	A.H.	Date 08.12.2021
Checked	J.F.	Date 08.12.2021
Designed	A.H.	Date 08.12.2021
Verified	J.F.	Date 08.12.2021
Approved	J.F.	08.12.2021

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 13 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E117

Revision: B

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E118		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
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Verified J.F.	Date 10.02.2022
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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 14 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

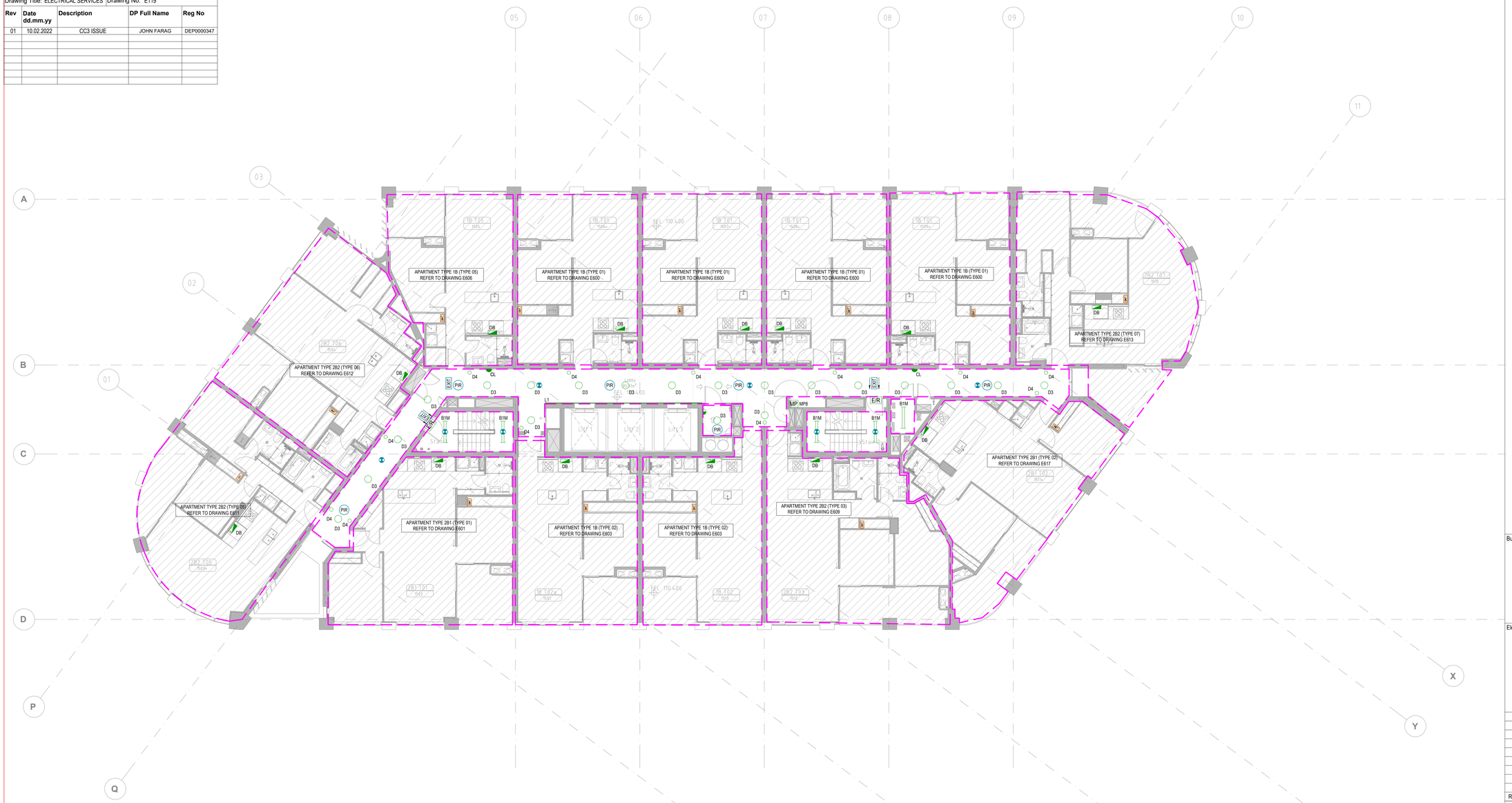
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E118

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E119		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 15 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

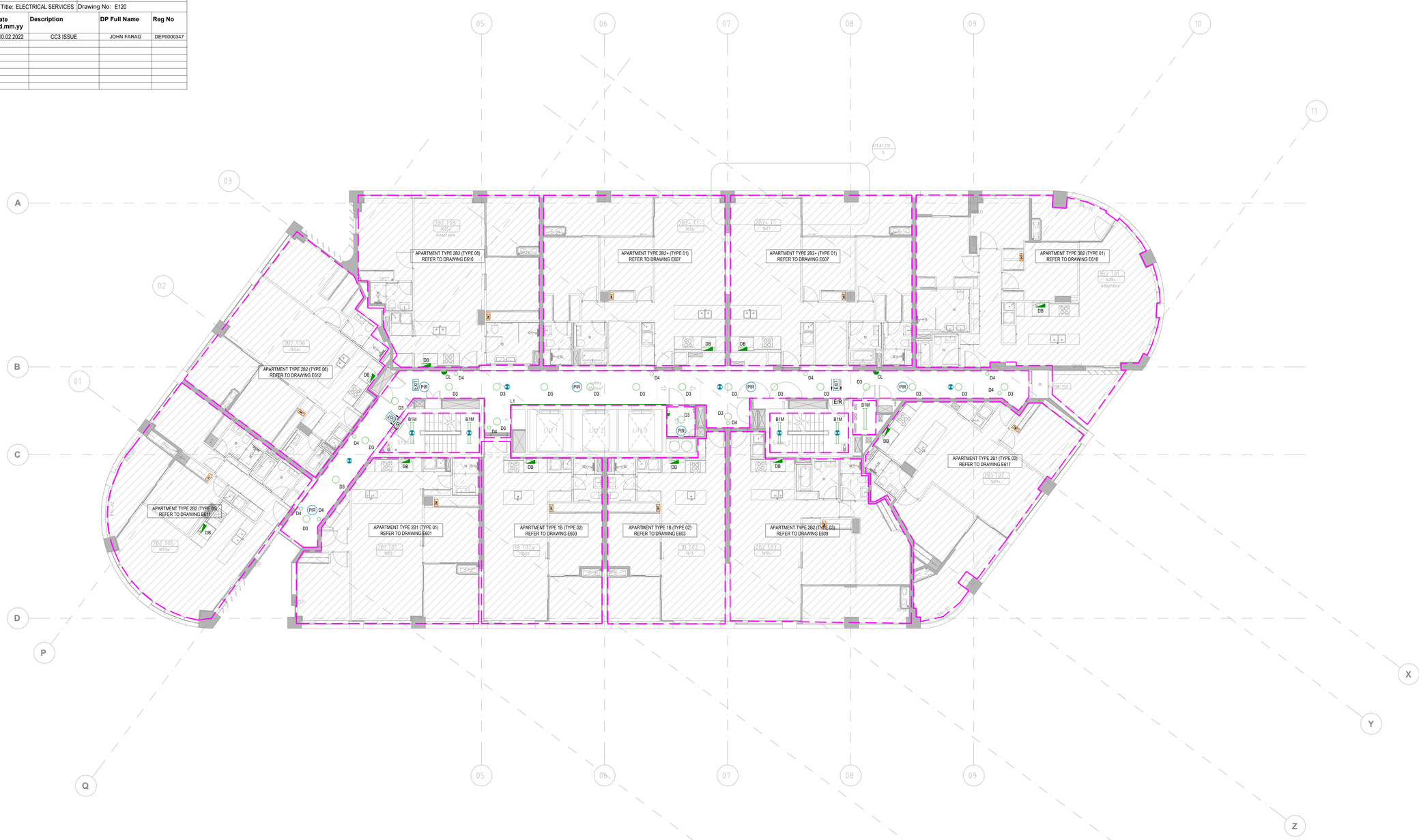
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E119

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E120		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Drawn	A.H.	Date 10.02.2022
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Approved	J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 16 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

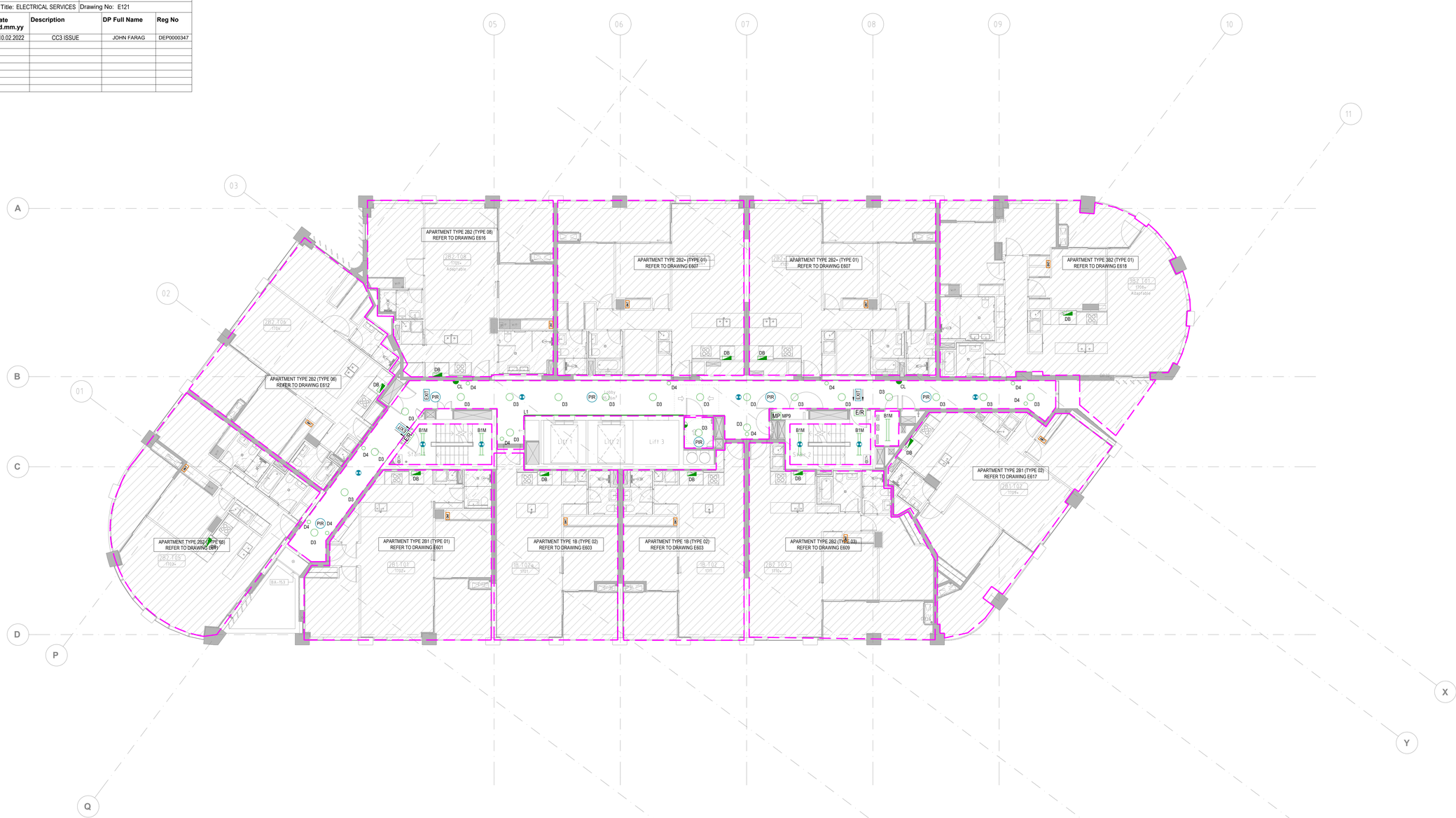
Drawing Number: E120

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E121

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

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Verified J.F.	Date 10.02.2022
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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 17 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E121

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E122		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

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AADLER

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 18 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

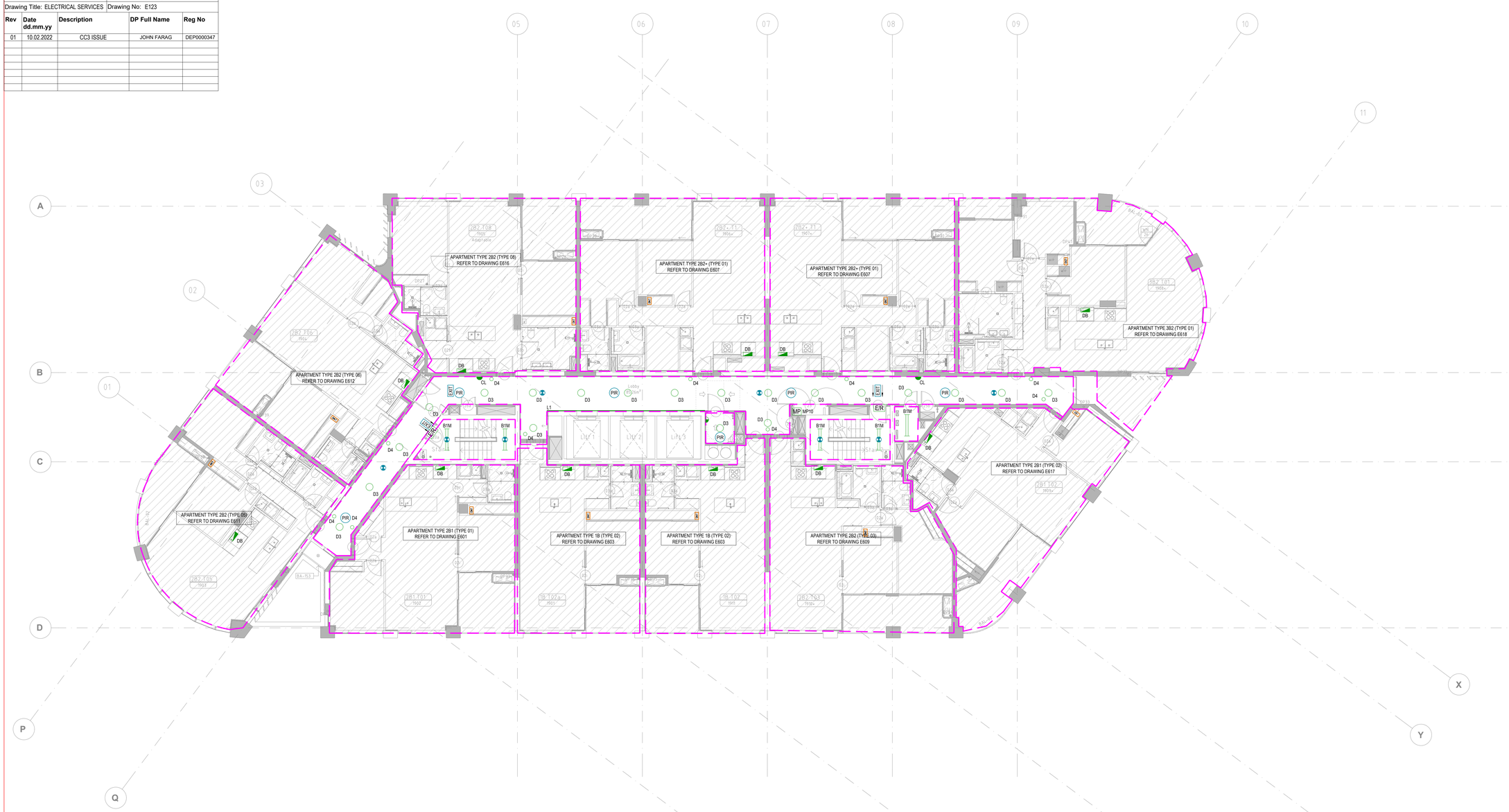
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E122

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E123		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

PARKVIEW

Electrical Contractor

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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
Verified J.F.	Date 10.02.2022
Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 19 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E123

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E124		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

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Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 20 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

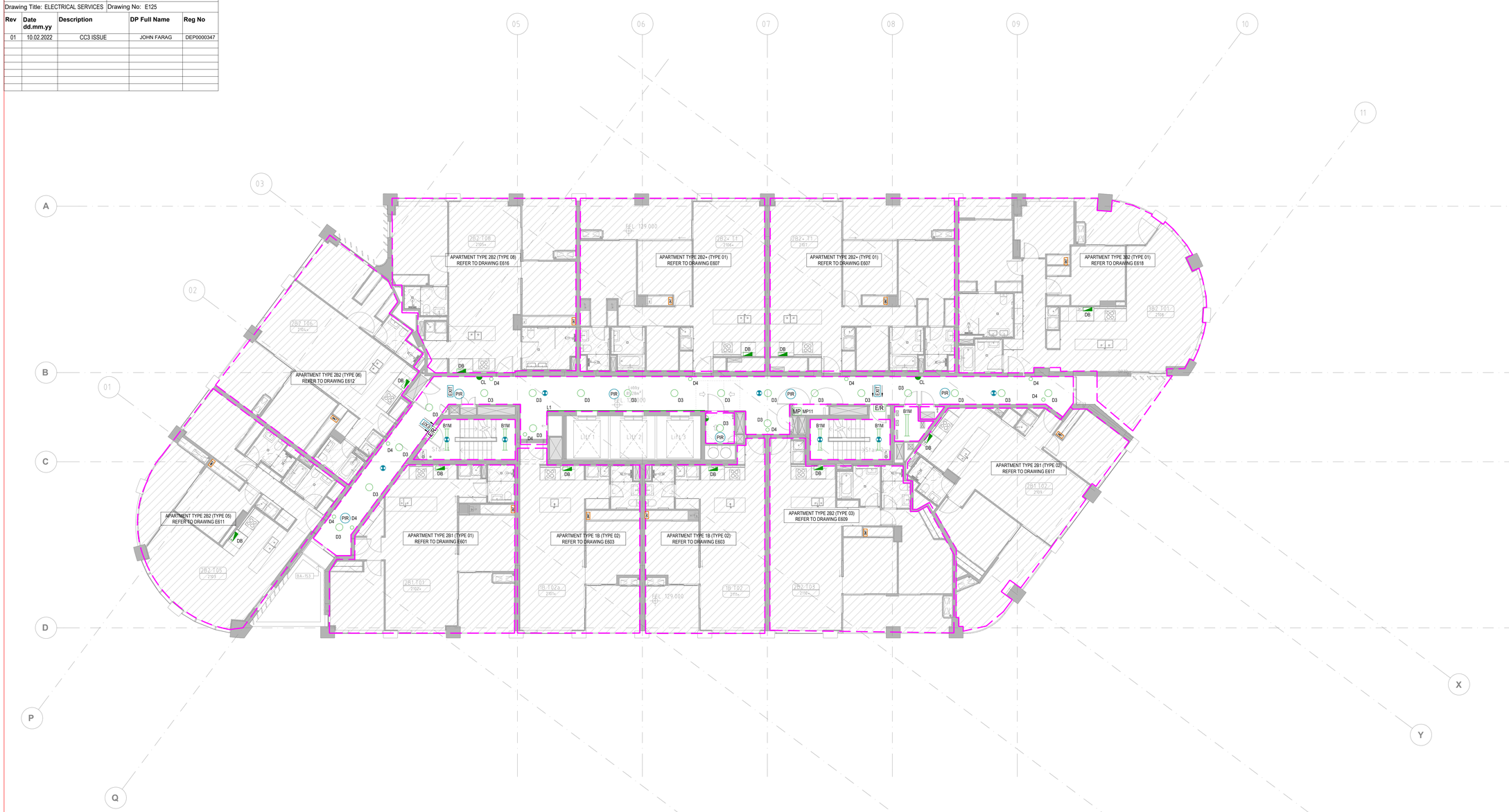
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E124

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E125		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
C	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022
Checked J.F.	Date 10.02.2022
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Approved J.F.	10.02.2022

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 21 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

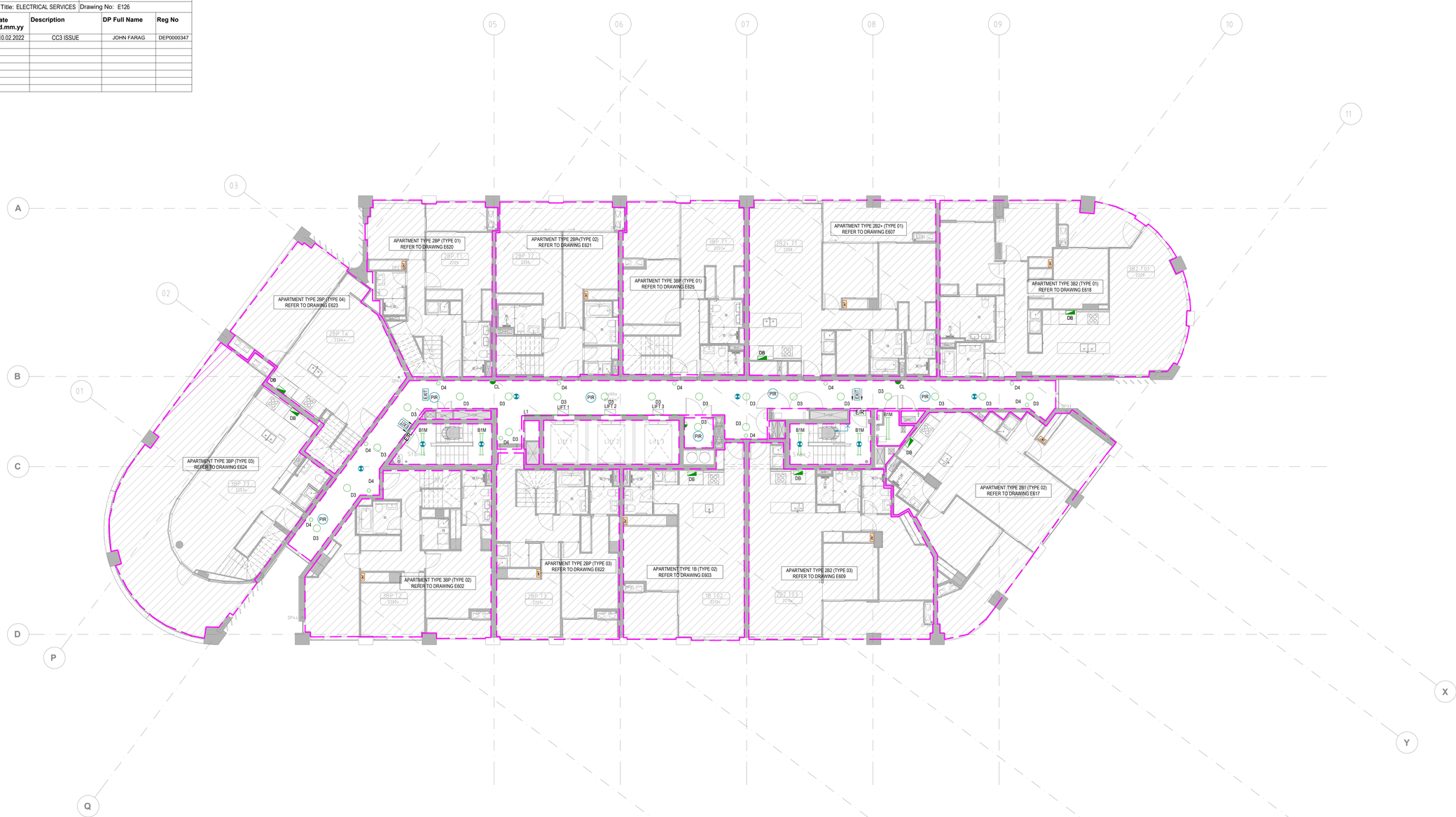
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

Drawing Number: E125

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E126		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Checked J.F.	Date 10.02.2022
Designed A.H.	Date 10.02.2022
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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 22 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

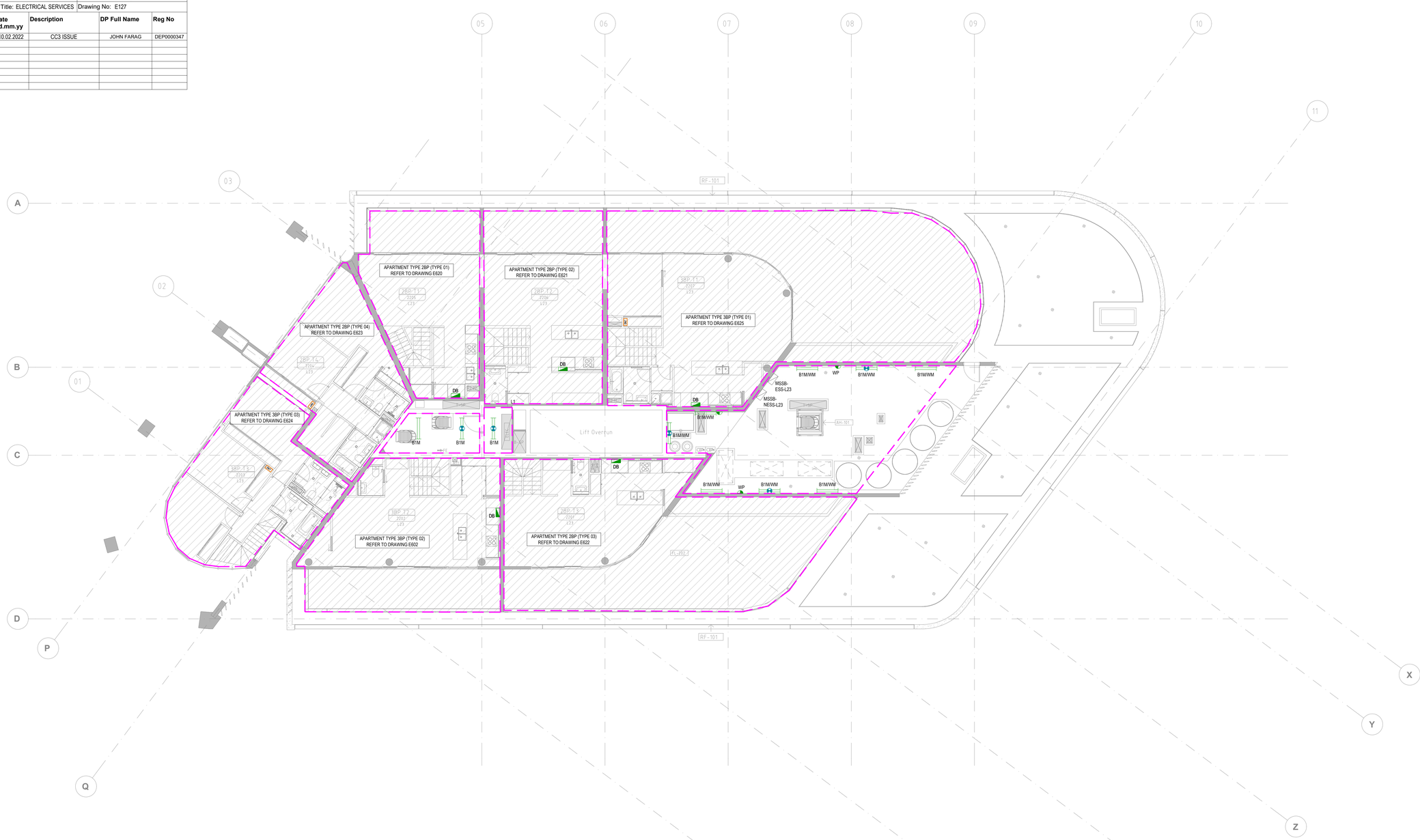
Drawing Number: E126

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E127

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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A.	25.10.2021	FOR COORDINATION	A.H.	J.F.	J.F.

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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
LEVEL 23 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

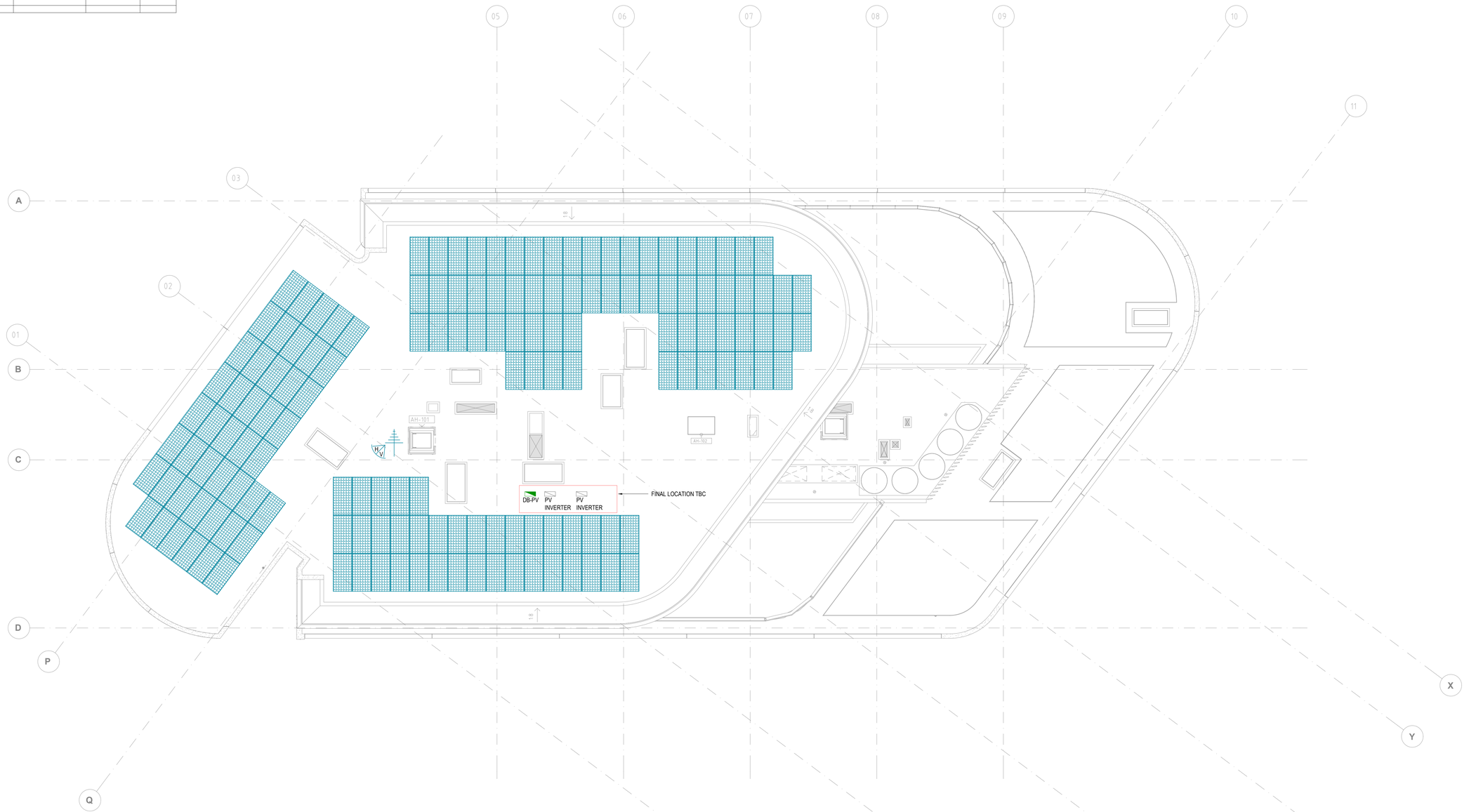
Drawing Number: E127

Revision: C

Regulated Design Record

Project Address:	Ivanhoe Estate, Macquarie Park
Project Title:	Building A1, Midtown MacPark
Consent No:	SSD NO# 8903
Body Corporate Reg No:	
Drawing Title:	ELECTRICAL SERVICES
Drawing No:	E128

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



Builder

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Rev.	Date	Description	Des.	Verif.	Appd.
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Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
ROOF LEVEL 24 - LIGHTING, POWER, COMMUNICATIONS AND SECURITY LAYOUT

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	1:100	B1

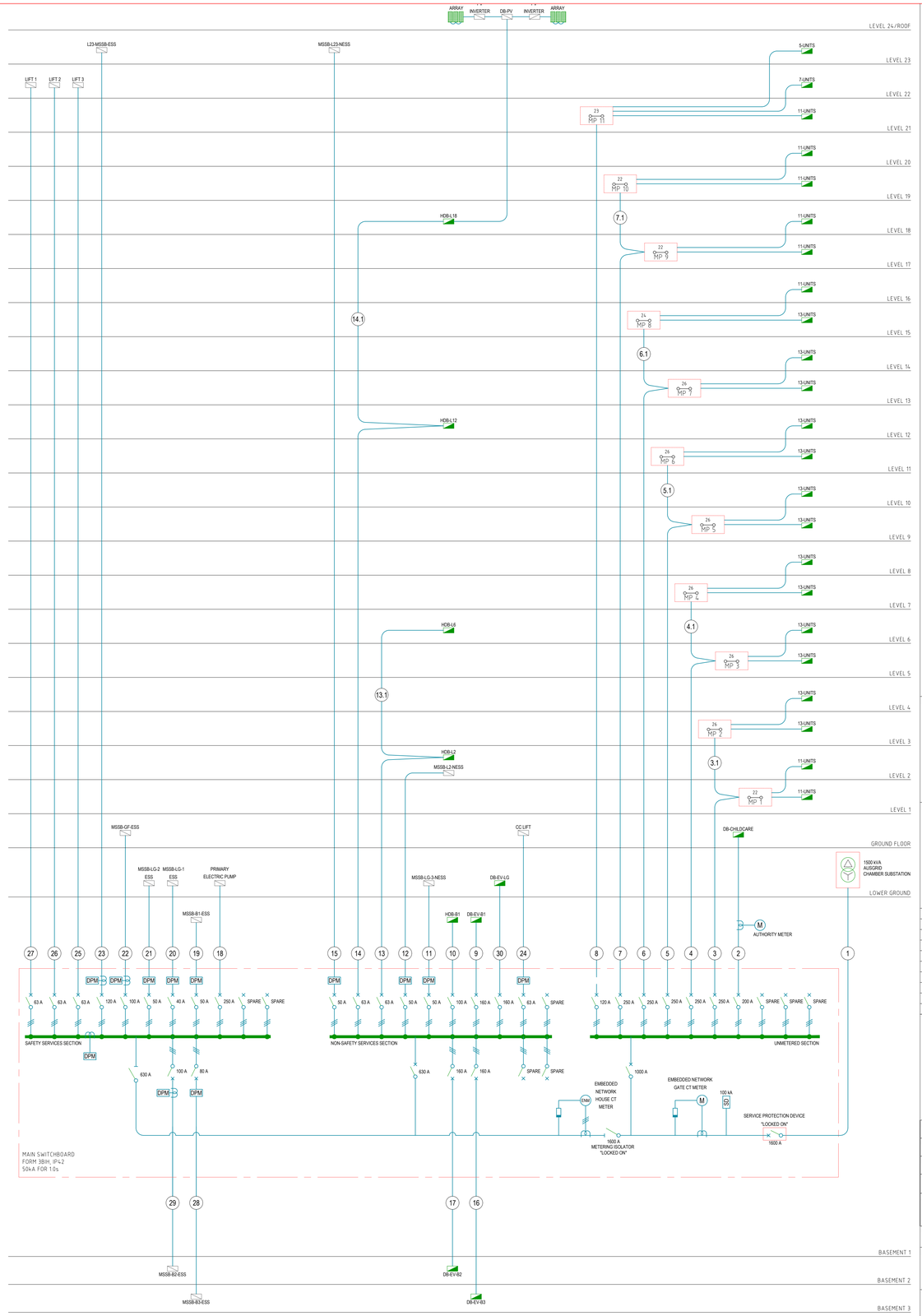
Drawing Number: E128

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E300		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347

Cable No	Active	Neutral	Earth	Insulation	Configuration	Load	Source	Destination
1	3 x 400mm² Cu	3 x 400mm²	3 x 120mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	1,600.00A	Supply	MSB
2	1 x 185mm² Al	1 x 185mm²	1 x 35mm² Cu	X-90 XLPE	3 x 1 core Trefoil	200.00A	MSB	DB-CHILDCARE
3	1 x 150mm² Al	1 x 150mm²	1 x 25mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MSB	MP-1
3.1	1 x 150mm² Al	1 x 150mm²	1 x 25mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MP-1	MP-2
4	1 x 150mm² Al	1 x 150mm²	1 x 25mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MSB	MP-3
4.1	1 x 150mm² Al	1 x 150mm²	1 x 25mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MP-3	MP-4
5	1 x 185mm² Al	1 x 185mm²	1 x 35mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MSB	MP-5
5.1	1 x 185mm² Al	1 x 185mm²	1 x 35mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MP-5	MP-6
6	1 x 240mm² Al	1 x 240mm²	1 x 50mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MSB	MP-7
6.1	1 x 240mm² Al	1 x 240mm²	1 x 50mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MP-7	MP-8
7	1 x 240mm² Al	1 x 240mm²	1 x 50mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MSB	MP-9
7.1	1 x 240mm² Al	1 x 240mm²	1 x 50mm² Cu	X-90 XLPE	3 x 1 core Trefoil	250.00A	MP-9	MP-10
8	1 x 95mm² Al	1 x 95mm²	1 x 16mm² Cu	X-90 XLPE	3 x 1 core Trefoil	120.00A	MSB	MP-11
24	1 x 25mm² Al	1 x 25mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	63.00A	MSB	CC LIFT
30	1 x 70mm² Al	1 x 70mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	160.00A	MSB	DV-EV-LG
9	1 x 70mm² Al	1 x 70mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	160.00A	MSB	DB-EB-B1
10	1 x 35mm² Al	1 x 35mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	100.00A	MSB	HDB-B1
11	1 x 25mm² Al	1 x 25mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	50.00A	MSB	MSSB-LG-3-NESS
12	1 x 25mm² Al	1 x 25mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	50.00A	MSB	MSSB-L2-NESS
13	1 x 35mm² Al	1 x 35mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	63.00A	MSB	HDB-L2
13.1	1 x 35mm² Al	1 x 35mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	63.00A	HDB-L2	HDB-L6
14	1 x 35mm² Al	1 x 35mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	63.00A	MSB	HDB-L12
14.1	1 x 35mm² Al	1 x 35mm²	1 x 6mm² Cu	X-90 XLPE	3 x 1 core Trefoil	63.00A	HDB-L12	HDB-L18
15	1 x 50mm² Al	1 x 50mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	50.00A	MSB	MSSB-L23-NESS
16	1 x 70mm² Al	1 x 70mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	160.00A	MSB	DV-EV-B3
17	1 x 70mm² Al	1 x 70mm²	1 x 10mm² Cu	X-90 XLPE	3 x 1 core Trefoil	160.00A	MSB	DB-EV-B2
18	1 x 70mm² Cu	1 x 70mm²	1 x 25mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	250.00A	MSB	PRIMARY ELECTRIC PUMP
19	1 x 16mm² Cu	1 x 16mm²	1 x 6mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	50.00A	MSB	MSSB-B1-ESS
20	1 x 10mm² Cu	1 x 10mm²	1 x 4mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	40.00A	MSB	MSSB-LG-1-ESS
21	1 x 16mm² Cu	1 x 16mm²	1 x 6mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	50.00A	MSB	MSSB-LG-2-ESS
22	1 x 25mm² Cu	1 x 25mm²	1 x 6mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	100.00A	MSB	MSSB-GF-ESS
23	1 x 50mm² Cu	1 x 50mm²	1 x 16mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	120.00A	MSB	MSSB-L23-ESS
25	1 x 25mm² Cu	1 x 25mm²	1 x 10mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	63.00A	MSB	LIFT 1
26	1 x 25mm² Cu	1 x 25mm²	1 x 10mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	63.00A	MSB	LIFT 2
27	1 x 25mm² Cu	1 x 25mm²	1 x 10mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	63.00A	MSB	LIFT 3
28	1 x 25mm² Cu	1 x 25mm²	1 x 6mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	80.00A	MSB	MSSB-B3-ESS
29	1 x 35mm² Cu	1 x 35mm²	1 x 10mm² Cu	X-HF-110 XLPE	3 x 1 core Trefoil	100.00A	MSB	MSSB-B2-ESS

CABLE SCHEDULE



MAIN SINGLE LINE DIAGRAM

Builder

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C	10.02.2022	FOR COSTRUCTION	A.H.	J.F.	J.F.
B	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.
A	26.10.2021	FOR APPROVAL	A.H.	J.F.	J.F.

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Designed A.H.	Date 10.02.2022	
Verified J.F.	Date 10.02.2022	
Approved J.F.	Date 10.02.2022	

Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
MAIN SINGLE LINE DIAGRAM
AND CABLE SCHEDULE

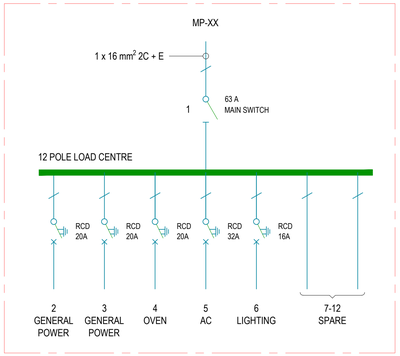
Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	N.T.S	B1

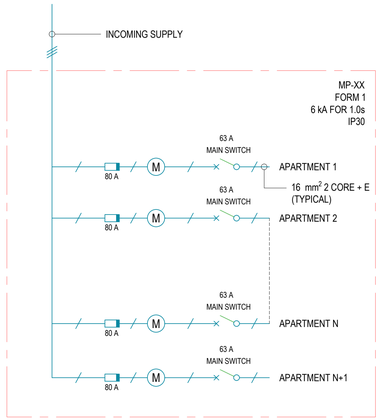
Drawing Number: E300

Revision: C

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E301		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347



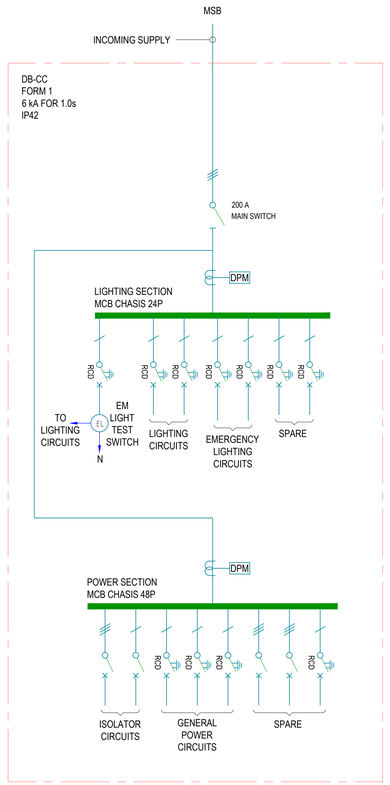
TYPICAL APARTMENT DB



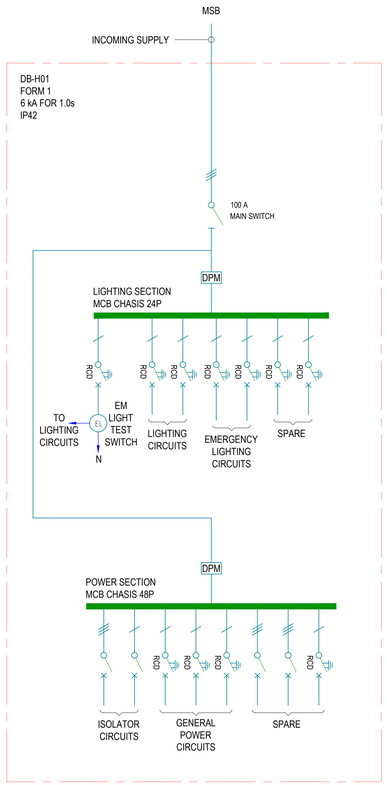
TYPICAL RESIDENTIAL METER PANEL

METER PANEL	NO. OF APARTMENTS
MP-1	22
MP-2	26
MP-3	26
MP-4	26
MP-5	26
MP-6	26
MP-7	26
MP-8	24
MP-9	22
MP-10	22
MP-11	23

METER PANEL SCHEDULE



CHILDCARE DISTRIBUTION BOARD SCHEMATIC



HOUSE DISTRIBUTION BOARD SCHEMATIC

Builder

PARKVIEW

Electrical Contractor

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Checked J.F.	Date 10.02.2022	This document is produced by Aadler Pty. Ltd. solely for the benefit of and use by the nominated client in accordance with the terms of the agreed fee proposal. Aadler Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by the third party on the content of this document.
Designed A.H.	Date 10.02.2022	
Verified J.F.	Date 10.02.2022	
Approved J.F.	10.02.2022	

Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
METER PANEL AND DISTRIBUTION BOARD SCHEMATICS

Status: FOR CONSTRUCTION

B.U	Project No.	Scale	Size
N.S.W	210037	N.T.S	B1

Drawing Number: E301

Revision: B

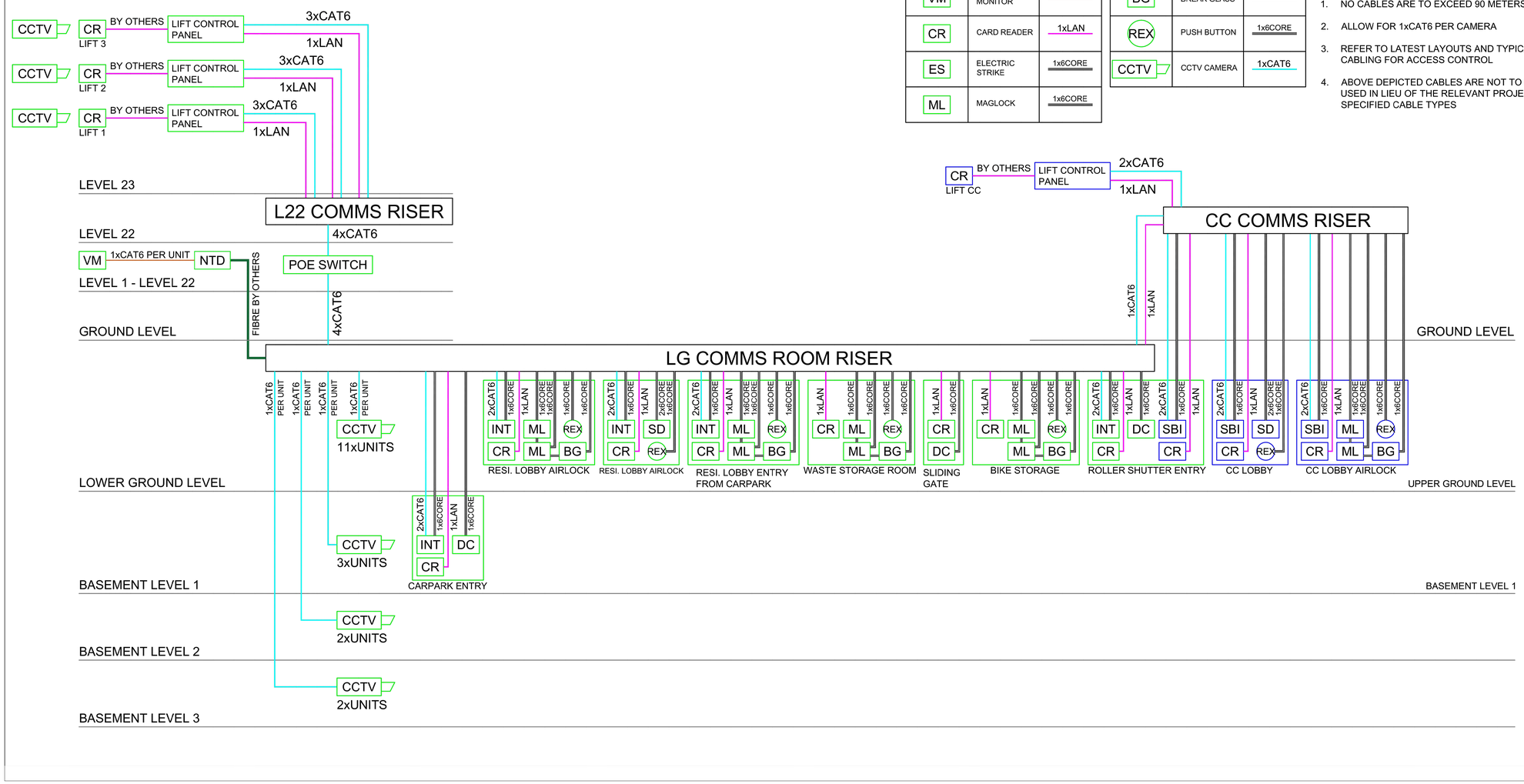
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903		Body Corporate Reg No:		
Drawing Title: ELECTRICAL SERVICES		Drawing No: E303		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
01	10.02.2022	CC3 ISSUE	JOHN FARAG	DEP0000347

SYMBOL	DESCIPTION	CABLING
INT	INTERCOM DOOR STATION	2xCAT6 1x6CORE
SBI	SINGLE BUTTON INTERCOM DOOR STATION	2xCAT6 1x6CORE
VM	INTERCOM MONITOR	1xCAT6
CR	CARD READER	1xLAN
ES	ELECTRIC STRIKE	1x6CORE
ML	MAGLOCK	1x6CORE

SYMBOL	DESCIPTION	CABLING
DC	DOOR CONTROLLER	1x6CORE
SD	SLIDING DOOR CONTROLLER	1x6CORE
BG	BREAK GLASS	1x6CORE
REX	PUSH BUTTON	1x6CORE
CCTV	CCTV CAMERA	1xCAT6

CABLE LEGEND	
CABLE TYPE	DESCRIPTION
CAT5/6	4 PAIR TWISTED UTP
LAN	3 PAIR TWISTED & SHIELDED MCP3S
6CORE	14/020
FIG8	24/020

NOTES:
1. NO CABLES ARE TO EXCEED 90 METERS.
2. ALLOW FOR 1xCAT6 PER CAMERA
3. REFER TO LATEST LAYOUTS AND TYPICAL CABLING FOR ACCESS CONTROL
4. ABOVE DEPICTED CABLES ARE NOT TO BE USED IN LIEU OF THE RELEVANT PROJECT SPECIFIED CABLE TYPES



MAIN SECURITY SCHEMATIC

Builder

PARKVIEW

Electrical Contractor

OXFORD ELECTRICAL GROUP
SINCE 2005
OXFORD ELECTRICAL GROUP

OXFORD ELECTRICAL GROUP
A: Unit 15
20-30 Stubbs St
Silverwater, NSW 2128
P: (02) 9002 3377
E: admin@oxfordgroup.com.au

Rev.	Date	Description	Des.	Verif.	Appd.
B	10.02.2022	FOR CC3 ISSUE	A.H.	J.F.	J.F.
A	08.12.2021	FOR APPROVAL	A.H.	J.F.	J.F.

AADLER

Drawn A.H.	Date 10.02.2022	Aadler Pty. Ltd. This document is produced by Aadler Pty. Ltd. solely for the benefit of and use by the nominated client in accordance with the terms of the agreed fee proposal. Aadler Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by the third party on the content of this document.
Checked J.F.	Date 10.02.2022	
Designed A.H.	Date 10.02.2022	
Verified J.F.	Date 10.02.2022	
Approved J.F.	Date 10.02.2022	

Client: PARKVIEW CONSTRUCTIONS

Project: BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK, NSW 2113

Title: ELECTRICAL SERVICES
MAIN SECURITY SCHEMATIC

Status: FOR APPROVAL
FOR CONSTRUCTION PURPOSES WHEN STAMPED

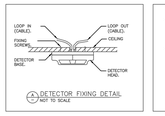
B.U	Project No.	Scale	Size
N.S.W	210037	N.T.S	B1

Drawing Number: E303
Revision: B

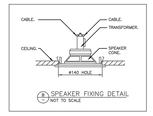
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Basement 3 Dry Fire Services			Drawing No: IFS-F-D-201	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	16.07.21	WM
02	PARKVIEW CONSTRUCTIONS	B	31.08.21	WM
03	PARKVIEW CONSTRUCTIONS	C	18.10.21	WM
04	PARKVIEW CONSTRUCTIONS	D	29.11.21	WM
05	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	16.07.21
B	FOR COORDINATION	WM	31.08.21
C	FOR COORDINATION	WM	18.10.21
D	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FDCP	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCP	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FIP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
EWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
ASD	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASD5 SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
SD	SMOKE DETECTOR WITHIN AIR DUCT	
IO	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WP	WARDEN INTERCOM. POINT	
MP	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
GV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.003	03	
RCP			
MECHANICAL	A1-ME-1-B03-01	E	
ELECTRICAL	E100	B	
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

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Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
BASEMENT 3

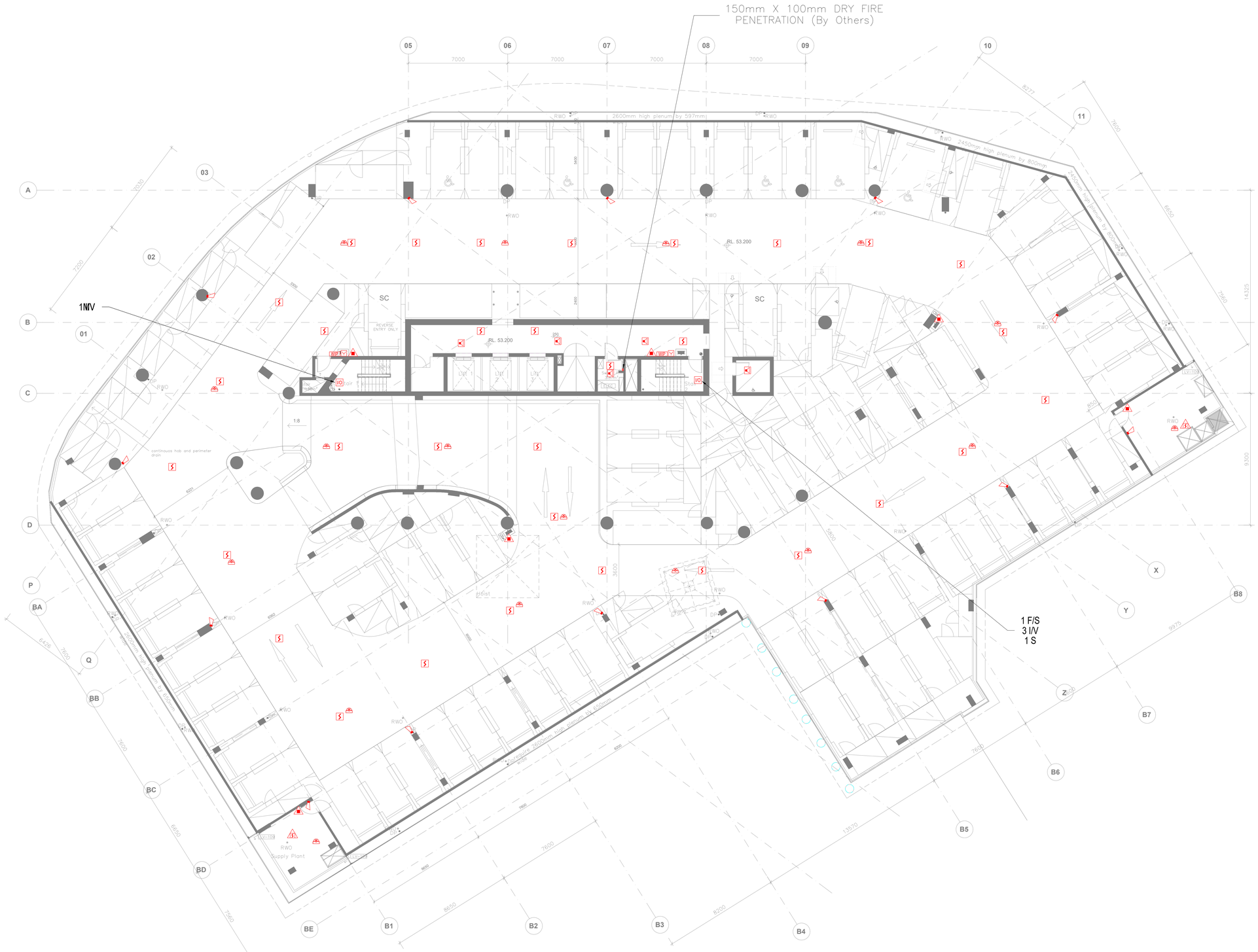
Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No. IFS-F-D-201

ISSUES: A | B | C | D | 01

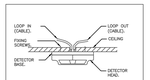


NEW INSTALLATIONS

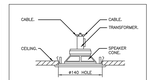
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No:	DEP0001256
Drawing Title: Basement 2 Dry Fire Services			Drawing No:	IFS-F-D-202
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	16.07.21	WM
02	PARKVIEW CONSTRUCTIONS	B	31.08.21	WM
03	PARKVIEW CONSTRUCTIONS	C	18.10.21	WM
04	PARKVIEW CONSTRUCTIONS	D	29.11.21	WM
05	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	16.07.21
B	FOR COORDINATION	WM	31.08.21
C	FOR COORDINATION	WM	18.10.21
D	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FDCP	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCP	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FPCP	FIRE PAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
EWIP	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MSDS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASD5 SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
S	SMOKE DETECTOR WITHIN AIR DUCT	
IO	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
C	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
MCP	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM/SERVEE	
S	SOLENOID VALVE	
GV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.002	3	
RCP			
MECHANICAL	A1-ME-1-B02-01	E	
ELECTRICAL	E101	C	
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title

FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
BASEMENT 2

Project

BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address

IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No.

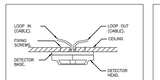
IFS-F-D-202

ISSUES	A	B	C	D	01				

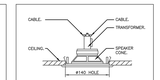
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER: 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Basement 1 Dry Fire Services			Drawing No: IFS-F-D-203	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	16.07.21	WM
02	PARKVIEW CONSTRUCTIONS	B	31.08.21	WM
03	PARKVIEW CONSTRUCTIONS	C	18.10.21	WM
04	PARKVIEW CONSTRUCTIONS	D	29.11.21	WM
05	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	16.07.21
B	FOR COORDINATION	WM	31.08.21
C	FOR COORDINATION	WM	18.10.21
D	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FDCIE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
ECIE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FCP	FIRE FAN CONTROL PANEL	
FIP	SUB-FIRE INDICATOR PANEL	
ECIE	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MIPDS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
S	SMOKE DETECTOR	
T	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
D	SMOKE DETECTOR WITHIN AIR DUCT	
IO	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
CS	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WP	WARDEN INTERCOM POINT	
MCP	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
GV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.001	04	
RCP			
MECHANICAL	A1-ME-1-B01-01	E	
ELECTRICAL	E102	B	
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title

FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
BASEMENT 1

Project

BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address

IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No.

IFS-F-D-203

ISSUES	A	B	C	D	01				

150mm X 100mm DRY FIRE PENETRATION (By Others)

DRY FIRE DEVICES IN LOBBY TO BE SHOWN ON LEVEL ABOVE

2 I/V

1 F/S
2 I/V
1 S

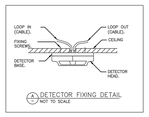
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

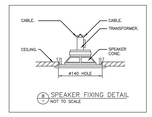
1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

FIRE CONTROL ROOM NOTES:

1. A minimum clearance of 1 m in front and 0.5 m to each side shall be maintained from CIE cabinets that require operation by emergency service personnel.
2. BCA2019 to be followed for Fire Control Rooms



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Lower Ground Dry Fire Services			Drawing No:	IFS-F-D-204
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous.	FSD45338
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin.	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	31.08.21	WM
02	PARKVIEW CONSTRUCTIONS	B	18.10.21	WM
03	PARKVIEW CONSTRUCTIONS	C	29.11.21	WM
04	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	31.08.21
B	FOR COORDINATION	WM	18.10.21
C	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FIDCE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FIFP	FIRE FAN CONTROL PANEL	
SFIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASDS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
S	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
I/V	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.0LG	T	
RCP	A08.A1.0LG	C	
MECHANICAL	A1-ME-1-BLG-01	E	
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au

ABN: 16 119 951 129
ACN: 119 951 129

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Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LOWER GROUND

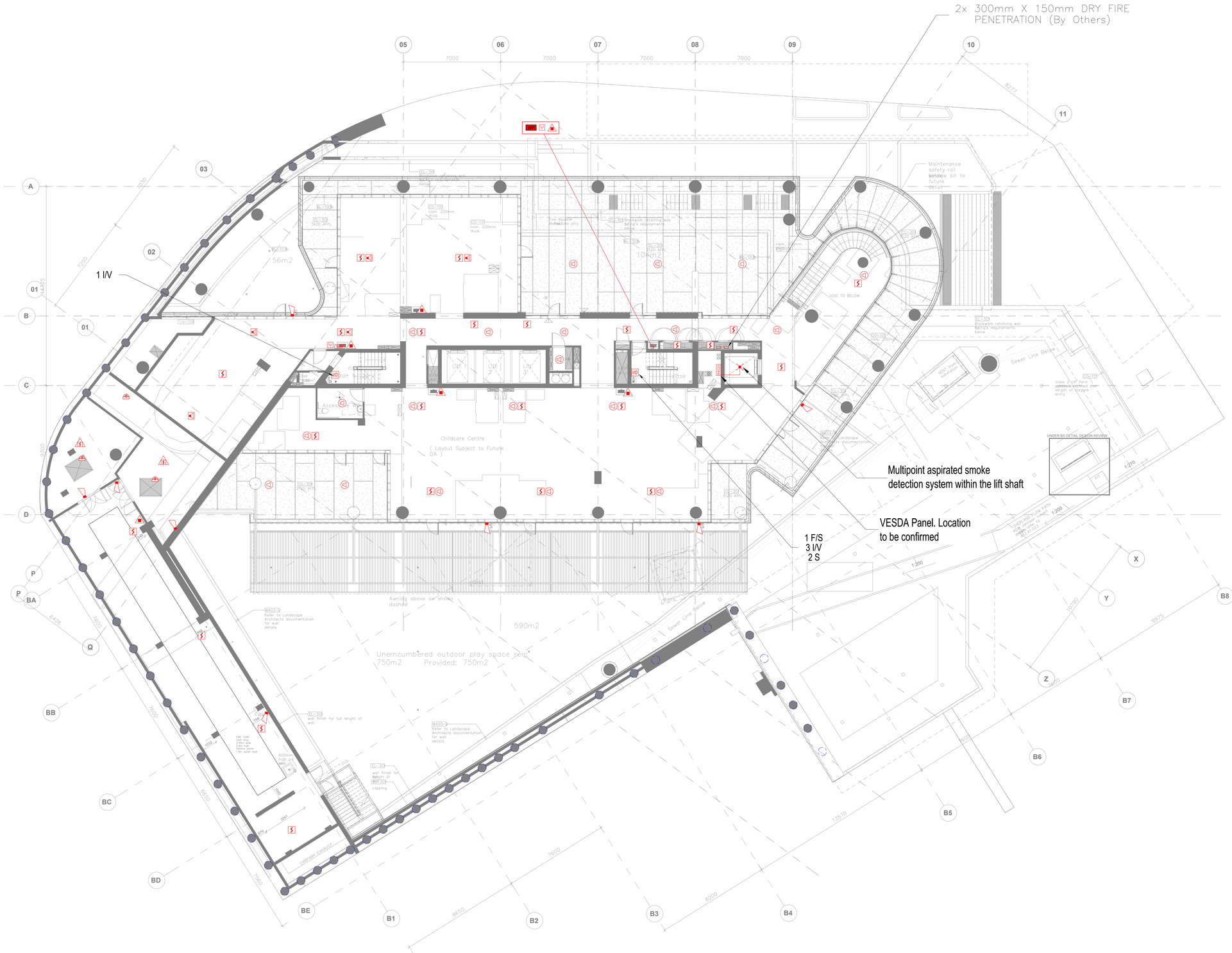
Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.21
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No. IFS-F-D-204

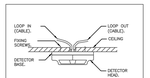
ISSUES: A B C 01



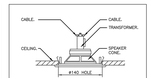
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Ground Floor Dry Fire Services			Drawing No:	IFS-F-D-205
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	31.08.21	WM
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	WM
03	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	31.08.21
B	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FIDCE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWICE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FIPP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MDSS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
S	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
4.5kg	4.5kg ABE FIRE EXTINGUISHER	
3.5kg	3.5kg CO2 FIRE EXTINGUISHER	
5kg	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
9L	9L FOAM FIRE EXTINGUISHER	
9kg	9kg ABE FIRE EXTINGUISHER	
WP	WARDEN INTERCOM POINT	
	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
I/V	ISOLATION VALVE	
P/S	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.100	R	
RCP	A08.A1.100	G	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
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Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title

FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
GROUND FLOOR

Project

BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address

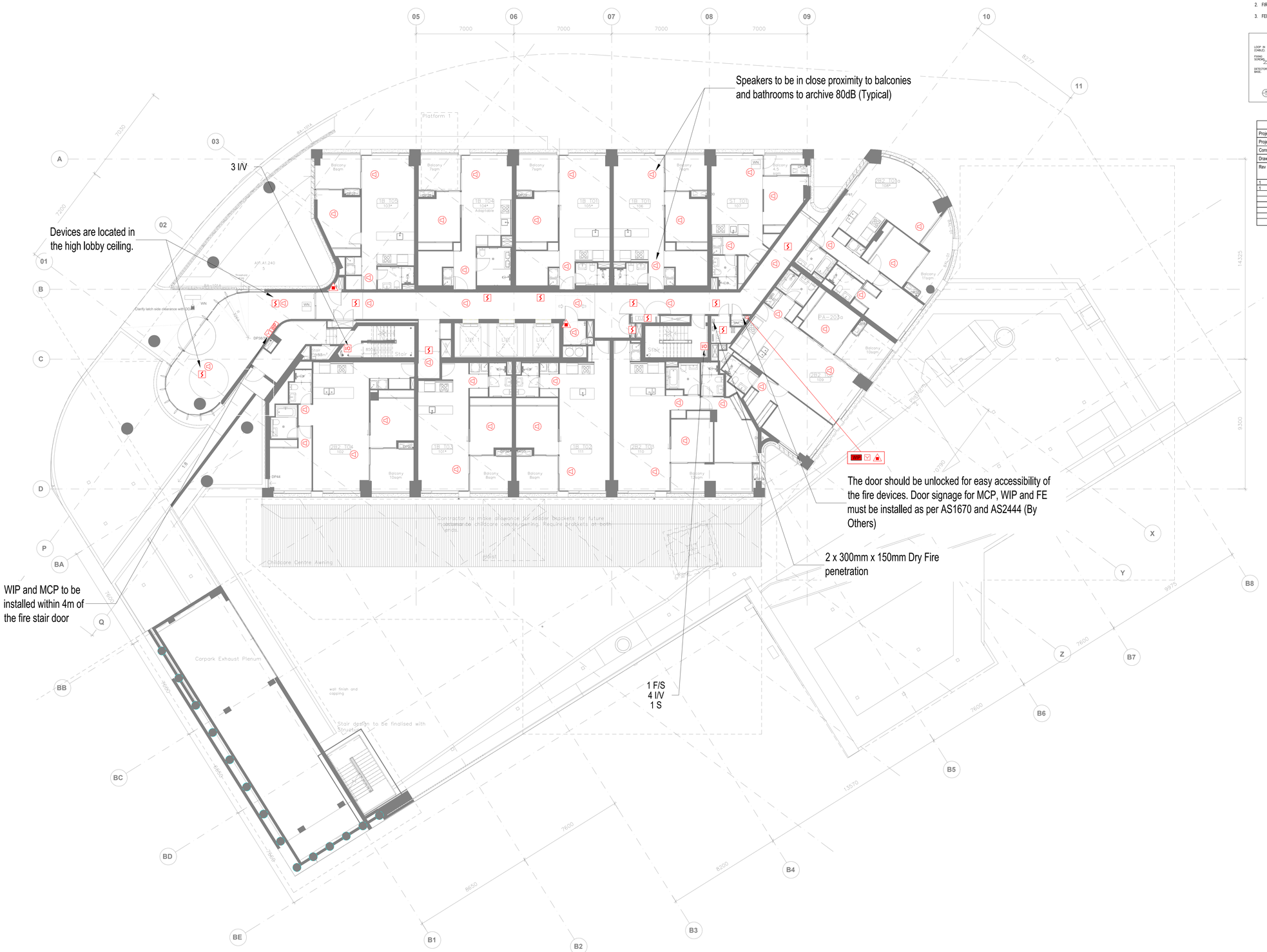
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No.

IFS-F-D-205

ISSUES A B 01

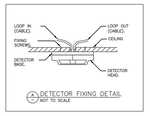


NEW INSTALLATIONS

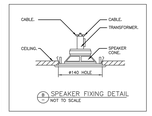
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER: 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021



DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NOM 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 1 Dry Fire Services			Drawing No: IFS-F-D-206	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	01.10.21	WM
02	PARKVIEW CONSTRUCTIONS	B	08.10.21	WM
03	PARKVIEW CONSTRUCTIONS	C	29.11.21	WM
04	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	01.10.21
B	FOR COORDINATION	WM	08.10.21
C	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FDCE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FICP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWCS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASOS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASOS SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
	SMOKE DETECTOR WITHIN CONCEALED SPACE	
	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
M	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
IV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.101	R	
RCP	A08.A1.101	I	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au

ABN: 16 119 951 129
ACN: 119 951 129

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FPA AUSTRALIA

Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 1

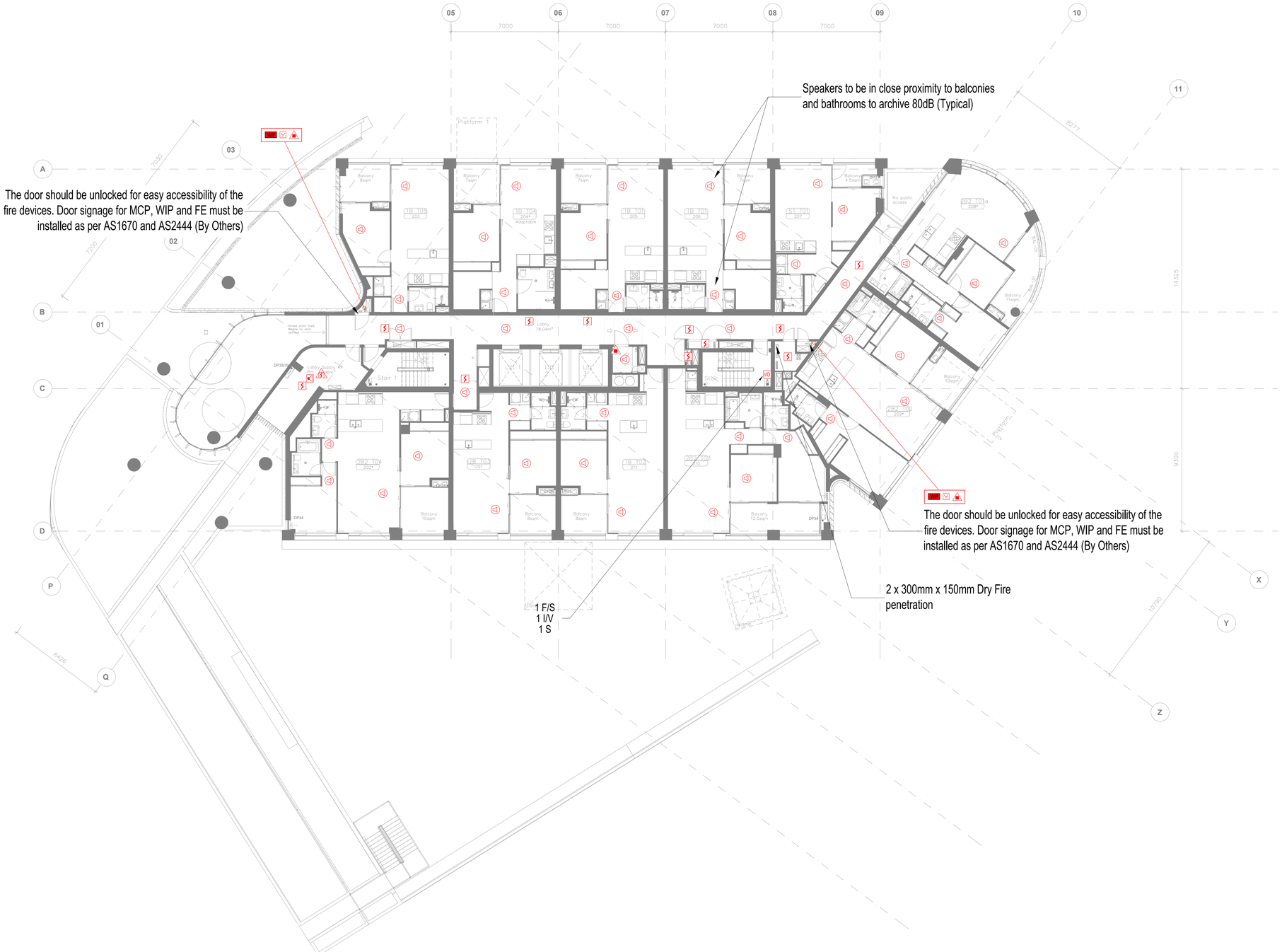
Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No. IFS-F-D-206

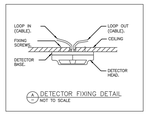
ISSUES	A	B	C	01					

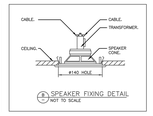


NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021





Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NOM 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 2 Dry Fire Services			Drawing No:	IFS-F-D-207
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	01.10.21	WM
02	PARKVIEW CONSTRUCTIONS	B	08.10.21	WM
03	PARKVIEW CONSTRUCTIONS	C	29.11.21	WM
04	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	01.10.21
B	FOR COORDINATION	WM	08.10.21
C	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FDCIE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCIE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FFCP	FIRE FAN CONTROL PANEL	
SFIP	SUB-FIRE INDICATOR PANEL	
SEWCI	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASSD	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASOS SAMPLE POINT	
S	SMOKE DETECTOR	
H	THERMAL DETECTOR	
S	SMOKE DETECTOR WITHIN CONCEALED SPACE	
S	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM. POINT	
M	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
ISV	ISOLATION VALVE	
P/S	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.102	O	
RCP	A08.A1.102	F	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 2

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

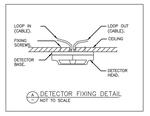
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ISSUES: A B C 01

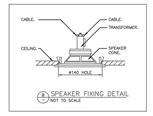
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER: 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

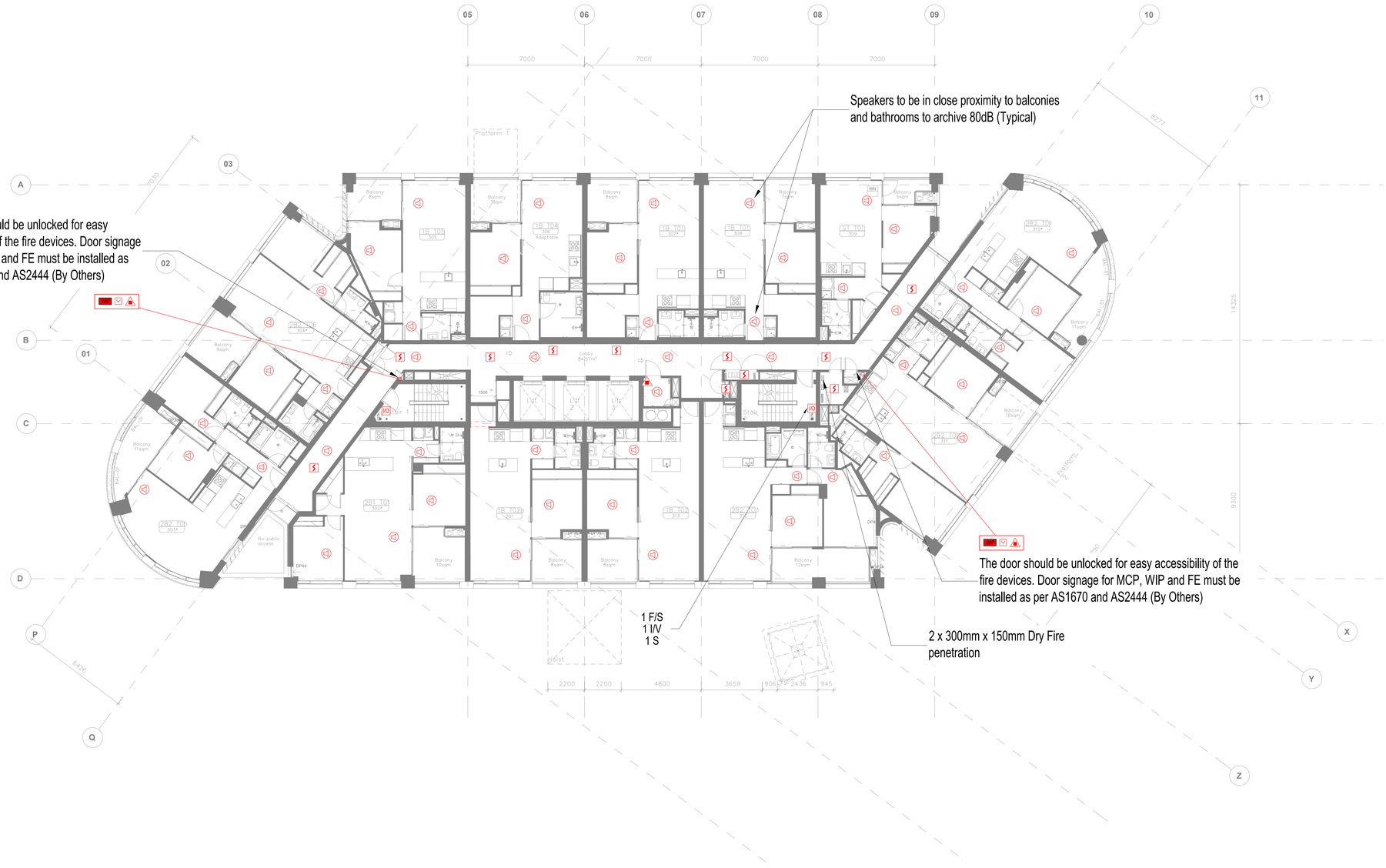


DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 3-7 Dry Fire Services			Drawing No: IFS-F-D-208	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	13.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	13.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370



ISSUES				
No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	13.09.21	WM
02	PARKVIEW CONSTRUCTIONS	B	08.10.21	WM
03	PARKVIEW CONSTRUCTIONS	C	29.11.21	WM
04	PARKVIEW CONSTRUCTIONS	01	13.12.21	WM

AMENDMENTS			
Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	13.09.21
B	FOR COORDINATION	WM	08.10.21
C	FOR APPROVAL	WM	29.11.29
01	FOR CONSTRUCTION	WM	13.12.21

LEGEND

Key	Description	No.
FIDE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWIE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FFCP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASSD	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASOS SAMPLE POINT	
	SMOKE DETECTOR	
	THERMAL DETECTOR	
	SMOKE DETECTOR WITHIN CONCEALED SPACE	
	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
M	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
IV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.103	P	
RCP	A08.A1.103	H	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

FPA AUSTRALIA

Title
FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 3 TO LEVEL 7

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

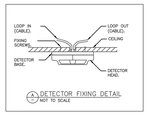
Drawing No.
IFS-F-D-208

ISSUES	A	B	C	01					

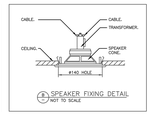
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER: 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

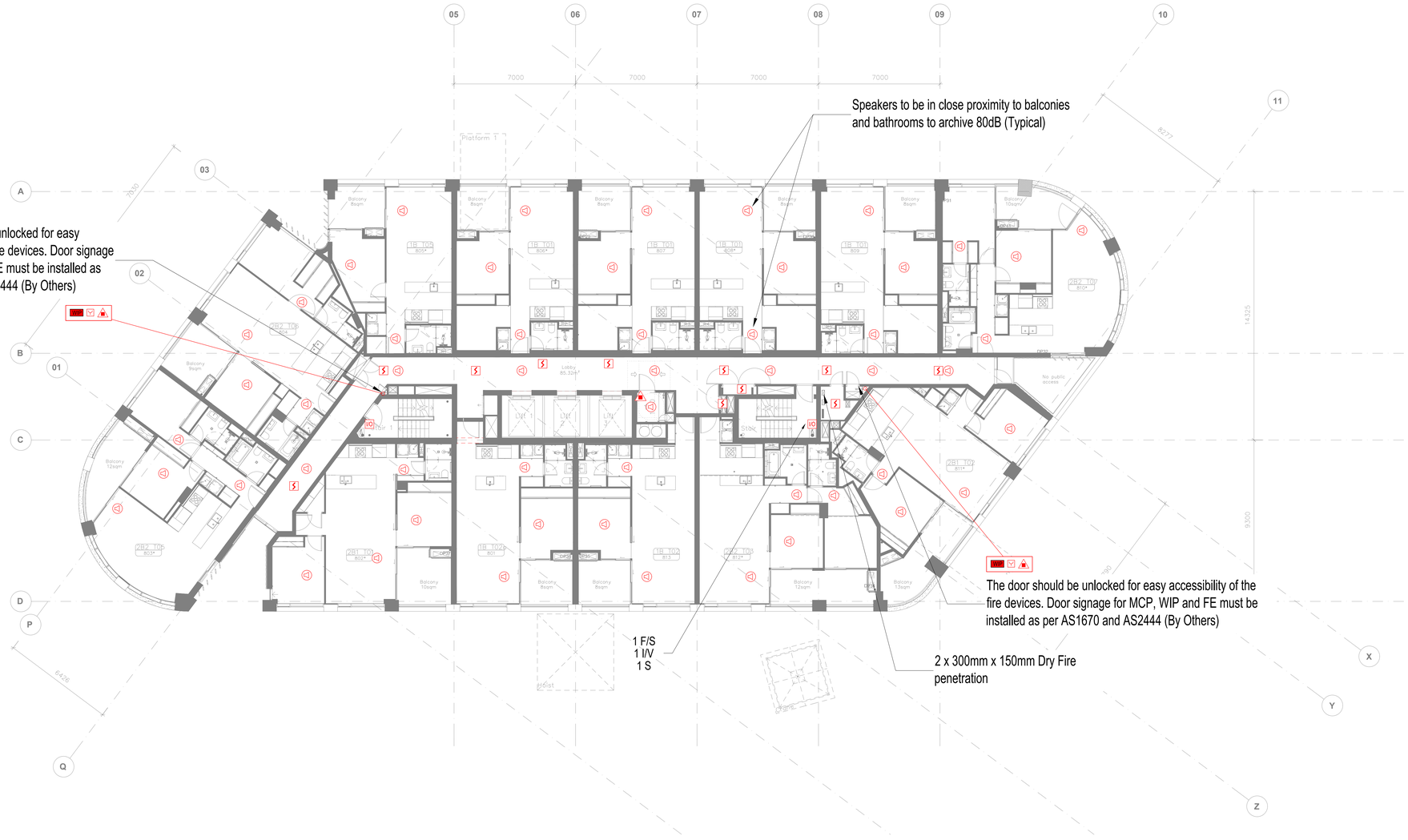


DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 8-15 Dry Fire Services			Drawing No: IFS-F-D-213	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	15.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370



ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	08.10.21	WM
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	WM
03	PARKVIEW CONSTRUCTIONS	01	15.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	08.10.21
B	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	15.12.21

LEGEND

Key	Description	No.
FDCIE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCIE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FCP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASDS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
	SMOKE DETECTOR	
	THERMAL DETECTOR	
	SMOKE DETECTOR WITHIN CONCEALED SPACE	
	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
IV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.108	O	
RCP	A08.A1.108	H	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129
©

Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 8 TO LEVEL 15

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	15.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

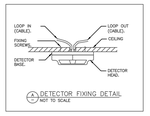
Drawing No. IFS-F-D-213

ISSUES: A | B | 01

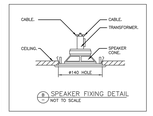
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

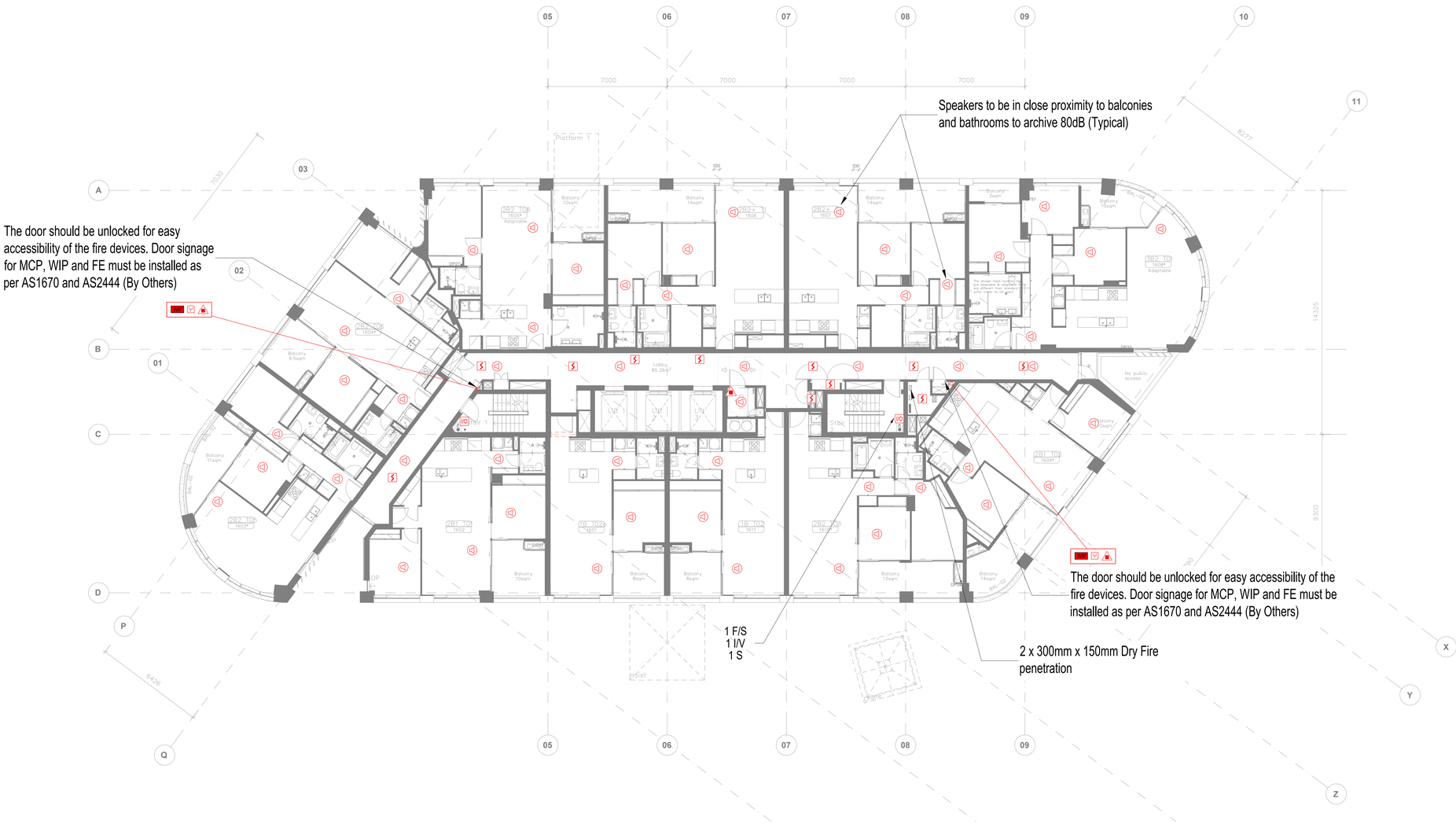


DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

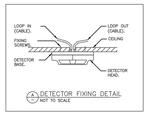
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 16-21 Dry Fire Services			Drawing No:	IFS-F-D-221
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	15.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370


Speakers to be in close proximity to balconies and bathrooms to archive 80dB (Typical)
The door should be unlocked for easy accessibility of the fire devices. Door signage for MCP, WIP and FE must be installed as per AS1670 and AS2444 (By Others)
1 F/S
1 I/V
1 S
2 x 300mm x 150mm Dry Fire penetration
The door should be unlocked for easy accessibility of the fire devices. Door signage for MCP, WIP and FE must be installed as per AS1670 and AS2444 (By Others)
05
06
07
08
09
10
11
A
B
C
D
P
Q
X
Y
Z
01
02
03
7000
7000
7000
7000
7039
6426
8277
14325
9300
Platform 1
Balcony 10sqm
Balcony 14sqm
Balcony 9sqm
Balcony 11sqm
Balcony 8sqm
Balcony 13sqm
Lobby 85.26m²
No public access
AB2_10F 1604*
AB2_10G 1605*
AB2_10E 1603*
AB2_10D 1602*
AB1_10D 1609
AB_102 1601
AB_102 1611
AB2_10C 1607*
AB2_10B 1606
AB2_10A 1608*
AB1_10C 1609*
LIFT 1
LIFT 2
LIFT 3
STAIR 1
STAIR 2
STAIR 3
STAIR 4
STAIR 5
STAIR 6
STAIR 7
STAIR 8
STAIR 9
STAIR 10
STAIR 11
STAIR 12
STAIR 13
STAIR 14
STAIR 15
STAIR 16
STAIR 17
STAIR 18
STAIR 19
STAIR 20
STAIR

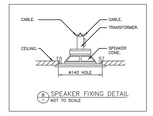
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

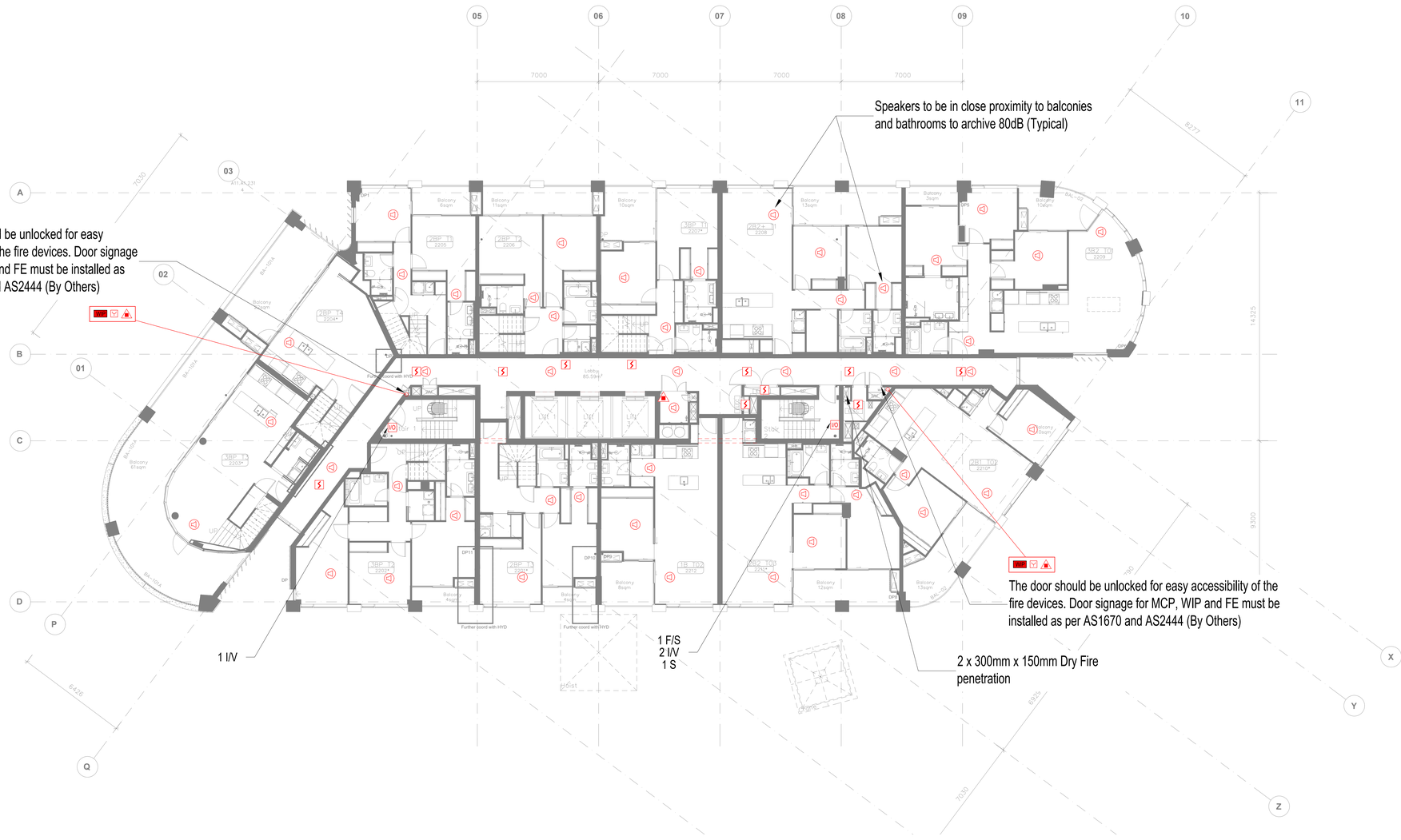


DETECTOR FIXING DETAIL
NOT TO SCALE



SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 22 Dry Fire Services			Drawing No: IFS-F-D-227	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	15.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370



ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	08.10.21	WM
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	WM
03	PARKVIEW CONSTRUCTIONS	01	15.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	08.10.21
B	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	15.12.21

LEGEND

Key	Description	No.
FDCE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FFCP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASDS	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
	SMOKE DETECTOR	
	THERMAL DETECTOR	
	SMOKE DETECTOR WITHIN CONCEALED SPACE	
	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEELING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
M	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
IV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.122	M	
RCP	A08.A1.122	E	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title

FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 22

Project

BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address

IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	15.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No.

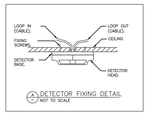
IFS-F-D-227

ISSUES	A	B	01						

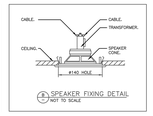
NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2a
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

DESIGN CRITERIA:

1. AUTOMATIC FIRE DETECTION & ALARM SYSTEM:
   - CAR PARK BASEMENTS: AS 1670.1-2018, & 1668.1 (Circulation space to be reduced 7.5m in lieu of 15m as per FER).
2. FIRE DETECTION, WARNING , CONTROL AND INTERCOM SYSTEMS: BCA E4.9 & AS1670.4-2018.
3. FER 172103_A1_FER_DRAFT_01 Ver 01 Dated 22/11/2021

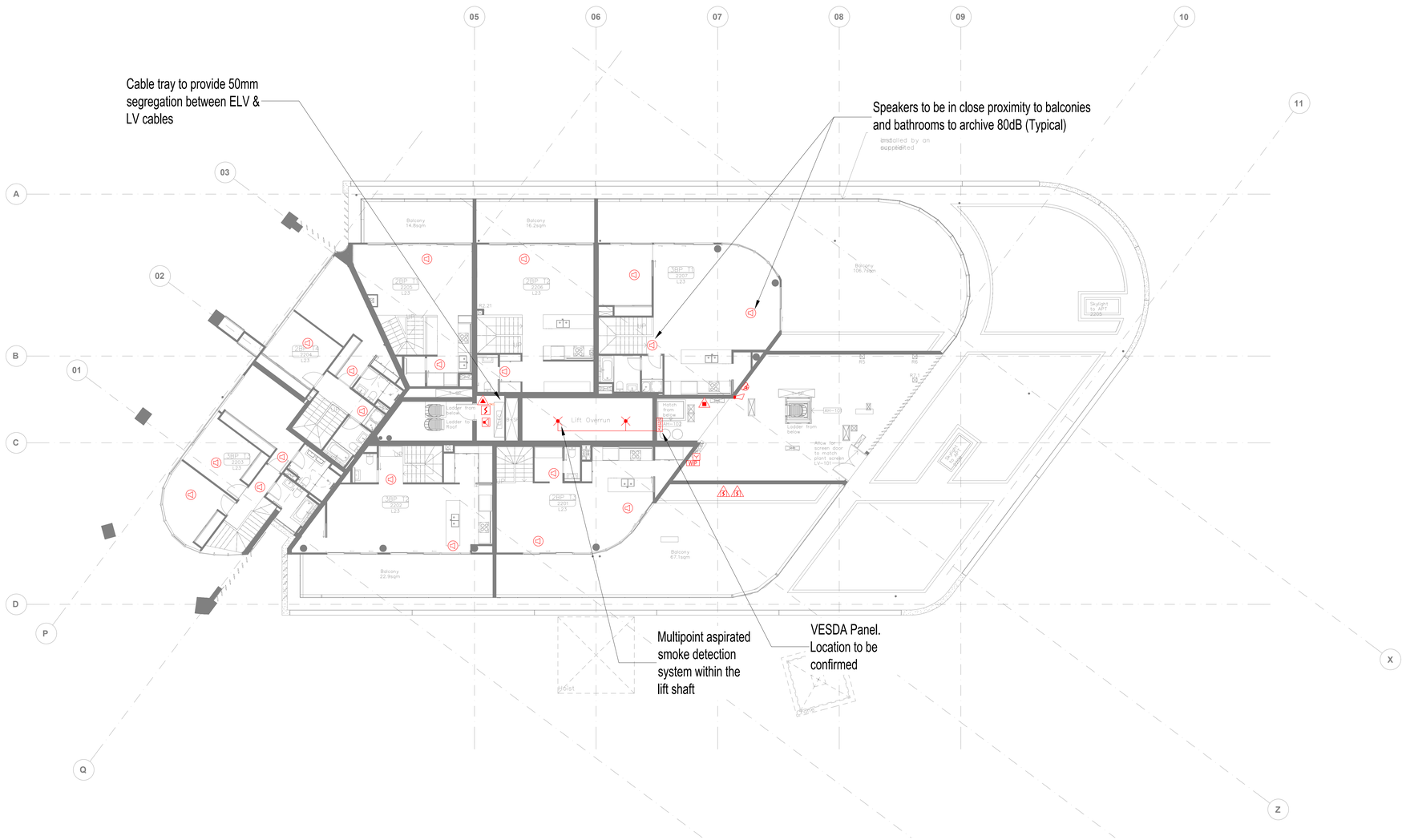


A DETECTOR FIXING DETAIL
NOT TO SCALE



B SPEAKER FIXING DETAIL
NOT TO SCALE

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 23 Dry Fire Services			Drawing No: IFS-F-D-228	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	CC3 - FOR CONSTRUCTION	Rony Tanmous	FSD45336
1	15.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin	FSD45370



ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	08.10.21	WM
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	WM
03	PARKVIEW CONSTRUCTIONS	01	15.12.21	WM

AMENDMENTS

Rev.	Description	Approved	Date
A	FOR COORDINATION	WM	08.10.21
B	FOR APPROVAL	WM	29.11.21
01	FOR CONSTRUCTION	WM	15.12.21

LEGEND

Key	Description	No.
FDCIE	FIRE DETECTION CONTROL & INDICATING EQUIPMENT	
EWCIE	EMERGENCY WARNING CONTROL & INDICATING EQUIPMENT	
FFCP	FIRE FAN CONTROL PANEL	
SIP	SUB-FIRE INDICATOR PANEL	
SEWIS	SUB-EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM	
MASD	MULTIPOINT ASPIRATED SMOKE DETECTION SYSTEM	
	MASDS SAMPLE POINT	
	SMOKE DETECTOR	
	THERMAL DETECTOR	
	SMOKE DETECTOR WITHIN CONCEALED SPACE	
	SMOKE DETECTOR WITHIN AIR DUCT	
I/O	INPUT/OUTPUT MODULE	
	SOUND PROJECTOR	
	RECESSED CEILING BOWS SPEAKER	
	SURFACE MOUNT SPEAKER	
	4.5kg ABE FIRE EXTINGUISHER	
	3.5kg CO2 FIRE EXTINGUISHER	
	5kg CO2 FIRE EXTINGUISHER	
	FIRE BLANKET	
	9L FOAM FIRE EXTINGUISHER	
	9kg ABE FIRE EXTINGUISHER	
WIP	WARDEN INTERCOM POINT	
	MANUAL CALL POINT	
	ELECTROMAGNETIC DOOR HOLDER	
	VISUAL ALARM DEVICE	
S	SOLENOID VALVE	
SV	ISOLATION VALVE	
PS	PRESSURE SWITCH	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.123	L	
RCP	A08.A1.123	E	
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client

FRASERS PROPERTY

Consultant

wsp

Builder

PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

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FPA AUSTRALIA

Title: FIRE SERVICES
FIRE ALARM AND EWIS SYSTEM
LEVEL 23

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	15.12.2021
Drawn	IFS	Scale	1:100@A0
Approved	WM	Job No.	13039

Drawing No. IFS-F-D-228

ISSUES	A	B	01						

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Wet Fire Schematic			Drawing No: IFS-F-W-001	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

TANK SIZING CALCULATION				
System	Flow Rate	Duration	Reduction	Total Volume
Hydrants	N/A	N/A	N/A	25,000 L
Drenchers	335 L/m	120 min	N/A	40,200 L
Sprinklers	893 L/m	60 min	1/3	37,720 L
				100,920 L

NOTES – Refer to Hydraulic Calculations for Input Flow Rates
TANK EFFECTIVE CAPACITY – 105,000 Litres

FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

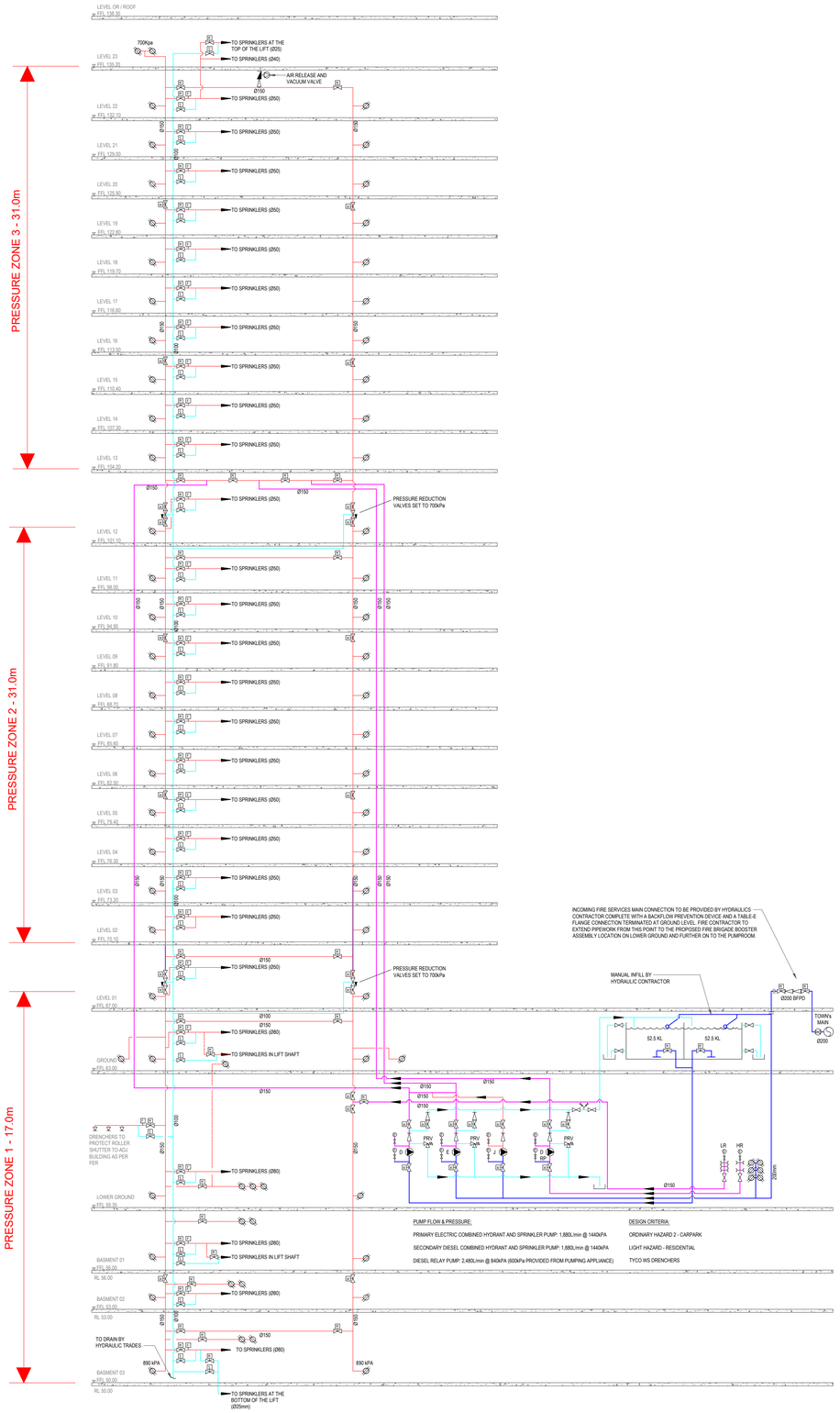
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE



SPRINKLER AND FIRE HYDRANT SCHEMATIC

NOT TO SCALE

SPRINKLER CONTROL VALVE ARRANGEMENT

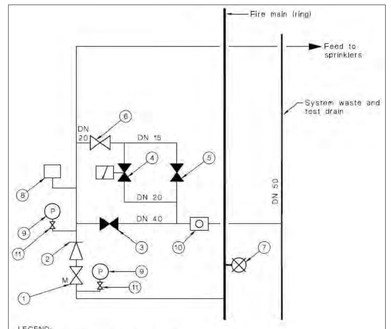


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	AS2419.1 - 2005 BCA E1.3
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	29-11-21	RT
02	PARKVIEW CONSTRUCTIONS	01	08-12-21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR APPROVAL	RT	29-11-21
01	FOR CONSTRUCTION	RT	08-12-21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100	℄ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
900 3000	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL			
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES COMBINED HYDRANT AND SPRINKLER SCHEMATIC

Project: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK

Address: IVANHOE ESTATE MACQUARIE PARK

Designed	IFS	Date	29/11/21
Drawn	IFS	Scale	NTS@A1
Approved	RT	Job No.	

Drawing No. IFS-F-W-001

ISSUES: A | 01

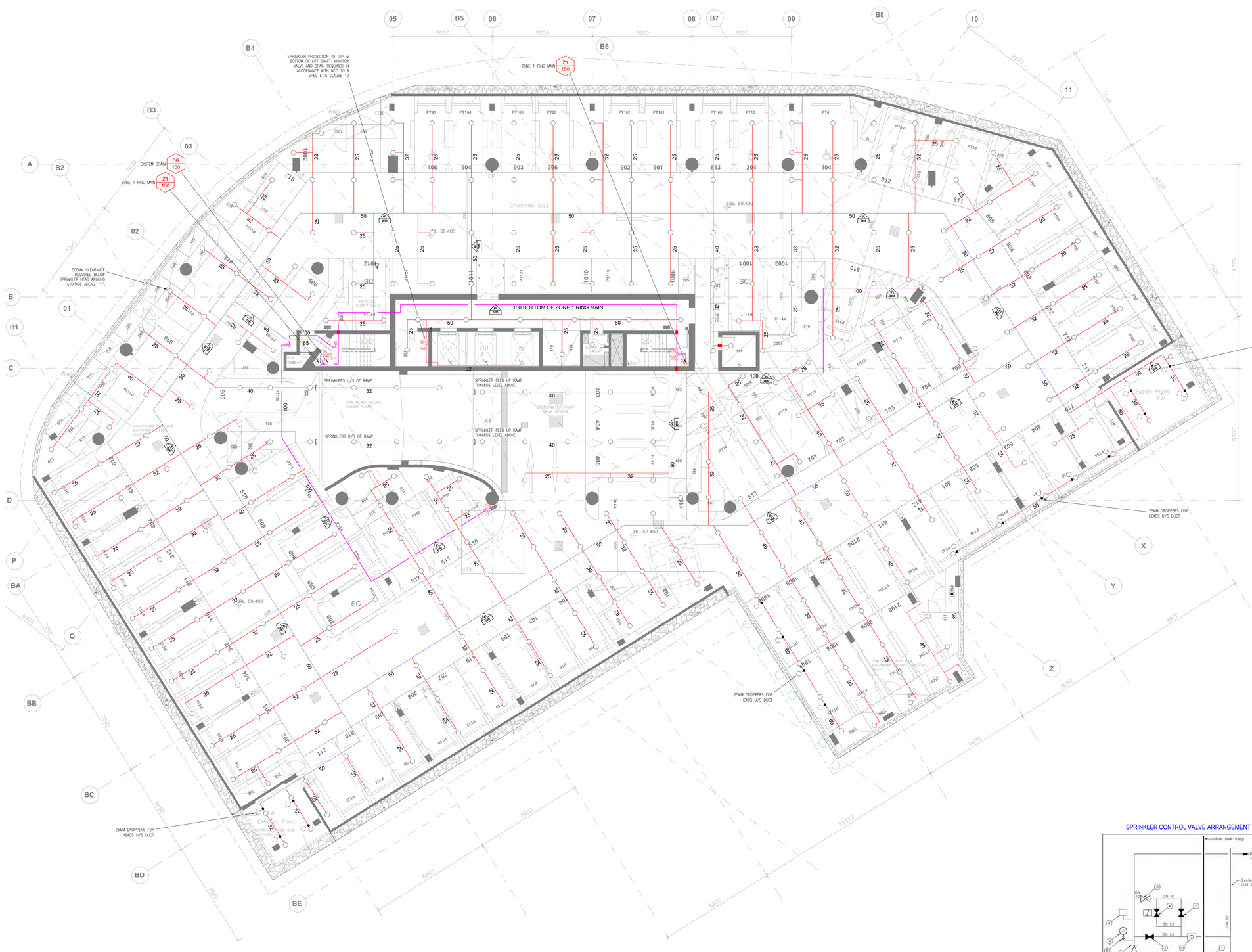
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Basement 3 Wet Fire Services			Drawing No: IFS-F-W-101	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

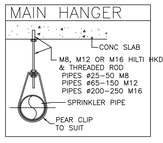
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

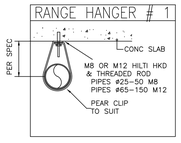
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

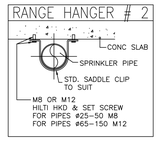
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE







NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	AS2419.1 - 2005 BCA E1.3
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

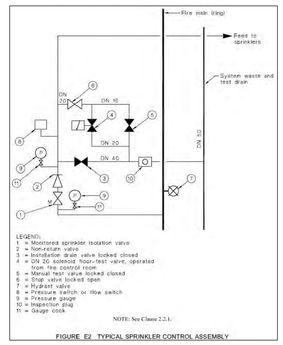


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
A	PARKVIEW CONSTRUCTIONS	A	12.07.21	RT
B	PARKVIEW CONSTRUCTIONS	B	04.08.21	RT
C	PARKVIEW CONSTRUCTIONS	C	29.11.21	RT
01	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	12.07.21
B	FOR COORDINATION AS PER OVERLAYS	RT	04.08.21
C	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	Key
○	Pendent Sprinkler Exposed	
⌀	Upright Sprinkler Exposed	
●	Pendent Concealed Space Sprinkler	
◕	Upright Concealed Space Sprinkler	
◉	Sprinkler on Dropper or Flexi/Flush Mounted	
◌	Sprinkler – Under Cable Tray or Duct	
⊗	Sprinkler with Guard	
◁	Sidewall Sprinkler	
◀	Sidewall Sprinkler External	
▢ 182°	Sprinkler in Exhaust Duct – 182°	
◉ 141°	Sprinkler in Exhaust Hood – 141°	
◉ 79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100 AFF	℄ 100 Below Slab Soffit	
FS	Flow Switch	
●	Pipe Drop or Rise	
⬭	Roll Groove Coupling	
⌴	End Socket	
32	Pipe Size	
2700 AFF	Pipe Height Above Floor Level	
	Fire Hydrant / Fire Sprinkler Range / Fire Sprinkler Main	Towns Main Water Supply / Fire System Drain / Exhaust Flue / Combined Sprinkler & Hydrant Main

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.003	3	11-11-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services
INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours.: (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
BASEMENT 3

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	05.07.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-101

ISSUES: A | B | C | 01

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Basement 2 Wet Fire Services			Drawing No: IFS-F-W-102	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
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DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

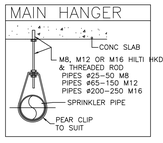
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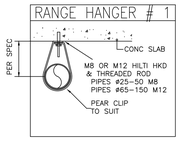
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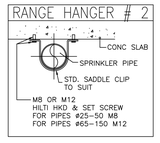
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NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
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FIRE HYDRANT SYSTEM	AS2419.1 - 2005 BCA E1.3
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

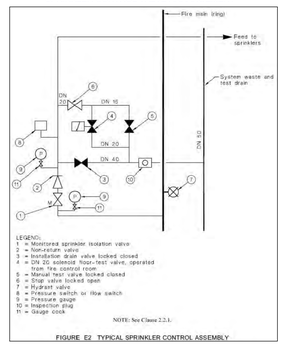


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
A	PARKVIEW CONSTRUCTIONS	A	12.07.21	RT
B	PARKVIEW CONSTRUCTIONS	B	04.08.21	RT
C	PARKVIEW CONSTRUCTIONS	C	29.11.21	RT
01	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	12.07.21
B	FOR COORDINATION AS PER OVERLAYS	RT	04.08.21
C	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2400	Pipe Height Above Floor Level	
	Fire Hydrant — Towns Main Water Supply	
	Fire Sprinkler Range — Fire System Drain	
	Fire Sprinkler Main — Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.002	3	11-11-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours: (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
BASEMENT 2

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	05.07.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-102

ISSUES	A	B	C	01					

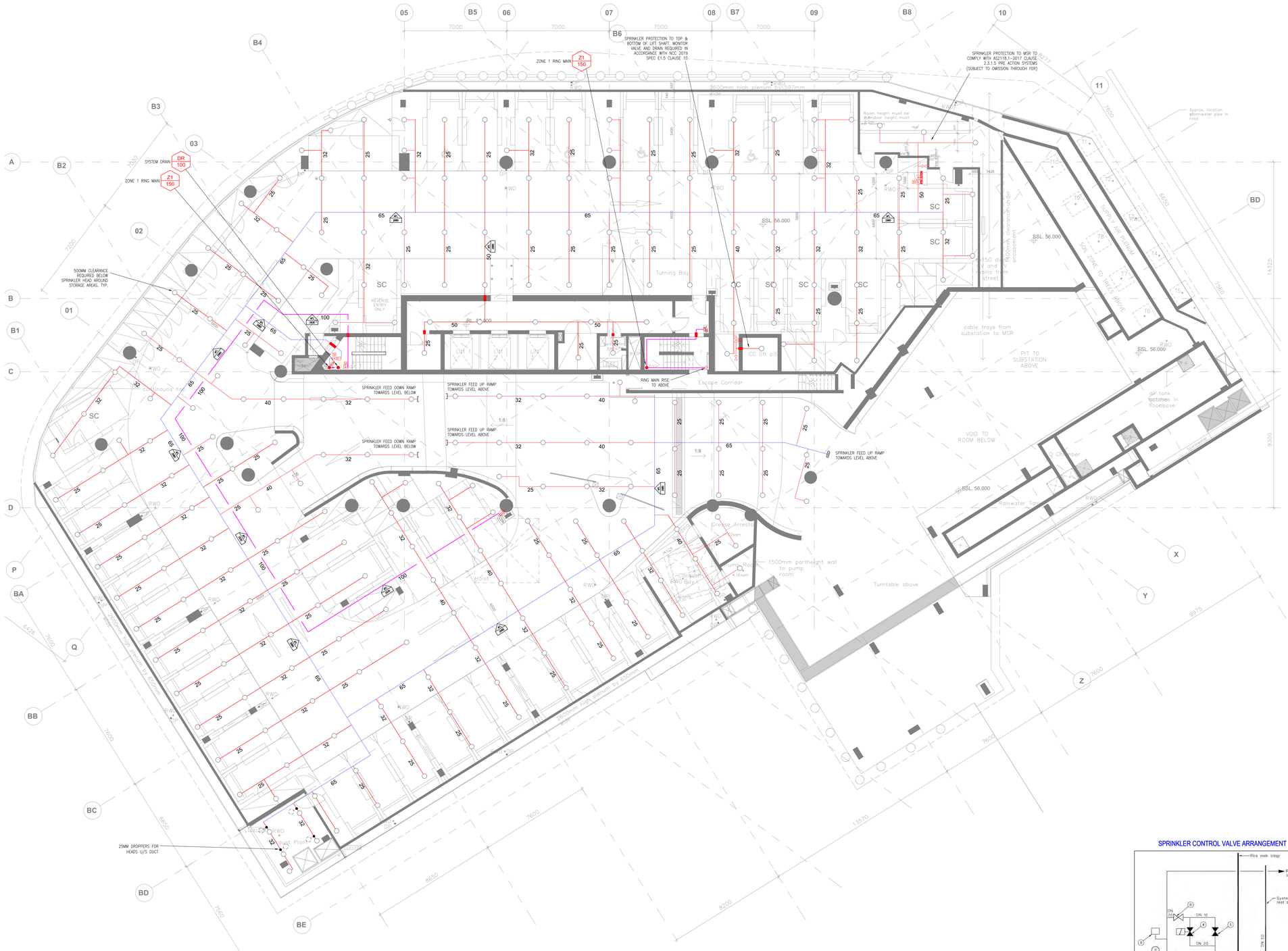
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Basement 1 Wet Fire Services			Drawing No: IFS-F-W-103	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

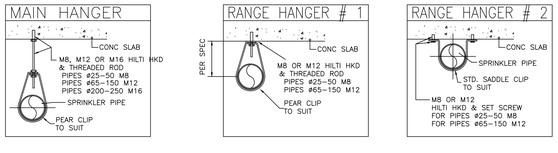
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SPRINKLER CONTROL VALVE ARRANGEMENT

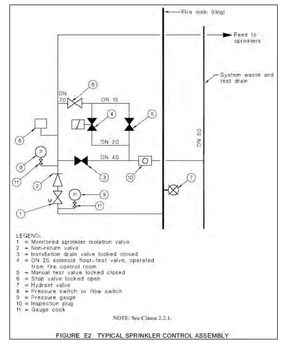


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
A	PARKVIEW CONSTRUCTIONS	A	12.07.21	RT
B	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
01	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	12.07.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
○	Pendent Sprinkler Exposed	
⌀	Upright Sprinkler Exposed	
●	Pendent Concealed Space Sprinkler	
◕	Upright Concealed Space Sprinkler	
◉	Sprinkler on Dropper or Flexi/Flush Mounted	
◌	Sprinkler – Under Cable Tray or Duct	
⊗	Sprinkler with Guard	
⊱	Sidewall Sprinkler	
◀	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
(23)	Pipe Identification Numeral	
100	℄ 100 Below Slab Soffit	
FS	Flow Switch	
●	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2600	Pipe Height Above Floor Level	
	Fire Hydrant — Towns Main Water Supply	
	Fire Sprinkler Range — Fire System Drain	
	Fire Sprinkler Main — Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.001	4	11-11-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN 19 119 951 129
ACN 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
BASEMENT 1

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	05.07.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-103

ISSUES: A | B | 01

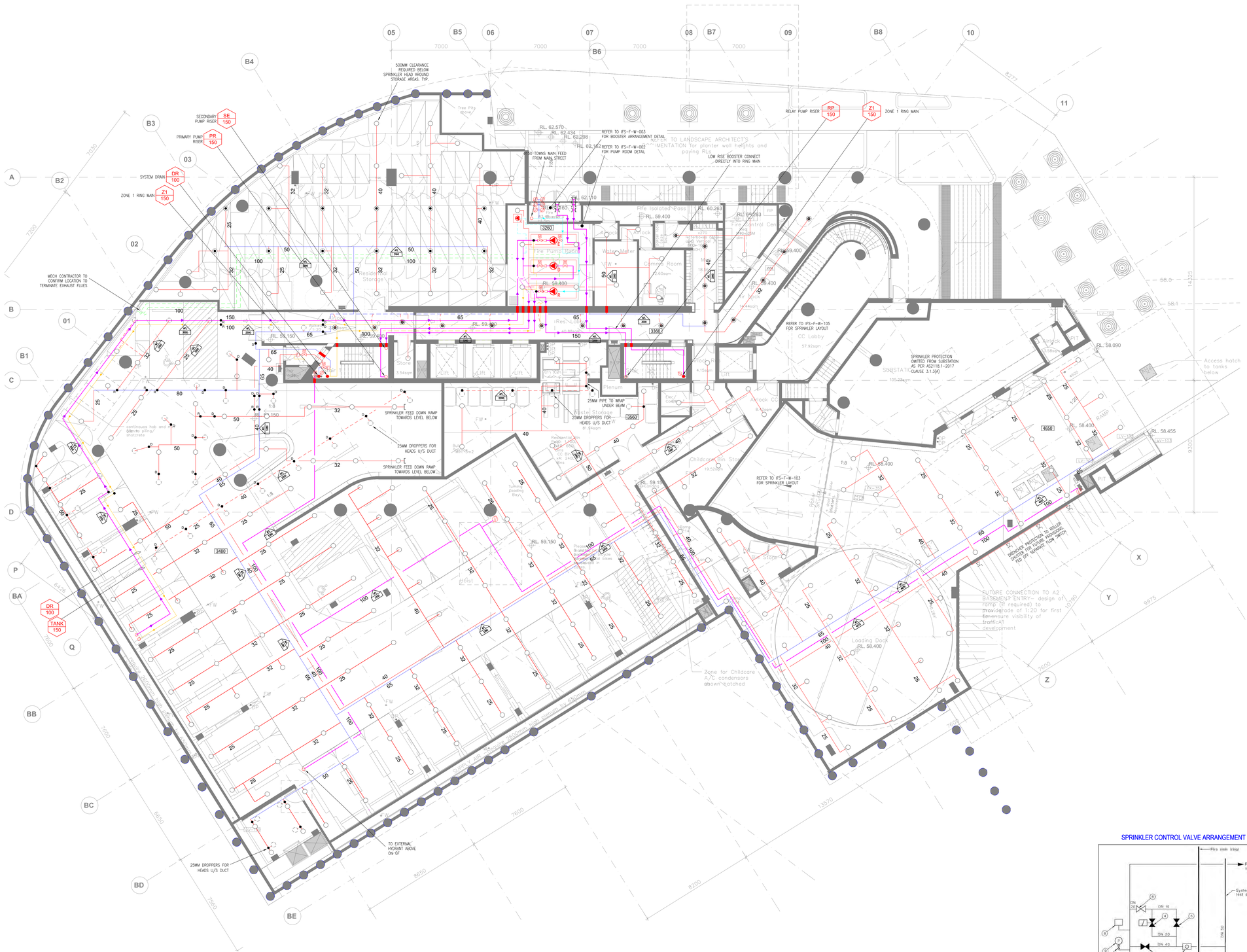
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Lower Ground Floor Wet Fire Services			Drawing No:	IFS-F-W-104
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

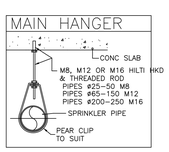
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

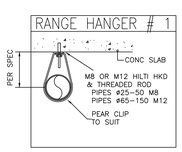
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

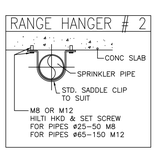
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE







NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

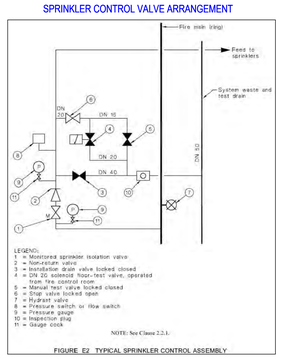


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
A	PARKVIEW CONSTRUCTIONS	A	01.09.21	RT
B	PARKVIEW CONSTRUCTIONS	B	15.09.21	RT
C	PARKVIEW CONSTRUCTIONS	C	10.10.21	RT
D	PARKVIEW CONSTRUCTIONS	D	29.11.21	RT
01	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	01.09.21
B	FOR COORDINATION - POST CLASH DETECTION MEETING	RT	15.09.21
C	FOR COORDINATION - POST CLASH DETECTION MEETING	RT	10.10.21
D	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
3000	℄ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
3000	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.001	T	04-11-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours :. (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LOWER GROUND

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	01.09.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-104

ISSUES: A | B | C | D | 01

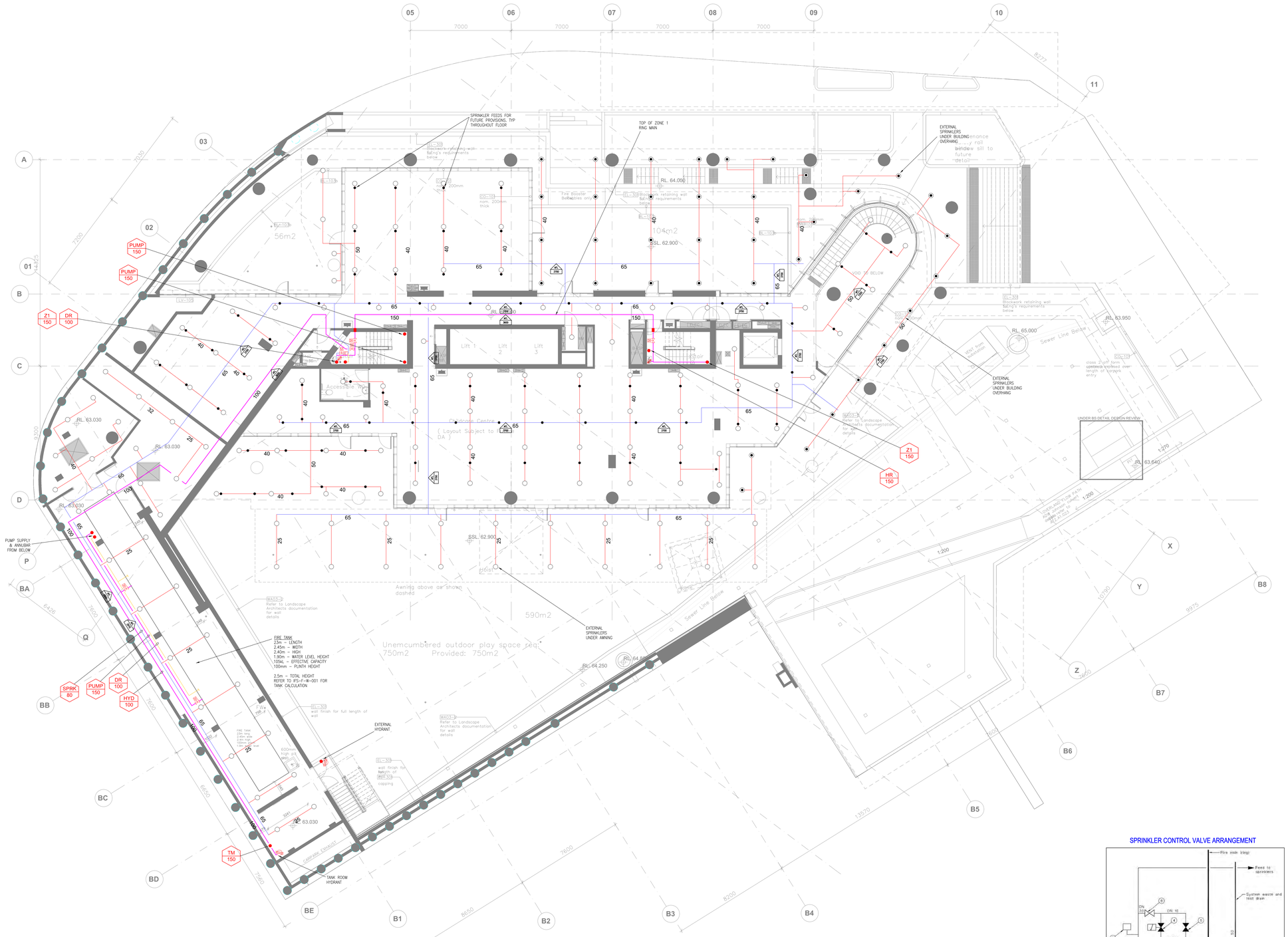
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Ground Floor Wet Fire Services			Drawing No: IFS-F-W-105	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

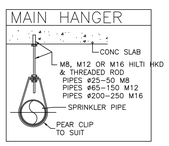
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

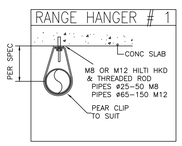
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

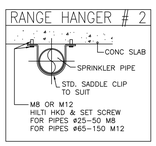
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

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NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

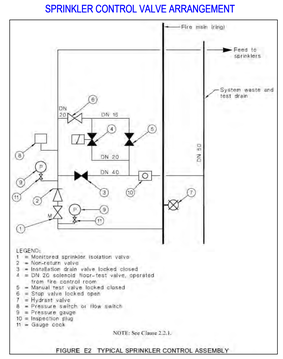


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
A	PARKVIEW CONSTRUCTIONS	A	03.09.21	RT
B	PARKVIEW CONSTRUCTIONS	B	11.10.21	RT
C	PARKVIEW CONSTRUCTIONS	C	29.11.21	RT
01	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	03.09.21
B	FOR COORDINATION	RT	11.09.21
C	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2700	Pipe Height Above Floor Level	
	Fire Hydrant — Towns Main Water Supply	
	Fire Sprinkler Range — Fire System Drain	
	Fire Sprinkler Main — Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.100	R	23-11-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor

innovative fire services
INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
GROUND FLOOR

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	03.09.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-105

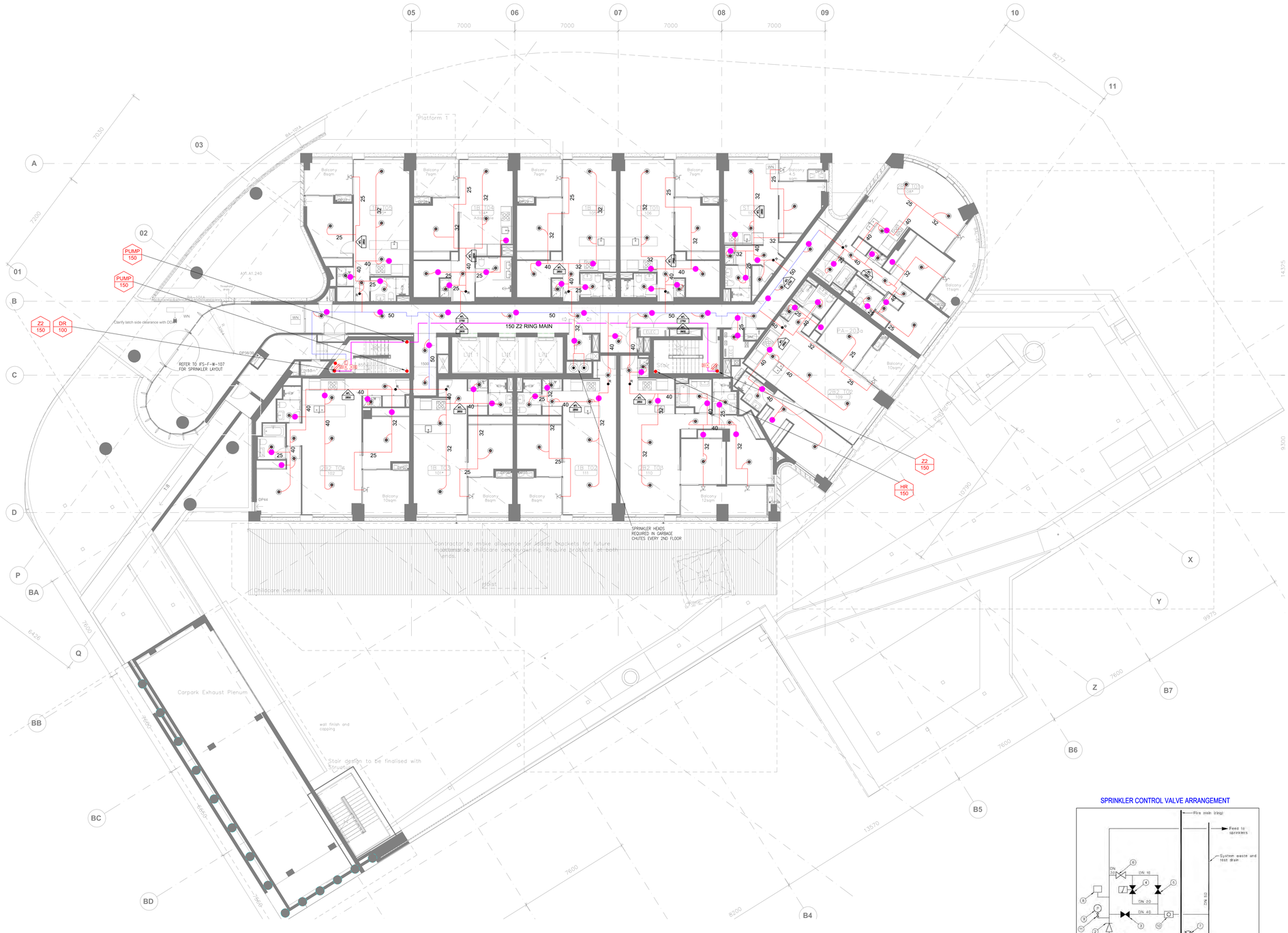
ISSUES: A | B | C | 01

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 1 Wet Fire Services			Drawing No: IFS-F-W-106	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
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PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
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FIRE ENGINEERING -
AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01

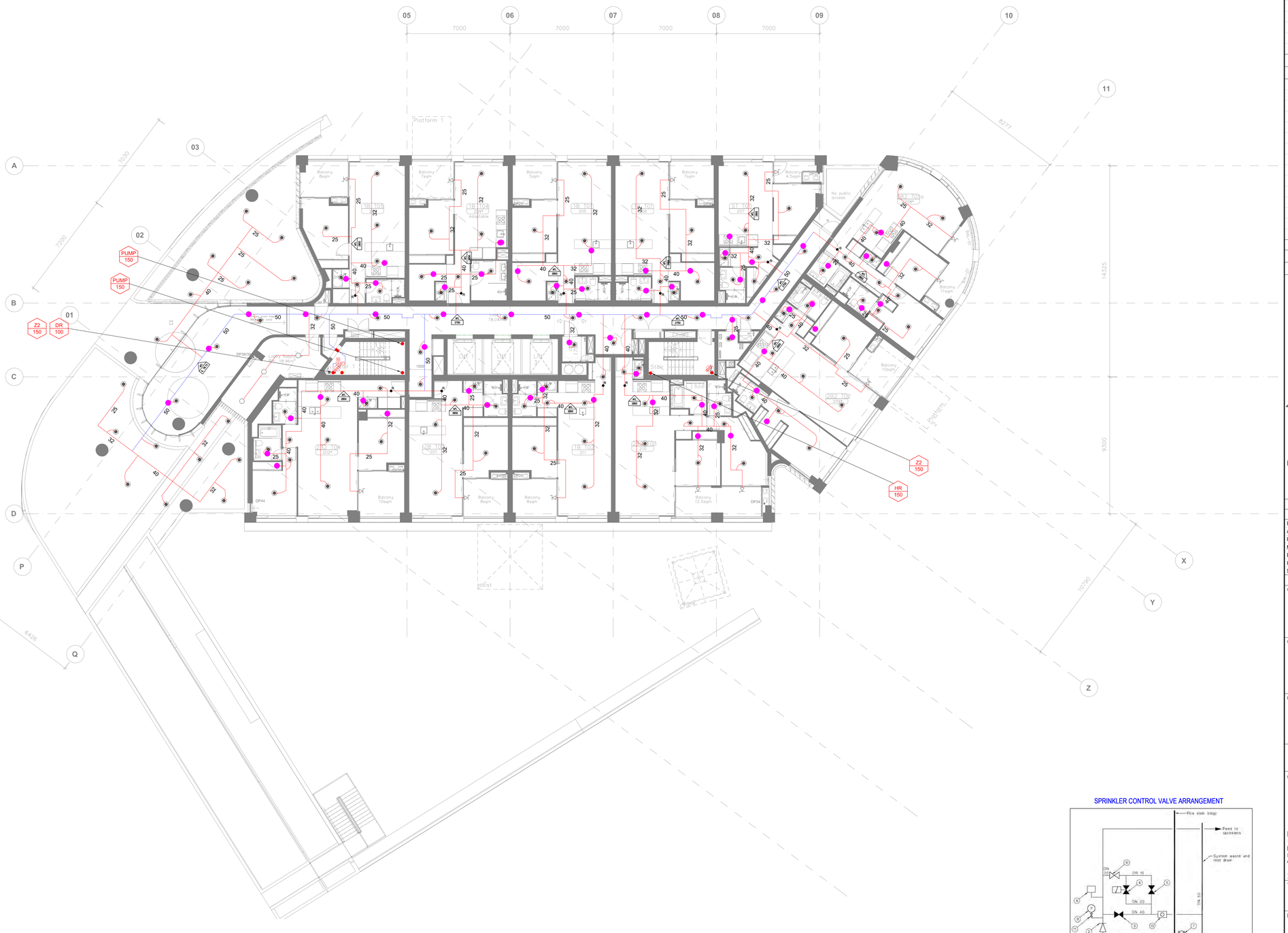


Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 2 Wet Fire Services			Drawing No: IFS-F-W-107	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
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FIRE ENGINEERING -
AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

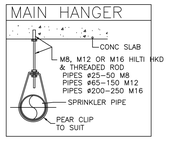
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

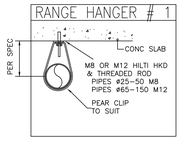
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

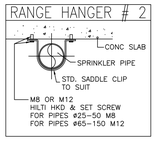
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE







NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

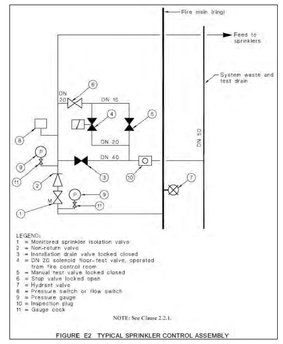


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	01.10.21	RT
02	PARKVIEW CONSTRUCTIONS	B	11.10.21	RT
03	PARKVIEW CONSTRUCTIONS	C	29.11.21	RT
04	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	01.10.21
B	FOR COORDINATION	RT	11.10.21
C	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
(23)	Pipe Identification Numeral	
100	℄ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2300	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.102	P	15-12-21
RCP	A08.A1.101	F	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVEL 2

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	01.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-107

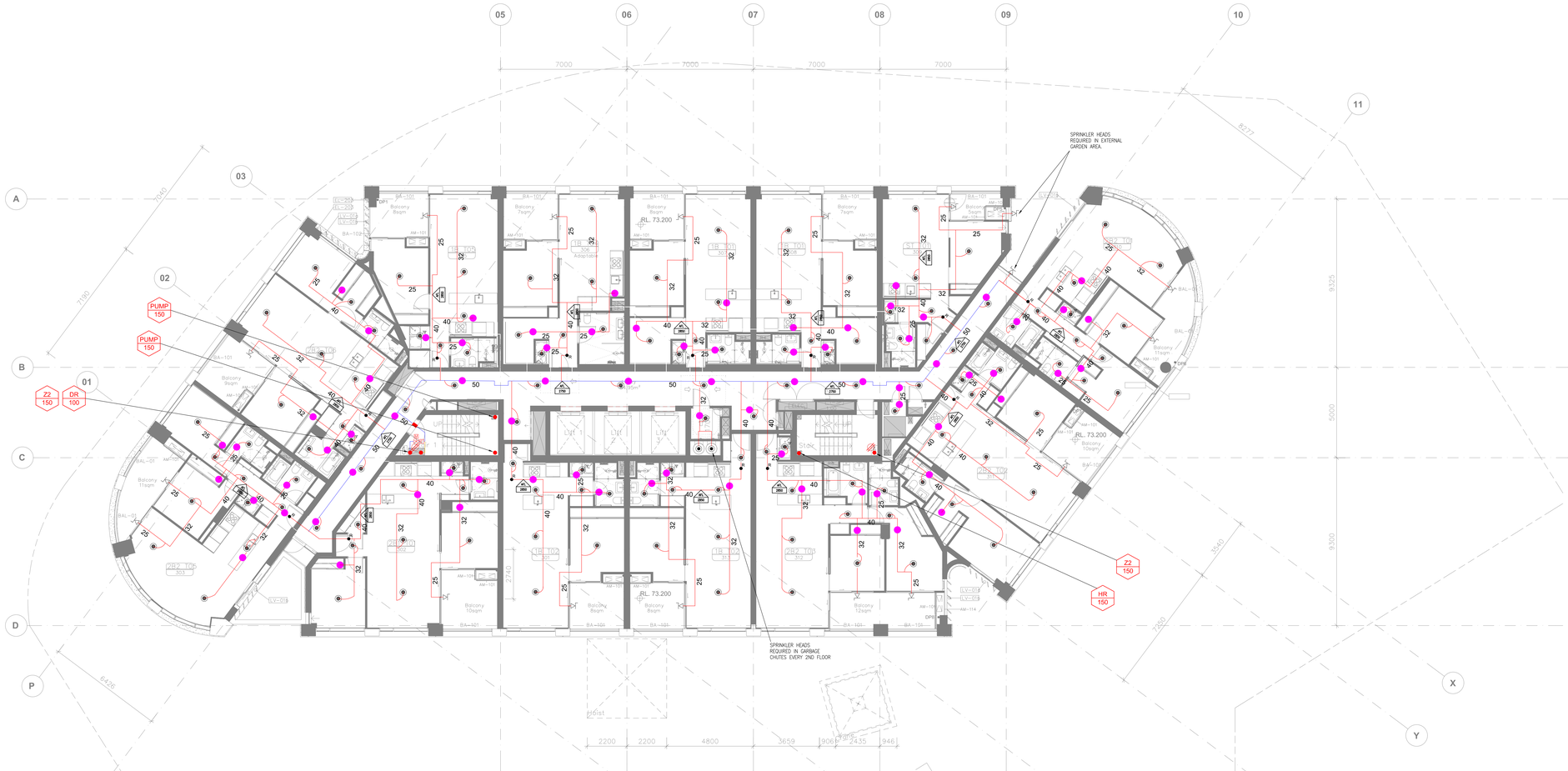
ISSUES A B C 01

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 3 5 & 7 Wet Fire Services			Drawing No: IFS-F-W-108	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -
AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

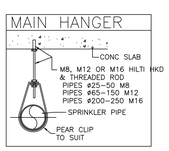
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

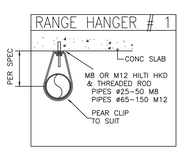
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

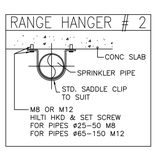
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE







NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

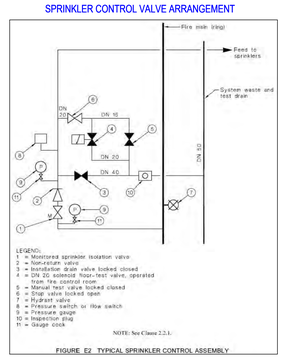


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	13.09.21	RT
02	PARKVIEW CONSTRUCTIONS	B	23.09.21	RT
03	PARKVIEW CONSTRUCTIONS	C	11.10.21	RT
04	PARKVIEW CONSTRUCTIONS	D	14.10.21	RT
05	PARKVIEW CONSTRUCTIONS	E	29.11.21	RT
06	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	13.09.21
B	FOR COORDINATION - COORDINATED WITH MECH	RT	23.09.21
C	FOR COORDINATION	RT	11.10.21
D	FOR COORDINATION	RT	14.10.21
E	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
SR2	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2700	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.103	Q	15-12-21
RCP	A08.A1.103	H	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours :. (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 3, 5 & 7

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	13.09.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-108

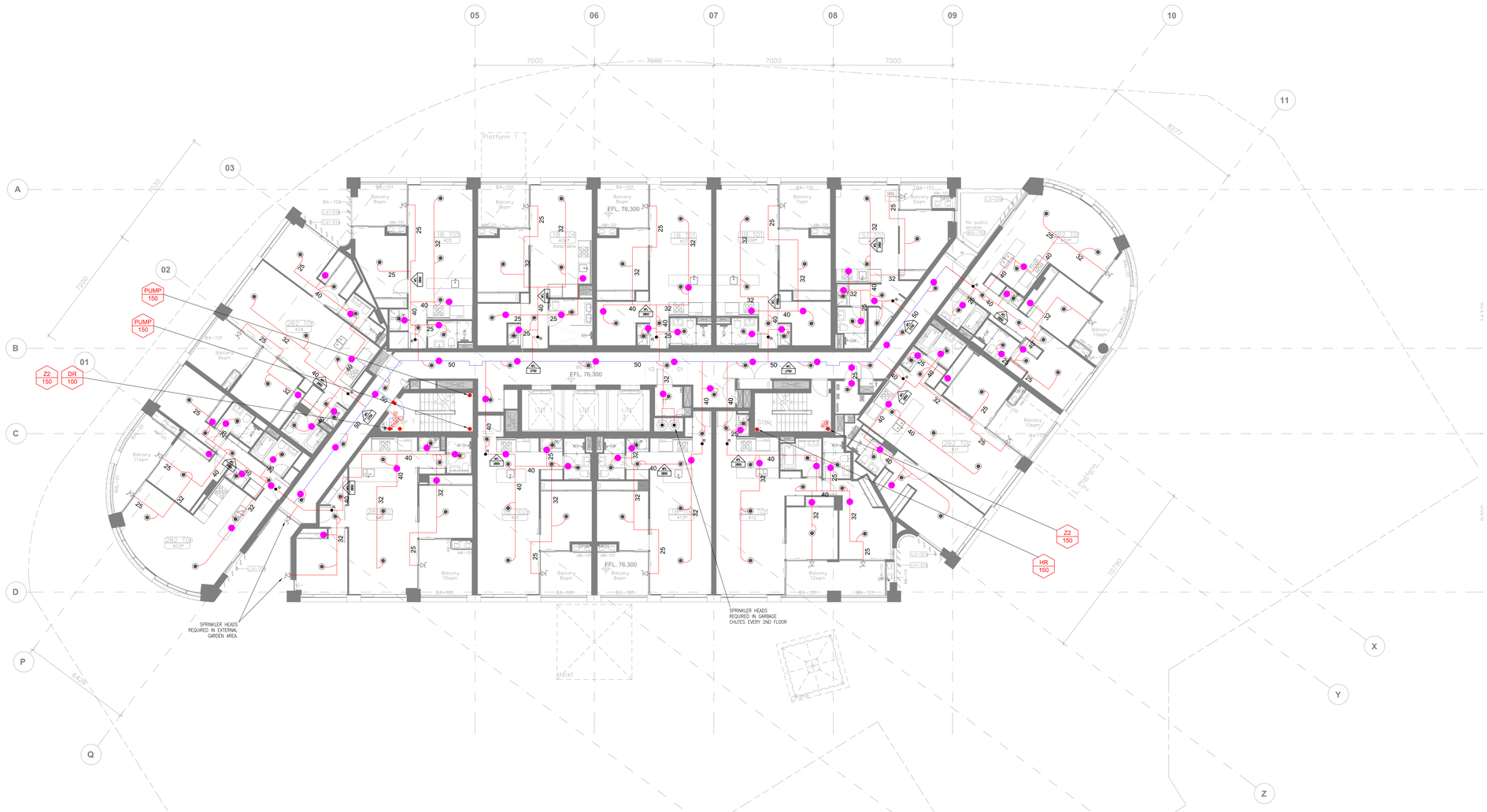
ISSUES	A	B	C	D	E	01			

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

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FIRE ENGINEERING -
AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
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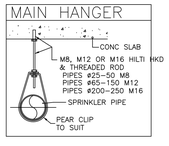
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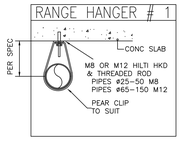
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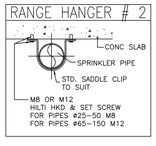
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SPRINKLER CONTROL VALVE ARRANGEMENT

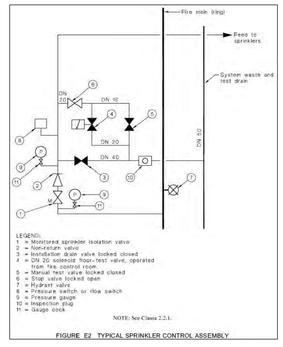


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	18.10.21	RT
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
03	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	18.10.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
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	Upright Sprinkler Exposed	
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	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
(23)	Pipe Identification Numeral	
100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
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32	Pipe Size	
2700	Pipe Height Above Floor Level	
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	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	
	Combined Sprinkler & Hydrant Main	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.104	P	15-12-21
RCP	A08.A1.104	F	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 4 & 6

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-109

ISSUES A B 01

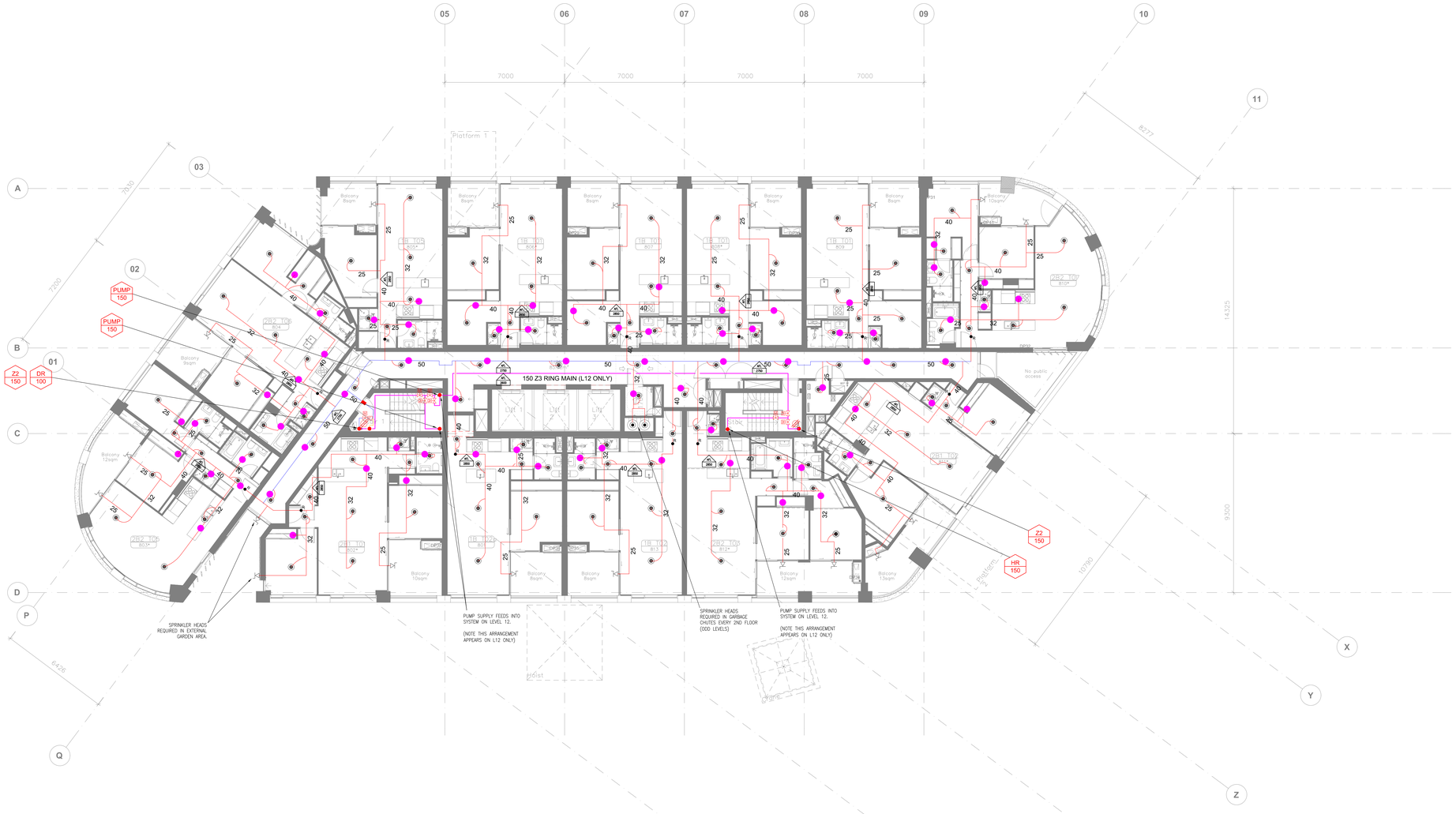
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

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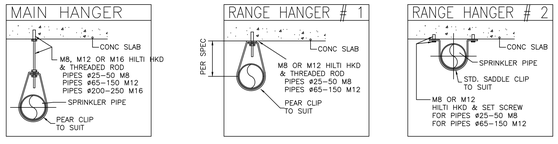
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SPRINKLER CONTROL VALVE ARRANGEMENT

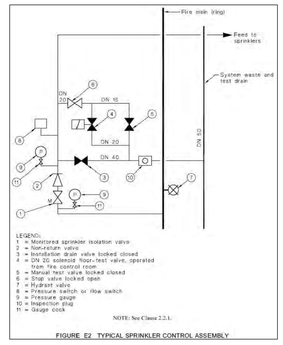


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	18.10.21	RT
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
03	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	18.10.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
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	Sprinkler with Guard	
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	Sidewall Sprinkler External	
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Z3	Pipe Identification Numeral	
DR 100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
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32	Pipe Size	
DR 2700	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.108	L	01-10-21
BCP	A08.A1.108	H	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 8, 10, 12 & 14

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-110

ISSUES	A	B	01						

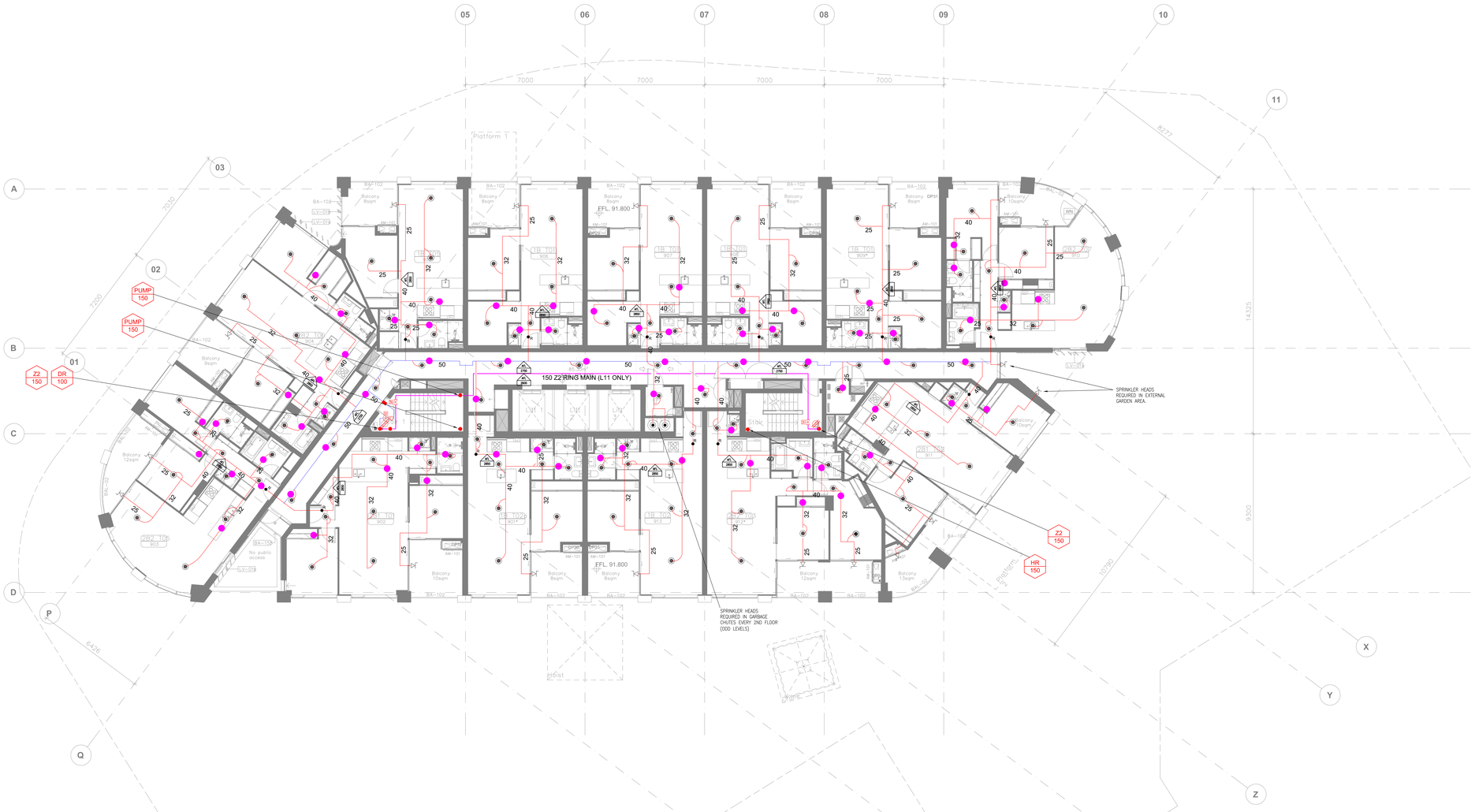
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



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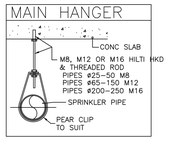
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4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

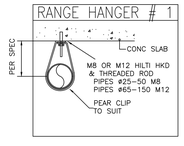
5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE

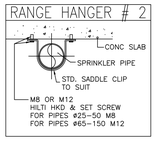
MAIN HANGER



RANGE HANGER # 1



RANGE HANGER # 2



NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

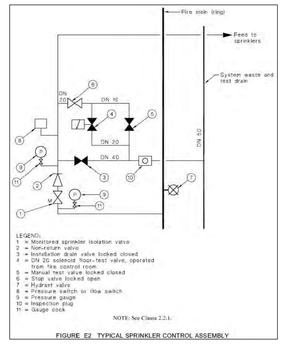


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	18.10.21	RT
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
03	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	18.10.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182	Sprinkler in Exhaust Duct – 182°	
141	Sprinkler in Exhaust Hood – 141°	
79	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
100	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2700	Pipe Height Above Floor Level	
	Fire Hydrant / Fire Sprinkler Range / Fire Sprinkler Main	Towns Main Water Supply / Fire System Drain / Exhaust Flue

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.109	P	15-12-21
RCP	A08.A1.109	F	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 9, 11, 13 & 15

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-111

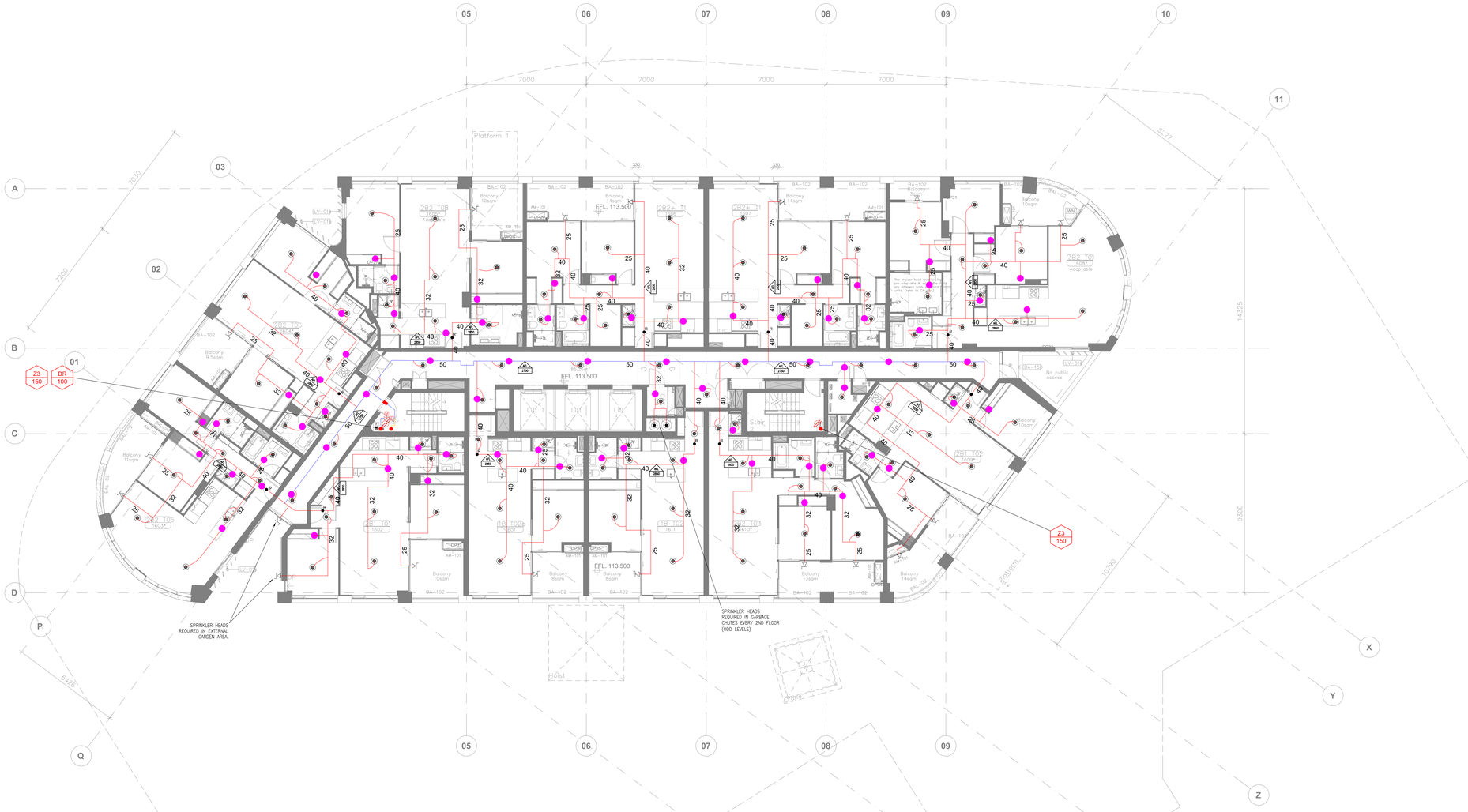
ISSUES: A | B | 01

Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	06.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	06.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -
AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

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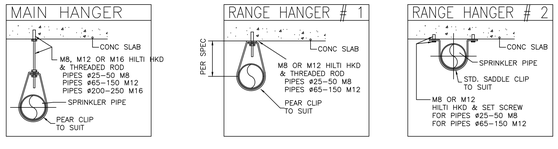
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NEW INSTALLATIONS	
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SPRINKLER CONTROL VALVE ARRANGEMENT

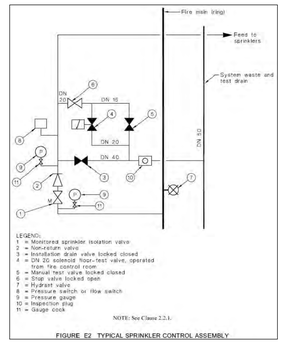


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
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02	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
03	PARKVIEW CONSTRUCTIONS	01	06.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	18.10.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
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	Upright Sprinkler Exposed	
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	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
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79°	Sprinkler in laundry cupboards – 79°	
Z3	Pipe Identification Numeral	
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FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
RL 2700	Pipe Height Above Floor Level	
	Fire Hydrant	
	Towns Main Water Supply	
	Fire Sprinkler Range	
	Fire System Drain	
	Fire Sprinkler Main	
	Exhaust Flue	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.116	P	15-12-21
RCP	A08.A1.116	H	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 16, 18 & 20

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-112

ISSUES	A	B	01						

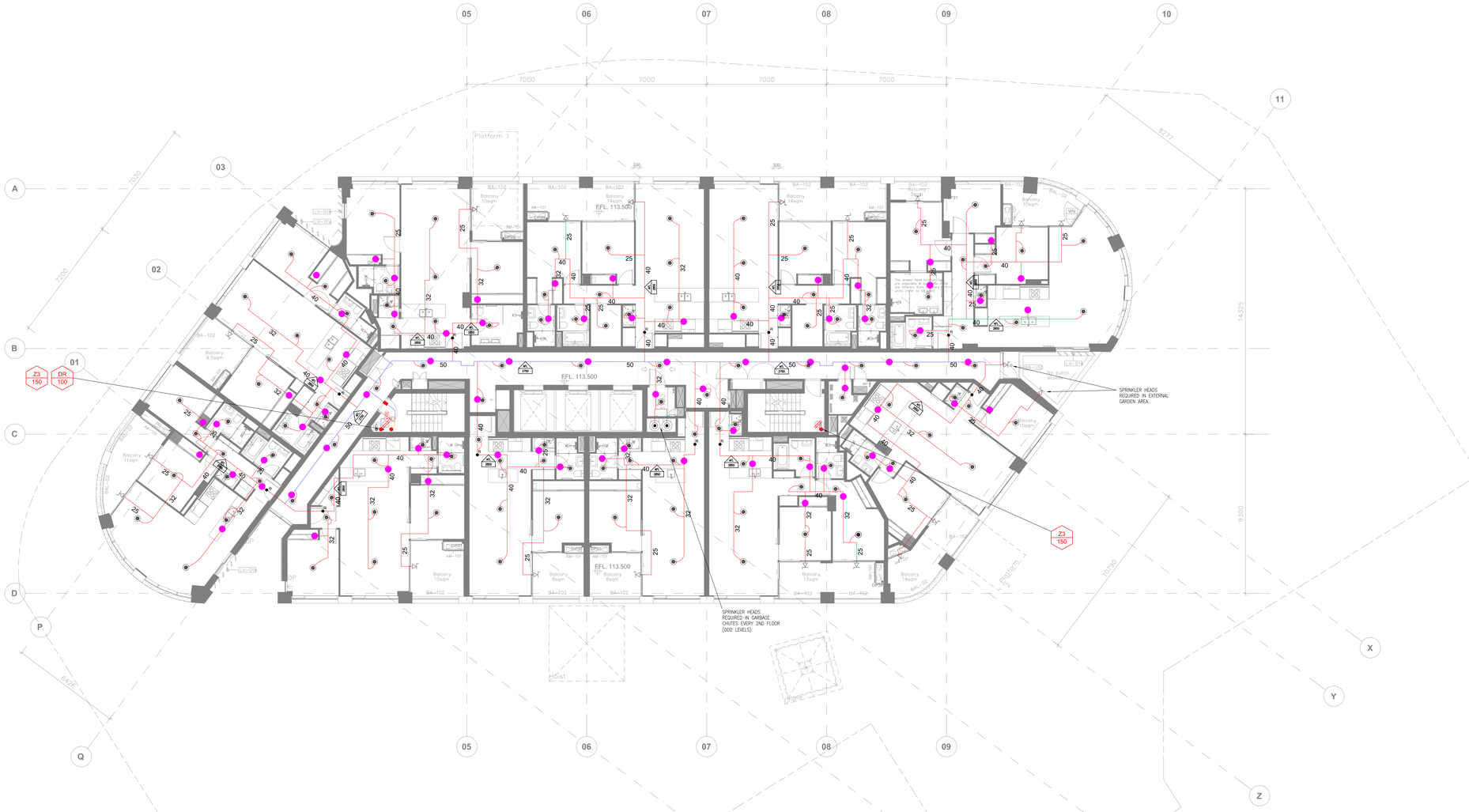
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

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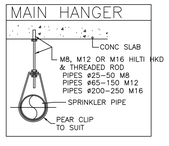
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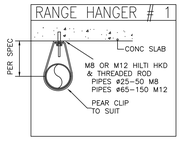
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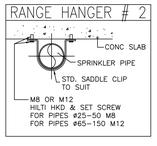
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SPRINKLER CONTROL VALVE ARRANGEMENT

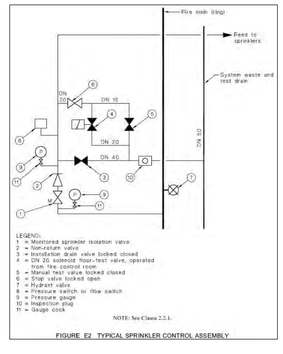


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	01.10.21	RT
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AMENDMENTS

No.	Description	Approved	Date
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DN 100	Pipe Height Above Floor Level	
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XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.117	P	15-12-21
RCP	A08.A1.117	F	19-11-21
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 15 119 951 129
ACN: 119 951 129

©

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVELS 17, 19 & 21

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-113

ISSUES	A	B	01						

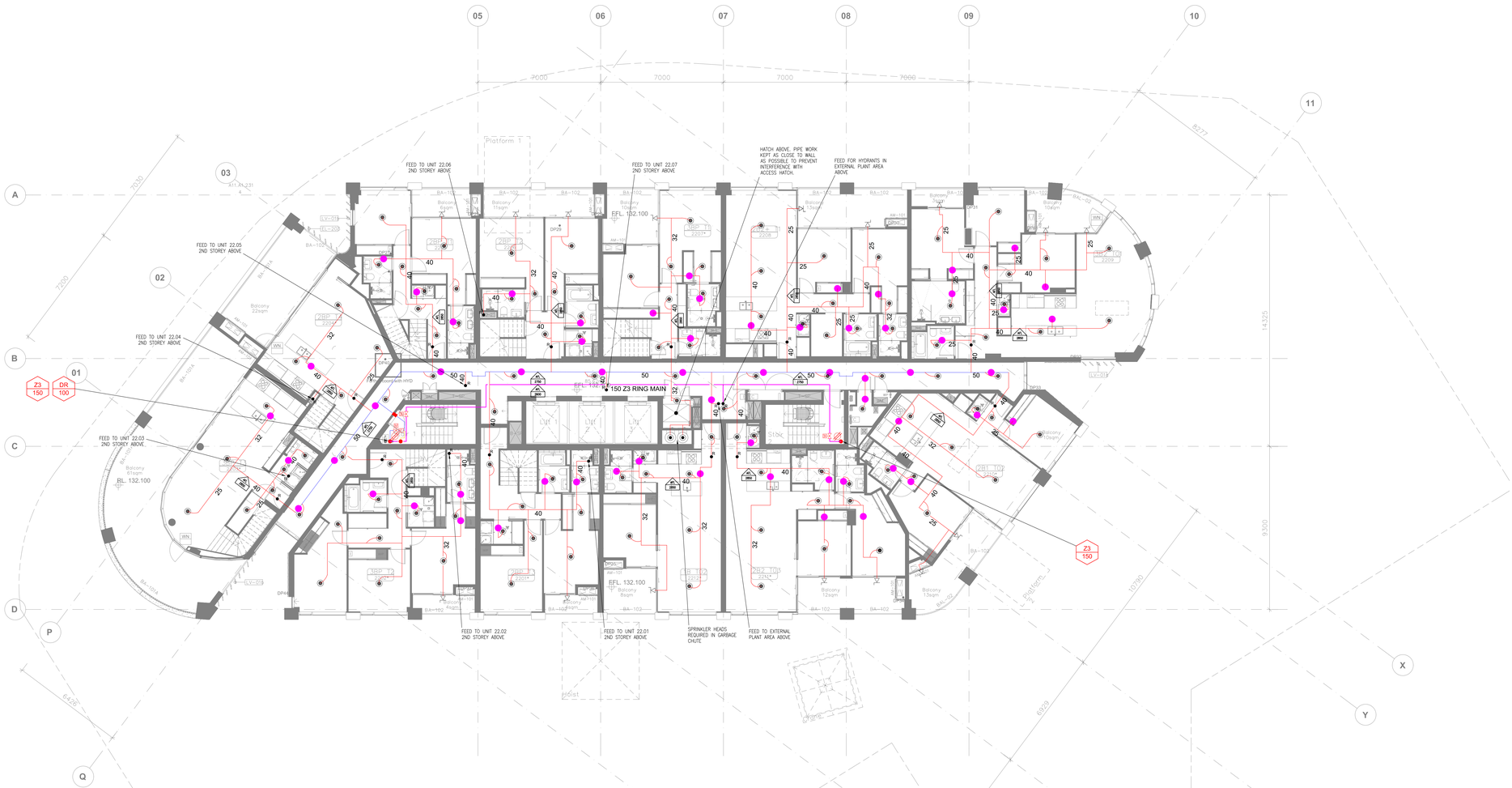
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
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FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
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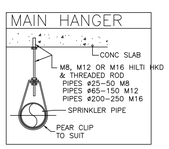
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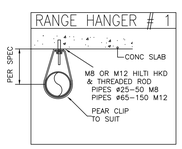
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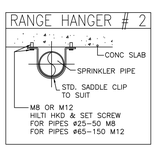
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AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	AS1670.1 - 2018 BCA E2.2A
EMERGENCY WARNING & INTERCOM SYSTEM	AS1670.4 - 2018 BCA E4.9
PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

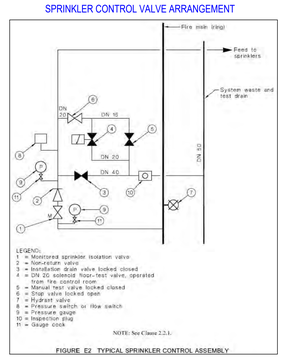


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

ISSUES

No.	To	Amendment	Date	Approved
01	PARKVIEW CONSTRUCTIONS	A	18.10.21	RT
02	PARKVIEW CONSTRUCTIONS	B	29.11.21	RT
03	PARKVIEW CONSTRUCTIONS	01	08.12.21	RT

AMENDMENTS

No.	Description	Approved	Date
A	FOR COORDINATION	RT	18.10.21
B	FOR APPROVAL	RT	29.11.21
01	FOR CONSTRUCTION	RT	08.12.21

LEGEND

Key	Description	No.
	Pendent Sprinkler Exposed	
	Upright Sprinkler Exposed	
	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
	Sprinkler on Dropper or Flexi/Flush Mounted	
	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
Z3	Pipe Identification Numeral	
100 Below Slab Soffit	₵ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2300 Above Floor Level	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.122	N	15-12-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client: FRASERS PROPERTY

Consultant: wsp

Builder: PARKVIEW

FOR CONSTRUCTION

Contractor: innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title: FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVEL 22

Project: BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address: IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No. IFS-F-W-114

ISSUES: A B 01

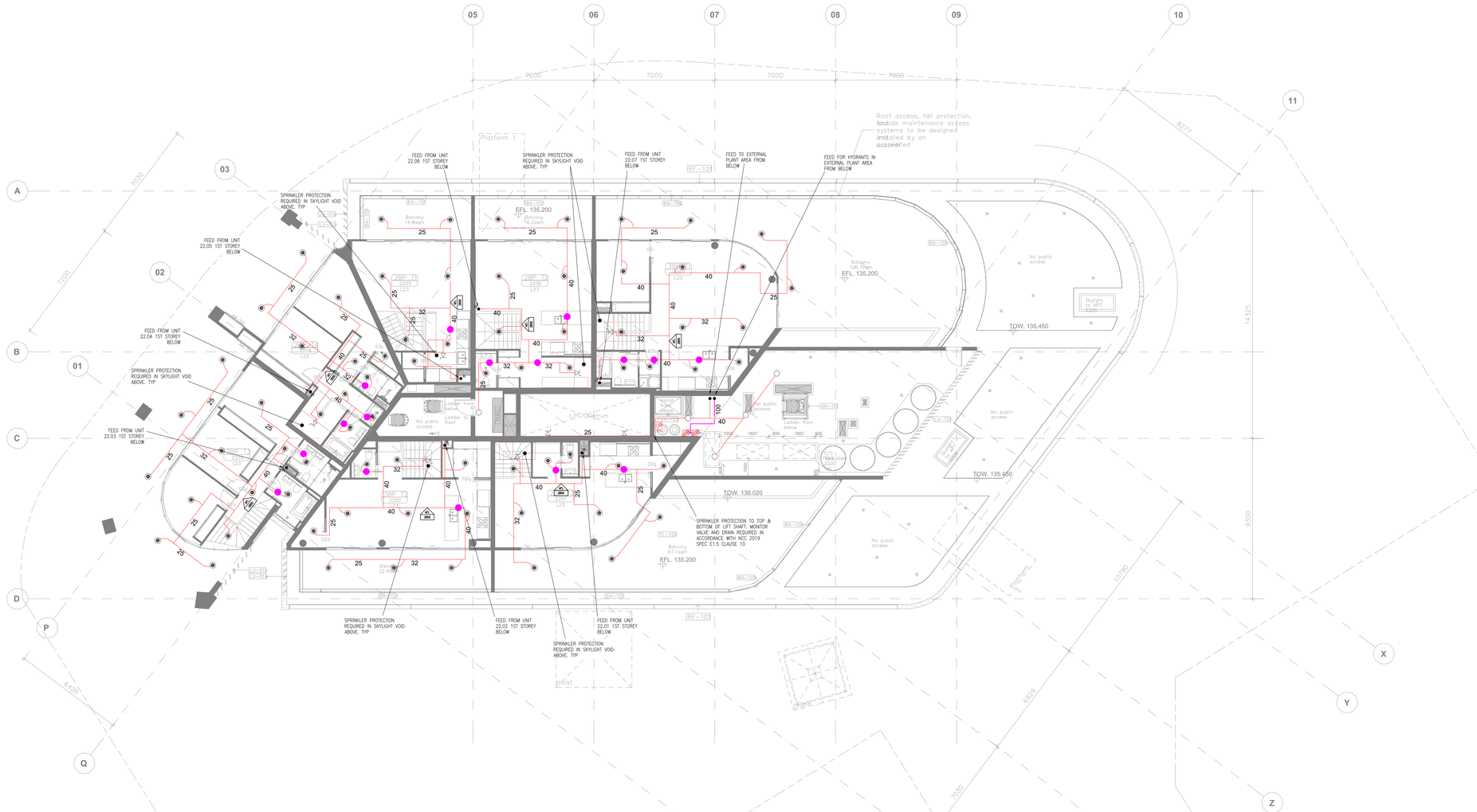
Regulated Design Record				
Project Address: Ivanhoe Estate, Macquarie Park				
Project Title: Building A1, Midtown MacPark				
Consent No: SSD NO# 8903			Body Corporate No: DEP0001256	
Drawing Title: Level 4 & 6 Wet Fire Services			Drawing No: IFS-F-W-109	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	08.12.21	CC3 - FOR CONSTRUCTION	Rony Tannous (Wet)	FSD45336
1	08.12.21	CC3 - FOR CONSTRUCTION	Wayne Martin (Dry)	FSD45370

DESIGN CRITERIA

AREA	DESIGN CRITERIA
RESIDENTIAL FLOORS	LIGHT HAZARD (RESIDENTIAL SPRINKLER) DESIGN DENSITY DISCHARGE DENSITY 4.1mm/min 4 REMOTE SPRINKLERS (FLOW & PRESSURE AS PER DATA SHEET) 15mm HEADS, SEMI RECESSED WHITE PENDENT 68°c C/W ESCUTCHEON PLATE FAST RESPONSE SPRINKLERS
CARPARKING	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 12 Sprinklers 15 mm HEADS, brass PENDANT 68°C FAST RESPONSE SPRINKLERS
PLANTROOMS	Ordinary Hazard II DESIGN DENSITY Min. Sprinkler Flow. 60 L/min No. of Operating Sprinklers. 6 Sprinklers 15 mm HEADS, BRASS PENDANT / UPRIGHT 93°C FAST RESPONSE SPRINKLERS
CEILING VOIDS	Light Hazard DESIGN DENSITY 6 Remote Sprinklers x 70 kPa 15 mm HEADS, BRASS PENDANT 68°C FAST RESPONSE SPRINKLERS
DRENCHERS	TYCO WS DRENCHERS DESIGN DENSITY Min. Sprinkler Flow. 75.7 L/min No. of Operating Sprinklers. 4 Sprinklers 15 mm HEADS, VERTICAL SIDEWALL 68°C FAST RESPONSE SPRINKLERS

FIRE ENGINEERING -

AFFINITY FIRE ENGINEERING
REPORT NO. 172103_A1_FER_DRAFT_01



NOTE -
FINAL SPRINKLER HEAD LOCATIONS TO ALIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN & IN COMPLIANCE WITH AS2118.1-2017

FIRE SPRINKLER SYSTEM INSTALLATION PARAMETERS

1) RESIDENTIAL SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER SPRINKLER DATA SHEET & U.L. APPROVAL

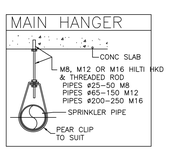
2) SPRINKLER HEADS 2100mm BELOW FINISHED FLOOR LEVEL TO BE FITTED WITH WIRE GUARDS

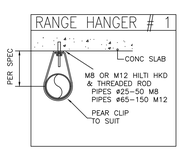
3) SPRINKLERS REQUIRE A MINIMUM 500mm CLEARANCE BELOW SPRINKLER HEADS

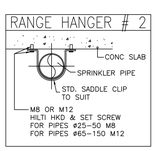
4) PENDENT SPRINKLERS ARE INSTALLED THROUGHOUT CARPARK ENSURING PIPE HEIGHT IS MAXIMISED

5) A CLEARANCE OF 2500mm MUST BE MAINTAINED ABOVE THE DISABLED CAR PARKING BAYS

6) SPRINKLERS MUST BE LOCATED AWAY FROM CEILING OBSTRUCTIONS AS PER AS2118.1-2017 CLAUSE 5.7 OBSTRUCTIONS TO SPRINKLER DISCHARGE







NEW INSTALLATIONS	
STANDARD OF MEASURE	STANDARD
AUTOMATIC FIRE SPRINKLER SYSTEM	AS2118.1 - 2017 BCA E1.5
FIRE HYDRANT SYSTEM	**AS2419.1 - 2005 BCA E1.3**
COMBINED SPRINKLER & HYDRANT SYSTEM	AS2118.6 - 2012 BCA E1.5
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PORTABLE FIRE EXTINGUISHERS	AS2444.1 - 2001 BCA E1.6

SPRINKLER CONTROL VALVE ARRANGEMENT

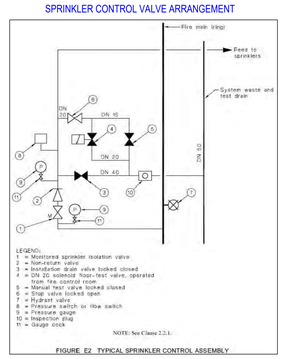


FIGURE E2 TYPICAL SPRINKLER CONTROL ASSEMBLY

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No.	To	Amendment	Date	Approved
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	Pendent Concealed Space Sprinkler	
	Upright Concealed Space Sprinkler	
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	Sprinkler – Under Cable Tray or Duct	
	Sprinkler with Guard	
	Sidewall Sprinkler	
	Sidewall Sprinkler External	
182°	Sprinkler in Exhaust Duct – 182°	
141°	Sprinkler in Exhaust Hood – 141°	
79°	Sprinkler in laundry cupboards – 79°	
23	Pipe Identification Numeral	
	¢ 100 Below Slab Soffit	
FS	Flow Switch	
	Pipe Drop or Rise	
	Roll Groove Coupling	
	End Socket	
32	Pipe Size	
2700	Pipe Height Above Floor Level	
	Fire Hydrant / Towns Main Water Supply	
	Fire Sprinkler Range / Fire System Drain	
	Fire Sprinkler Main / Exhaust Flue	

XREF REFERENCE DRAWING

DISCIPLINE	DRAWING No.	REVISION	DATE
FIRE			
ARCHITECTURAL	A03.A1.123	M	15-12-21
RCP			
MECHANICAL			
ELECTRICAL			
HYDRAULIC			
STRUCTURAL			

Client
FRASERS PROPERTY

Consultant
wsp

Builder
PARKVIEW

FOR CONSTRUCTION

Contractor
innovative fire services

INNOVATIVE FIRE SERVICES PTY.LTD.
Fire Protection Engineers & Consultants
Unit 13, 20-22 St Albans Road, Kingsgrove NSW 2208
Phone - 24 Hours : (61 2) 9502 2900
Fax: (61 2) 9502 2284
email: info@innovativefire.com.au
ABN: 16 119 951 129
ACN: 119 951 129

©

Title
FIRE SERVICES
COMBINED HYDRANT & SPRINKLER LAYOUT
LEVEL 23

Project
BUILDING A1
IVANHOE ESTATE - MACQUARIE PARK

Address
IVANHOE ESTATE - MACQUARIE PARK

Designed	IFS	Date	18.10.2021
Drawn	IFS	Scale	1:100@A0
Approved	RT	Job No.	13039

Drawing No.
IFS-F-W-115

ISSUES	A	B	01						

Morris Goding
Access Consulting

Ivanhoe Estate

Building A1,
Midtown Ivanhoe Estate
Macquarie Park

Performance Solution Report Columns in Accessible Car Bay Shared Zones

8th November 2021

Morris Goding
Access Consulting
ABN 70 414 330 060

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Morris Goding
Access Consulting

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Morris Goding
Access Consulting

1. Executive Summary

The Performance Solution Access Report is an appropriate response to the performance solution criteria of the Building Code of Australia (BCA).

The performance solution within the report adopts expert opinion to justify the departure from the deemed-to-satisfy provisions of the BCA, which is an acceptable assessment method under A2.2(2) of the BCA.

Morris Goding
Access Consulting

2. Introduction

2.1 General

Ivanhoe Estate has engaged Morris Goding Access Consulting to prepare a performance solution report pertaining to the encroachment of column within the accessible car bays associated with Building A1, Midtown Ivanhoe Estate Macquarie Park.

The requirements of the investigation are to:

- Review supplied drawings & documentation.
- Provide written advice as to "Performance Solution" to provide safe, equitable and dignified access, given the intended use of the building.
- The advice will be based on Building Code of Australia (BCA part D3) and the Australian Standards (AS) 1428 series.

2.2 Building Characteristics

The subject works achieve a Class 2 classification, as the use of this area relates to areas used for residential car parking purposes, excluding buildings of Class 3, 5, 8 or 9.

2.3 Occupant Characteristics

Occupant characteristics are considered to be a representative of the general population, with no specific or unusual distributions in gender, age and physical or mental attributes.

2.4 Limitations of Report

The content of this report relates only to the non-compliance and subject building identified.

No liability is accepted on the accuracy of the information provided.

Any change in the above information to suit future design modifications will require further assessment to confirm compliance with the intent of the design objectives.

2.5 Report Exclusions

It is conveyed that this report should not construed to infer that an assessment for compliance with the following has been undertaken –

- Building Code of Australia (BCA), with exception of the direct assessment made relating to the subject access
- Occupational Health & Safety Act and Regulations;
- Work Cover Authority requirements

2.6 Statutory and Regulatory Standards

The following standards are to be used to implement the Report:

- AS 1428.1-2009: General Requirements for Access
- BCA 2019: Building Code of Australia
- DDA Premises Standards 2010

3. Regulatory Framework

3.1 DDA Access to Premises Standards 2010

The Premises Standards has been developed to

(a) to ensure that dignified, equitable, cost-effective and reasonably achievable access to buildings, and facilities and services within buildings, is provided for people with a disability; and

(b) to give certainty to building certifiers, building developers and building managers that, if access to buildings is provided in accordance with these Standards, the provision of that access, to the extent covered by these Standards, will not be unlawful under the Act.

Section 23 of the Disability Discrimination Act 1992 (Cth) (DDA) makes it unlawful to discriminate against a person with a disability in relation to access to, or use of, premises. Whilst this section stipulates that it is unlawful it does not provide information or references to people responsible for buildings to assist them to design, construct or manage buildings in a way that do not discriminate.

Within the DDA Premises Standards is the Access Code for Buildings, which is written in the same style as the BCA in that it has a number of Performance Requirements that are expressed in broad terms and references to a number of technical Deemed-to-Satisfy Provisions.

3.2. Building Code of Australia

A2.0 Compliance

Compliance with the NCC is achieved by complying with—

(1) the Governing Requirements of the NCC; and

(2) the Performance Requirements.

A2.1 Compliance with the Performance Requirements

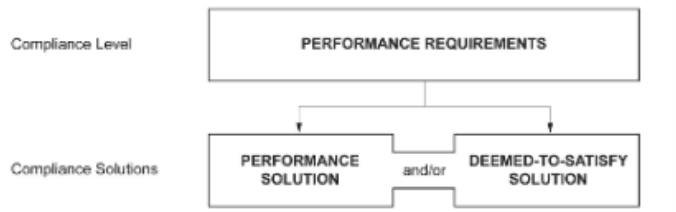
Performance Requirements are satisfied by one of the following, as shown in Figure 1:

(1) A Performance Solution.

(2) A Deemed-to-Satisfy Solution.

(3) A combination of (1) and (2).

Figure 1: NCC compliance option structure



A2.2 Performance Solution

(1) A Performance Solution is achieved by demonstrating—

(a) compliance with all relevant Performance Requirements; or

(b) the solution is at least equivalent to the Deemed-to-Satisfy Provisions.

(2) A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of the following Assessment Methods:

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements.

(b) A Verification Method including the following:

(i) The Verification Methods provided in the NCC.

(ii) Other Verification Methods, accepted by the appropriate authority that show compliance with the relevant Performance Requirements.

(c) Expert Judgement.

(d) Comparison with the Deemed-to-Satisfy Provisions.

(3) Where a Performance Requirement is satisfied entirely by a Performance Solution, in order to comply with (1) the following method must be used to determine the Performance Requirement or Performance Requirements relevant to the Performance Solution:

(a) Identify the relevant Performance Requirements from the Section or Part to which the Performance Solution applies.

(b) Identify Performance Requirements from other Sections or Parts that are relevant to any aspects of the Performance Solution proposed or that are affected by the application of the Performance Solution.

A2.3 Deemed-to-Satisfy Solution

(1) A solution that complies with the Deemed-to-Satisfy Provisions is deemed to have met the Performance Requirements.

(2) A Deemed-to-Satisfy Solution can show compliance with the Deemed-to-Satisfy Provisions through one or more of the following Assessment Methods:

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, plumbing and drainage product, form of construction or design meets a Deemed-to-Satisfy Provision.

(b) Expert Judgement.

(3) For Volume Two:

(a) Where an acceptable construction manual and an acceptable construction practice contained in the same Part are considered to satisfy the same component of a Performance Requirement, in order to comply with the Deemed-to-Satisfy Provisions it is only necessary to satisfy—

(i) the appropriate acceptable construction manual; or

(ii) the appropriate acceptable construction practice.

(b) Where an acceptable construction manual and an acceptable construction practice contained in the same Part are deemed to satisfy different components of a Performance Requirement, compliance with the Deemed-to Satisfy Provisions may require satisfying both the listed acceptable construction manual and the acceptable construction practice for their specific components unless otherwise stated.

A2.4 A combination of solutions

(1) Performance Requirements may be satisfied by using a combination of Performance Solutions and Deemed-to Satisfy Solutions.

(2) When using a combination of solutions, compliance can be shown through the following, as appropriate:

(a) A2.2 for assessment against the relevant Performance Requirements.

(b) A2.3 for assessment against the relevant Deemed-to-Satisfy Provisions.

(3) Where a Performance Requirement is satisfied by a Performance Solution in combination with a Deemed-to-Satisfy Solution, in order to comply with (1), the following method must be used to determine the Performance Requirement or Performance Requirements relevant to the Performance Solution:

(a) Identify the relevant Deemed-to-Satisfy Provisions of each Section or Part that are to be the subject of the Performance Solution.

(b) Identify the Performance Requirements from the same Sections or Parts that are relevant to the identified Deemed-to-Satisfy Provisions.

(c) Identify Performance Requirements from other Sections or Parts that are relevant to any aspects of the Performance Solution proposed or that are affected by the application of the Deemed-to-Satisfy Provisions that are the subject of the Performance Solution.

4. BCA Non-Compliance Assessment

4.1 Summary

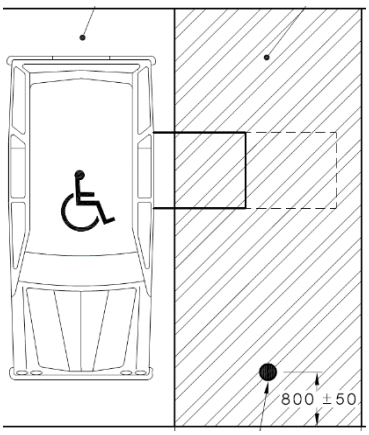
Under Deemed to Satisfy provisions of the BCA, an accessible car bay is to be compliant with AS2890.6. Currently the visitor accessible car bay has 2400mm width x 5400mm length adjacent to a shared zone with 2400mm min. width x 5400mm min. length, which is compliant with AS2890.6. The accessible car bay has appropriate vertical clearances in accordance with AS2890.6.

It has been identified that there are columns at the front of the accessible car bay located between the car bay and shared zone. The column encroaches no more than 1.5m into the shared space, which is non-compliant under AS2890.6. This is a departure from BCA Part D3.

A performance solution is required confirming that the accessible car bays shared zone will meet the relevant Performance Requirement of the Building Code of Australia.

4.2 Relevant Deemed to Satisfy Provisions

The DTS provisions for the present project are set out in:

Class of building	Access requirements
Class 2	**Accessible Car Parking** *AS2890.6 requires a 2.4 metre car bay with 2.4 metre wide shared zone* *AS2890.6 – clause 2.2.1 (e)* *Bollards shall be provided in the positions shown in Figures 2.2 and 2.3.* 

4.3 Relevant Performance Requirements

Under DP8 of the BCA, car parking spaces for use by people with disabilities must be (i) provided to the degree necessary to give equitable access for car parking and (ii) designated and easy to find.

4.4. Assessment Method

This performance solution report adopts expert opinion to justify the above departure from the deemed-to-satisfy provisions of the BCA, which is an acceptable assessment method under A2.2(2)(c) of the BCA.

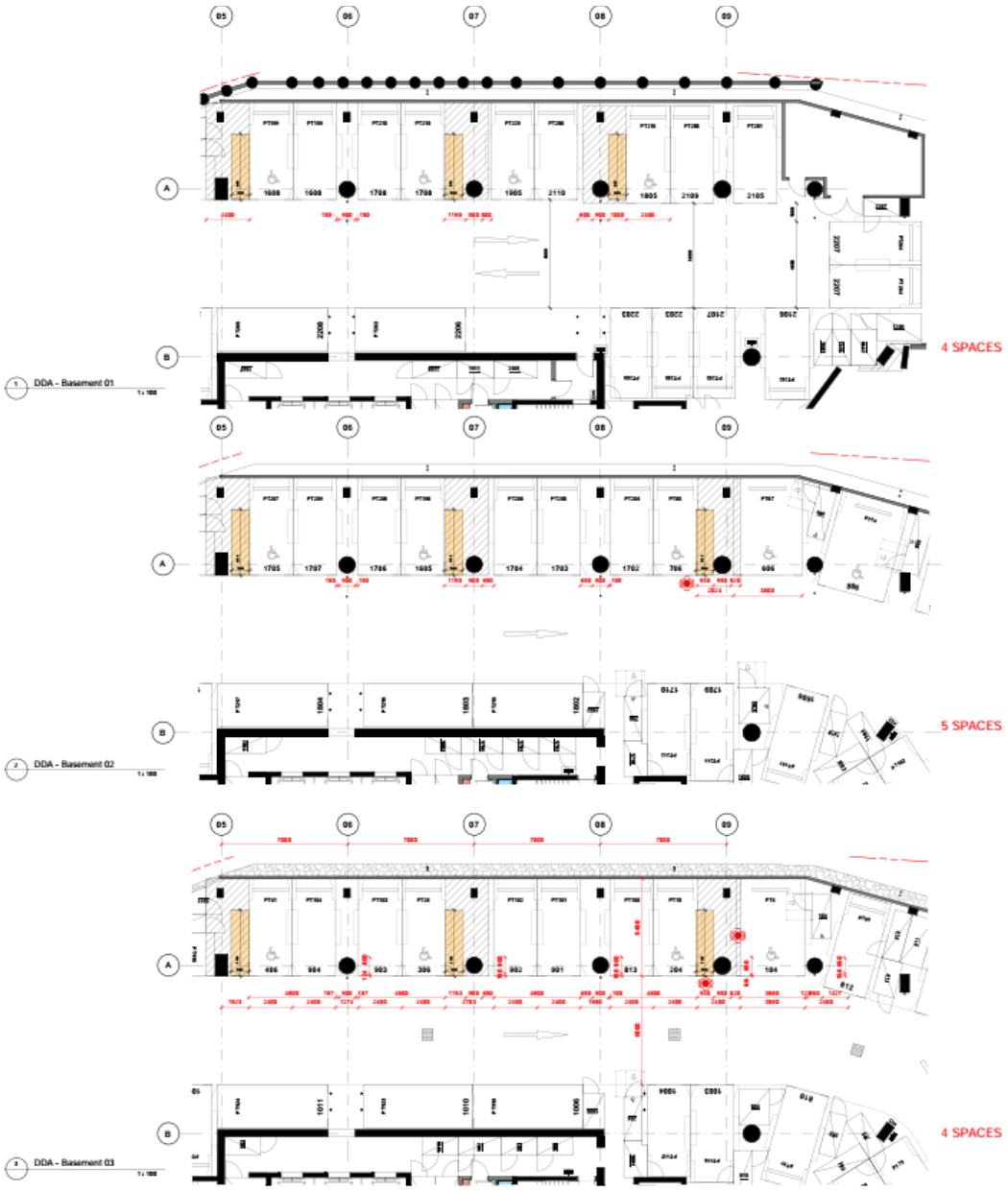
5. Accessible Car Bay Shared Area Variation

5.1 Variation Proposed

The applicant has proposed performance solutions to the Deemed-to-Satisfy provisions in the BCA. Where the BCA Deemed-to-Satisfy provisions have not been satisfied by the current design; reasonable provision of access will be satisfied by an appropriate performance solution.

The proposal is to adopt the current placement of the column (shown in red) between the shared zone and the accessible car bay.

5.2 Areas where the Variation Occurs



5.3 Comments as to how it is proposed to meet the Performance Requirements

In my opinion, use of the accessible car bays in question is functional and fit for purpose.

The accessible car bays have 2.4 metre width with a 2.4 metre width shared zone. The vertical clearance is appropriate. These spatial dimensions are in accordance with AS2890.6.

The nature of the technical non-compliance is that the columns are located close to the front of the shared zones, which does not comply with what is shown in diagrams 2.2 & 2.3 (AS2890.6). However, it is noted that the normative diagrams 2.2 & 2.3 of AS2890.6 are described as 'examples' of how an accessible car bay and its shared zone should be represented.

This means there could be other ways of designing the provision of similar functionality for an accessible car bay.

The columns installed actually allows for an appropriate circulation area at the side of the accessible car bay. The column position allows for functional circulation areas present outside vehicle doors (front seat and back seat) for embarkation and disembarkation in all following scenarios into/from the shared zone.

- Side loading van

- Hoist from the roof of a vehicle to the driver's side

- Person putting together wheelchair from driver's side

- 2nd party to unload wheelchair from boot and position on driver's side

It is my opinion that the positioning of the column as currently constructed will allow the above scenarios to occur based on car door opening areas as shown in the minimum requirements of AS2890.1 fig 5.2. This figure shows the minimum design envelope that is required around parked vehicles that is clear of columns, walls and obstructions.

Using this design envelope and allowing for the circulation areas that the shared zone currently provides, it is my opinion that a person in a wheelchair would be able to use the shared zone to the access the vehicle in an appropriate manner that would allow independent and equitable movement. In addition the 1m clearances alongside the columns will ensure users can independently exit/enter the space.

In my opinion the accessible car bay and its shared zone could be argued as functional and fit for purpose. The construction of the accessible car bay and its shared zone in my opinion satisfies the test of reasonableness in terms of safety, equity and dignity; and is in line with Performance Requirement DP8 of the BCA.

Morris Goding
Access Consulting

6. Conclusion

The intent of the Building Code of Australia is to ensure that sufficient provision is made for people with disabilities under AS1428.1.

The proposed performance solution demonstrates that access is provided *to the degree* necessary to enable the satisfaction of DP8.

Prepared by:



Anthony Leuzzi
Associate Director
Morris Goding Accessibility Consulting

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: NOTES AND LEGEND		Drawing No: 02507-A1-HY-001		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.08.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1
HYDRAULIC SERVICES

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LOCAL SUPPLY AUTHORITIES REGULATIONS, THE NSW PLUMBING CODE OF PRACTICE, AS3500 AND AS5601.
2. THE CONTRACTOR SHALL PROVIDE COORDINATED "SHOP DRAWINGS" OR DRAWINGS "FOR CONSTRUCTION" TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO THE CONSTRUCTION OF ANY HYDRAULIC SERVICES WORKS. THE DRAWINGS SHALL CLEARLY NOMINATE AND DIMENSION THE EXACT SIZE AND LOCATION OF ALL STRUCTURAL PENETRATIONS AND DETAIL THE POSITION AND LEVEL OF ALL HYDRAULIC SERVICES PIPEWORK IN RELATION TO THE STRUCTURE AND OTHER SERVICES.
3. ALL HYDRAULIC DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE RELEVANT AND MOST RECENT ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, ELECTRICAL AND LANDSCAPING DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL ADVISE THE SUPERINTENDENT IMMEDIATELY OF ANY TECHNICAL OR COORDINATION ISSUES THAT MAY ARISE.
4. THE LOCATION AND LEVELS OF EXISTING SERVICES SHOWN ARE APPROXIMATE ONLY AND SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS. THE CONTRACTOR SHALL ADVISE THE SUPERINTENDENT IMMEDIATELY OF ANY DISCREPANCIES THAT MAY PREVENT CONSTRUCTION OF THE WORKS GENERALLY AS PER THE DRAWINGS.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE CARE WHEN EXCAVATING NEAR EXISTING SERVICE AND SHALL FOLLOW THE RELEVANT SERVICE AUTHORITIES GUIDELINES FOR EXCAVATION NEAR EXISTING SERVICES. IF THERE IS ANY DOUBT AS TO THE ACTUAL LOCATION OF AN EXISTING SERVICE, THEN THE CONTRACTOR SHALL CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO ANY EXCAVATION WORK COMMENCING.
6. ALL LEVELS REFER TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
7. THE CONTRACTOR SHALL ALLOW FOR ALL SURVEY AND SETOUT REQUIRED TO INSTALL THE WORKS. "WORK AS EXECUTED" SURVEY AND DRAWINGS OF ANY STORMWATER DRAINAGE AND ON-SITE STORMWATER DETENTION MUST BE PREPARED AND SIGNED BY A REGISTERED SURVEYOR.
8. THE CONTRACTOR SHALL ALLOW TO MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES RELATING TO ROAD OPENING AS REQUIRED, TO THE SATISFACTION OF THE GOVERNING ROAD AUTHORITY. THE CONTRACTOR SHALL ALSO ALLOW FOR THE PREPARATION OF TRAFFIC CONTROL PLANS AND PROVISION OF TRAFFIC CONTROL AS MAY BE REQUIRED.
9. UPON PRACTICAL COMPLETION OF THE WORKS, THE CONTRACTOR SHALL:
   - PROVIDE "WORK AS EXECUTED" DRAWINGS OF THE COMPLETED WORKS.
   - PROVIDE COPIES OF ALL TEST RESULTS AND CERTIFICATES RELATING TO THE INSTALLATION OF THE WORKS.
   - PROVIDE MANUFACTURERS SPECIFICATIONS AND MANUALS FOR INSTALLED PLANT ITEMS, COMPONENTS, ETC.
   - TRANSFER ALL WARRANTIES FOR INSTALLED PLANT ITEMS, COMPONENTS, ETC., TO THE PRINCIPAL.

FIRE SEALING OF PENETRATIONS

1. PENETRATIONS THROUGH CONCRETE SLABS SHALL BE SEALED TO PROVIDE A MINIMUM TWO HOUR FRL TO AS1530.
2. PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE SEALED TO PROVIDE THE SAME FRL AS THE ELEMENT BEING PENETRATED AS PER AS1530.
3. THE CONTRACTOR SHALL SUBMIT IN WRITING AND SEEK APPROVAL FROM THE PRINCIPAL CERTIFYING AUTHORITY FOR THE INTENDED METHODS TO BE USED FOR FIRE SEALING PENETRATIONS PRIOR TO THEIR SUPPLY AND INSTALLATION.
4. WHERE UPVC PIPES PENETRATE CONCRETE SLABS OR FIRE RATED WALLS, THEY SHALL BE PROVIDED WITH AN APPROVED FIRE RATED COLLAR HAVING THE SAME FIRE RATING OR GREATER THAN THE ELEMENT BEING PENETRATED.
5. WHERE SERVICES OTHER THAN UPVC PENETRATE CONCRETE OR MASONARY BUILDING ELEMENTS, SEAL ANY GAPS BETWEEN THE SERVICES AND THE ELEMENT WITH AN APPROVED MASTIC FIRE-STOP FOAM HAVING THE SAME FIRE RATING OR GREATER THAN THE ELEMENT BEING PENETRATED.

SANITARY PLUMBING

1. ALL PIPE WORK SHALL BE INSTALLED AND TESTED TO AS3500.
2. ALL VENTS SHALL BE OFFSET WITHIN THE ROOF SPACE AS REQUIRED TO PROVIDE MINIMUM OF 600mm FROM EAVES.
3. ALL PIPE PENETRATIONS AT WALLS SHALL BE FITTED WITH A PUDDLE FLANGE AND MADE GOOD TO ENSURE WATER TIGHTNESS.
4. ALL PIPE PENETRATIONS THROUGH CONCRETE STRUCTURAL ELEMENTS SHALL BE COORDINATED AND WHERE POSSIBLE CAST-IN PRIOR TO THE PLACEMENT OF CONCRETE. THE CONTRACTOR SHALL NOT CUT OR MOVE ANY STEEL REINFORCING BARS TO SUIT A PIPE PENETRATION UNLESS APPROVED IN WRITING BY THE SUPERINTENDENT AND OR THE PROJECTS STRUCTURAL ENGINEER.
5. ALL CORE HOLE LOCATIONS SHALL BE APPROVED IN WRITING BY THE SUPERINTENDENT AND OR THE PROJECTS STRUCTURAL ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CORING ACTIVITIES.
6. ALL PIPE WORK SHALL BE ACOUSTICALLY INSULATED TO ACHIEVE THE MINIMUM STC REQUIREMENT OR BETTER AS PER THE CURRENT BUILDING CODE OF AUSTRALIA. THE CONTRACTOR SHALL SUBMIT IN WRITING AND SEEK APPROVAL FROM THE PRINCIPAL CERTIFYING AUTHORITY FOR THE INTENDED METHOD TO BE USED FOR ACHIEVING THE STC REQUIREMENTS PRIOR TO THE SUPPLY AND INSTALLATION OF THE ACOUSTIC TREATMENT.

FIRE HYDRANT SERVICE

1. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL SUPPLY AUTHORITY TO ENABLE CONNECTION OF THE WATER SUPPLY TO THE AUTHORITIES WATER MAIN.
2. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL SUPPLY AUTHORITY TO ENABLE THE INSTALLATION OF ANY WATER SUPPLY PUMP-SETS FOR THE FIRE HYDRANT SERVICE.
3. ALL PIPE WORK SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH AS2419.1 AND AS3500.
4. TEMPORARY FIRE HYDRANT SYSTEM TO BE INSTALLED DURING CONSTRUCTION WHEN BUILDING EFFECTIVE HEIGHT HAS REACHED 12m. FIRE HYDRANT SYSTEM SHALL BE OPERATIONAL, MINIMUM 2 STOREYS BELOW TOP DECKING. REFER TO BCA CLAUSE E 1.9.

HYDRAULIC SERVICE MATERIALS

1. POTABLE WATER SUPPLY
   - SMALLER THAN DN100 SHALL BE COPPER TUBING TYPE B TO AS 1432 UNLESS NOTED OTHERWISE.
   - DN100 OR LARGER SHALL BE DUCTILE IRON CEMENT LINED (DICL) PIPE CLASS K9 TO AS2280 WITH POLYETHYLENE SLEEVING WHEN INSTALLED IN GROUND OR MPVC PIPE CLASS 16 AND BLUE IN COLOUR UNLESS NOTED OTHERWISE.
2. NON-POTABLE WATER SUPPLY
   - SMALLER THAN DN100 SHALL BE COPPER TUBING TYPE B TO AS 1432 UNLESS NOTED OTHERWISE. THE PIPE SHALL BE APPROPRIATELY MARKED TO IDENTIFY THAT THE SUPPLIED WATER IS NON-POTABLE.
   - DN100 OR LARGER SHALL BE MPVC PIPE CLASS 16 LILAC IN COLOUR UNLESS NOTED OTHERWISE. THE PIPE SHALL BE APPROPRIATELY MARKED TO IDENTIFY THAT THE SUPPLIED WATER IS NON-POTABLE.

3 GAS SUPPLY
   - SMALLER THAN DN150 SHALL BE COPPER TUBING TYPE B TO AS 1432 UNLESS NOTED OTHERWISE.

4. HOT WATER SUPPLY
   - SMALLER THAN DN100 SHALL BE COPPER TUBING TYPE B TO AS 1432 UNLESS NOTED OTHERWISE. ALL HOT WATER FLOW AND RETURN LINES SHALL BE INSULATED WITH 25mm THERMOTECH 4 – ZERO OR EQUAL.

5 SEWER DRAINAGE
   - DN225 OR SMALLER SHALL BE UPVC PIPE CLASS SN4 TO AS1260 WITH SOLVENT WELD JOINTS (EXCEPT WHERE EXPANSION JOINTS ARE REQUIRED) UNLESS NOTED OTHERWISE.
   - DN300 OR LARGER SHALL BE VITRIFIED CLAY (VC) PIPE CLASS 3 TO AS1741 WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.

6. SANITARY PLUMBING
   - ALL PIPES SHALL BE UPVC PIPE TYPE SWV TO AS1415 WITH SOLVENT WELD JOINTS (EXCEPT WHERE EXPANSION JOINTS ARE REQUIRED) UNLESS NOTED OTHERWISE.

7. HOT WATER LAGGING
   - 25mm THERMOTEC 4–ZERO.

8. TRADE WASTE DRAINAGE
   - ALL PIPE SHALL BE HIGH DENSITY POLYETHLENE SEWER GRADE.

9. FIRE HYDRANT SERVICE
   - ALL BELOW GROUND PIPES SHALL BE COPPER TUBING TYPE B TO AS1432 OR PVC (BLUE BRUTE) CLASS 16.
   - ALL ABOVE GROUND PIPES SHALL BE GALVANISED MILD STEEL PIPE TO AS1074

SEWER DRAINAGE

1. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL SUPPLY AUTHORITY TO ENABLE CONNECTION OF THE SEWER DRAINAGE TO THE AUTHORITIES SEWER MAIN.
2. THE CONTRACTOR SHALL PROVIDE AND REMOVE ON COMPLETION ALL TIMBERING AND SHORING AS NECESSARY TO CONSTRUCT THE PIPEWORK.
3. ALL PIPE WORK SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH AS3500.
4. DRAINS UNDER STRUCTURES SHALL BE RETESTED AS REQUIRED BY THE LOCAL SUPPLY AUTHORITY, PLUMBING AND DRAINAGE INSPECTOR OR THE SUPERINTENDENT.
5. WHERE THE CLEARANCE FROM THE TOP OF PIPE WORK TO THE UNDERSIDE OF A FOOTING IS LESS THAN 150mm THEN THE CONTRACTOR SHALL INSTALL AN 80mm COMPRESSIBLE MATERIAL OVER THE PIPE WORK.
6. AN INSPECTION OPENING SHALL BE PROVIDED AT:
   - THE PROPERTY BOUNDARY (OR BOUNDARY TRAP IF REQUIRED
   - EACH WATER CLOSET OR BRANCH
   - MAXIMUM 30m INTERVALS ALONG DRAINS
   - IMMEDIATELY UPSTREAM AND DOWNSTREAM OF ALL JUMP-UPS
   - DRAINS EXITING FROM UNDER A BUILDING OR STRUCTURE
   - ANY LOCATION ALONG A DRAIN THAT MAY BE DIFFICULT FOR A PLUMBER TO ACCESS IN FUTURE FOR MAINTENANCE PURPOSES
7. ALL DRAINS SHALL BE SUPPORTED ON FIRM GROUND. UPON EXCAVATION TO THE REQUIRED LEVELS, IF SOFT OR WATER CHARGED GROUND IS ENCOUNTERED, THEN THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT IMMEDIATELY AND AWAIT FURTHER DIRECTION PRIOR TO PROCEEDING WITH ANY PIPE LAYING.

WATER SUPPLY

1. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL SUPPLY AUTHORITY TO ENABLE CONNECTION OF THE WATER SUPPLY TO THE AUTHORITIES WATER MAIN.
2. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL SUPPLY AUTHORITY TO ENABLE THE INSTALLATION OF ANY WATER SUPPLY PUMP-SETS FOR THE WATER SUPPLY SERVICE.
3. ALL PIPE WORK SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH AS3500.
4. EACH WATER METER TO HAVE A MINIMUM 100MM CLEARANCE, PERPENDICULAR TO THE DIRECTION OF THE PIPES, BETWEEN SUBMETERS.
5. A MINIMUM 100MM CLEARANCE BETWEEN THE OUTERMOST VALVES AND THE EDGES OF THE CUPBOARD.
6. THE CUPBOARD SHALL HAVE A MINIMUM 150MM WATER PROOF AND DRAINED BUND AT THE OPENING IF IT IS LOCATED INSIDE A BUILDING.
7. THE SUBMETERS SHALL BE EASILY ACCESSIBLE AND READABLE FROM FLOOR LEVEL OF THE COMMON PROPERTY.
8. MAXIMUM HEIGHT FOR THE HIGHER OF EITHER THE CENTRELINE OF SUBMETERS OR THE TOP OF THE SUBMETERING ASSEMBLY = 1.6M.
9. A MINIMUM OF 2 SQUARE METRES IS AVAILABLE IN FRONT OF THE CUPBOARD AS FREE WORKING SPACE.

HOT WATER

1. THE CONTRACTOR SHALL MAKE ALL APPLICATIONS AND PAY ALL ASSOCIATED FEES AND CHARGES TO THE LOCAL ELECTRICITY SUPPLY AND OR GAS SUPPLY AUTHORITY FOR CONNECTION OF HOT WATER PLANT.
2. ALL PIPE WORK SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH AS3500.
3. ALL HOT WATER FLOW AND RETURN LINES SHALL BE INSULATED WITH 25mm THERMOTECH 4 – ZERO OR EQUAL.
4. A PRESSURE LIMITING VALVE SHALL BE INSTALLED ON THE COLD WATER INLET MANIFOLD TO THE HOT WATER PLANT IF THE PRESSURE EXCEEDS 600kPa.
5. HOT WATER METERS WITH REMOTE READING DEVICES SHALL BE INSTALLED IN METER CUPBOARDS (AS SHOWN ON THE DRAWINGS) TO EMBEDDED NETWORK RETAILER'S SPECIFICATION. TYPICAL ALL UNITS.
6. TEMPERING OR THERMOSTATIC MIXING VALVES SHALL BE INSTALLED DOWNSTREAM OF HOT WATER METERS IN ACCORDANCE WITH AS3500 AND THE NSW PLUMBING CODE OF PRACTICE.
7. A MASTER COLD WATER METER SHALL BE INSTALLED ON THE COLD WATER INLET MANIFOLD TO THE CENTRAL HOT WATER PLANT.

HYDRAULIC SERVICES MATERIAL ABBREVIATIONS

Cu	COPPER PIPE
DICL	DUCTILE IRON CEMENT LINED PIPE
GMS	GALVANISED MILD STEEL PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
MPVC	MODIFIED POLYVINYL CHLORIDE PIPE
RC	REINFORCED CONCRETE PIPE
SS	STAINLESS STEEL
UPVC	UNPLASTICISED POLYVINYL CHLORIDE PIPE
VC	VITRIFIED CLAY PIPE

STORMWATER NOTES

1. PIPES DN375 AND LARGER TO BE STEEL REINFORCED CONCRETE PIPES CLASS '2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O.
2. PIPES DN300 AND SMALLER SHALL BE GRADE SH (SEWER GRADE) uPVC WITH RUBBER RING JOINTS.
3. EQUIVALENT STRENGTH FIBRE REINFORCED CONCRETE PIPES MAY BE USED UP TO DN450.
4. PIPES FOR SUB-SOIL DRAINS SHALL BE SLOTTED 100MM DIAMETER CLASS 1000 WRAPPED IN GEOFABRIC, U.O.N, COMPLYING WITH THE REQUIREMENTS OF AS 2439.
5. PRECAST PITS, WHERE ALLOWED, AND THE INSITU BASE SHALL COMPLY WITH THE REQUIREMENT OF THE MANUFACTURER.
6. ALL MILD STEEL FIXTURES INCLUDING GRATES, FRAMES, STEP IRONS, LADDERS, ETC., SHALL BE HOT DIP GALVANISED. GALVANISING SHALL COMPLY WITH THE REQUIREMENTS OF AS 1214 OR AS 1650, AS APPROPRIATE.
7. GEOFABRIC FILTER SHALL BE PERMEABLE, NON-WOVEN FABRIC MANUFACTURED FROM A POLYMER SUCH AS POLYPROPYLENE OR POLYESTER OF MASS NOT LESS THAN 135G/M2.
8. THE MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:
   CONCRETE AND FRC PIPES: EXTERNAL PIPE DIAMETER PLUS 400MM.
   uPVC PIPE: EXTERNAL DIAMETER OF PIPE PLUS 200MM.
   SUBSOIL PIPE: 250MM.
9. ALL PIPES SHALL BE PLACED CENTRALLY WITHIN THE TRENCH WITH EQUAL CLEARANCE EACH SIDE.
10. PIPE BEDDING MATERIAL SHALL BE CLEAN COARSE RIVER SAND WITH DEPTH AS FOLLOWS:
    CONCRETE AND FRC PIPES: 100MM (175MM IN ROCK)
    UPVC PIPE: 75MM (100MM IN ROCK)
    SUBSOIL DRAINS: 50MM
11. ALL PIPES SHALL BE BACKFILLED WITH GRANULAR MATERIAL SUCH AS QUARRY FINES OR COARSE RIVER SAND TO A MINIMUM OF 150MM ABOVE THE PIPE. THE GRANULAR MATERIAL SHALL BE PLACED IN 150MM THICK MAXIMUM LAYERS AND COMPACTED TO ACHIEVE A DENSITY INDEX (ID) OF 70%. FREQUENCIES OF COMPACTION TESTS FOR TRENCHES SHALL BE 1 TEST PER 2 LAYERS PER 40 LINEAR METRE.
12. BACKFILL THE REMAINDER OF THE TRENCH ABOVE THE SAND TO SUBGRADE LEVEL WITH TRENCH MATERIAL. PLACE AND COMPACT MATERIALS IN LAYERS NOT EXCEEDING 150MM LOOSE THICKNESS. MATERIAL LOWER THAN 500MM BELOW SUBGRADE LEVEL SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD MAXIMUM DRY DENSITY. THE TOP 500MM BELOW PAVEMENT SUBGRADE LEVELS SHALL BE COMPACTED TO AT LEAST 100% STANDARD MAXIMUM DRY DENSITY.
13. FILTER MATERIAL FOR SUBSOIL SHALL BE COARSE SAND OR CRUSHED STONE COMPLYING WITH ONE OF THE GRADINGS IN THE TABLE BELOW. WHERE NOTED ON THE DRAWINGS THE 7MM CRUSHED ROCK FILTER MATERIAL SHALL BE ENCLOSED WITHIN FILTER FABRIC SHEET AS SPECIFIED. FILTER MATERIAL SHALL BE PLACED IN 250MM LAYERS AND COMPACTED TO DENSITY INDEX (ID) OF 60%.

AS SIEVE SIZE (mm)	SAND	7mm ROCK
9.5	100	100
6.7	-	75-100
4.75	90-100	20-55
2.36	75-100	0-15
1.18	50-90	
0.6	20-60	
0.3	10-30	
0.15	2-10	
0.075	0-3	0-2

14. UNLESS OTHERWISE DETAILED OR PERMITTED, THE MINIMUM GRADE OF ALL PIPE WORKS SHALL BE 1.00%.

ABBREVIATIONS

PIPE FITTINGS

	AIR ADMITTANCE VALVE
	BALANCING VALVE
BT	BOUNDARY TRAP
	BUCKET TRAP FLOOR WASTE
	BALL VALVE
	CLEAR OUT
	CHECK VALVE
DFH	DOUBLE CHECK VALVE
	DUAL FIRE HYDRANT
C	DROPPER
	END CAP
	FIRE BRIGADE BOOSTER ASSEMBLY
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
	FILTER
	FLOW VALVE
	FLOW SWITCH
	DIRECTION OF FLOW
	FLOOR WASTE
	GULLY
	HOSE TAP
HWU	HOT WATER UNIT - INSTANTANEOUS
IPMF	HOT WATER UNIT - CYLINDER
	IN-DUCT MICRO FLAP (LOW LEVEL VENT)
	METER (GAS/WATER)
	MONITOR VALVE
	PRESSURE LIMITING VALVE
	PRESSURE GAUGAE
	PRESSURE REDUCING VALVE
	PUMP
	REGULATOR (GAS)
	REDUCED PRESSURE ZONE DEVICE (RPZD)
	RISER
	REFLUX VALVE
SMH	SEWER MAINTANENCE HOLE
	SOLENOID VALVE
	STRAINER
	STOP VALVE
	STORMWATER PIT
	TAPPING
	TEMPERING VALVE
	THERMOSTATIC MIXING VALVE
	TUNDISH

LEVELS

FFL	FINISH FLOOR LEVEL
FSL	FINISH SURFACE LEVEL
HL	HIGH LEVEL
IL	INVERT LEVEL
LL	LOW LEVEL
RL	REDUCED LEVEL

FIXTURES

AAV	AIR ADMITTANCE VALVE
B	BASIN
BTH	BATH
CT	COOKTOP
FW	FLOOR WASTE
HT	HOSE TAP
LT	LAUNDRY TUB
ORG	OVERFLOW RELIEF GULLY
RWG	RAINWATER OUTLET
SHR	SHOWER
SK	SINK
TD	TUNDISH
WM	WASHING MACHINE
WC	WATER CLOSET

PIPES

AD	AERIAL DRAINAGE
CVP	CHAMBER VENT
CW	COLD WATER
DE	DIESEL EXHAUST
DP	DOWNPIPE
DTU	DRAINAGE TURN UP
FH	FIRE HYDRANT
FVM	FULLY VENTED MODIFED
GS	GREASE SUCTION
HW	HOT WATER
HWR	HOT WATER RETURN
NPCW	NON POTABLE COLD WATER
RV	RELIEF VENT
RD	ROOF DRAINAGE
SRM	SEWER RISING MAIN
SST	SINGLE STACK
SW	STORMWATER
SWRM	STORMWATER RISING MAIN
SDP	SYPHONIC DRAINAGE
TW	TRADE WASTE
TWTU	TRADE WASTE TURN UP
TWVP	TRADE WASTE VENT PIPE
VP	VENT PIPE
WW	WARMWATER

HYDRAULIC SERVICES LEGEND

PIPES

	RISER
	SERVICE TYPE
	SERVICE SIZE
	DROPPER
eG	EXISTING GAS MAIN
eS	EXISTING SEWER MAIN
eW	EXISTING WATER MAIN
eRW	EXISTING RECYCLE WATER MAIN
eSW	EXISTING STORMWATER MAIN
eSW	EXISTING STORMWATER MAIN
CCD	COMMON CONDENSATE DRAIN
C	CONDUIT
DE	DIESEL EXHAUST
FHR	FIRE HOSE REEL
FH	FIRE HYDRANT
G	GAS SERVICE
	HOT WATER
	HOT WATER RETURN
NPCW	NON POTABLE COLD WATER
RW	RECYCLED WATER
RD	ROOF DRAINAGE
	SANITARY PLUMBING
SRM	SEWER RISING MAIN
SW	STORM WATER
SWRM	STORM WATER RISING MAIN
SS	SUBSOIL
SDP	SYPHONIC DOWNPIPE
TW	TRADE WASTE
	VENT PIPE
WW	WARM WATER

2

DRAWING LIST

DRAWING NUMBER	DRAWING NAME
A1-HY-001	NOTES AND LEGEND
A1-HY-100	SITE PLAN
A1-HY-201	BASEMENT 3 PLAN
A1-HY-202	BASEMENT 2 PLAN
A1-HY-203	BASEMENT 1 PLAN
A1-HY-301	LOWER GROUND FLOOR PLAN
A1-HY-302	GROUND FLOOR PLAN
A1-HY-303	LEVEL 1 PLAN
A1-HY-304	LEVEL 2 PLAN
A1-HY-305	LEVEL 3 PLAN
A1-HY-306	LEVEL 4 PLAN
A1-HY-307	LEVEL 5 PLAN
A1-HY-308	LEVEL 6 PLAN
A1-HY-309	LEVEL 7 PLAN
A1-HY-310	LEVEL 8 PLAN
A1-HY-311	LEVEL 9 PLAN
A1-HY-312	LEVEL 10 PLAN
A1-HY-313	LEVEL 11 PLAN
A1-HY-314	LEVEL 12 PLAN
A1-HY-315	LEVEL 13 PLAN
A1-HY-316	LEVEL 14 PLAN
A1-HY-317	LEVEL 15 PLAN
A1-HY-318	LEVEL 16 PLAN
A1-HY-319	LEVEL 17 PLAN
A1-HY-320	LEVEL 18 PLAN
A1-HY-321	LEVEL 19 PLAN
A1-HY-322	LEVEL 20 PLAN
A1-HY-323	LEVEL 21 PLAN
A1-HY-324	LEVEL 22 PLAN
A1-HY-325	LEVEL 23 PLAN
A1-HY-326	ROOF PLAN
A1-HY-400	TYPICAL UNITS LAYOUT
A1-HY-401	POTABLE COLD WATER SCHEMATIC
A1-HY-402	HOT WATER SCHEMATIC
A1-HY-403	SANITARY PLUMBING SCHEMATIC 1
A1-HY-404	SANITARY PLUMBING SCHEMATIC 2
A1-HY-405	STORMWATER SCHEMATIC
A1-HY-406	SIPHONIC DRAINAGE SCHEMATIC
A1-HY-500	GENERAL DETAILS 1
A1-HY-501	GENERAL DETAILS 2

REV.	DES.	DATE	VER.	DESCRIPTION
2	E.W.	03.02.22	G.C.	REVISED DRAWING LIST
1	E.W.	20.08.21	G.C.	ISSUE FOR CONSTRUCTION

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES NOTES AND LEGEND

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-001	1

CAD FILENAME: G:\EMP\Projects\02507-IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-001.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: SITE PLAN		Drawing No: 02507-A1-HY-100		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

PIPE MATERIAL SCHEDULE

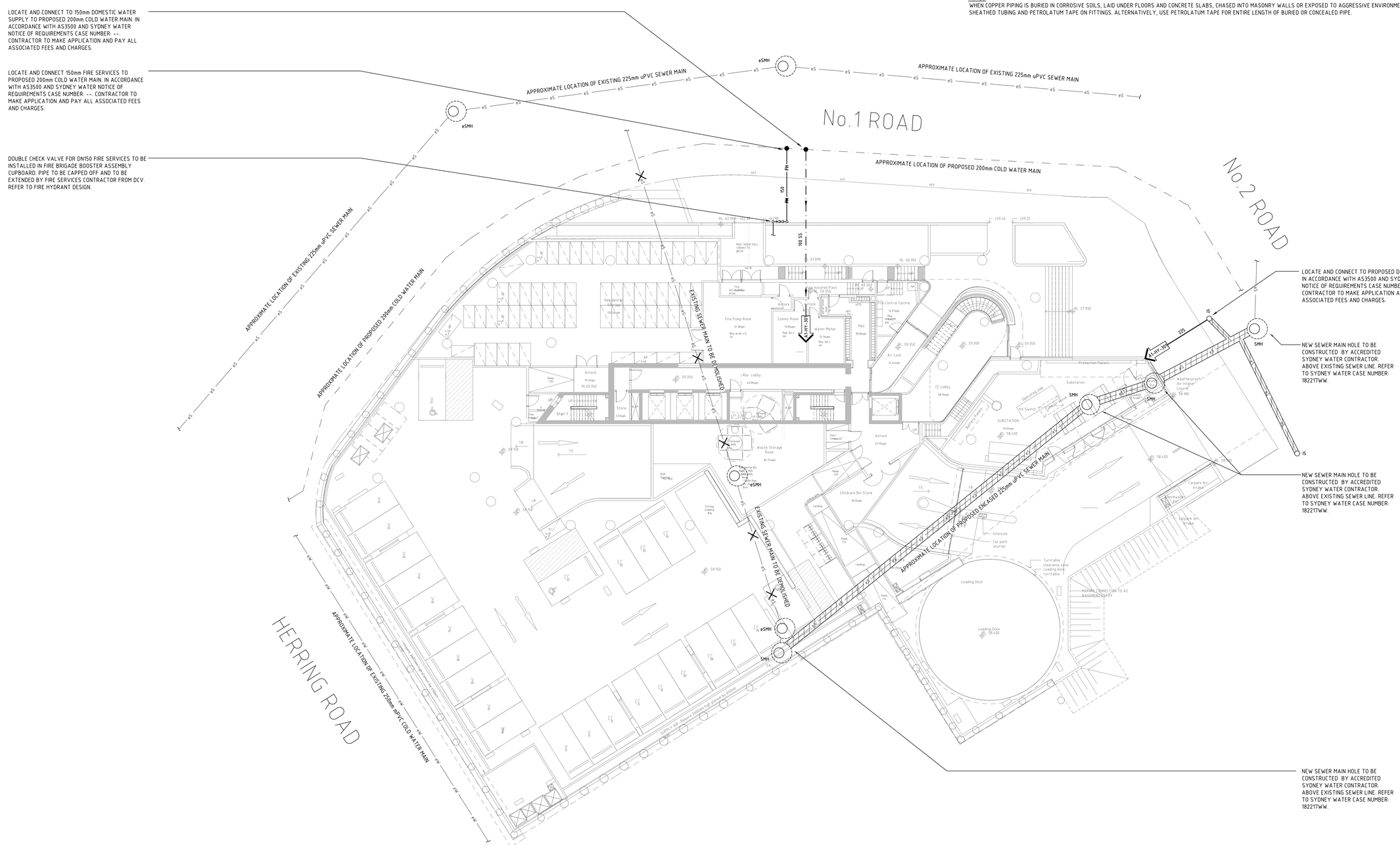
SERVICE	SIZE	PIPE OR TUBE	FITTINGS	PIPE JOINT METHOD	ALTERNATIVE PIPE/ PIPE JOINT METHOD
HW, WW ABOVE GROUND HOSE TAPS ABOVE GROUND	UP TO DN 20	COPPER CLASS "B", BENDABLE TEMPER (BQ)	COPPER	LEAD FREE SOFT SOLDER UP TO DN50 MIN 1.8% SILVER BRAZING DN65 AND ABOVE	SILVER BRAZING - ALL SIZES
	DN 25 AND ABOVE	STAINLESS STEEL	STAINLESS STEEL		ALTERNATIVE USE PLASTIC PRESSURE PIPE SUITABLE FOR HW AND WW
CW, RW ABOVE GROUND	ALL	HDPE	HDPE	COMPRESSION FITTINGS	COPPER TUBE TYPE 'B' WITH 5% SILVER BRAZED JOINTS
CW, RW BELOW GROUND	ALL	HDPE	HDPE	COMPRESSION FITTINGS	NO ALTERNATIVE
SOIL, WASTE, VENT ABOVE AND BELOW GROUND (INCLUDES GREASE WASTE <60°C)	ALL	uPVC SOIL, WASTE AND VENT PIPE	uPVC	uPVC SOLVENT WELD	NO ALTERNATIVE
CONDENSATE ABOVE GROUND	ALL	uPVC PRESSURE PIPE CLASS 6	uPVC	uPVC SOLVENT WELD	NO ALTERNATIVE

NOTES:
WHEN COPPER PIPING IS BURIED IN CORROSIVE SOILS, LAID UNDER FLOORS AND CONCRETE SLABS, CHASED INTO MASONRY WALLS OR EXPOSED TO AGGRESSIVE ENVIRONMENTS USE POLYETHYLENE SHEATHED TUBING AND PETROLATUM TAPE ON FITTINGS. ALTERNATIVELY, USE PETROLATUM TAPE FOR ENTIRE LENGTH OF BURIED OR CONCEALED PIPE.

LOCATE AND CONNECT TO 150mm DOMESTIC WATER SUPPLY TO PROPOSED 200mm COLD WATER MAIN IN ACCORDANCE WITH AS3500 AND SYDNEY WATER NOTICE OF REQUIREMENTS CASE NUMBER: --. CONTRACTOR TO MAKE APPLICATION AND PAY ALL ASSOCIATED FEES AND CHARGES.

LOCATE AND CONNECT 150mm FIRE SERVICES TO PROPOSED 200mm COLD WATER MAIN. IN ACCORDANCE WITH AS3500 AND SYDNEY WATER NOTICE OF REQUIREMENTS CASE NUMBER: --. CONTRACTOR TO MAKE APPLICATION AND PAY ALL ASSOCIATED FEES AND CHARGES.

DOUBLE CHECK VALVE FOR DN150 FIRE SERVICES TO BE INSTALLED IN FIRE BRIGADE BOOSTER ASSEMBLY CUPBOARD. PIPE TO BE CAPPED OFF AND TO BE EXTENDED BY FIRE SERVICES CONTRACTOR FROM DCV. REFER TO FIRE HYDRANT DESIGN.



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REV.	DES.	DATE	VER.	DESCRIPTION
1	G.C.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: ..... DATE: .....

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DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:500

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES SITE PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-100	1

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - BASEMENT 3		Drawing No: 02507-A1-HY-201		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.08.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137
2	02.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

PIPE GUARD TO BE INSTALLED WHEN PIPEWORKS LOCATE IN FRONT OF COLUMN (TYPICAL). REFER TO DETAIL

FIRE HOSE REEL WITH LOCKABLE ISOLATION VALVE (TYPICAL). REFER TO 02507-A1-HY-500 FOR DETAILS

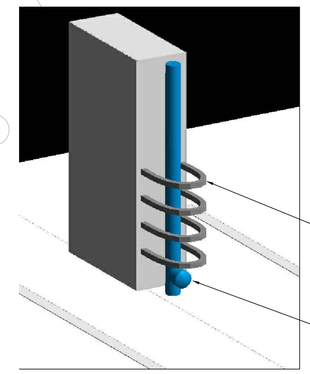
PROVISION FOR 1000 GENERAL PURPOSED PIT. REFER TO DRAWING - 02507-A1-HY-500 FOR GENERAL PURPOSED PIT DETAILS

STORMWATER PUMPOUT AND SEWER PUMPOUT CONTROL PANEL. TO BE INSTALLED EQUAL TO ALINE FPC-SERIES MODEL ALI-30240 THREE PHASE DUAL PUMP CONTROLLER WITH BMS

1000LT SEWER PUMP STATION. REFER TO 02507-A1-HY-500 FOR SEWER PUMP DETAILS

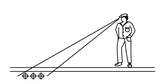
300mm WIDE HEAVY DUTY GRATE AND FRAME TRENCH DRAIN TO BE INSTALLED.

REFER TO 02507-A1-HY-500 FOR STORMWATER PUMP PIT DETAILS



PIPE GUARD DETAILS
SCALE: N.T.S.

SERVICES OUT OF STRATA



REV.	DES.	DATE	VER.	DESCRIPTION
4	E.W.	22.11.21	G.C.	DP14 LOCATED
3	E.W.	17.11.21	G.C.	REVISED DP LOCATIONS
2	E.W.	07.10.21	G.C.	REVISED PIT SIZES
1	E.W.	20.08.21	G.C.	ISSUE FOR CONSTRUCTION

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DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES BASEMENT 3 PLAN

STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-201 | REV. 4

C:\CAD FILENAME & DIRECTORY\Project\A1\DESIGN\DWG\A1-DESIGN-HYD-BASEMENT 3.dwg - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\ACAD\DESIGN\02507-A1-HY-201.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - BASEMENT 2		Drawing No: 02507-A1-HY-202		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

FIRE HOSE REEL WITH LOCKABLE ISOLATION VALVE (TYPICAL). REFER TO 02507-A1-HY-500 FOR DETAILS

PIPE GUARD TO BE INSTALLED WHEN PIPEWORKS LOCATE IN FRONT OF COLUMN (TYPICAL). REFER TO DETAIL

Pipe Guard.jpg

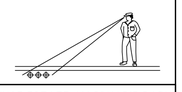
PIPE GUARD TO BE INSTALLED

INSPECTION OPENING TO BE INSTALLED IN ACCORDANCE WITH AS3500

PIPE GUARD DETAILS

SCALE: N.T.S.

SERVICES OUT OF STRATA



REV.	DES.	DATE	VER.	DESCRIPTION
3	E.W.	03.02.22	G.C.	REVISED SRM AND TW LAYOUT
2	E.W.	19.01.22	G.C.	REVISED SRM SIZE
1	E.W.	15.12.21	G.C.	ISSUE FOR CONSTRUCTION

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DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES BASEMENT 2 PLAN

STATUS: FOR CONSTRUCTION | DRAWING No: 02507-A1-HY-202 | REV: 3

C:\DP\FILENAME_G:\C&M\Projects\02501-02600\DPA-02507 - IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - RFC\02507-A1-HY-202(03).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - BASEMENT 1		Drawing No: 02507-A1-HY-202		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

FIRE HOSE REEL WITH LOCKABLE ISOLATION VALVE (TYPICAL). REFER TO 02507-A1-HY-500 FOR DETAILS

PIPE GUARD TO BE INSTALLED WHEN PIPEWORKS LOCATE IN FRONT OF COLUMN (TYPICAL). REFER TO DETAIL

300mm WIDE HEAVY DUTY GRATE AND FRAME TRENCH DRAIN TO BE INSTALLED.

150 WIDE x 100 HIGH BUNDING AROUND PUMP ROOM.

ALL HOSE TAPS FEED FROM NON-POTABLE COLD WATER SUPPLY TO BE LABELED "NOT FOR DRINKING" IN ACCORDANCE WITH AS3500. (TYPICAL)

150 WIDE x 100 HIGH BUNDING AROUND CAR WASH BAY.

150 WIDE x 100 HIGH BUNDING FOR GREASE ARRESTOR ROOM

PROVIDE 1000L GREASE ARRESTOR EQUAL TO HALGAN MGT1000 WITH ALL REQUIRED FIXTURES AND FITTINGS WITH CAST IRON CONCRETE GAS TIGHT TRAFFICABLE LID. FINAL INSTALLATION TO BE IN ACCORDANCE WITH SYDNEY WATER TRADE WASTE GUIDELINES

PROVIDE 65mm CAMLOCK FITTING ON WALL FOR GREASE REMOVAL

PROVIDE DUAL VARIABLE SPEED PUMP WITH AUTOMATIC SWITCH OVER TO POTABLE WATER USE FOR IRRIGATION, CAR WASH AND RESIDENTIAL WATER CLOSETS. CONTRACTOR TO ALLOW AND PROVIDE RPZD TO ALL ASSOCIATED COMPONENTS. PUMP DUTY: --l/s AT 120m/HEAD (TBC)

CONTRACTOR TO PROVIDE SOLENOID VALVE WITH RPZD AND ALL REQUIRED FIXTURES AND FITTINGS CONNECTED TO PUMP FOR POTABLE WATER SWITCH WHEN TANK AT LOW LEVEL

CONTRACTOR TO PROVIDE RAINWATER FILTRATION SYSTEM EQUAL TO SOUTHLAND FILTRATION INCORPORATING BAG FILTRATION AND UV DISINFECTION. MODEL NO. SR300D

NEW SEWER MAIN HOLE TO BE CONSTRUCTED BY ACCREDITED SYDNEY WATER CONTRACTOR. ABOVE EXISTING SEWER LINE. REFER TO SYDNEY WATER CASE NUMBER: 182217WW.

Pipe Guard.jpg

PIPE GUARD TO BE INSTALLED

INSPECTION OPENING TO BE INSTALLED IN ACCORDANCE WITH AS3500

PIPE GUARD DETAILS

SCALE: N.T.S.

SERVICES OUT OF STRATA

REV.	DES.	DATE	VER.	DESCRIPTION
3	E.W.	03.02.22	G.C.	REVISED SRM AND TW LAYOUT
2	E.W.	19.01.22	G.C.	REVISED SRM SIZE
1	E.W.	15.12.21	G.C.	ISSUE FOR CONSTRUCTION

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VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES BASEMENT 1 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-203	3

CAD FILENAME: Q:\C&M\Projects\02501-02600\PN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\DOTGONG\2020\03 - PC\02507-A1-HY-203(03).dwg

Regulated Design Record			
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA			
Project Title: BUILDING A1 - IVANHOE ESTATE			
Consent No: SSDA8903		Body Corporate Reg No: -	
Drawing Title: HYDRAULIC SERVICES - LOWER GROUND FLOOR		Drawing No:	02507-A1-HY-301

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.

DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

REFER TO LANDSCAPE ARCHITECT'S DOCUMENTATION for planter wall heights and paving RLs

PLUMBER TO EXTEND DN40 NON-POTABLE COLD WATER LINE TO LANDSCAPED AREAS FOR IRRIGATION ALLOW TO COORDINATE WITH LANDSCAPE CONTRACTOR. (TYPICAL)

NEW SEWER MAIN HOLE TO BE CONSTRUCTED BY ACCREDITED SYDNEY WATER CONTRACTOR. ABOVE EXISTING SEWER LINE. REFER TO SYDNEY WATER CASE NUMBER: 182217WW.

COLD WATER METERS FOR CHILDCARE, FIRE HOSE REEL AND RESIDENTIAL TO BE INSTALLED IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENT

PROVIDE TRIPLEX COLD WATER PUMP EQUAL TO GROUNDFOS WITH ALL REQUIRED FIXTURES AND FITTINGS DUTY: 17l/s AT 75m/HEAD (EACH PUMP)

25L ELECTRIC HOT WATER UNIT FOR GARBAGE ROOM AT HIGH LEVEL ON SAFETY TRAY. TRP TO DRAIN TO TD. (TYPICAL)

PROVIDE 2 x 65mm CAMLOCK FITTING ON WALL FOR GREASE REMOVAL (TYPICAL)

SYPHONIC DOWNPIPE DISCHARGE TO RAIN WATER TANK VIA VELOCITY BREAKER AND FIRST FLUSH DEVICE

OSD TANK BELOW. REFER TO CIVIL ENGINEER'S DRAWINGS FOR DETAILS

CONNECT STORMWATER DOWNPIPE DIRECTLY TO OSD TANK.

CONNECT STORMWATER DOWNPIPE DIRECTLY TO OSD TANK.

600 x 600 SUMP PIT TO STORMWATER AT THE BOTTOM OF TURN TABLE

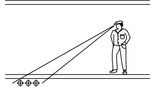
Zone for Childcare A/C condensors shown hatched

Loading Dock RL 58.400

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

SERVICES OUT OF STRATA



REV.	DES.	DATE	VER.	DESCRIPTION
2	E.W.	03.02.22	G.C.	RE-ISSUE FOR CONSTRUCTION
1	E.W.	15.12.21	G.C.	ISSUE FOR CONSTRUCTION

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DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
LOWER GROUND FLOOR PLAN

STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-301 | REV. 2

CAD FILENAME: Q:\C&M Projects\02501-02600\PLANS - 02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\DGN\02507-A1-HY-301R02.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - GROUND FLOOR		Drawing No: 02507-A1-HY-302		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
-	-	-	-	-

DRAINAGE AND TRADEWASTE TURN UP CONNECTION POINTS TO BE CAPPED BENEATH SLAB FOR FUTURE CONNECTION

PROVIDE DN40 CW FOR FIRE TANK TOP-UP

PLANTER DRAINS DESIGN FOR PLAYGROUND BENEATH ARTIFICIAL SURFACE FOR STORMWATER DRAINAGE. FINAL DRAINAGE CONCEPT TO BE CONFIRMED WITH ARCHITECT AND APPROPRIATE DRAINAGE SYSTEM ADOPTED PRIOR TO START OF WORKS (TYPICAL)

PROVIDE 600 x 600 ABOVE GROUND SUMP FOR RAINWATER TANK OVERFLOW. ALLOW TO CONFIRM FINAL LOCATION WITH FIRE CONTRACTOR

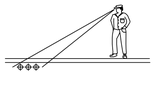
DP TO BE DISCHARED TO RWO BELOW

PIPEWORKS TO BE CAST-IN ABOVE ELECTRICAL SUBSTATION

NEW SEWER MAIN HOLE TO BE CONSTRUCTED BY ACCREDITED SYDNEY WATER CONTRACTOR. ABOVE EXISTING SEWER LINE. REFER TO SYDNEY WATER CASE NUMBER: 1822171WW.

200 (W) x 100 (D) OVERFLOW SLOTS TO BE PROVIDED WITHIN PLANTER BOX UPTURNS BY BUILDER (TYPICAL)

SERVICES OUT OF STRATA



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⬭ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
10. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
11. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
12. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
13. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
14. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
P10	E.W.	30.11.21	G.C.	ISSUE FOR REVIEW
P9	G.C.	25.11.21	G.C.	ISSUE FOR CO-ORDINATION
P8	G.C.	02.11.21	G.C.	ISSUE FOR CO-ORDINATION
P7	G.C.	28.10.21	G.C.	ISSUE FOR CO-ORDINATION
P6	G.C.	04.10.21	G.C.	ISSUE FOR CO-ORDINATION
P5	G.C.	04.10.21	G.C.	ISSUE FOR CO-ORDINATION

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DESIGNED	G. CHAN	DATE 1st ISSUED	-
VERIFIED	G. CHAN	LGA	CITY OF RYDE
DRAWN	E. WU	SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES GROUND FLOOR PLAN

STATUS	DRAWING No.	REV.
PRELIMINARY	02507-A1-HY-302	P10

CAD FILENAME: G:\C&M Projects\IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1\CAD\02507-A1-HY-302.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 1		Drawing No:	02507-A1-HY-303	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

IO TO BE INSTALLED AT THE BASE OF STACK. 300x 300 REMOVABLE ACCESS PANEL FOR IO TO BE INSTALLED AT 300 AFFL (TYPICAL)

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 101×, 102, 103× AND 104×.

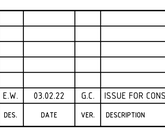
HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 101×, 102, 103× AND 104×.

PROVIDE GRATED TRENCH DRAIN WITH HEEL GUARD GRATE TO ARCHITECT'S SPECIFICATION (TYPICAL)

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 105×, 106, 107, 108×, 109, 110 AND 111.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 107, 108× AND 109.

SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.

DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⬡ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
SUITE 26
11 - 13 BROOKHOLLOW AVE
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PHONE: (02) 9680 3100
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ABN 21 118 134 240

DESIGNED G. CHAN	DATE 1st ISSUED 20.08.21
VERIFIED G. CHAN	LGA CITY OF RYDE
DRAWN E. WU	SCALE @ B1 1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 1 PLAN

STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-303 | REV. 1

CAD FILENAME: G:\CAM\Projects\02501-02600\WIP\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-303.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 2		Drawing No: 02507-A1-HY-304		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 201, 202×, 203 AND 204×.

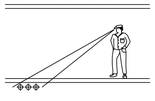
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 201, 202×, 203 AND 204×.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 205, 206, 207, 208×, 209×, 210 AND 211.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 207, 208× AND 209×.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 205, 206, 210 AND 211.

SERVICES OUT OF STRATA



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊕ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
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SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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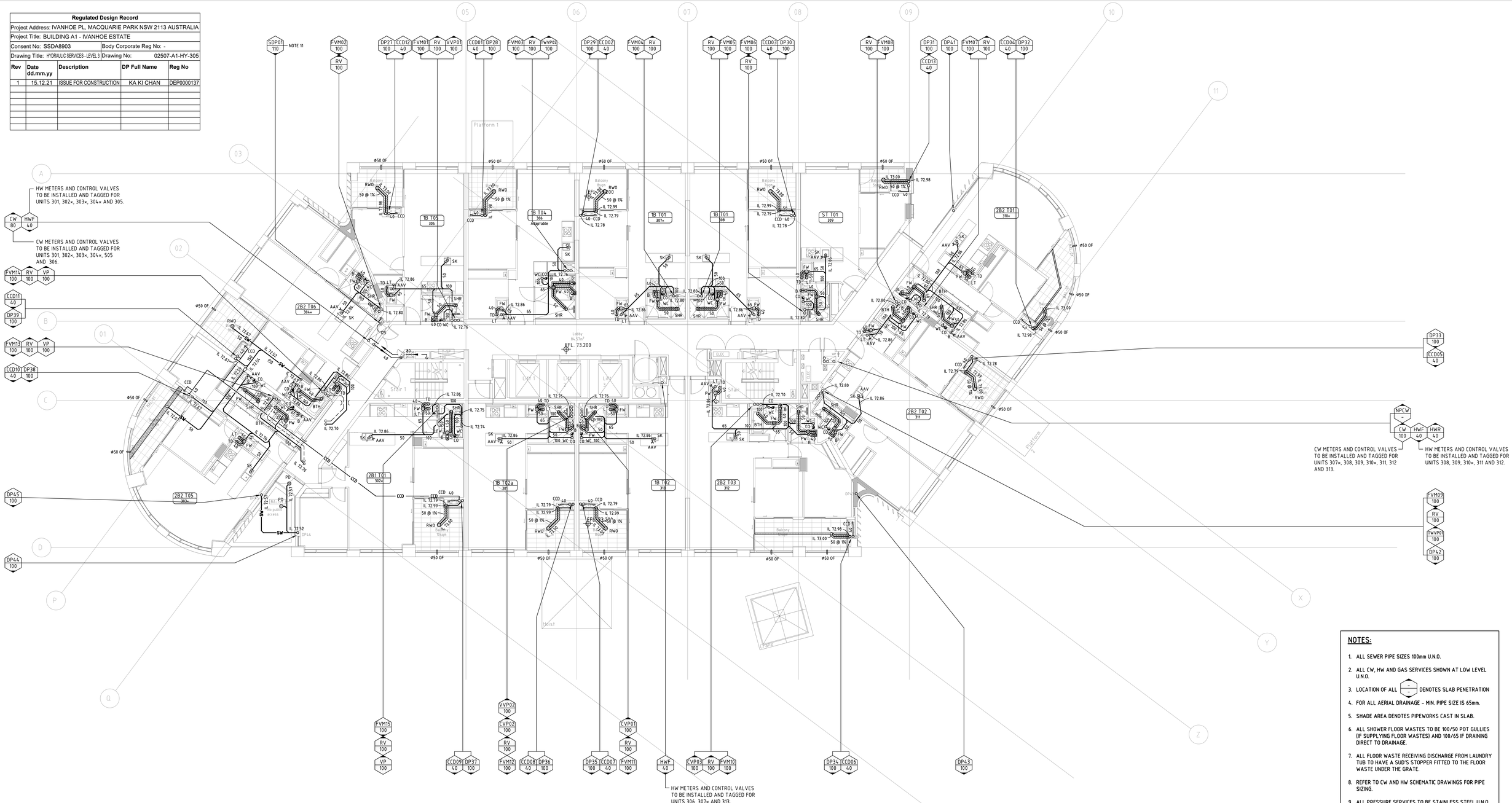
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 2 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-304	1

C:\SYDFILENAME Q:\C&M\Projects\02501-02600\PLANS\02507 - IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-304(1).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 3		Drawing No: 02507-A1-HY-305		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⬡ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

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11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 3 PLAN

STATUS: FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-305 | REV. 1

C:\D FILENAME: Q:\C&M\Projects\02501-02600\PN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-305(01).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 4		Drawing No: 02507-A1-HY-306		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 401, 402, 403×, 404 AND 405.

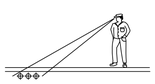
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 401, 402, 403×, 404, 405 AND 406×.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 406×, 407 AND 413.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 407, 408, 409, 410×, 411, 412 AND 413.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 408, 409, 410×, 411 AND 412.

SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⌀ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
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9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
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14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
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FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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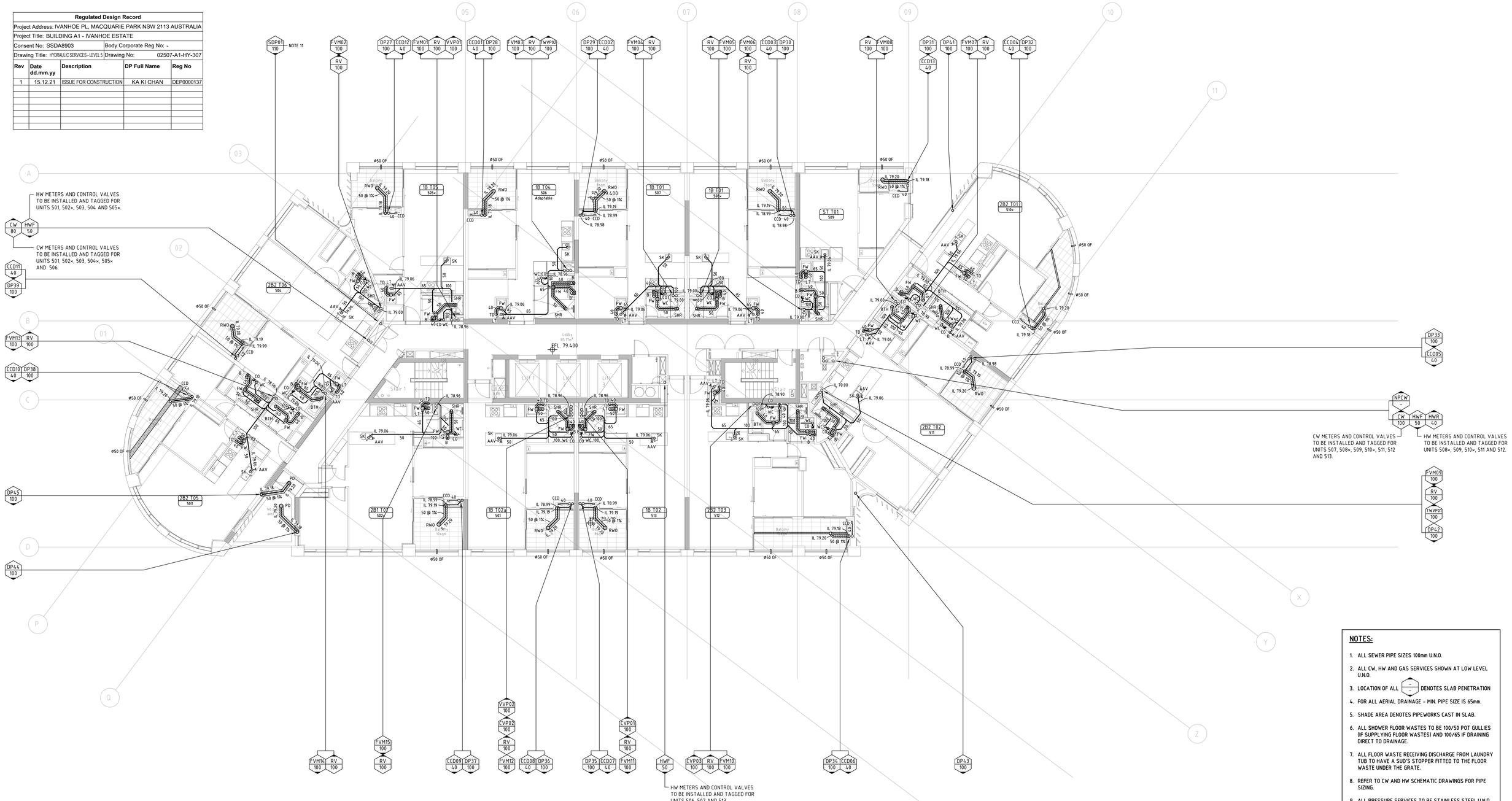
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 4 PLAN

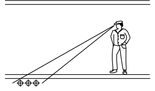
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-306	1

C:\D FILENAME: G:\CAD\Projects\02507-IVANHOE\A1-IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\230203 - IFC\02507 A1-HY 306(01).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 5		Drawing No:	02507-A1-HY-307	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊖ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
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6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
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PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 5 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-307	1

C:\D FILENAME: G:\CAD\Projects\02507-IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\230203 - IFC\02507-A1-HY-307.DWG

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 6		Drawing No: 02507-A1-HY-308		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 601, 602×, 603×, 604× AND 605.

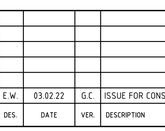
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 601, 602×, 603×, 604×, 605× AND 606.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 606, 607× AND 613.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 607×, 608×, 609×, 610×, 611, 612× AND 613.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 608×, 609×, 610×, 611× AND 612×.

SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊕ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
DATE 1st ISSUED	20.08.21
VERIFIED	G. CHAN
LGA	CITY OF RYDE
DRAWN	E. WU
SCALE @ B1	1:100

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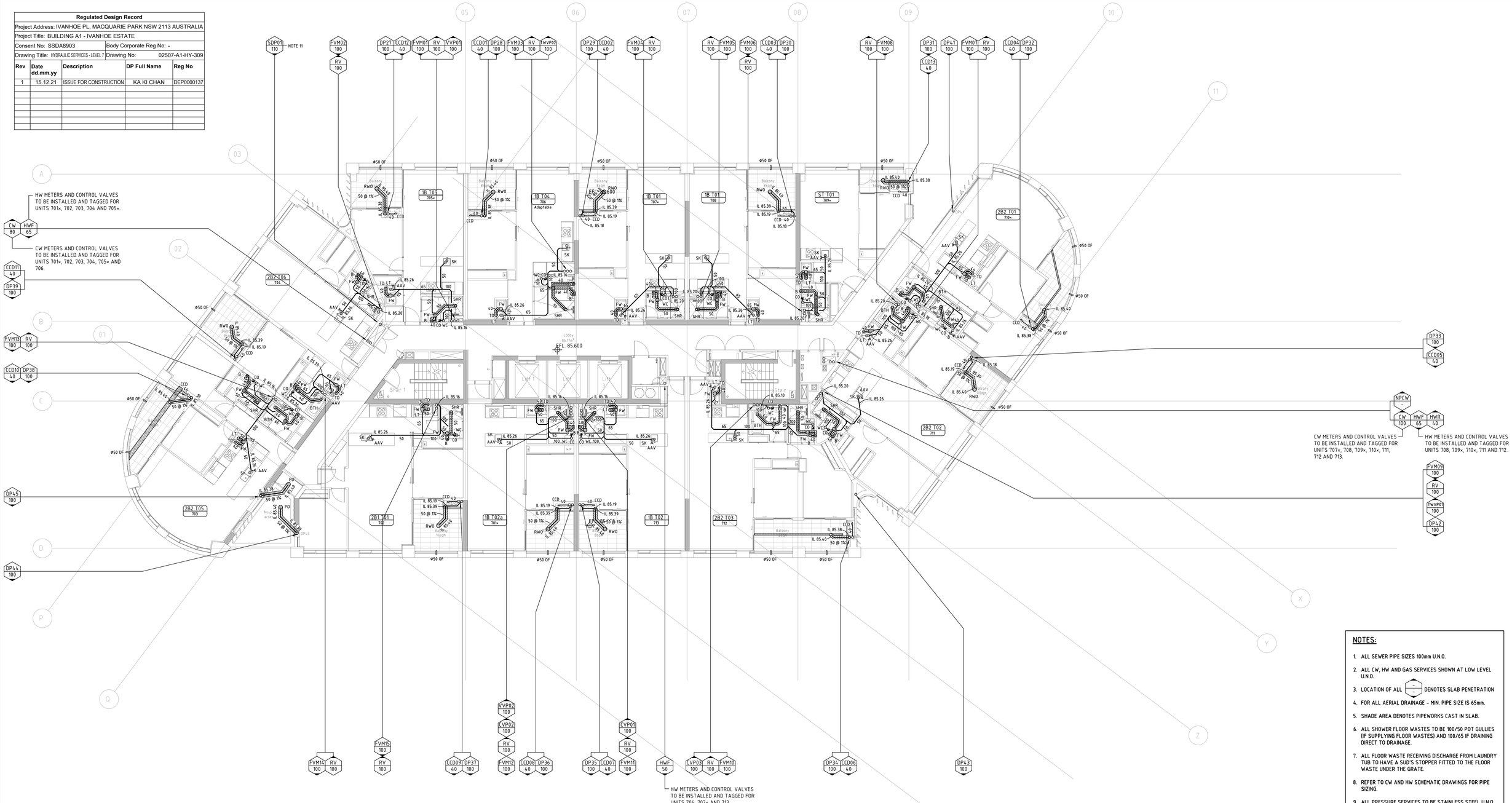
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 6 PLAN

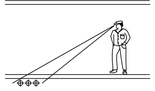
STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-308 | REV. 1

C:\D_FILENAME_Q_LC&M\Projects\02507-A1\DWG\PLA\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220303 - 02507-A1-HY-308(1).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 7		Drawing No: 02507-A1-HY-309		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊕ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUID'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
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14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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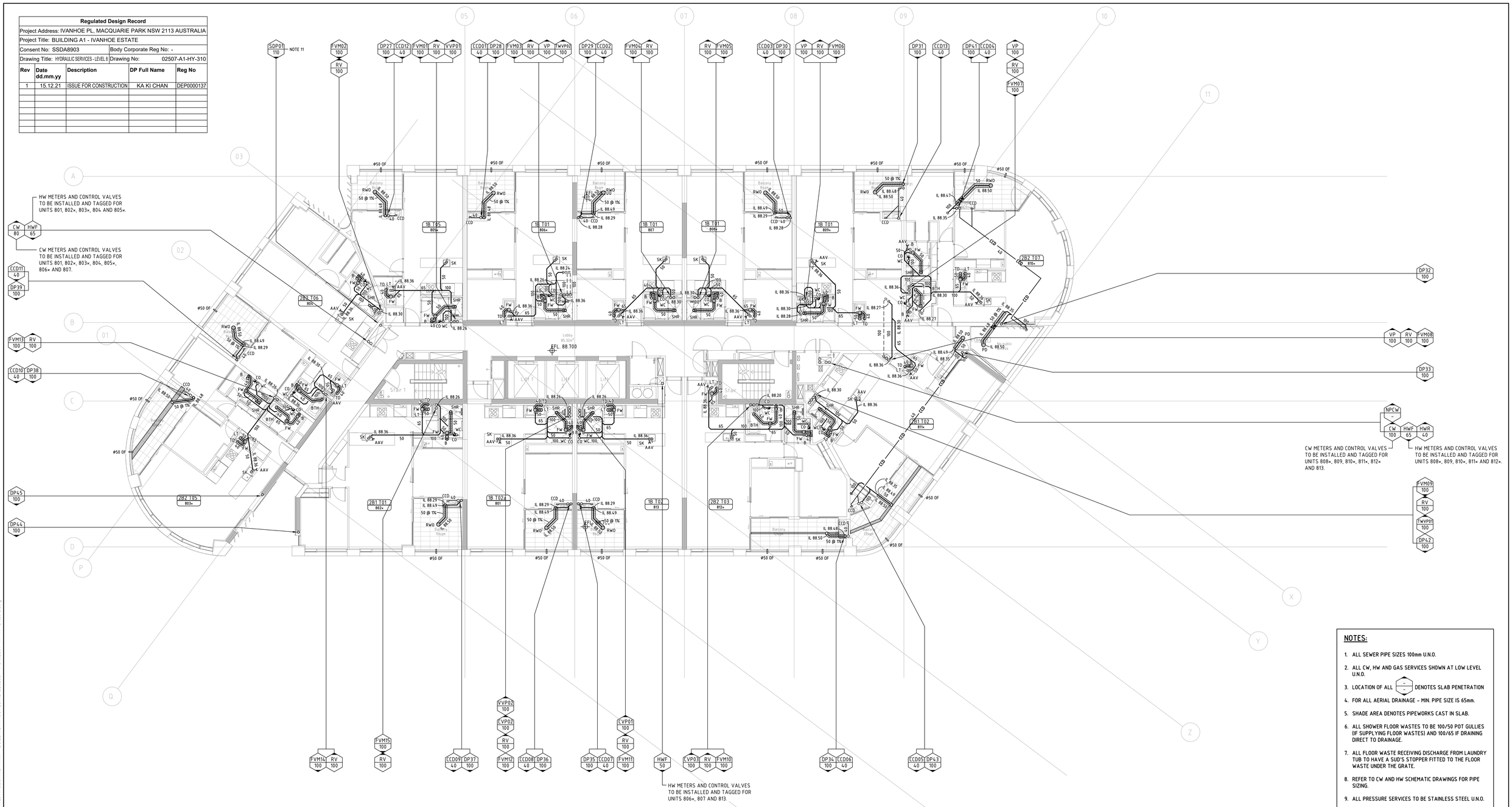
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 7 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-309	1

C:\D FILENAME: Q:\EWP\Projects\02501-02600\PN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-309.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 8		Drawing No: 02507-A1-HY-310		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊕ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
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15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
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11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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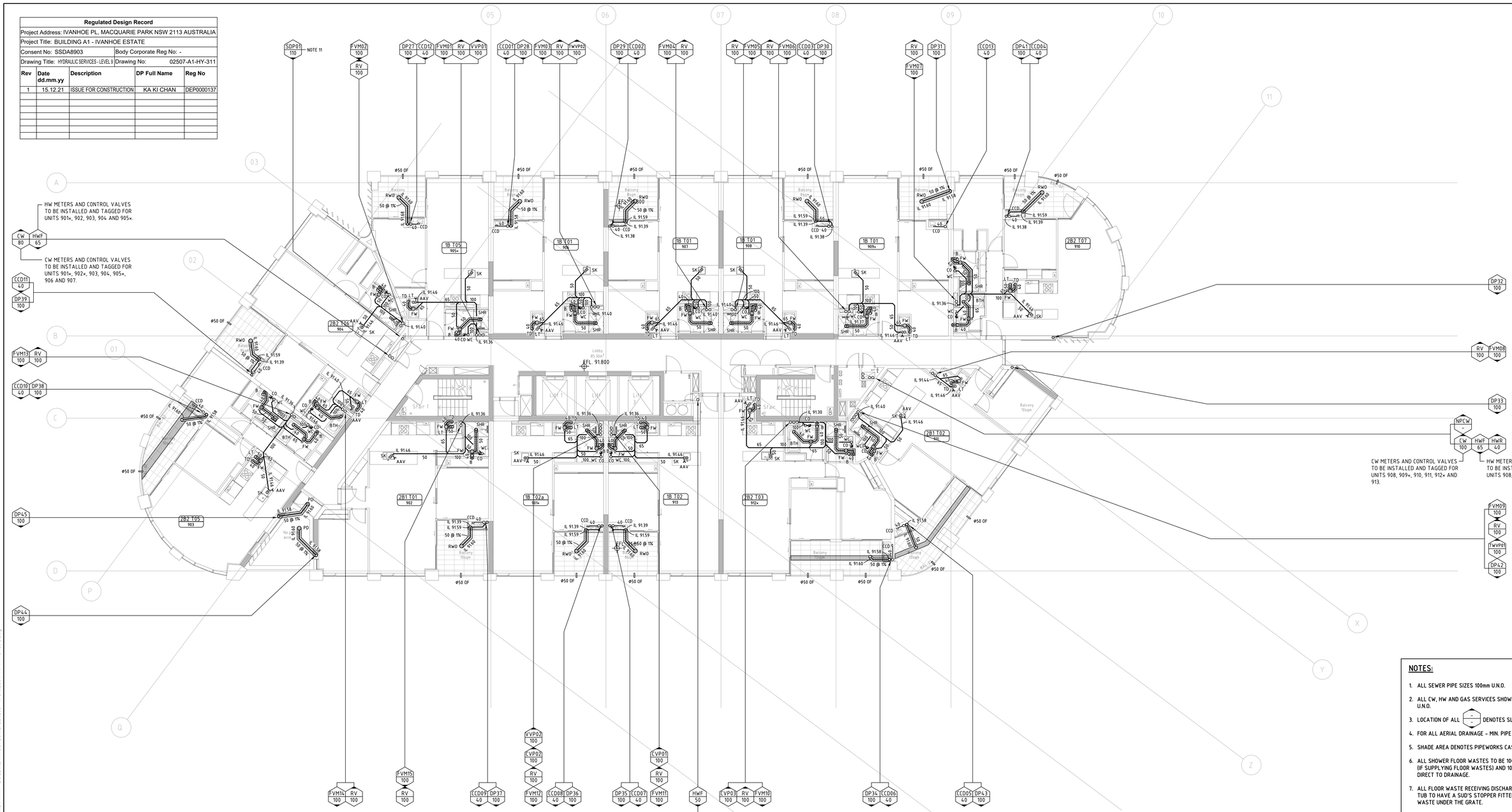
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 8 PLAN

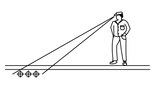
STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-310 | REV. 1

CAD FILENAME: G:\C&M\Projects\IVPDM\DRAWING\DGN\P_IVPDM_02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTDOING\230203 - IFC\02507-A1-HY-310(01).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 9		Drawing No: 02507-A1-HY-311		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⬡ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
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14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
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BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 9 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-311	1

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Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 10		Drawing No:	02507-A1-HY-312	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1001, 1002×, 1003, 1004 AND 1005.

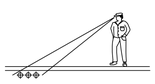
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1001, 1002×, 1003, 1004, 1005, 1006 AND 1007.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1006, 1007 AND 1013.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1008, 1009, 1010×, 1011, 1012 AND 1013.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1008, 1009, 1010, 1011 AND 1012.

SERVICES OUT OF STRATA



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊖ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
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MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

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CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

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FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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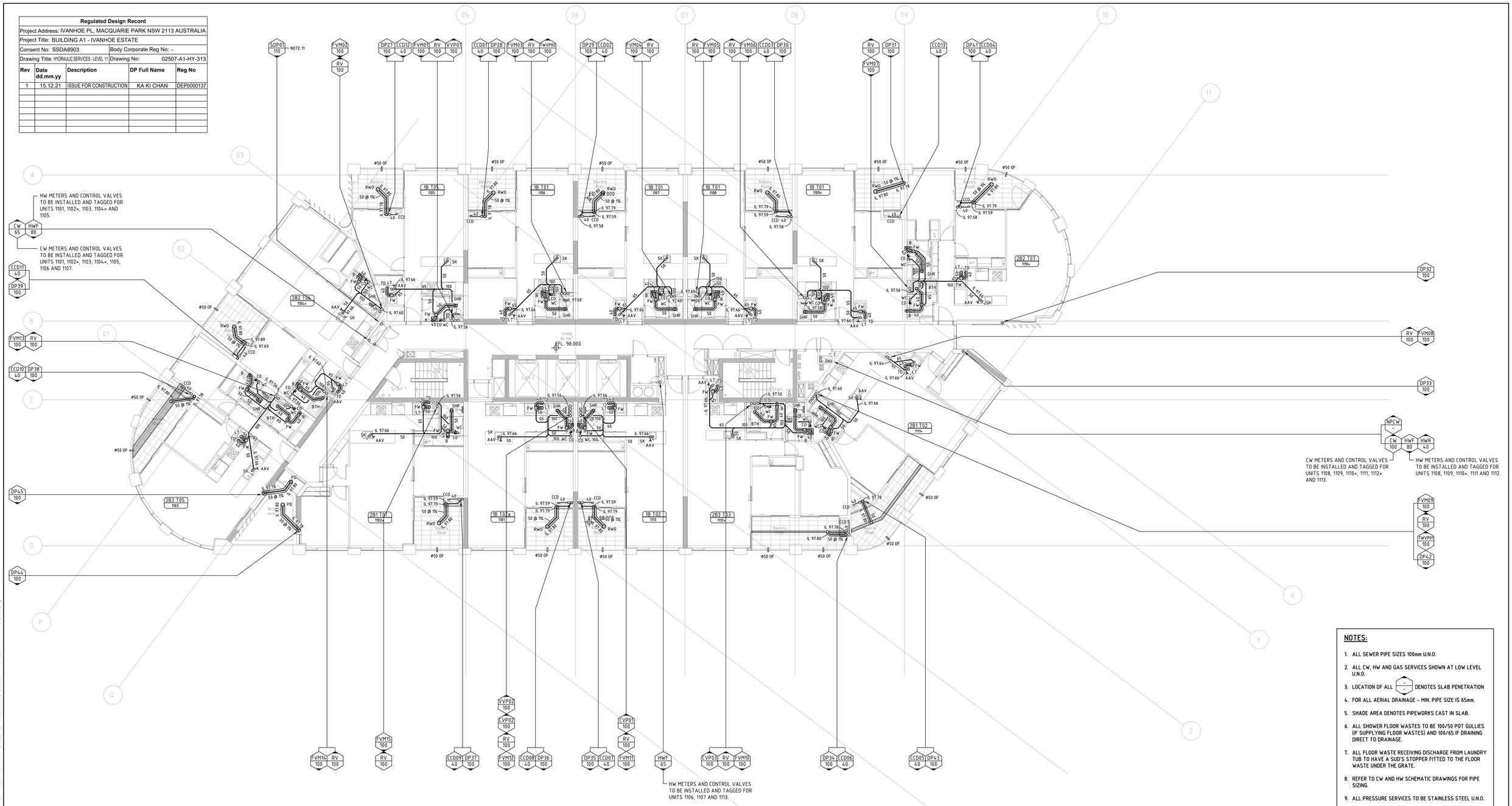
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 10 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-312	1

CAD FILENAME: G:\CAD\Projects\02507A-IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507 A1-HY-312.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 11		Drawing No: 02507-A1-HY-313		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

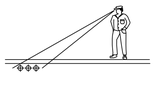


MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
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VENTS	1.25%

NOTES:

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5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
10. CONTRACTOR TO PROVIDE TMV FOR WARM WATER SUPPLY TO ALL ABLUTION AREAS IN ALL ADAPTABLE UNITS AND COMMERCIAL AREA.
11. PLUMBING CONTRACTOR TO ALLOW NPCW FOR IRRIGATION CONNECTION. IRRIGATION CONNECTION POINTS TO BE CO-ORDINATE WITH IRRIGATION CONTRACTOR.
12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

SERVICES OUT OF STRATA



REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

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DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

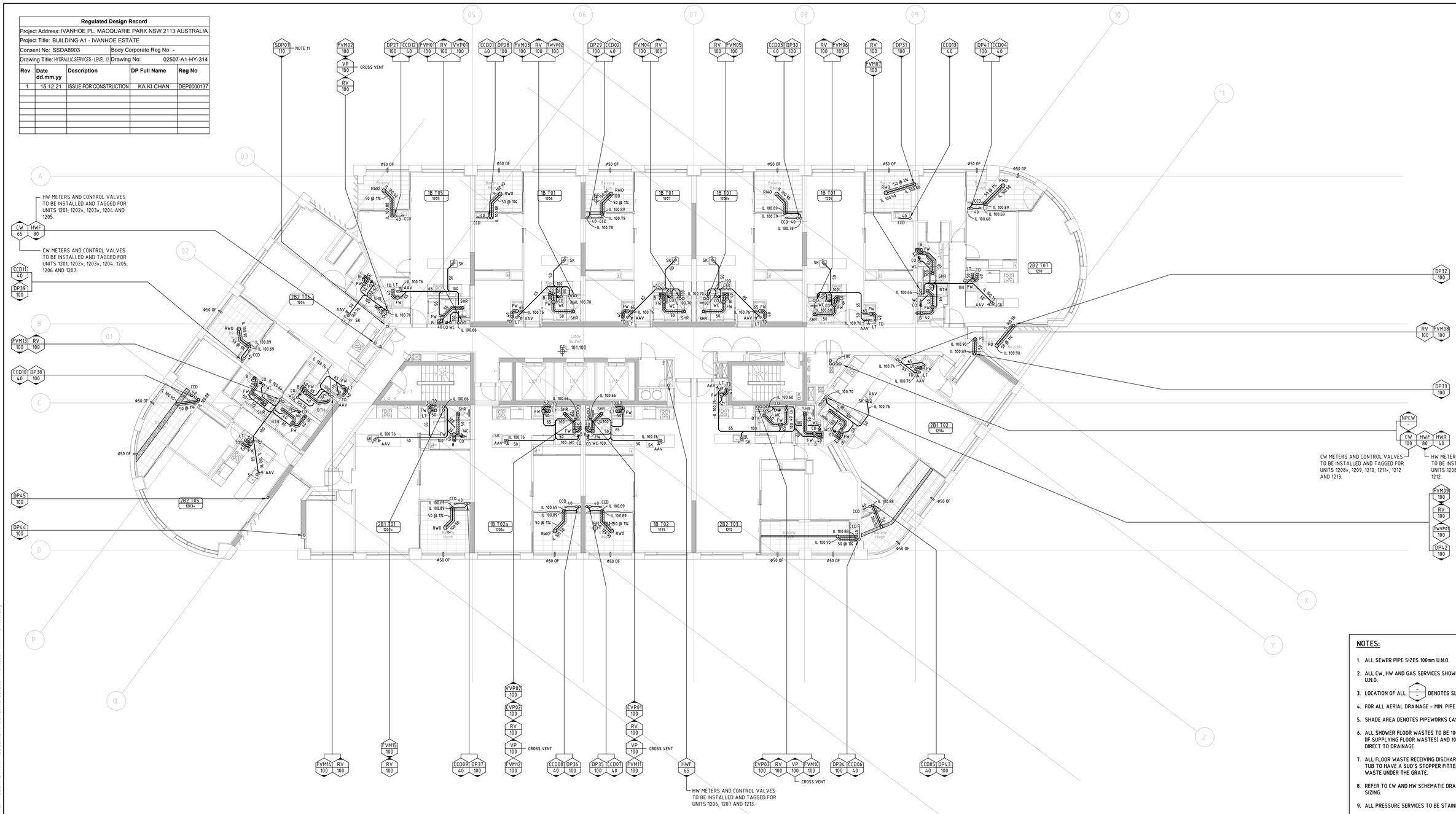
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 11 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-313	1

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Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 12		Drawing No:	02507-A1-HY-314	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

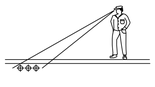


NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⬡ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
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9. ALL PRESSURE SERVICES TO BE STAINLESS STEEL U.N.O.
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15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

SERVICES OUT OF STRATA



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1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 12 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-314	1

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Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 13		Drawing No: 02507-A1-HY-315		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1301×, 1302×, 1303, 1304× AND 1305.

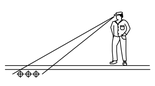
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1301×, 1302×, 1303, 1304×, 1305, 1306× AND 1307×.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1308×, 1309, 1310×, 1311×, 1312× AND 1313.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1308×, 1309, 1310×, 1311× AND 1312×.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1306×, 1307× AND 1313×.

SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
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3. LOCATION OF ALL ⊖ DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
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1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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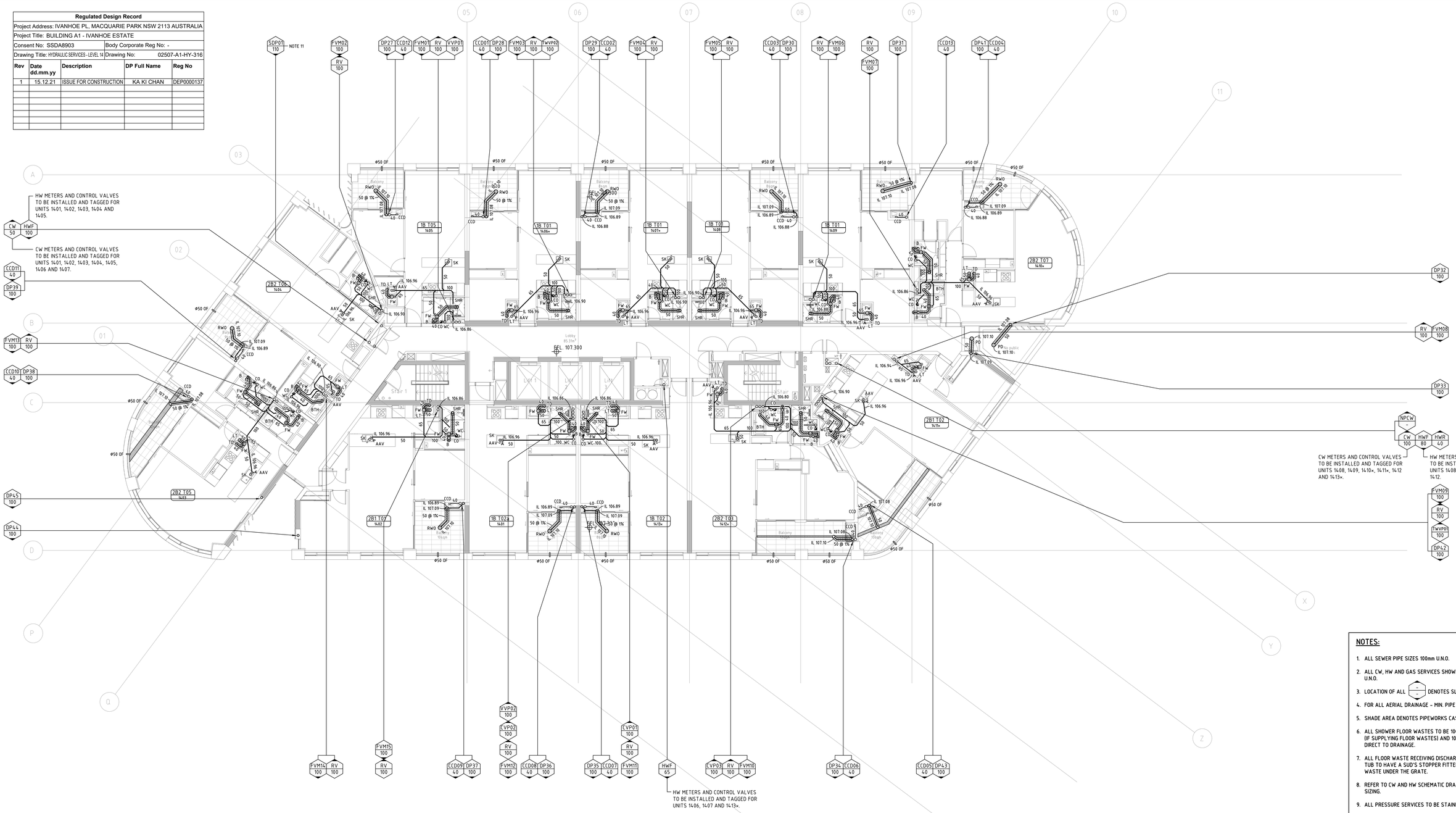
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 13 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-315	1

CAD FILENAME: G:\C&M\Projects\02501-02600\PN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\DOTGONG\220203 - IFC\02507-A1-HY-315(1).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 14		Drawing No:		02507-A1-HY-316
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137


SDP01 110 NOTE 11
FVM02 100
RV 100
DP27 100
CCD12 40
FVM01 100
RV 100
VVP01 100
CCD01 40
DP28 100
FVM03 100
RV 100
TWVP02 100
DP29 100
CCD02 40
FVM04 100
RV 100
FVM05 100
RV 100
CCD03 40
DP30 100
RV 100
FVM06 100
RV 100
FVM07 100
DP31 100
CCD13 40
DP41 100
CCD04 40
HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1401, 1402, 1403, 1404 AND 1405.
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1401, 1402, 1403, 1404, 1405, 1406 AND 1407.
CW 50
HWF 100
CCD11 40
DP39 100
FVM13 100
RV 100
CCD10 40
DP38 100
DP45 100
DP44 100
1B T05 1405
1B T03 1406
1B T01 1407
1B T02 1408
1B T01 1409
2BZ T06 1404
2BZ T01 1410
2B1 T02 1411
2BZ T05 1403
2B1 T07 1402
1B T02A 1401
1B T02 1413
2BZ T03 1412
DP32 100
RV 100
FVM08 100
DP33 100
NPCW
CW 100
HWF 80
HWR 40
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1408, 1409, 1410, 1411, 1412 AND 1413.
HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1408, 1409, 1410, 1411 AND 1412.
FVM09 100
RV 100
TWVP01 100
DP42 100
FVM14 100
RV 100
FVM15 100
RV 100
CCD09 40
DP37 100
VVP02 100
CVP02 100
RV 100
FVM12 100
CCD08 40
DP36 100
DP35 100
CCD07 40
CVP01 100
RV 100
FVM11 100
HWF 65
HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1406, 1407 AND 1413.
CVP03 100
RV 100
FVM10 100
DP34 100
CCD06 40
CCD05 40
DP43 100
FFL 107.300
Lobby 85.31m²
Stair 1
Stair 2
LIFT 1
LIFT 2
LIFT 3
Balcony 10sqm
Balcony 15sqm
Balcony 16sqm
Balcony 17sqm
Balcony 18sqm
Balcony 19sqm
Balcony 20sqm
Balcony 21sqm
Balcony 22sqm
Balcony 23sqm
Balcony 24sqm
Balcony 25sqm
Balcony 26sqm
Balcony 27sqm
Balcony 28sqm
Balcony 29sqm
Balcony 30sqm
Balcony 31sqm
Balcony 32sqm
Balcony 33sqm
Balcony 34sqm
Balcony

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 15		Drawing No:	02507-A1-HY-317	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1501, 1502, 1503×, 1504 AND 1505.

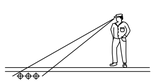
CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1501, 1502, 1503×, 1504, 1505, 1506 AND 1507×.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1506, 1507× AND 1513.

CW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1508×, 1509×, 1510, 1511×, 1512 AND 1513.

HW METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS 1508×, 1509×, 1510, 1511× AND 1512.

SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
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VENTS	1.25%

NOTES:

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DRAWN	E. WU
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LGA	CITY OF RYDE
SCALE @ B1	1:100

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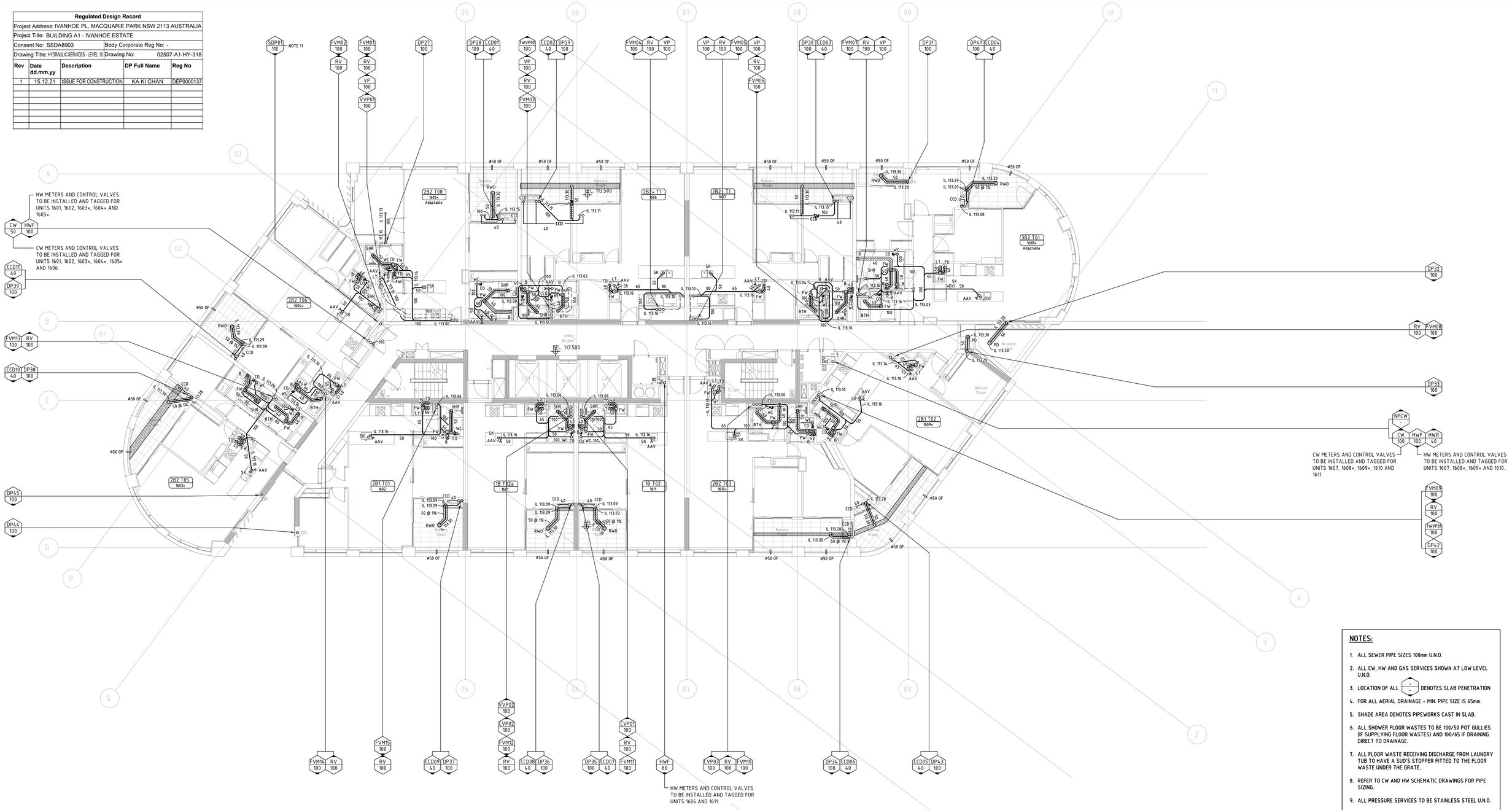
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 15 PLAN

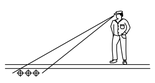
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-317	1

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Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 16		Drawing No: 02507-A1-HY-318		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL ⊖ DENOTES SLAB PENETRATION
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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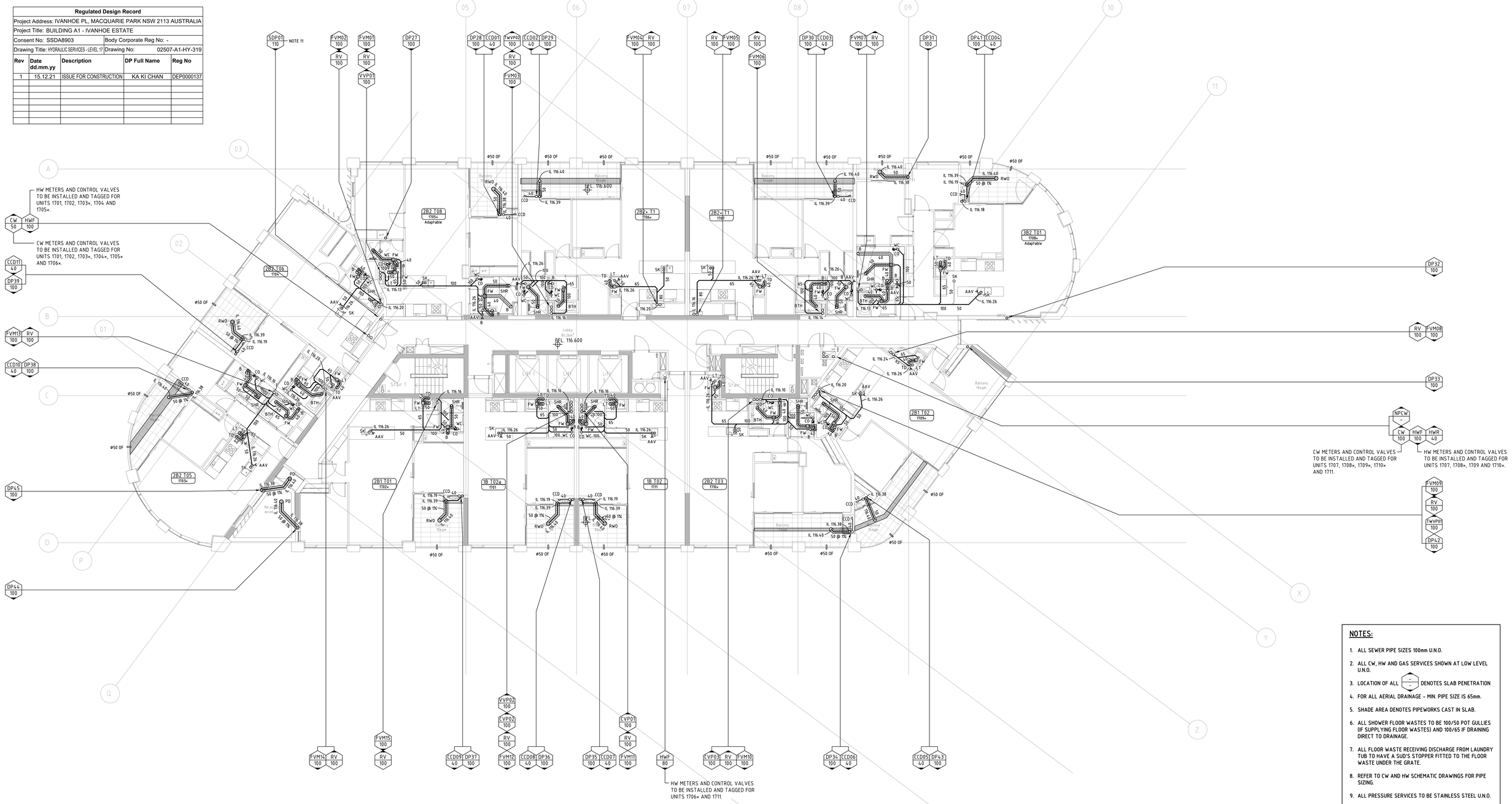
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 16 PLAN

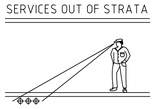
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-318	1

CAD FILENAME: Q:\C&M\Projects\02507-IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1\DOT\DWG\220203 - [PLOTDATE] 02507-A1-HY-318.DWG

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 17		Drawing No: 02507-A1-HY-319		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
2. ALL CW, HW AND GAS SERVICES SHOWN AT LOW LEVEL U.N.O.
3. LOCATION OF ALL DENOTES SLAB PENETRATION
4. FOR ALL AERIAL DRAINAGE - MIN. PIPE SIZE IS 65mm.
5. SHADE AREA DENOTES PIPEWORKS CAST IN SLAB.
6. ALL SHOWER FLOOR WASTES TO BE 100/50 POT GULLIES (IF SUPPLYING FLOOR WASTES) AND 100/65 IF DRAINING DIRECT TO DRAINAGE.
7. ALL FLOOR WASTE RECEIVING DISCHARGE FROM LAUNDRY TUB TO HAVE A SUD'S STOPPER FITTED TO THE FLOOR WASTE UNDER THE GRATE.
8. REFER TO CW AND HW SCHEMATIC DRAWINGS FOR PIPE SIZING.
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12. CONTRACTORS TO REFER TO SIPHONIC SCHEMATIC FOR PIPE SIZING.
13. COLD WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND SYDNEY WATER REQUIREMENTS. (TYPICAL)
14. HOT WATER METERS AND CONTROL VALVES TO BE INSTALLED AND TAGGED FOR UNITS IN ACCORDANCE WITH AS3500 AND EMBEDDED RETAILER'S REQUIREMENTS. (TYPICAL)
15. ALL AAV'S SHALL BE INSTALLED AT ACCESSIBLE LOCATION FOR SERVICE, REPAIR OR REPLACEMENT VIA ACCESS PANEL IF INSTALLED WITHIN WALL OR CEILING. (TYPICAL)

MINIMUM SEWER DRAIN GRADIENTS - U.N.O.

DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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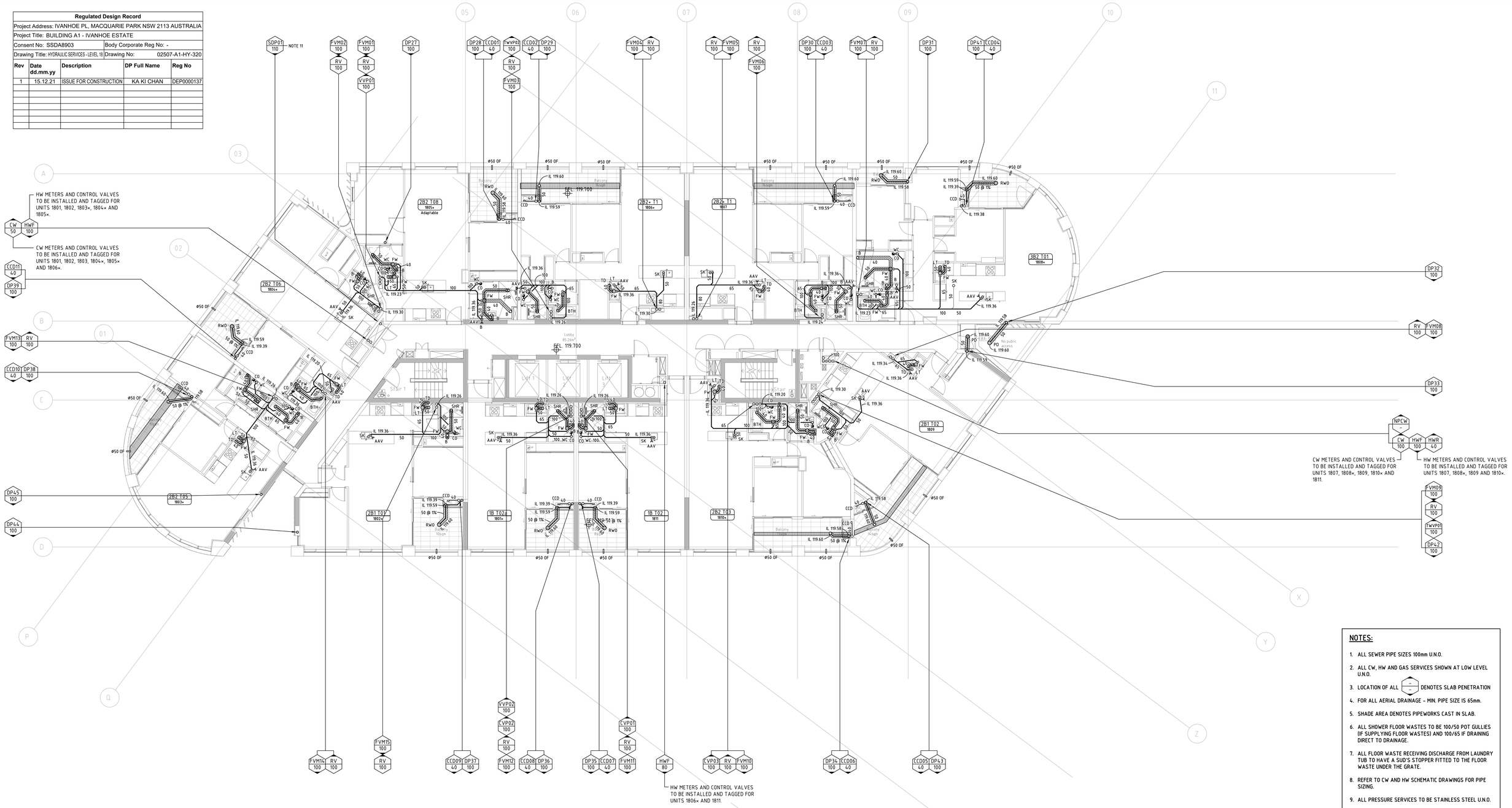
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 17 PLAN

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-319	1

CAD FILENAME: G:\C&M\Projects\02507-IVANHOE ESTATE-MACQUARIE PARK - BUILDING A1\DOT\DWGS\02507 - IVANHOE ESTATE-MACQUARIE PARK - BUILDING A1-HY-319.DWT [A1]

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 18		Drawing No: 02507-A1-HY-320		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
DN 150	1.0%
VENTS	1.25%

NOTES:

1. ALL SEWER PIPE SIZES 100mm U.N.O.
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS
CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT
SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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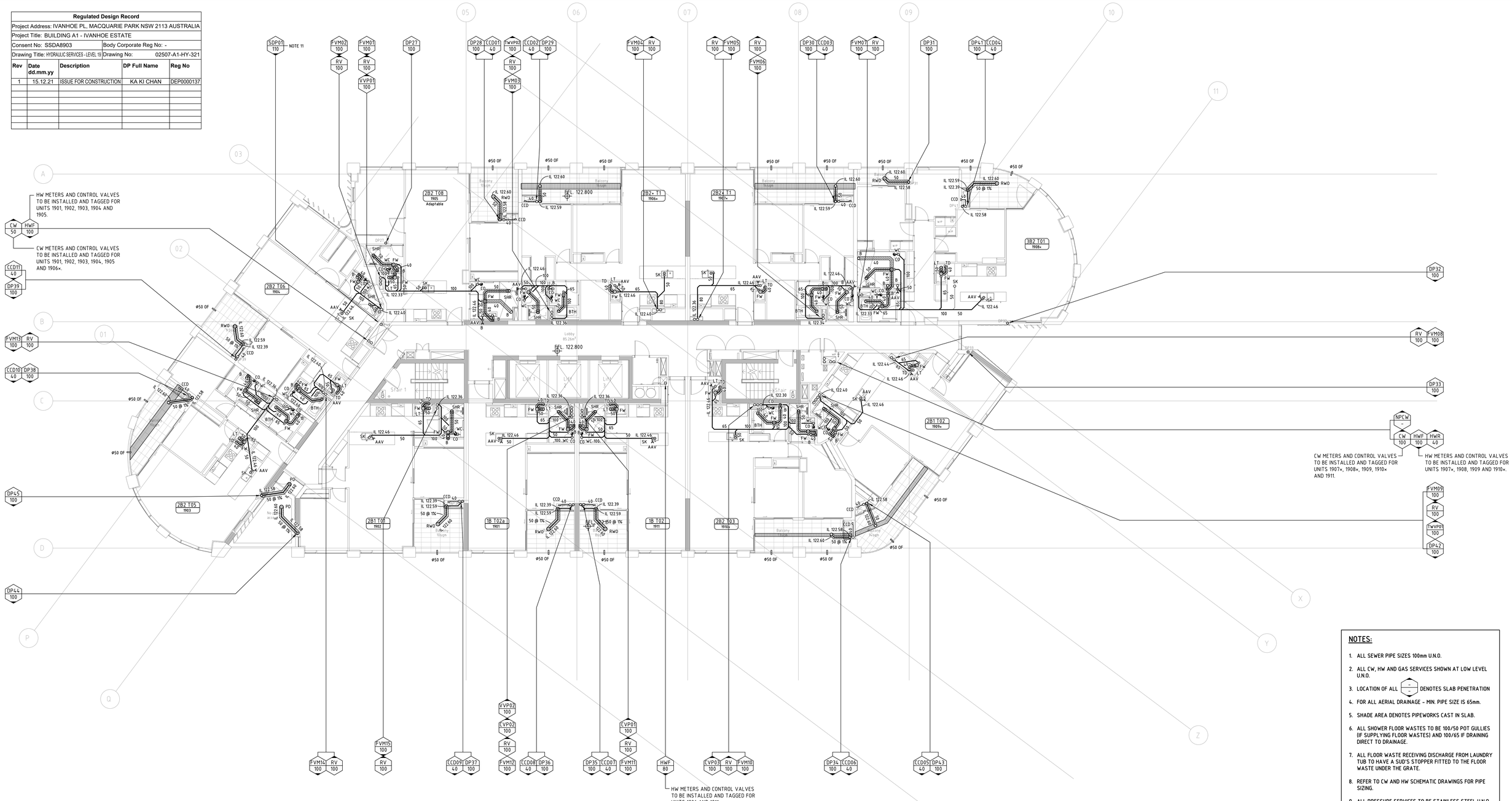
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 18 PLAN

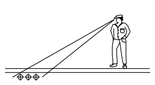
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-320	1

CAD FILENAME: G:\C&M\Projects\02501-02600\PA-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-320(01).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 19		Drawing No: 02507-A1-HY-321		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



NOTES:

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MINIMUM SEWER DRAIN GRADIENTS - U.N.O.	
DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
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VENTS	1.25%

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
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ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

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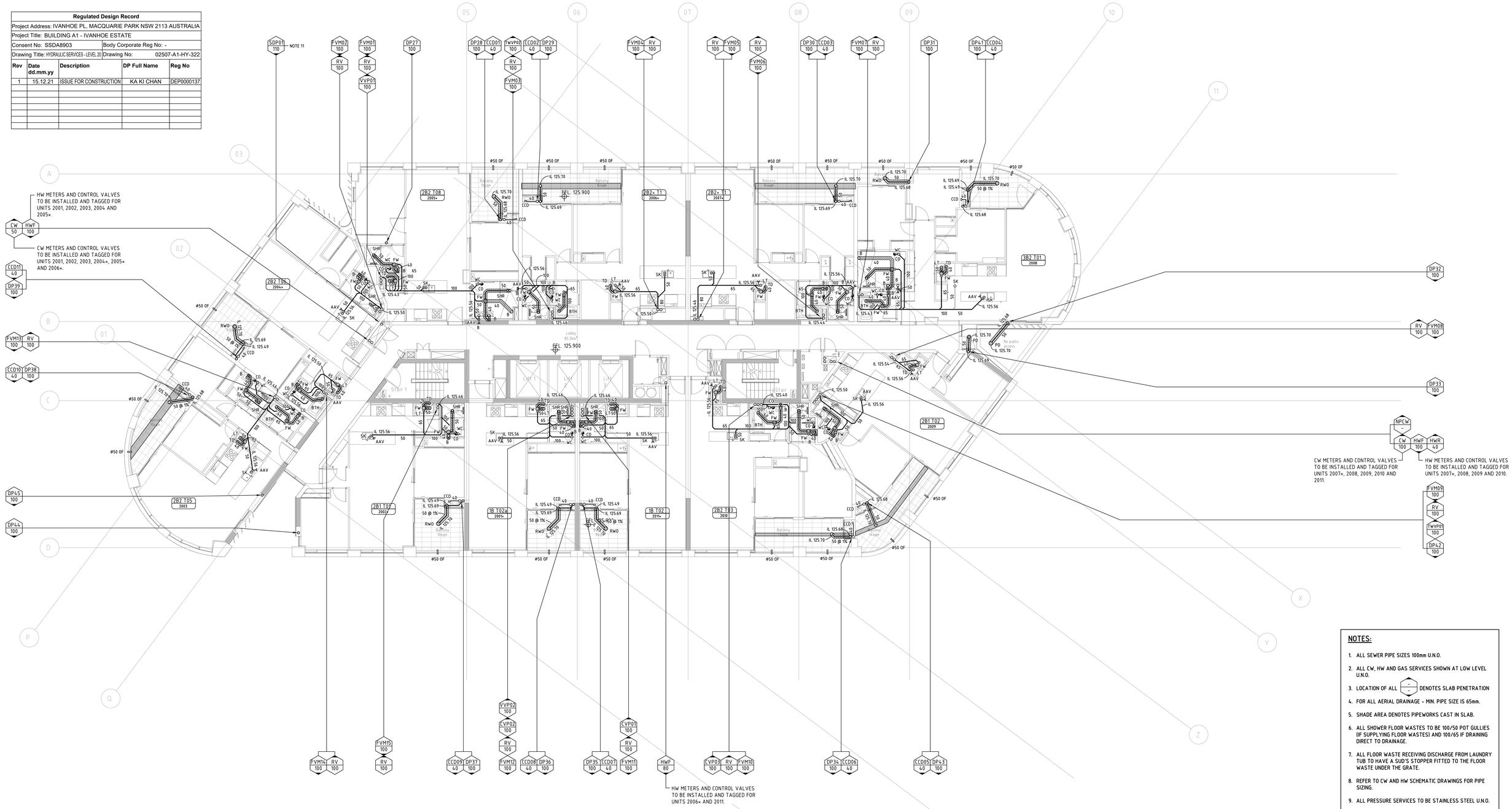
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 19 PLAN

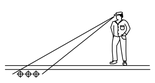
STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-321 | REV. 1

CAD FILENAME Q:\C&M\Projects\02501-02600\PLN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\DOT\DWG\220203 - 02507-A1-HY-321M1.dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HYDRAULIC SERVICES - LEVEL 20		Drawing No: 02507-A1-HY-322		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SERVICES OUT OF STRATA



MINIMUM SEWER DRAIN GRADIENTS - U.N.O.

DN 40	2.5%
DN 50	2.5%
DN 65	2.5%
DN 80	1.65%
DN 100	1.65%
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

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DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	1:100

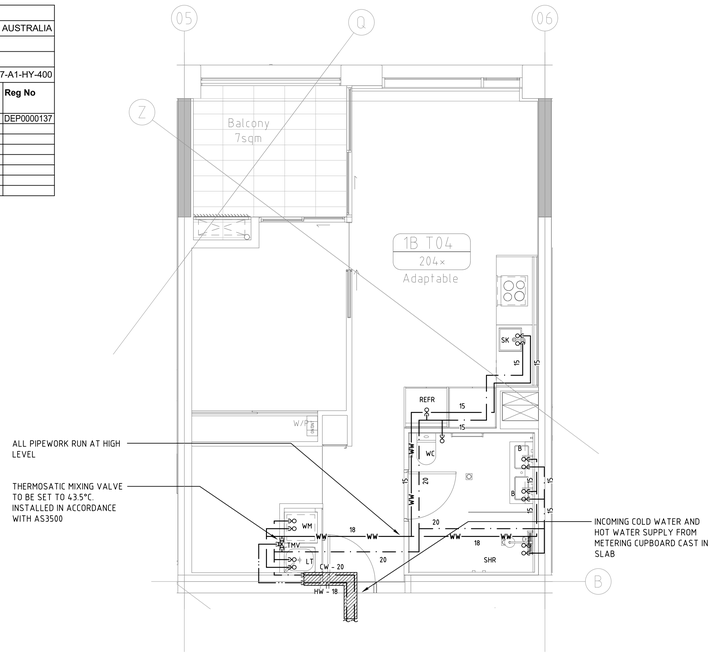
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES LEVEL 20 PLAN

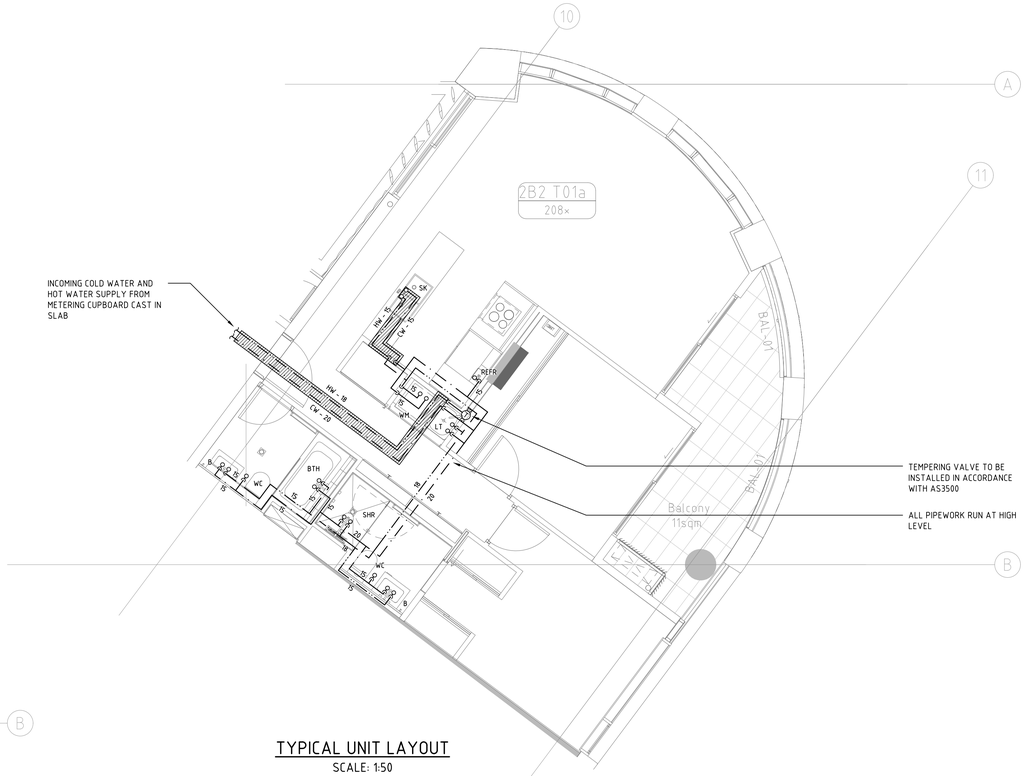
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-322	1

CAD FILENAME: G:\C&M\Projects\02507-IVANHOE\PLANS\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - #C\02507-A1-HY-322(1).dwg

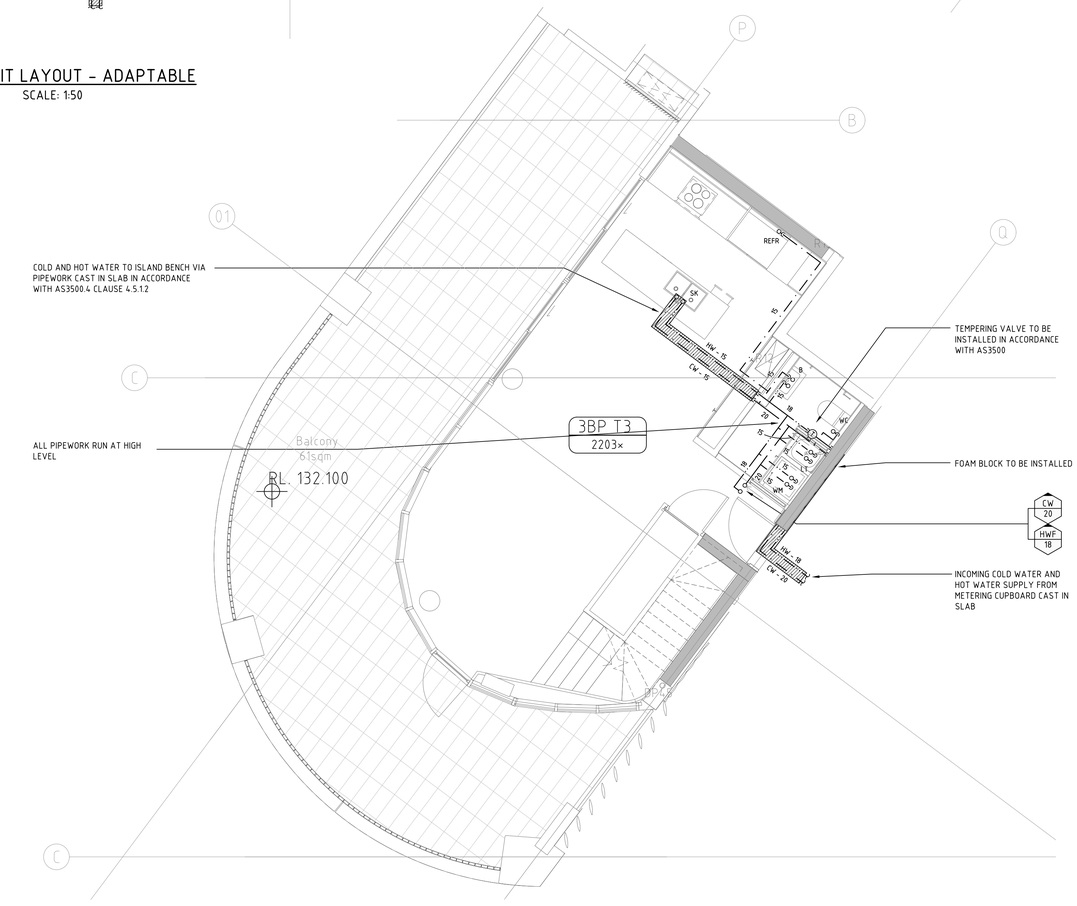
Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: TYPICAL UNITS LAYOUT		Drawing No: 02507-A1-HY-400		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



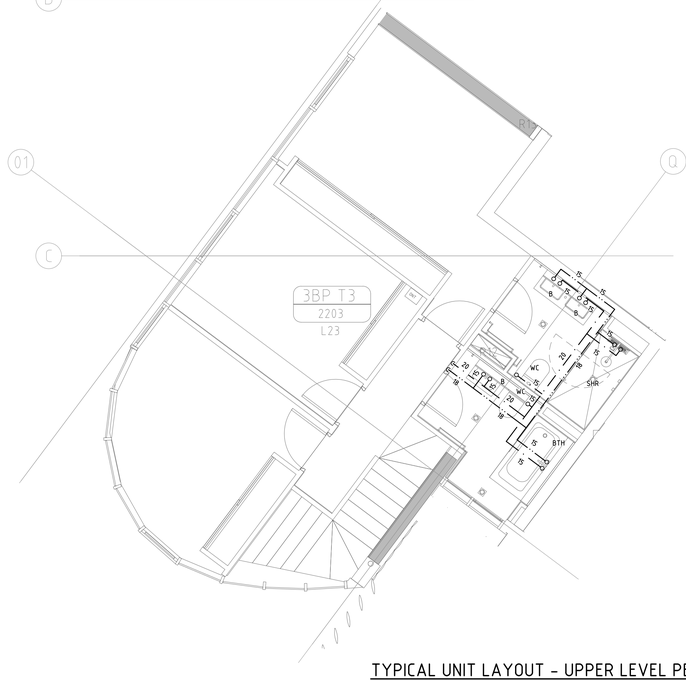
TYPICAL UNIT LAYOUT - ADAPTABLE
SCALE: 1:50



TYPICAL UNIT LAYOUT
SCALE: 1:50

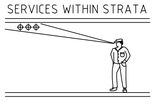


TYPICAL UNIT LAYOUT - LOWER LEVEL PENTHOUSE
SCALE: 1:50



TYPICAL UNIT LAYOUT - UPPER LEVEL PENTHOUSE
SCALE: 1:50

SERVICES WITHIN STRATA



REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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SCALE @ B1	1:100

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
TYPICAL UNITS LAYOUT

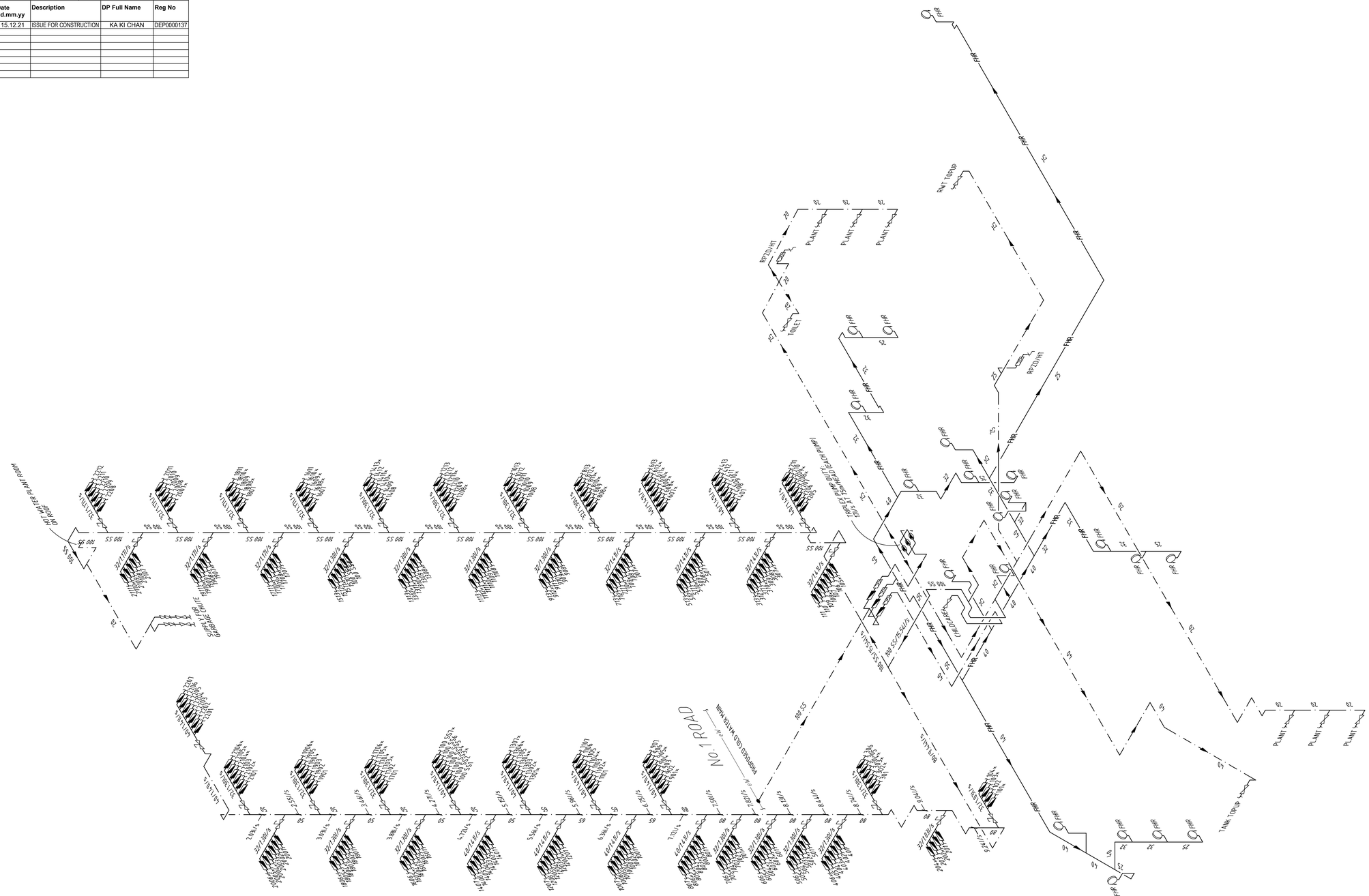
STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-400	1

CAD FILENAME: G:\C&M\Projects\02507-IVANHOE\PLANS\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - 02507-A1-HY-400(01).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: COLD WATER SCHEMATIC		Drawing No: 02507-A1-HY-401		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

NOTES:

1. ALL COLD WATER PIPE WORK AND FITTINGS TO BE INSTALLED WITH STAINLESS STEEL



COLD WATER SERVICES SCHEMATIC
SCALE: N.T.S.

1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION
REV.	DES.	DATE	VER.	DESCRIPTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

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BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN	DATE 1st ISSUED	20.08.21
VERIFIED	G. CHAN	LGA	CITY OF RYDE
DRAWN	E. WU	SCALE @ B1	N.T.S.

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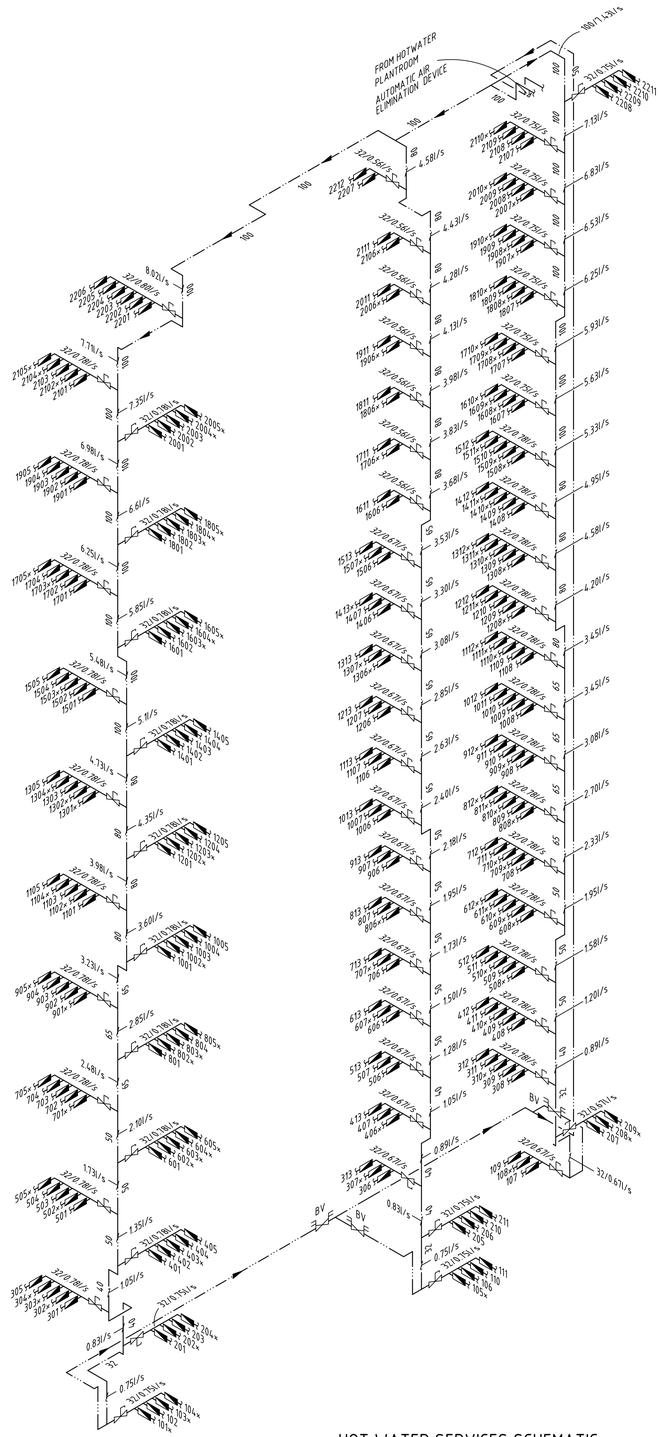
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
POTABLE COLD WATER SCHEMATIC

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-401	1

CAD FILENAME: G:\CAM\Projects\02500-02599\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\DOTGDWG\220203 - 02507-A1-HY-401(1).dwg

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: HOT WATER SCHEMATIC		Drawing No: 02507-A1-HY-402		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137


FROM HOTWATER PLANTROOM
AUTOMATIC AIR ELIMINATION DEVICE
160
100
80
65
50
40
32
BV
4.581/s
4.431/s
4.281/s
4.131/s
3.981/s
3.831/s
3.681/s
3.531/s
3.301/s
3.081/s
2.851/s
2.631/s
2.401/s
2.181/s
1.951/s
1.731/s
1.501/s
1.281/s
1.051/s
0.891/s
0.831/s
0.751/s
8.921/s
7.791/s
7.351/s
6.981/s
6.611/s
6.251/s
5.851/s
5.481/s
5.11/s
4.731/s
4.351/s
3.981/s
3.601/s
3.231/s
2.851/s
2.481/s
2.101/s
1.731/s
1.351/s
1.051/s
0.751/s
160/11.431/s
32/1.751/s
32/6.671/s
32/6.671/s
32/6.671

Regulated Design Record			
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA			
Project Title: BUILDING A1 - IVANHOE ESTATE			
Consent No: SSDA8903		Body Corporate Reg No: -	
Drawing Title: SEWER SCHEMATIC 1 OF 2		Drawing No:	02507-A1-HY-403

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

SANITARY PLUMBING SCHEMATIC PART 1 OF 2

SCALE: N.T.S.

LEVEL 24 FFL 138.30
LEVEL 23 FFL 135.20
LEVEL 22 FFL 132.10
LEVEL 21 FFL 129
LEVEL 20 FFL 125.90
LEVEL 19 FFL 122.80
LEVEL 18 FFL 119.70
LEVEL 17 FFL 116.60
LEVEL 16 FFL 113.50
LEVEL 15 FFL 110.40
LEVEL 14 FFL 107.30
LEVEL 13 FFL 104.20
LEVEL 12 FFL 101.10
LEVEL 11 FFL 98.00
LEVEL 10 FFL 94.90
LEVEL 9 FFL 91.80
LEVEL 8 FFL 88.70
LEVEL 7 FFL 85.60
LEVEL 6 FFL 82.50
LEVEL 5 FFL 79.40
LEVEL 4 FFL 76.30
LEVEL 3 FFL 73.20
LEVEL 2 FFL 70.10
LEVEL 1 FFL 67.00
UPPER GROUND FLOOR FFL - 63.00
LOWER GROUND FLOOR FFL - 59.40
BASEMENT 1 FFL 56.00
BASEMENT 2 FFL 53.20
BASEMENT 3 FFL 50.40

VP01 VP02 VVP01 VP12 VP03 TWVP02 VVP02 VP13 VP14 VP15

A1-HY-404

947 FUs, 225 @ 0.65%
308 FUs, 150 @ 1%
297 FUs, 150 @ 1%
650 FUs, 150 @ 1%
947 FUs, 225 @ 0.65%
244 FUs, 150 @ 1%
386 FUs, 150 @ 1%

TO SEWER
SEWER PUMPOUT PIT
GENERAL PURPOSED PIT
GREASE SUCTION FOR GENERAL PURPOSED PIT
GREASE SUCTION FOR GREASE ARRESTOR
GREASE SUCTION FOR GREASE ARRESTOR

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

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BAULKHAM HILLS NSW 2153
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	N.T.S.

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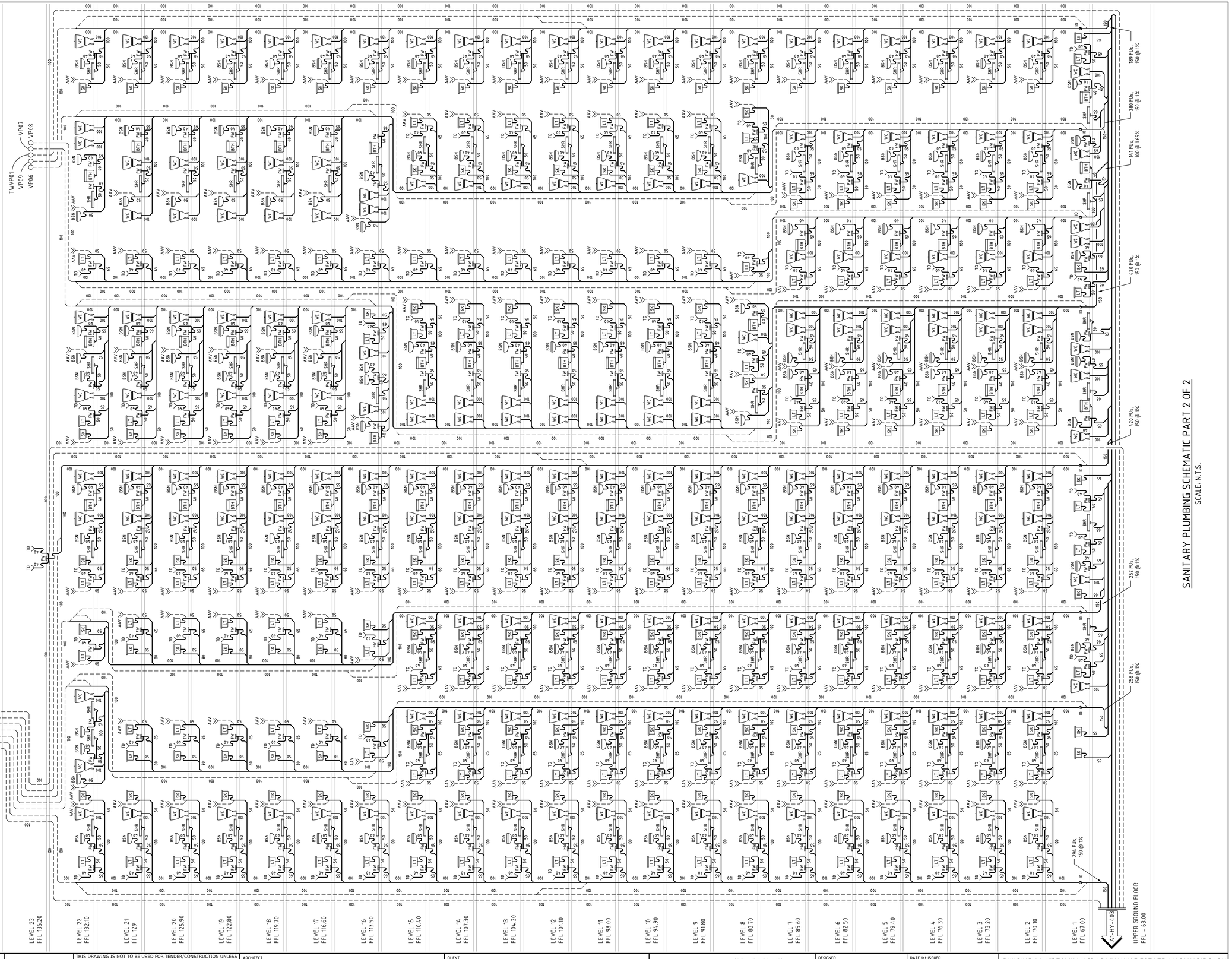
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
SANITARY PLUMBING SCHEMATIC SHEET 1 OF 2

STATUS FOR CONSTRUCTION | DRAWING No. 02507-A1-HY-403 | REV. 1

C:\D FILENAME (LOCAL)*P:\projects\2020\2020-02507 - IVANHOE ESTATE, MACQUARIE PARK - BUILDING A1\DOTGINGS\2020\2020-02507-A1-HY-403.DWG

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903			Body Corporate Reg No: -	
Drawing Title: SEWER SCHEMATIC 2 OF 2		Drawing No:		02507-A1-HY-404
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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SUITE 26
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PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED: G. CHAN	DATE 1st ISSUED: 20.08.21
VERIFIED: G. CHAN	LGA: CITY OF RYDE
DRAWN: E. WU	SCALE @ B1: N.T.S.

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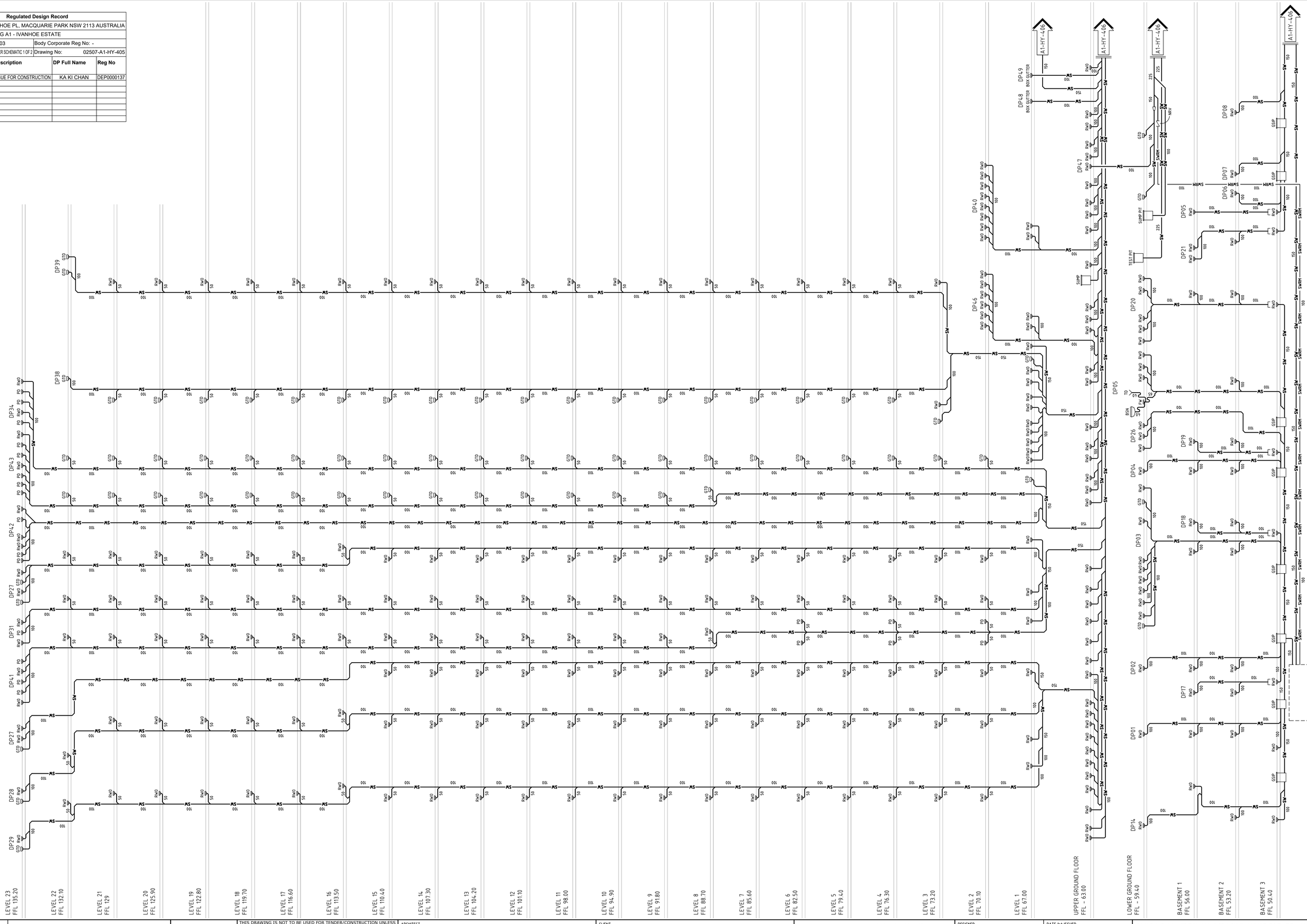
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
SANITARY PLUMBING SCHEMATIC SHEET 2 OF 2

STATUS: FOR CONSTRUCTION | DRAWING No: 02507-A1-HY-404 | REV. 1

CAD FILENAME: G:\SYDPROJECTS\02507-00\WORK\02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-404.DWG

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: STORMWATER SCHEMATIC 1 OF 2		Drawing No: 02507-A1-HY-405		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137



SANITARY PLUMBING SCHEMATIC PART 1 OF 2

SCALE: N.T.S.

C:\Users\ewu\Documents\02507_IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\02507_IVANHOE_405DP1 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1 - 02507-A1-HY-405DP1.dwg
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REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

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SUITE 26
11 - 13 BROOKHOLLOW AVE
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FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	N.T.S.

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES

STORMWATER AND SIPHONIC DRAINAGE SHEMATIC SHEET 1 OF 2

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-405	1

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: STORMWATER SCHEMATIC 2 OF 2		Drawing No: 02507-A1-HY-406		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

STORMWATER AND SIPHONIC SCHEMATIC PART 2 OF 2

SCALE: N.T.S.

LEVEL 24 FFL 138.30
LEVEL 23 FFL 135.20
LEVEL 22 FFL 132.10
LEVEL 21 FFL 129
LEVEL 20 FFL 125.90
LEVEL 19 FFL 122.80
LEVEL 18 FFL 119.70
LEVEL 17 FFL 116.60
LEVEL 16 FFL 113.50
LEVEL 15 FFL 110.40
LEVEL 14 FFL 107.30
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LEVEL 7 FFL 85.60
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LEVEL 4 FFL 76.30
LEVEL 3 FFL 73.20
LEVEL 2 FFL 70.10
LEVEL 1 FFL 67.00
UPPER GROUND FLOOR FFL - 63.00
LOWER GROUND FLOOR FFL - 59.40
BASEMENT 1 FFL 56.00
BASEMENT 2 FFL 53.20
BASEMENT 3 FFL 50.40

SDP01
DP32
DP33
DP35
DP36
DP37
DP44
DP45
DP09
DP10
DP11
DP12
DP13
DP16
DP22
DP23
DP24
DP25
USD TANK
8 CHAMBER
RWT
A1-HY-405

CAD FILENAME: Q:\CAM\Projects\02500\PLANS\02507_IVANHOE ESTATE MACQUARIE PARK - BUILDING A\OUTGOING\220323 (REVISED) A1-HY-406.dwg

REV.	DES.	DATE	VER.	DESCRIPTION
1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: DATE:

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SUITE 26
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ABN 21 118 134 240

DESIGNED G. CHAN	DATE 1st ISSUED 20.08.21
VERIFIED G. CHAN	LGA CITY OF RYDE
DRAWN E. WU	SCALE @ B1 N.T.S.

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES

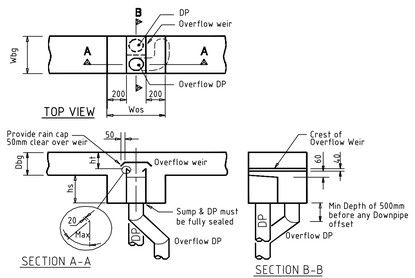
STORMWATER AND SIPHONIC DRAINAGE SCHEMATIC SHEET 2 OF 2

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-406	1

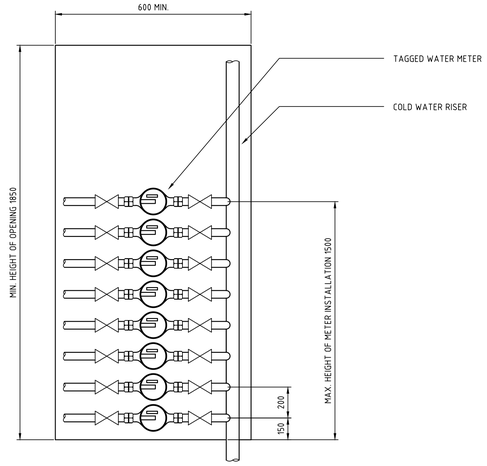
Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: GENERAL DETAILS 2		Drawing No: 02507-A1-HY-501		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	15.12.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

SUMP/HIGH CAPACITY OVERFLOW (CENTRAL) BOX GUTTER

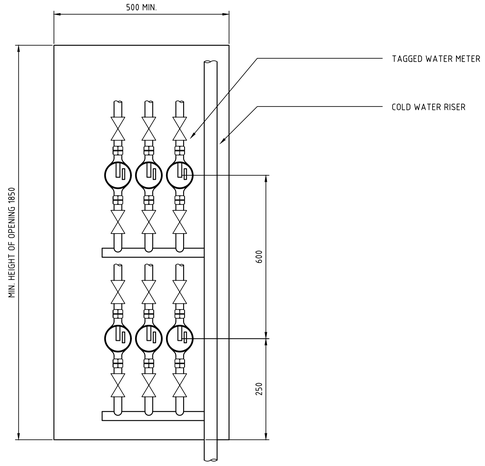
Description	Code	Sizes
CATCHMENT / ARI / DOWNPIPE		
Roof Catchment Area (m2)	A	90
ARI Rainfall Intensity (mm/hr) [100 Yr, 5 min]	Y	247.15
Design Flow (l/s)	Q	6.18
Downpipe (mm)	dp	100
[ha factor]	ha	85
BOX GUTTER		
Catchment Area of Largest Box Gutter Side (m2)	-	45
Design Flow (Q)(l/s) for Worse case BG side	-	3.09
Box Gutter Grade	-	1:200
Box Gutter Width (mm)	Wbg	550
Box Gutter Depth (mm)	Dbg	90
SUMP		
Sump Depth	hs	210
Sump Length	wos	600
OVERFLOW		
Overflow Weir Depth below Box Gutter	ht	75
Calc. Overflow Weir Depth above sole of Box Gutter	Loc	15



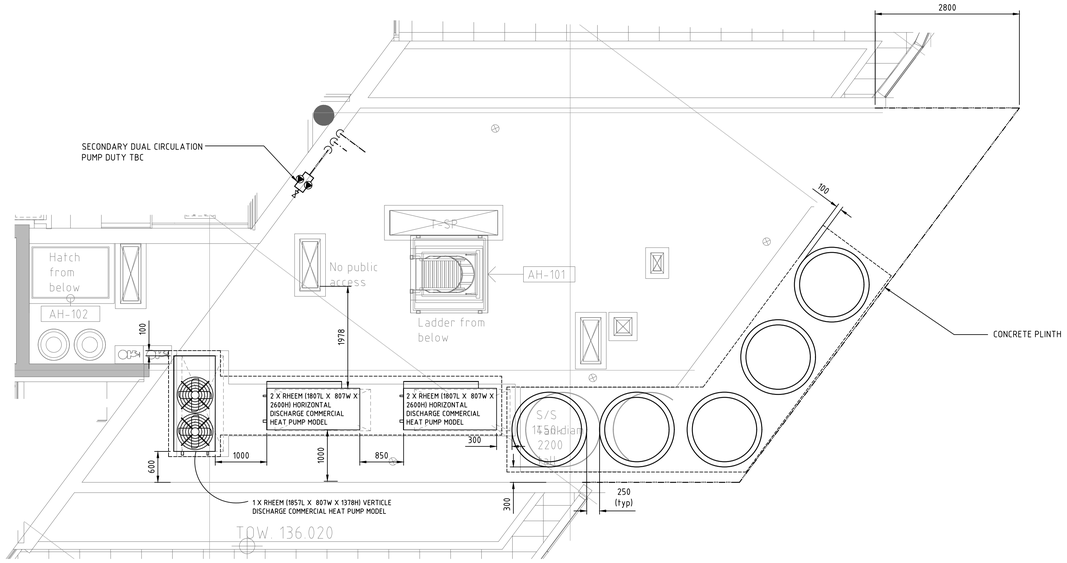
SUMP/HIGH CAPACITY OVERFLOW (CENTRAL)
SCALE: N.T.S.



TYPICAL METER ARRANGEMENT - VERTICAL SET UP
SCALE: N.T.S.



TYPICAL METER ARRANGEMENT - HORIZONTAL SET UP
SCALE: N.T.S.



HOT WATER PLANT DETAILS
SCALE: 1:50

CAD FILENAME: Q:\C&M\Projects\02507-A2000\PN-02507 - IVANHOE ESTATE MACQUARIE PARK - BUILDING A1\OUTGOING\220203 - IFC\02507-A1-HY-501.dwg

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1	E.W.	03.02.22	G.C.	ISSUE FOR CONSTRUCTION

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PROJECT VERIFIER'S SIGNATURE: ..... DATE: .....

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CLIENT

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ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	AS SHOWN

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BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES GENERAL DETAILS 2

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-501	1

300001(A1)-OSD-001

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: COVER SHEET, INDEX OF DRAWINGS AND LOCALITY SKETCH			Drawing No: 300001(A1)-OSD-001	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781

ENGINEERING PLANS OF
' PROPOSED OSD TANK '
BUILDING A1 MIDTOWN, IVANHOE ESTATE
MACQUARIE PARK, 2322



M.G.A.

LOCALITY SKETCH
NOT TO SCALE

INDEX OF DRAWINGS

DRAWING No.	NAME
300001(A1)-ENG-001	COVER SHEET, INDEX OF DRAWINGS & LOCALITY SKETCH
300001(A1)-ENG-003	OVERALL SITE PLAN
300001(A1)-ENG-461	OSD TANK DETAILS - SHEET 1
300001(A1)-ENG-462	OSD TANK DETAILS - SHEET 2

DIAL1100
BEFORE YOU DIG

ISSUED FOR CONSTRUCTION

100mm AT FULL SIZE

This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.	

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

adw Johnson
Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED | DATUM

PROJECT: PROPOSED OSD TANK

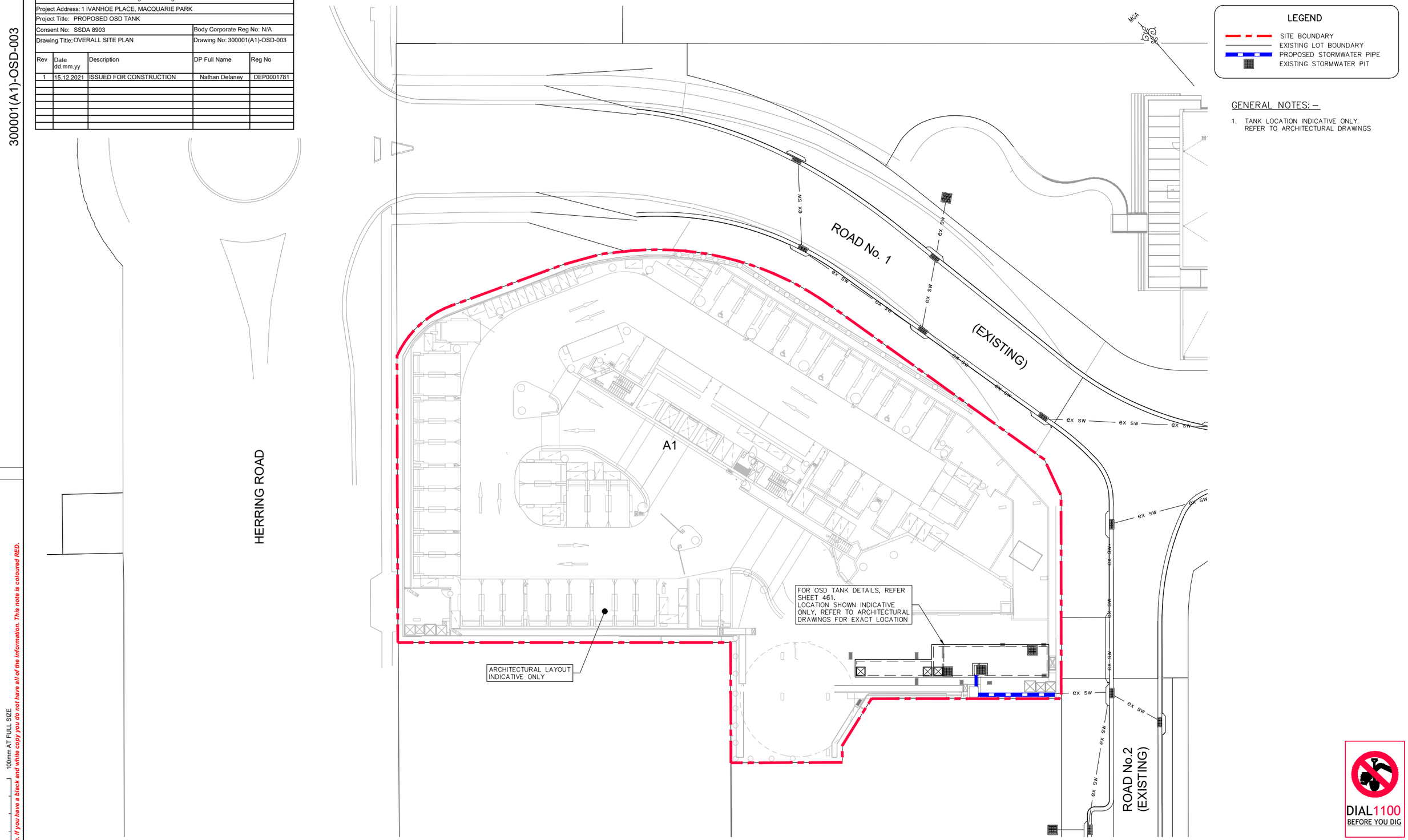
PLAN TITLE: COVER SHEET, INDEX OF DRAWINGS & LOCALITY SKETCH

PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) -	OSD	- 001	1

Plotted By: Ben Myles Plot Date: 14/12/21 3:56:32PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-001.DWG

300001(A1)-OSD-003

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OVERALL SITE PLAN			Drawing No: 300001(A1)-OSD-003	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781



OVERALL SITE PLAN
SCALE 1:200

ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES: A1 1:200 / A3 1:400 (0, 5.0, 10.0m)

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

adw Johnson
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5 Pioneer Avenue,
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Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ

DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK

PLAN TITLE: OVERALL SITE PLAN

PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) –	OSD	003	1

Plotted By: Ben Myles Plot Date: 14/12/21 3:56:33PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-003.DWG

100mm AT FULL SIZE

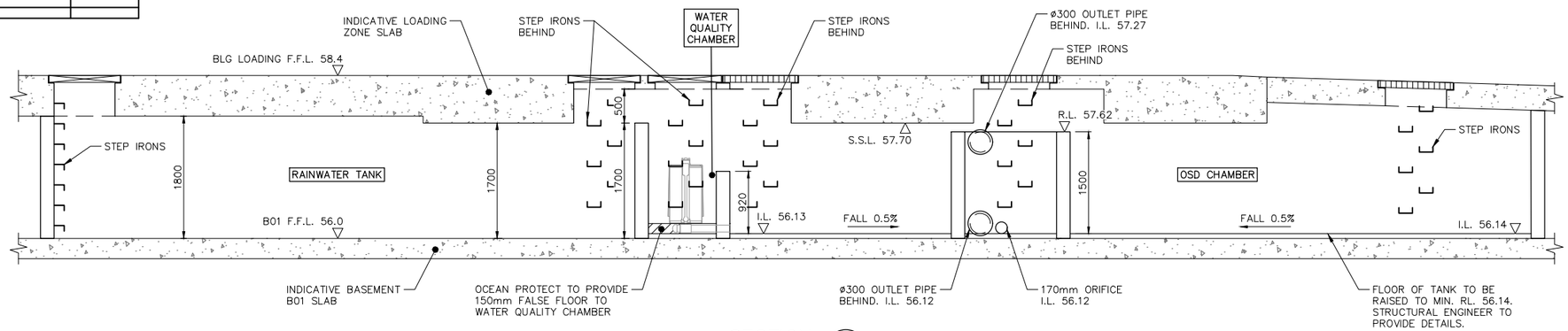
This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

300001(A1)-OSD-461

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OSD TANK DETAILS SHEET 1			Drawing No: 300001(A1)-OSD-461	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781

GENERAL NOTES:

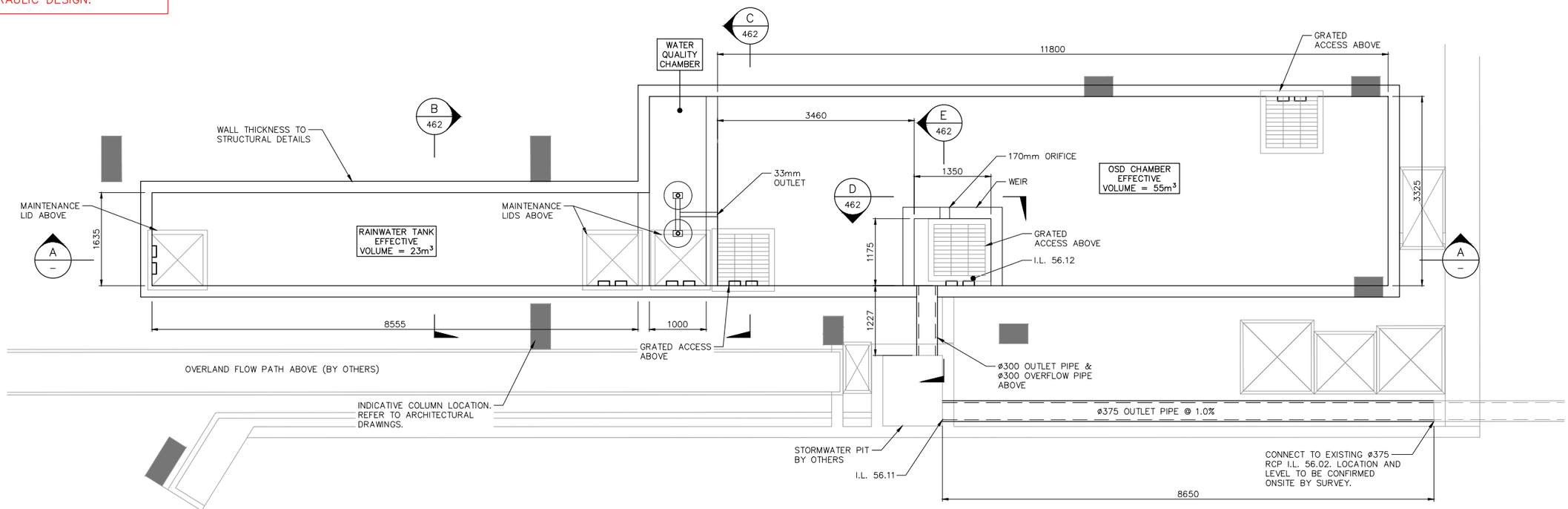
1. OUTLET PIPE TYPE & CONSTRUCTION METHODOLOGY TO BE NOMINATED BY HYDRAULIC ENGINEER.
2. REFER TO OCEAN PROTECT GUIDELINES FOR WQ CHAMBER CONSTRUCTION.
3. PROVIDE OSD TANK MARKER PLATE AS PER RYDE COUNCIL STORMWATER TECHNICAL MANUAL.



SECTION A
SCALE 1:40

NOTE:

1. PENETRATIONS FOR INLET PIPES NOT SHOWN. REFER TO HYDRAULIC DESIGN.



OSD TANK PLAN
SCALE 1:40

GENERAL NOTES: –

1. TANK LOCATION INDICATIVE ONLY. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILED LOCATIONS.

ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES: A1 1:40 — 0 1.0 2.0m — A3 1:80

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ

DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK

PLAN TITLE: OSD TANK DETAILS SHEET 1

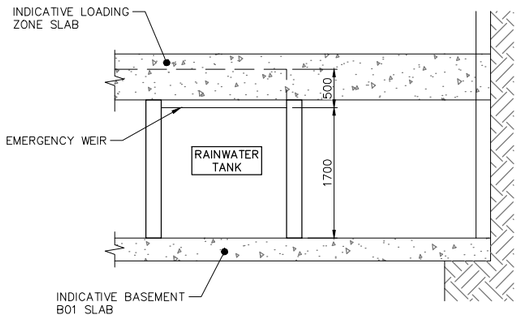
PROJECT No. 300001(A1) – DISCIPLINE OSD – NUMBER 461 REV. 1

Plotted By: Ben Myles Plot Date: 14/12/21 3:56:33PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-461.DWG

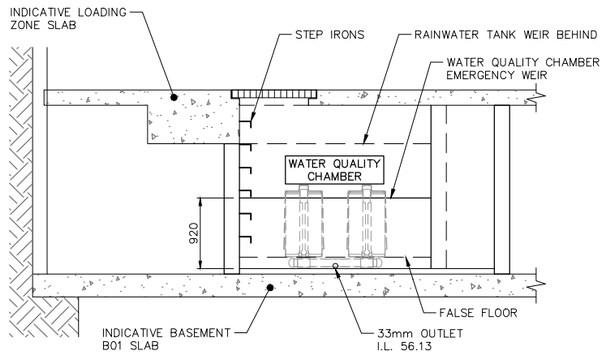
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This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

300001(A1)-OSD-462

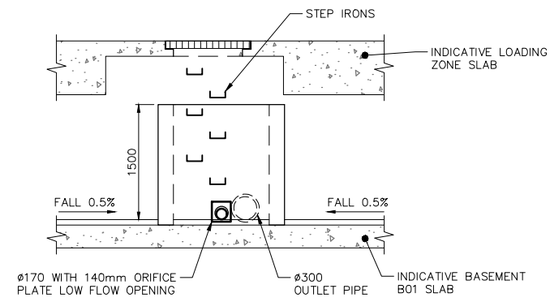
Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OSD TANK DETAILS SHEET 2			Drawing No: 300001(A1)-OSD-462	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781



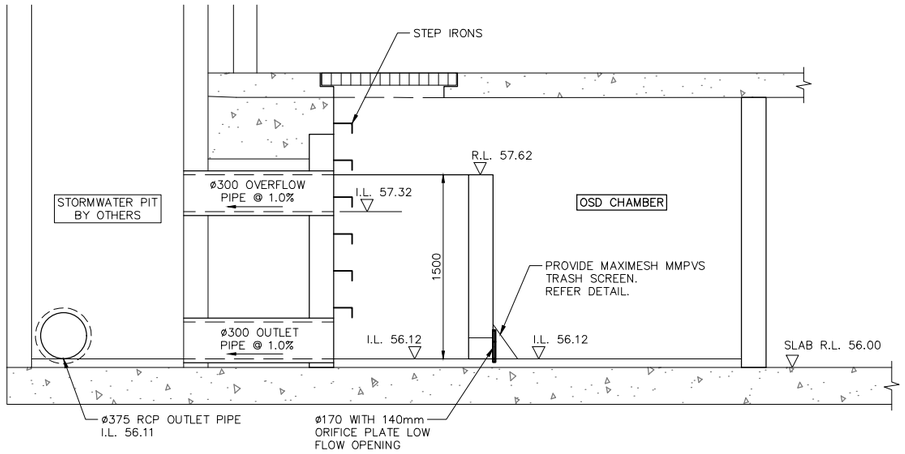
SECTION B / 461
SCALE 1:40



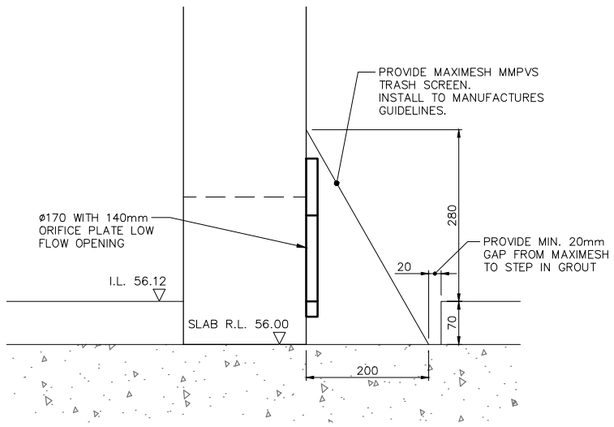
SECTION C / 461
SCALE 1:40



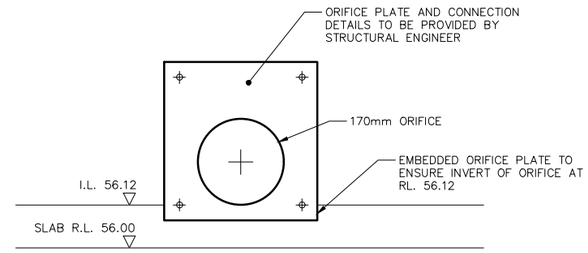
SECTION D / 461
SCALE 1:40



SECTION E / 461
SCALE 1:25



TRASH SCREEN DETAIL
SCALE 1:5



ORIFICE PLATE DETAIL
SCALE 1:5

100mm AT FULL SIZE

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ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES
A1 1:5 — 0 0.125 0.25m — A3 1:10
A1 1:25 — 0 0.25 0.50 0.75 1.00 1.25m — A3 1:50
A1 1:40 — 0 1.0 2.0m — A3 1:80

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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ABN 62 129 445 398

CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ
DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK
PLAN TITLE: OSD TANK DETAILS SHEET 2

PROJECT No. 300001(A1) – DISCIPLINE OSD – NUMBER 462 – REV. 1

Plotted By: Ben Myles Plot Date: 14/12/21 3:56:34PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-462.DWG

300001(A1)-OSD-001

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: COVER SHEET, INDEX OF DRAWINGS AND LOCALITY SKETCH			Drawing No: 300001(A1)-OSD-001	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781

ENGINEERING PLANS OF
' PROPOSED OSD TANK '
BUILDING A1 MIDTOWN, IVANHOE ESTATE
MACQUARIE PARK, 2322



M.G.A.

LOCALITY SKETCH
NOT TO SCALE

INDEX OF DRAWINGS

DRAWING No.	NAME
300001(A1)-ENG-001	COVER SHEET, INDEX OF DRAWINGS & LOCALITY SKETCH
300001(A1)-ENG-003	OVERALL SITE PLAN
300001(A1)-ENG-461	OSD TANK DETAILS - SHEET 1
300001(A1)-ENG-462	OSD TANK DETAILS - SHEET 2

DIAL1100
BEFORE YOU DIG

ISSUED FOR CONSTRUCTION

100mm AT FULL SIZE

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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.	

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED | DATUM

PROJECT: PROPOSED OSD TANK

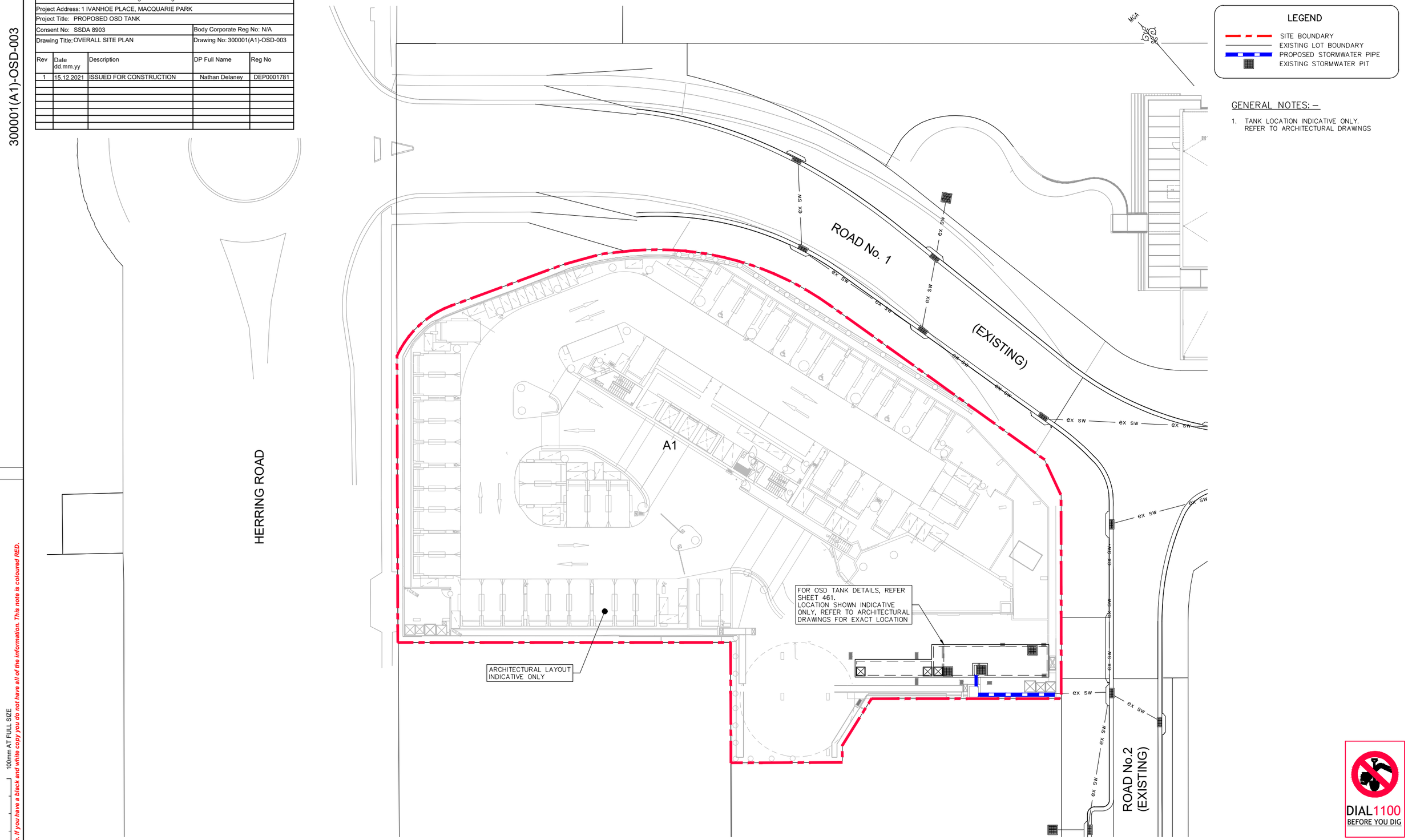
PLAN TITLE: COVER SHEET, INDEX OF DRAWINGS & LOCALITY SKETCH

PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) -	OSD	- 001	1

Plotted By: Ben Myles Plot Date: 14/12/21 3:57:22PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-001.DWG

300001(A1)-OSD-003

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OVERALL SITE PLAN			Drawing No: 300001(A1)-OSD-003	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781



OVERALL SITE PLAN
SCALE 1:200

ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES: A1 1:200 — 0 5.0 10.0m — A3 1:400

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ

DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK

PLAN TITLE: OVERALL SITE PLAN

PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) –	OSD	003	1

Plotted By: Ben Myles Plot Date: 14/12/21 3:57:23PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-003.DWG

100mm AT FULL SIZE

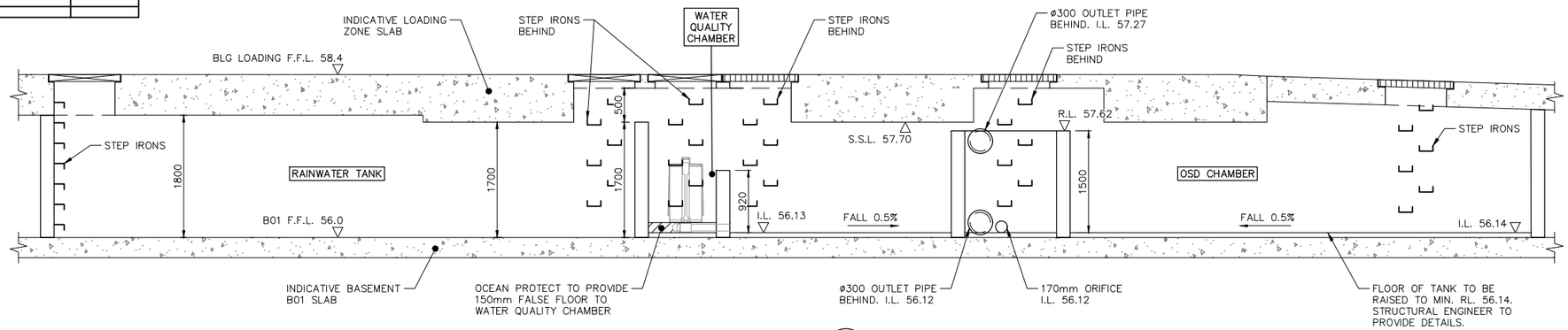
This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

300001(A1)-OSD-461

Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OSD TANK DETAILS SHEET 1			Drawing No: 300001(A1)-OSD-461	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781

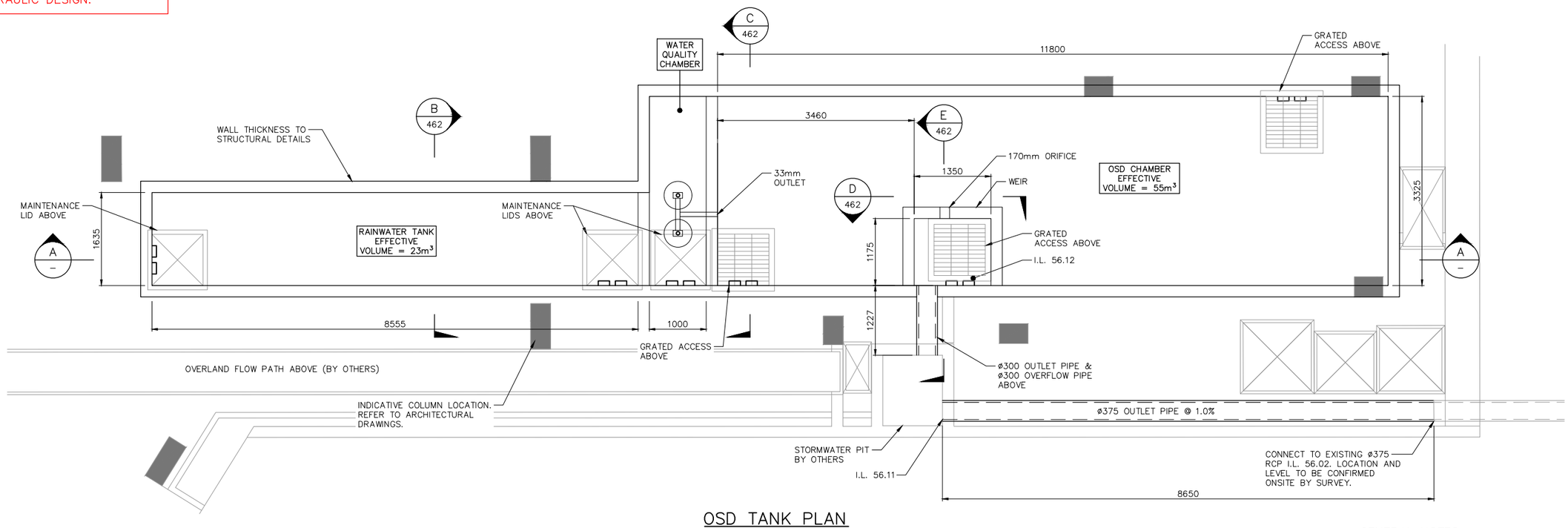
GENERAL NOTES:

1. OUTLET PIPE TYPE & CONSTRUCTION METHODOLOGY TO BE NOMINATED BY HYDRAULIC ENGINEER.
2. REFER TO OCEAN PROTECT GUIDELINES FOR WQ CHAMBER CONSTRUCTION.
3. PROVIDE OSD TANK MARKER PLATE AS PER RYDE COUNCIL STORMWATER TECHNICAL MANUAL.



SECTION A
SCALE 1:40

NOTE:
1. PENETRATIONS FOR INLET PIPES NOT SHOWN. REFER TO HYDRAULIC DESIGN.



OSD TANK PLAN
SCALE 1:40

GENERAL NOTES: –

1. TANK LOCATION INDICATIVE ONLY. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILED LOCATIONS.

ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES: A1 1:40 — 0 1.0 2.0m — A3 1:80

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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ABN 62 129 445 398

CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ

DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK

PLAN TITLE: OSD TANK DETAILS SHEET 1

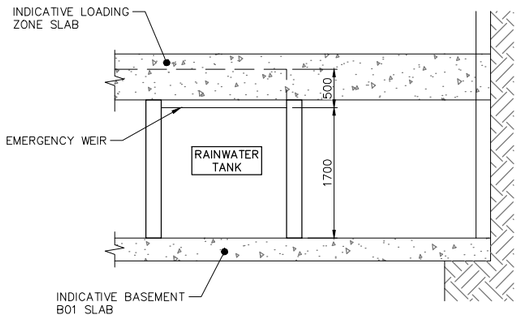
PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) –	OSD	– 461	1

100mm AT FULL SIZE
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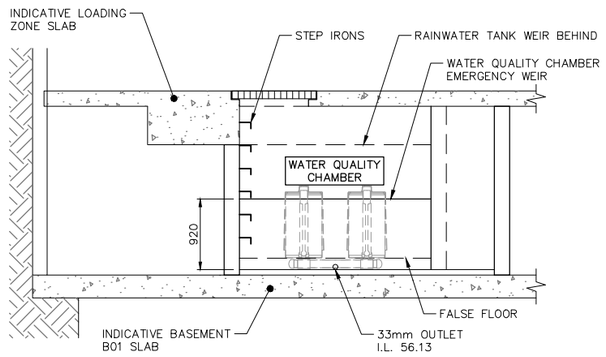
Plotted By: Ben Myles Plot Date: 14/12/21 3:57:23PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-461.DWG

300001(A1)-OSD-462

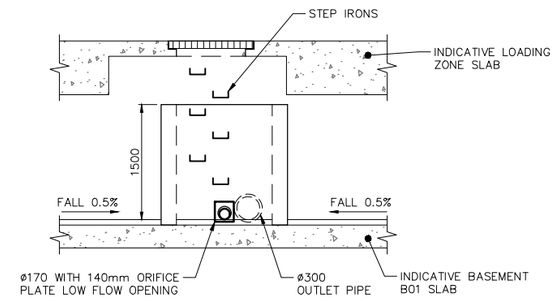
Regulated Design Record				
Project Address: 1 IVANHOE PLACE, MACQUARIE PARK				
Project Title: PROPOSED OSD TANK				
Consent No: SSDA 8903			Body Corporate Reg No: N/A	
Drawing Title: OSD TANK DETAILS SHEET 2			Drawing No: 300001(A1)-OSD-462	
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	15.12.2021	ISSUED FOR CONSTRUCTION	Nathan Delaney	DEP0001781



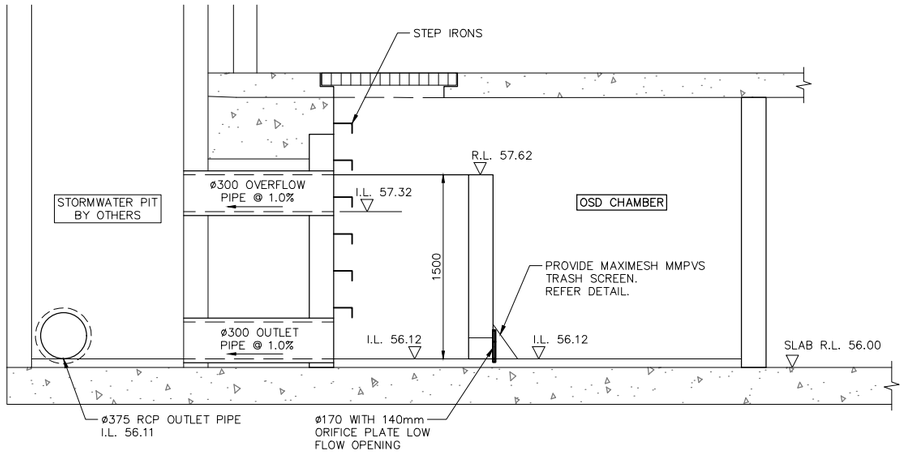
SECTION B / 461
SCALE 1:40



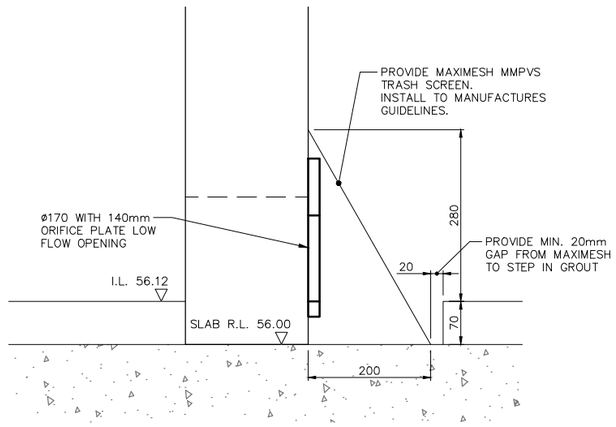
SECTION C / 461
SCALE 1:40



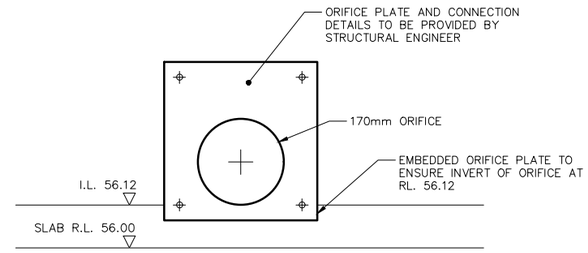
SECTION D / 461
SCALE 1:40



SECTION E / 461
SCALE 1:25



TRASH SCREEN DETAIL
SCALE 1:5



ORIFICE PLATE DETAIL
SCALE 1:5

100mm AT FULL SIZE

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ISSUED FOR CONSTRUCTION

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
1	15.12.21	ISSUED FOR CONSTRUCTION	B.M.	D.P.T.	B.M.	B.M.

SCALES: A1 1:5 (0, 0.125, 0.25m) A3 1:10; A1 1:25 (0, 0.25, 0.50, 0.75, 1.00, 1.25m) A3 1:50; A1 1:40 (0, 1.0, 2.0m) A3 1:80

DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project

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ABN 62 129 445 398

CLIENT: PARKVIEW

PROPERTY DESCRIPTION: BUILDING A1 MIDTOWN, IVANHOE ESTATE MACQUARIE PARK, 2322

SURVEYED: ADWJ

DATUM: AHD GDA 94

PROJECT: PROPOSED OSD TANK

PLAN TITLE: OSD TANK DETAILS SHEET 2

PROJECT No.	DISCIPLINE	NUMBER	REV.
300001(A1) -	OSD	- 462	1

Plotted By: Ben Myles Plot Date: 14/12/21 3:57:24PM Cad File: \\JPSERVER06\DRAFTING\300001\DRAWINGS\ENGINEERING\CIVIL\A1 OSD TANK\300001(A1)-OSD-462.DWG

DO NOT SCALE

BUILDING A1 IVANHOE ESTATE MACQUARIE PARK

MECHANICAL SERVICES

PREPARED BY

wsp

MECHANICAL DRAWING INDEX

A1-ME-0-000-00	COVER SHEET AND DRAWING INDEX
A1-ME-0-000-01	LEGEND AND NOTES
A1-ME-1-000-01	DETAILS SHEET
A1-ME-1-100-01	TYPICAL APARTMENTS
A1-ME-3-000-01	VENTILATION SCHEMATIC
A1-ME-3-000-02	VENTILATION SCHEMATIC
A1-ME-4-B01-01	BASEMENT 01 LAYOUT
A1-ME-4-B02-01	BASEMENT 02 LAYOUT
A1-ME-4-B03-01	BASEMENT 03 LAYOUT
A1-ME-4-BLG-01	LOWER GROUND LAYOUT
A1-ME-4-L00-01	GROUND LAYOUT
A1-ME-4-L02-01	LEVEL 02 LAYOUT
A1-ME-4-L08-01	TYPICAL FLOOR LAYOUT
A1-ME-4-L22-01	LEVEL 22 LAYOUT
A1-ME-4-L23-01	LEVEL 23 LAYOUT
A1-ME-4-R00-01	ROOF LAYOUT

REV	DATE	BY	DESCRIPTION	CHK	APP
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp

http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
COVER SHEET AND DRAWING INDEX

SCALE @ B1:	CHECKED:	APPROVED:
NTS	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-0-000-00 REV: T1

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DRAWING CREATED IN REVIT

DO NOT SCALE

LEGEND OF SYMBOLS

DUCTWORK

AxB — RECTANGULAR DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOT VIEWED

Ø — CIRCULAR SPIRAL DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)

A/B — OVAL DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOTE VIEWED

NOMINAL 25mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 38mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 50mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 75mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 100mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FRL A/B/C — FIRE RATED DUCTWORK
A DENOTES STRUCTURAL
B DENOTES INTEGRITY
C DENOTES INSULATION

AxB — EXTERNALLY INSULATED RECTANGULAR DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOT VIEWED
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FLEXIBLE DUCTWORK C/W SPIGOTS & DAMPER
REFER TO SCHEDULE FOR SIZING
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FLEXIBLE CONNECTION

FD / FSD — FIRE DAMPER/MOTORISED SMOKE DAMPER
COMPLETE WITH ACCESS PANEL

CC / HC — COIL - CC COOLING COIL
HC HEATING COIL

ELECTRIC DUCT HEATER

PITOT TUBE TEST POINT

METERING PLATE IN DUCT

AP — DUCT ACCESS PANEL
(PANEL ON TOP OR BOTTOM/PANEL ON SIDE)

DUCTWORK ATTENUATOR

SPIGOT C/W DAMPER

B — BLANK OFF DUCT

SU/SD — DUCT RISE AND FALL IN DIRECTION OF AIRFLOW
SD - SET DOWN SU - SET UP

SUPPLY AIR DUCT CROSS SECTION (DROP/RISE)

RETURN AIR DUCT CROSS SECTION (DROP/RISE)

CIRCULAR DUCT CROSS SECTION (DROP/RISE)

SQUARE/RADIUS BEND WITH TURNING VANES
(ACOUSTIC VANES WHERE SPECIFIED)

AIR DISTRIBUTION

SUPPLY AIR REGISTER

SUPPLY AIR DIFFUSER C/W CUSHION HEAD.
A DENOTES SYSTEM TYPE
S - SUPPLY
R - RETURN / RELIEF
E - EXHAUST
OR

DOUBLE SIDED LIGHT AIR BOOT
A L/s UNLESS NOTED OTHERWISE

SINGLE SIDED LIGHT AIR BOOT
A L/s UNLESS NOTED OTHERWISE

LINEAR SLOT DIFFUSER/T-BAR C/W SUPPLY AIR PLENUM.
REFER SPECIFICATION

RETURN / RELIEF / EXHAUST AIR GRILLE

DEEP BED FILTER

V-FORM FILTER

PANEL FILTER

DOOR GRILLE
REFER TO SCHEDULE

ELECTRICAL/CONTROLS

MECHANICAL DISTRIBUTION BOARD (MDB) OR LOCAL CONTROL PANEL
(AS NOTED)

VSD — VARIABLE SPEED DRIVE

WORKS-IN-CONNECTION (BY OTHERS)

CEILING MOUNTED ACCESS PANEL

TD — TUNDISH

FW — FLOOR WASTE

NOTE RELATED TO OTHER TRADE CONTRACTOR — OUTLINE NOTATION INDICATES WORKS BY OTHERS

SYSTEM SCHEMATIC/OSCI

AIR FLOW
CONTROL
IN LINE AXIAL FAN
IN-LINE CENTRIFUGAL FAN
CENTRIFUGAL FAN
OPPOSED BLADE DAMPER
T — ROOM TEMPERATURE SENSOR
H — ROOM HUMIDITY SENSOR
CO — CARBON MONOXIDE SENSOR
CO2 — CARBON DIOXIDE SENSOR
F — FLOW SENSOR
P — PRESSURE SENSOR
T — TEMPERATURE SENSOR
DP — DIFFERENTIAL PRESSURE SENSOR
S — ISOLATING SWITCH
FS — FLOW SWITCH
PS — PRESSURE SWITCH
PD — PRESSURE DIFFERENTIAL GAUGE
P — PRESSURE GAUGE
T — TEMPERATURE GAUGE
PANEL MOUNTED GAUGE
TF — TURBINE FLOW MEASURING DEVICE
MF — MAGNETIC FLOW MEASURING DEVICE
UF — ULTRASONIC FLOW MEASURING DEVICE
M — MOTOR ACTUATOR
S — SOLENOID ACTUATOR
P — PNEUMATIC ACTUATOR
HS — HIGH SELECT
AV — AVERAGING
ANNUBAR
A — CONTROL INPUT
CONTROLLED EQUIPMENT No.
C — APARTMENT CONTROLLER
I — ISOLATOR

PIPEWORK

REFRIGERANT PIPE
CONDENSATE DRAIN PIPE
NATURAL GAS PIPE
ISOLATING VALVE
BUTTERFLY VALVE
BALL VALVE
GLOBE VALVE
GATE VALVE
CHECK VALVE
PRESSURE REDUCING VALVE
DOUBLE REGULATING CONTROL VALVE
DYNAMIC BALANCING VALVE
DYNAMIC BALANCING CONTROL VALVE
PRESSURE RELIEF VALVE
VACUUM BREAKER
3-WAY VALVE
PRESSURE RELIEF VALVE
DRAIN VALVE
GAS REGULATING VALVE
BALL FLOAT VALVE
BACKFLOW PREVENTION DEVICE
BIBCOCK
CAPPED VALVE
FLANGE
UNION
THERMOMETER POCKET
UNIVERSAL TEST POINT
AUTOMATIC AIR VENT
MANJAL AIR VENT
OPEN VENT
LINT STRAINER
STRAINER
PUMP
PIPE ANCHOR
FLEXIBLE CONNECTION
ATTENUATOR
PIPE RISER PIPE DROPPER
EXPANSION JOINT
EXPANSION BEND
EXPANSION BEND (LYRE OR HORSESHOE BEND)
15 / 10 — REDUCTION OF PIPE SIZE
PIPE SLIDE OR SLIDING SLEEVE HANGER
SYPHON TO WASTE
DR / DR — TUNDISH TO WASTE

NOMENCLATURE (GENERAL)

ESS/ST/NORM	ESSENTIAL SERVICES/STANDBY POWER/NORMAL
FSO/FSC	FAIL SAFE OPEN/FAIL SAFE CLOSED
NO/NC	NORMALLY OPEN/NORMALLY CLOSED
MOD/2P	MODULATING/TWO POSITION
L	LOCKABLE
F/R	FLOW/RETURN (SUFFIX)
P/S	PRIMARY/SECONDARY (PREFIX)
N/D/R	NEW/DELETED/RELOCATED
SP	SETPOINT
U.N.O.	UNLESS NOTED OTHERWISE
T/A	TO ABOVE
T/B	TO BELOW
F/A	FROM ABOVE
F/B	FROM BELOW
C/W	COMPLETE WITH
VSD	VARIABLE SPEED DRIVE

FCU-GR-02
- EQUIPMENT TYPE
- EQUIPMENT NUMBERING
- IDENTIFICATION NO.
- LEVEL ON WHICH EQUIPMENT IS LOCATED

NOMENCLATURE (AIR SIDE)

ACC	AIR COOLED CONDENSER
CEF	CARPARK EXHAUST FAN
EAG	EXHAUST AIR GRILLE
EA	EXHAUST AIR
FCU	FAN COIL UNIT
GE	GENERAL EXHAUST
GEF	GENERAL EXHAUST FAN
KEF	KITCHEN EXHAUST FAN
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG	RETURN AIR GRILLE
RF	RELIEF AIR FAN
SA	SUPPLY AIR
SPF	STAIRWELL PRESSURISATION FAN
TE	TOILET EXHAUST
TEF	TOILET EXHAUST FAN

GENERAL NOTES

A. THE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE TOTAL CONTRACT PACKAGE INCLUDING THE DRAWINGS AND SPECIFICATION OF ALL CONSULTANTS.
B. ALL DIMENSIONS ARE NOMINAL AND MUST BE CONFIRMED ON SITE.
C. ALL WORKS SHALL COMPLY WITH THE NCC AND ALL RELEVANT AUSTRILIAN STANDARDS.
D. THIS DRAWINGS SHOWS THE DESIGN INTENT FOR CONTRACTOR DESIGN DEVELOPMENT AND PRODUCTION OF WORKSHOP DRAWINGS
E. DRAWING TO BE READ IN CONJUNCTION WITH THE LEGEND OF SYMBOLS.

SPECIFIC NOTES

A. WHERE DUCTWORK PASSES THROUGH A FULL HEIGHT WALL / BAFFLE BLOCK A RIDGED SECTION OF DUCT SHALL BE USED FROM MAIN BRANCH DUCT. FLEXIBLE DUCTWORK TO BE USED FOR FINAL TERMINATION TO DIFFUSER / GRILLE WITHIN ROOM ONLY.
B. CONTRACTOR TO COORDINATE WITH THE HYDRAULIC DESIGNER FOR FINAL TUNDISH AND FLOOR WASTE LOCATIONS.
C. CONTRACTOR TO REFER TO THE ARCHITECTURAL PACKAGE FOR CO-ORDINATED RCP LAYOUT AND FINAL SETTING OUT OF TERMINAL DEVICES AND ACCESS PANELS SHOWN ON MECHANICAL SERVICES DRAWINGS.
D. THIS DRAWING HAS BEEN PRODUCED BASED ON AVAILABLE ARCHITECTURAL DRAWINGS. THERE ARE ELEMENTS OF THESE DRAWINGS WHICH WE UNDERSTAND REQUIRE AMENDMENT IN ORDER TO SUIT THE MECHANICAL SERVICES DESIGN. THESE AREAS HAVE BEEN NOTED THROUGHOUT.

DOOR GRILLE SCHEDULE

TYPE	DIMENSION (NOM)	L/s
A	600x150	0 - 90
B	600x200	91 - 110
C	600x250	111 - 130
D	600x300	131 - 170
E	600x450	171 - 250
F	600x600	251 - 325
G	300x150	0 - 40
U	25mm UNDERCUT	-

FLEXIBLE DUCT SCHEDULE

SIZE (mm)	AIR QUANTITY RANGE (L/s)
Ø150	0 - 40
Ø200	41 - 85
Ø250	86 - 140
Ø300	141 - 230
Ø350	231 - 320
Ø400	321 - 440
Ø450	441 - 560
Ø500	561 - 700

MECHANICAL SERVICES LEGEND OF SYMBOLS

1 : 100

DRAWING CREATED IN REVIT

REV	DATE	BY	DESCRIPTION	CHK	APP
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp
http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
LEGEND AND NOTES

SCALE @ B1:	CHECKED:	APPROVED:
NTS	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-0-000-01 REV: T1

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Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	COVER SHEET & DRAWING LIST	Drawing No:	A1-ME-0-001-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

BUILDING A1 IVANHOE ESTATE MACQUARIE PARK

MECHANICAL SERVICES

DRAWINGS LIST

A1-ME-0-001-01	COVER SHEET & DRAWINGS LIST
A1-ME-0-002-01	EQUIPMENT SCHEDULES
A1-ME-0-003-01	FIRE DAMPER & GRILLES SCHEDULES
A1-ME-1-B01-01	BASEMENT 1 VENTILATION LAYOUT
A1-ME-1-B02-01	BASEMENT 2 VENTILATION LAYOUT
A1-ME-1-B03-01	BASEMENT 3 VENTILATION LAYOUT
A1-ME-1-BLG-01	LOWERGROUND VENTILATION LAYOUT
A1-ME-1-L00-01	GROUND FLOOR VENTILATION LAYOUT
A1-ME-1-L01-01	LEVEL 1 AIR CONDITIONING LAYOUT
A1-ME-1-L02-01	LEVEL 2 AIR CONDITIONING LAYOUT
A1-ME-1-L03-01	LEVEL 3 AIR CONDITIONING LAYOUT
A1-ME-1-L04-01	LEVEL 4 AIR CONDITIONING LAYOUT
A1-ME-1-L05-01	LEVEL 5 AIR CONDITIONING LAYOUT
A1-ME-1-L06-01	LEVEL 6 AIR CONDITIONING LAYOUT
A1-ME-1-L07-01	LEVEL 7 AIR CONDITIONING LAYOUT
A1-ME-1-L08-01	LEVEL 8 AIR CONDITIONING LAYOUT
A1-ME-1-L09-01	LEVEL 9 AIR CONDITIONING LAYOUT
A1-ME-1-L10-01	LEVEL 10 AIR CONDITIONING LAYOUT
A1-ME-1-L11-01	LEVEL 11 AIR CONDITIONING LAYOUT
A1-ME-1-L12-01	LEVEL 12 AIR CONDITIONING LAYOUT
A1-ME-1-L13-01	LEVEL 13 AIR CONDITIONING LAYOUT
A1-ME-1-L14-01	LEVEL 14 AIR CONDITIONING LAYOUT
A1-ME-1-L15-01	LEVEL 15 AIR CONDITIONING LAYOUT
A1-ME-1-L16-01	LEVEL 16 AIR CONDITIONING LAYOUT
A1-ME-1-L17-01	LEVEL 17 AIR CONDITIONING LAYOUT
A1-ME-1-L18-01	LEVEL 18 AIR CONDITIONING LAYOUT
A1-ME-1-L19-01	LEVEL 19 AIR CONDITIONING LAYOUT
A1-ME-1-L20-01	LEVEL 20 AIR CONDITIONING LAYOUT
A1-ME-1-L21-01	LEVEL 21 AIR CONDITIONING LAYOUT
A1-ME-1-L22-01	LEVEL 22 AIR CONDITIONING LAYOUT
A1-ME-1-L23-01	LEVEL 23 AIR CONDITIONING LAYOUT
A1-ME-1-L24-01	LEVEL 24 VENTILATION LAYOUT

A1-ME-2-01	AIR SCHEMATICS SHEET 1
A1-ME-2-02	AIR SCHEMATICS SHEET 2
A1-ME-4-B01-02	BASEMENT 1 BUILDERSWORK
A1-ME-4-B02-02	BASEMENT 2 BUILDERSWORK
A1-ME-4-B03-02	BASEMENT 3 BUILDERSWORK
A1-ME-4-BLG-02	LOWERGROUND BUILDERSWORK
A1-ME-4-L00-02	GROUND FLOOR BUILDERSWORK
A1-ME-5-01	ELEVATION 1 BUILDERSWORK
A1-ME-5-02	ELEVATION 2 BUILDERSWORK
A1-ME-5-03	ELEVATION 3 BUILDERSWORK
A1-ME-5-04	ELEVATION 4 BUILDERSWORK
A1-ME-5-05	ELEVATION 5 BUILDERSWORK
~~A1-ME-5-06~~	~~ELEVATION 6 BUILDERSWORK~~ NO LONGER IN USE
A1-ME-5-07	ELEVATION 7 BUILDERSWORK
A1-ME-5-08	ELEVATION 8 BUILDERSWORK
A1-ME-5-09	ELEVATION 9 BUILDERSWORK
SK-001	CORE PLANS PENETRATION - BLG, G00
SK-002	CORE PLANS PENETRATION - L01, L02, L03-14
SK-003	CORE PLANS PENETRATION - L15-L22
SK-004	CORE PLANS PENETRATION - L23-L24
SK-005	CARPARK EXHAUST LOUVRE DETAILS
SK-006	LOBBY RELIEF SUBDUCT SECTION

FOR CONSTRUCTION

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Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZY	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
COVER SHEET & DRAWINGS LIST

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-0-001-01	01
Scale	1:100 @A0		

Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	EQUIPMENT SCHEDULES	Drawing No:	A1-ME-0-002-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

FAN SCHEDULES

Location	Designation	Catalogue No.	Description	Qty.	Vol. (L/s)	Press (Pa)	Speed (r/min)	Wgt (kg)	Motor Power	Motor Type	Electrical Supply	Inlet Sound Spectra(dBW) 63	125	250	500	1K	2K	4K	8K	SPL (dBA)
Basement 3	CPEF-B3	APS0632BA7/24	APS Series In-Line Smoke Spill	1	7000	500	2880	178.0	15.00kW	S/Spill Class H	415V 3ph 50Hz	99	89	100	99	97	93	91	89	81@ 3m
Basement 2	CPEF-B2	APS0632BA7/24	APS Series In-Line Smoke Spill	1	7000	500	2880	178.0	15.00kW	S/Spill Class H	415V 3ph 50Hz	99	89	100	99	97	93	91	89	81@ 3m
Basement 1	CPEF-B1	APS1004DA9/17	APS Series In-Line Smoke Spill	1	10000	500	1440	250.0	15.00kW	S/Spill Class H	415V 3ph 50Hz	89	90	97	95	97	92	88	81	80@ 3m
Lower Ground	CPEF-LG	APS0562GA6/20	APS Series In-Line Smoke Spill	1	4800	500	2880	153.9	11.00kW	S/Spill Class H	415V 3ph 50Hz	92	93	91	89	87	86	84	80	72@ 3m
Basement 3	CPSF-B3	APS0562BA7/30	APS Series In-Line Smoke Spill	1	5600	500	2880	171.6	15.00kW	S/Spill Class H	415V 3ph 50Hz	94	89	95	94	86	82	79	75	73@ 3m
Basement 2	CPSF-B2	APS0562BA7/30	APS Series In-Line Smoke Spill	1	5600	500	2880	171.6	15.00kW	S/Spill Class H	415V 3ph 50Hz	94	89	95	94	86	82	79	75	73@ 3m
Basement 2	CPSF-B1	APS0562BA7/30	APS Series In-Line Smoke Spill	1	5600	500	2880	171.6	15.00kW	S/Spill Class H	415V 3ph 50Hz	94	89	95	94	86	82	79	75	73@ 3m
Basement 1	CPSF-LG	APS0562GA8/15	APS Series In-Line Smoke Spill	1	3900	500	2880	120.9	7.50kW	S/Spill Class H	415V 3ph 50Hz	89	86	91	89	86	86	83	80	73@ 3m
Lower Ground, FCC	FCSF-LG	VM-315L	VentMajor Series - Centrifugal Fans	1	350	200	2700	8.0	0.35kW		240V 1ph 50Hz	68	71	75	71	71	69	64	61	55@ 3m
Basement 1, MSR	OAF-B1	VM-315L	VentMajor Series - Centrifugal Fans	1	200	250	2700	8.0	0.35kW		240V 1ph 50Hz	68	71	75	71	71	69	64	61	55@ 3m
Lower Ground, Res Stor	OAF-LG1	AP0562AP5/10	AP Series In-Line Direct Drive	1	1200	500	2880	46.3	2.42kW (AOM)	Standard	415V 3ph 50Hz	92	94	95	94	93	87	84	78	76@ 3m
Lower Ground, Res Stor	GEF-LG1	AP0402AP10/18	AP Series In-Line Direct Drive	1	1150	500	2880	38.5	1.65kW (AOM)	Standard	415V 3ph 50Hz	80	80	90	89	87	83	78	70	71@ 3m
Lower Ground, Fire Pmp	FPEF-LG1	APS0402AA10/16	APS Series In-Line Smoke Spill	1	1000	500	2880	29.2	1.50kW	S/Spill Class H	415V 3ph 50Hz	81	81	91	90	88	84	79	71	72@ 3m
Lower Ground, Fire Pmp	FPSF-LG1	APS0402AA5/10	APS Series In-Line Smoke Spill	1	650	300	2880	32.8	0.75kW	S/Spill Class H	415V 3ph 50Hz	84	80	86	84	83	80	71	64	67@ 3m
Lower Ground, Bin Stor	GEF-LG2	AP0402AP10/10	AP Series In-Line Direct Drive	1	650	500	2880	33.5	1.21kW (AOM)	Standard	415V 3ph 50Hz	81	81	91	90	88	84	79	71	72@ 3m

Location	Designation	Catalogue No.	Description	Qty.	Vol. (L/s)	Press (Pa)	Speed (r/min)	Wgt (kg)	Motor Power	Motor Type	Electrical Supply	Inlet Sound Spectra(dBW) 63	125	250	500	1K	2K	4K	8K	SPL (dBA)
Basement 1	LDEF	APS0562LA9/12	APS Series In-Line Smoke Spill	1	3000	500	2880	90.7	5.50kW	S/Spill Class H	415V 3ph 50Hz	83	85	84	87	88	84	80	74	71@ 3m
Ground, Stair Press	SPF-G.1	APS1254FA6/12	APS Series In-Line Smoke Spill	1	14000	550	1440	380.9	18.50kW	S/Spill Class H	415V 3ph 50Hz	96	102	98	99	99	97	94	88	83@ 3m
Ground, Stair Press	SPF-G.2	APS1004DA9/21	APS Series In-Line Smoke Spill	1	12000	550	1440	295.0	18.50kW	S/Spill Class H	415V 3ph 50Hz	95	93	99	95	97	91	87	79	79@ 3m
Roof - Level 23	OAF-1	AP0502AP5/10	AP Series In-Line Direct Drive	1	500	550	2880	41.2	1.50kW	Standard	415V 3ph 50Hz	91	89	91	93	92	89	86	76	76@ 3m
Roof - Level 23	SPF-1	APS1004DA9/17	APS Series In-Line Smoke Spill	1	10000	550	1440	250.0	15.00kW	S/Spill Class H	415V 3ph 50Hz	90	91	98	96	96	93	89	82	81@ 3m
Roof - Level 24	LSF-1	AP0562GP3/12	AP Series In-Line Direct Drive	1	2400	550	2880	68.8	3.30kW (AOM)	Standard	415V 3ph 50Hz	94	99	92	90	88	86	84	82	73@ 3m
Roof - Level 24	LSF-2	AP0562AP5/10	AP Series In-Line Direct Drive	1	1200	550	2880	46.3	2.42kW (AOM)	Standard	415V 3ph 50Hz	92	94	95	94	93	87	84	78	76@ 3m
Roof - Level 24	SPF-2	APS1004DA9/17	APS Series In-Line Smoke Spill	1	10000	550	1440	250.0	15.00kW	S/Spill Class H	415V 3ph 50Hz	90	91	98	96	98	93	89	82	81@ 3m
Roof - Level 24	LRF	APS1004DA9/19	APS Series In-Line Smoke Spill	1	11000	550	1440	295.0	18.50kW	S/Spill Class H	415V 3ph 50Hz	90	91	98	96	98	93	89	82	81@ 3m
Roof - Level 24	GEF	AP0562AP5/10	AP Series In-Line Direct Drive	1	600	550	2880	46.3	2.20kW	Standard	415V 3ph 50Hz	92	94	95	94	93	87	84	78	76@ 3m
Roof - Level 24	KEF	AP0562LP12/12	AP Series In-Line Direct Drive	1	3000	550	2880	103.1	6.05kW (AOM)	Standard	415V 3ph 50Hz	86	87	87	87	87	87	84	76	72@ 3m

ATTENUATOR SCHEDULES

Location	Designation	Catalogue No.	Description	Qty.	Vol. (L/s)	Press Loss(Pa)	Wgt (kg)	Width / Diam	Height (mm)	Length (mm)	Octave band centre frequency(Hz) 63	125	250	500	1K	2K	4K	8K
Lower Ground, Inlet	CEF-LG Atten	NSA22A-85-60	Rectangular Attenuators with Straight Splitters	1	4800	55	52.3	850	600	600	5	8	10	17	18	16	13	14
Lower Ground, Outlet	CEF-LG Atten	NSA22A-85-60	Rectangular Attenuators with Straight Splitters	1	4800	55	52.3	850	600	600	5	8	10	17	18	16	13	14
Basment 1, Inlet	LDEF-LG Atten	NSA20C-40-75	Rectangular Attenuators with Straight Splitters	1	3000	86	60.9	400	750	1200	6	11	19	32	30	25	18	17
Basment 1, Outlet	LDEF-LG Atten	NSA20C-40-75	Rectangular Attenuators with Straight Splitters	1	3000	86	60.9	400	750	1200	6	11	19	32	30	25	18	17
Basment 1, Outlet	CSF-LG Atten	NSA17A-75-60	Rectangular Attenuators with Straight Splitters	1	3900	69	50.8	750	600	600	5	8	12	20	24	21	16	16
Basment 1, Inlet	CSF-LG Atten	NSA17A-75-60	Rectangular Attenuators with Straight Splitters	1	3900	69	50.8	750	600	600	5	8	12	20	24	21	16	16
Basment 1, Inlet	CEF-B1 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 1, Outlet	CEF-B1 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 2, Inlet	CSF-B2 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 2, Riser	CSF-B2 Atten	RS15B-105-90	Rectangular Attenuators with Straight Splitters	1	5600	74	112.8	1050	900	900	4	8	15	25	31	28	18	13
Basment 2, Outlet	CSF-B1 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 2, Riser	CSF-B1 Atten	RS15B-70-120	Rectangular Attenuators with Straight Splitters	1	5600	94	102.7	700	1200	900	4	8	15	25	31	28	18	13
Basment 2, Inlet	CEF-B2 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 2, Riser	CEF-B2 Atten	RS15B-105-105	Rectangular Attenuators with Straight Splitters	1	7000	85	126.2	1050	1050	900	4	8	15	25	31	28	18	13
Basment 3, Outlet	CSF-B3 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14

Location	Designation	Catalogue No.	Description	Qty.	Vol. (L/s)	Press Loss(Pa)	Wgt (kg)	Width / Diam	Height (mm)	Length (mm)	Octave band centre frequency(Hz) 63	125	250	500	1K	2K	4K	8K
Basment 3, Riser	CSF-B3 Atten	RS15B-105-105	Rectangular Attenuators with Straight Splitters	1	7000	85	126.2	1050	1050	900	4	8	15	25	31	28	18	13
Basment 3, Inlet	CEF-B3 Atten	NSA22A-85-90	Rectangular Attenuators with Straight Splitters	1	7000	52	68.3	850	900	600	5	8	10	17	18	16	13	14
Basment 3, Riser	CEF-B3 Atten	RS15B-105-105	Rectangular Attenuators with Straight Splitters	1	7000	85	126.2	1050	1050	900	4	8	15	25	31	28	18	13

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01	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
EQUIPMENT SCHEDULES

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-0-002-01	01
Scale	1:100 @A0		

FOR CONSTRUCTION

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	FIRE DAMPER & GRILLES SCHEDULES
Drawing No:	A1-ME-0-003-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

FIRE DAMPER SCHEDULE

FD NUMBER	SIZE	WALL TYPE/SLAB	WALL/SLAB PRODUCT	FRL	TYPE
FD-B1-01	150dia	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM6 SS
FD-B1-02	150 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-B1-03	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-B1-04	300 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/"	WM2
FD-B1-05	150 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM6 SS
FD-B1-06	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-B2-01	150dia	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM6 SS
FD-B2-02	150 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-B2-03	150dia	CO-101	Poured Concrete Block	"-/240/-"	WM6 SS
FD-B2-04	150dia	CO-101	Poured Concrete Block	"-/240/-"	WM6 SS
FD-B3-01	150 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/240"	WM3i
FD-B3-02	150 x 150	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-B3-03	150dia	CO-101	Poured Concrete Block	"-/240/-"	WM6 SS
FD-B3-04	150dia	CO-101	Poured Concrete Block	"-/240/-"	WM6 SS
FD-LG-01	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-LG-02	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-LG-03	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-LG-04	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-LG-05	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM2
FD-LG-06	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/120"	WM2
FD-LG-07	700 x 300	BL-102	140mm Masonry - Concrete Block	"-/120/-"	WM1
FD-LG-08	700 x 300	BL-102	140mm Masonry - Concrete Block	"-/120/-"	WM1
FD-LG-09	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-LG-10	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-LG-11	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-LG-12	200 x 200	BL-102	140mm Masonry - Concrete Block	"-/240/-"	WM2
FD-LG-13	400 x 200	BL-102	140mm Masonry - Concrete Block	"-/120/-"	WM1
FD-LG-14	500 x 500	BL-103	190mm Masonry - Concrete Block	"-/120/-"	WM1
FD-LG-15	300 x 250	BL-103	190mm Masonry - Concrete Block	"-/120/-"	WM1
FD-LG-16	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	WM2
FD-LG-17	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/240/-"	Bullock 4900 Curtain - Angle 4 side
FD-LG-18	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-LG-19	200 x 200	BL-103	190mm Masonry - Concrete Block	"-/120/120"	WM3i
FD-GF-01	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L1-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L1-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L1-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L2-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L2-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L2-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L3-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L3-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L3-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L3-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L4-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L4-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L4-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L4-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L5-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L5-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L5-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L5-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L6-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L6-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L6-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L6-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L7-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L7-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L7-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L7-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L8-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L8-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L8-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L8-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L9-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L9-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L9-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L9-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L10-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L10-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L10-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L10-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L11-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L11-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L11-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L11-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L12-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L12-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L12-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L12-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L13-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L13-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L13-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L13-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L14-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L14-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L14-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L14-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L15-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L15-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L15-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L15-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L16-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L16-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L16-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L16-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L17-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L17-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
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FD-L17-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L18-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L18-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L18-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L18-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L19-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L19-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L19-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L19-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L20-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L20-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L20-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L20-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L21-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L21-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L21-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L21-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L22-01	200 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L22-02	250 x 200	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L22-03	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21
FD-L22-04	150 x 150	WT-32	75mm Hebel w/ Lining	"-/60/60"	IGNS-5277-03 I01 R00 Dated 12/10/21

GRILLE SCHEDULES

REF. NO	TYPE	SIZE (WxH)	AIRFLOW
EA-B3-1	EGGCRATE	600x300	400 L/s
SA-B3-1	EGGCRATE	500x300	350 L/s
EA-B2-1	EGGCRATE	600x300	400 L/s
SA-B2-1	EGGCRATE	500x300	350 L/s
EA-B1-1	EGGCRATE	600x300	400 L/s
SA-B1-1	EGGCRATE	500x300	350 L/s
SA-B1-2	EGGCRATE	350x250	100 L/s
EA-LG-1	EGGCRATE	150x150	50 L/s
EA-LG-2	EGGCRATE	400x250	230 L/s
EA-LG-3	EGGCRATE	500x300	333 L/s
EA-LG-4	EGGCRATE	600x600	800 L/s
EA-LG-5	EGGCRATE	900x400	750 L/s
SA-LG-1	EGGCRATE	700x250	390 L/s
SA-LG-2	EGGCRATE	350x250	200 L/s
SA-LG-3	EGGCRATE	400x300	283 L/s
SA-LG-4	EGGCRATE	300x250	175 L/s
SA-LG-5	4 WAY BLOW	595x595	50 L/s
SA-1	4 WAY BLOW	595x595	54 L/s
EA-1	EGGCRATE	100x100	20 L/s
SA-2	EGGCRATE	500x400	466 L/s
RA-2	EGGCRATE	500x400	
SP GRILLE B1 (EAST)	EGGCRATE	1200x1000	
SP GRILLE B3 & B2 (EAST)	EGGCRATE	900x900	
SP GRILLE B3, B2 & B1 (WEST)	EGGCRATE	400x1400	
SP GRILLE LOWERGROUND	EGGCRATE	900x900	
SP GRILLE GROUND	EGGCRATE	900x900	
SP GRILLE L2 TO L22 (EVERY 2 LEVEL)	EGGCRATE	1000x1000	
LOBBY RELIEF L00 TO L22	EGGCRATE	1100x2000	4500 L/s
BED ROOM S/A GRILLE	BAR GRILLE	1500x150	
LIVING ROOM S/A GRILLE	BAR GRILLE	2000x150	

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01	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

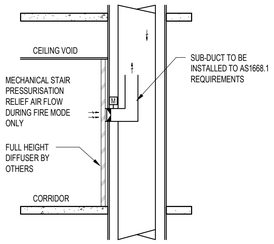
BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
FIRE DAMPER & GRILLES SCHEDULES

FOR CONSTRUCTION

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-0-003-01	01
Scale	1:100 @A0		



1 STAIR PRESSURISATION RELIEF AIR RISER DETAIL

NTS

NOTE:
THE CONTRACTOR SHALL COORDINATE THE DESIGN OF THE STAIR PRESSURISATION RELIEF AIR INTAKE ON EACH FLOOR WITH THE ARCHITECT, INCLUDING BUT NOT LIMITED TO GRILLE SIZING, GRILLE SELECTION AND ANY ARCHITECTURAL AMENDMENTS REQUIRED.

DO NOT SCALE

GENERAL NOTES

A. THE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE TOTAL CONTRACT PACKAGE INCLUDING THE DRAWINGS AND SPECIFICATION OF ALL CONSULTANTS.
B. ALL DIMENSIONS ARE NOMINAL AND MUST BE CONFIRMED ON SITE.
C. ALL WORKS SHALL COMPLY WITH THE NCC AND ALL RELEVANT AUSTRILIAN STANDARDS.
D. THIS DRAWINGS SHOWS THE DESIGN INTENT FOR CONTRACTOR DESIGN DEVELOPMENT AND PRODUCTION OF WORKSHOP DRAWINGS
E. DRAWING TO BE READ IN CONJUNCTION WITH THE LEGEND OF SYMBOLS.

SPECIFIC NOTES

A. WHERE DUCTWORK PASSES THROUGH A FULL HEIGHT WALL / BAFFLE BLOCK A RIDGED SECTION OF DUCT SHALL BE USED FROM MAIN BRANCH DUCT. FLEXIBLE DUCTWORK TO BE USED FOR FINAL TERMINATION TO DIFFUSER / GRILLE WITHIN ROOM ONLY.
B. CONTRACTOR TO COORDINATE WITH THE HYDRAULIC DESIGNER FOR FINAL TUNDISH AND FLOOR WASTE LOCATIONS.
C. CONTRACTOR TO REFER TO THE ARCHITECTURAL PACKAGE FOR CO-ORDINATED RCP LAYOUT AND FINAL SETTING OUT OF TERMINAL DEVICES AND ACCESS PANELS SHOWN ON MECHANICAL SERVICES DRAWINGS.
D. THIS DRAWING HAS BEEN PRODUCED BASED ON AVAILABLE ARCHITECTURAL DRAWINGS. THERE ARE ELEMENTS OF THESE DRAWINGS WHICH WE UNDERSTAND REQUIRE AMENDMENT IN ORDER TO SUIT THE MECHANICAL SERVICES DESIGN. THESE AREAS HAVE BEEN NOTED THROUGHOUT.

REV	DATE	BY	DESCRIPTION	CHK	APP
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp

http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
DETAILS SHEET

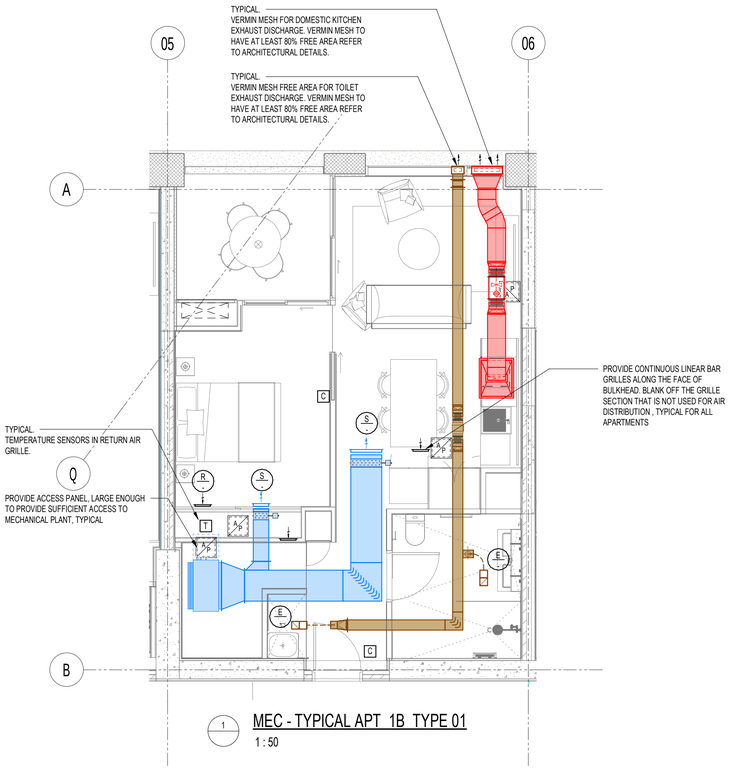
SCALE @ B1:	CHECKED:	APPROVED:
NTS	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-1-000-01 REV: T1

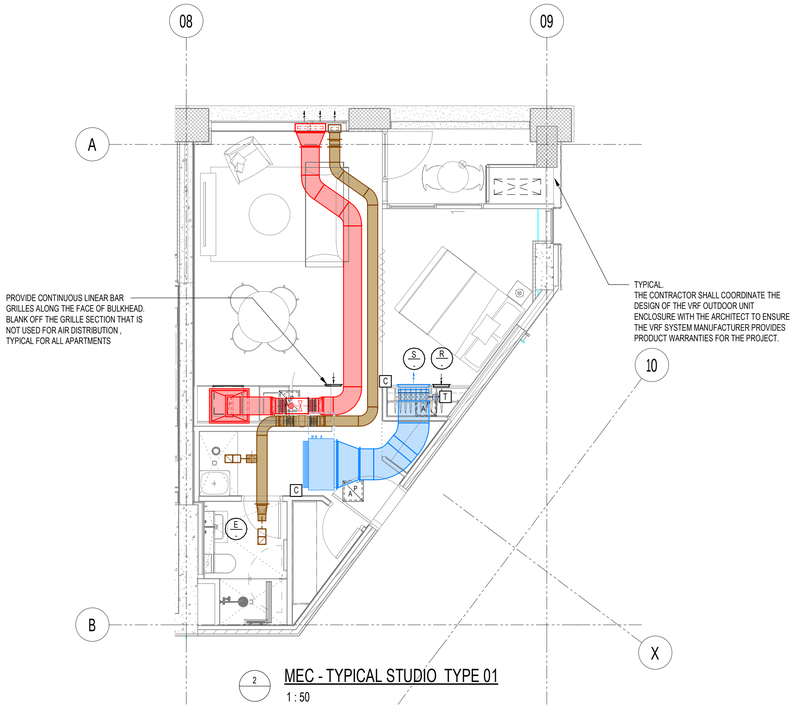
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DRAWING CREATED IN REVIT

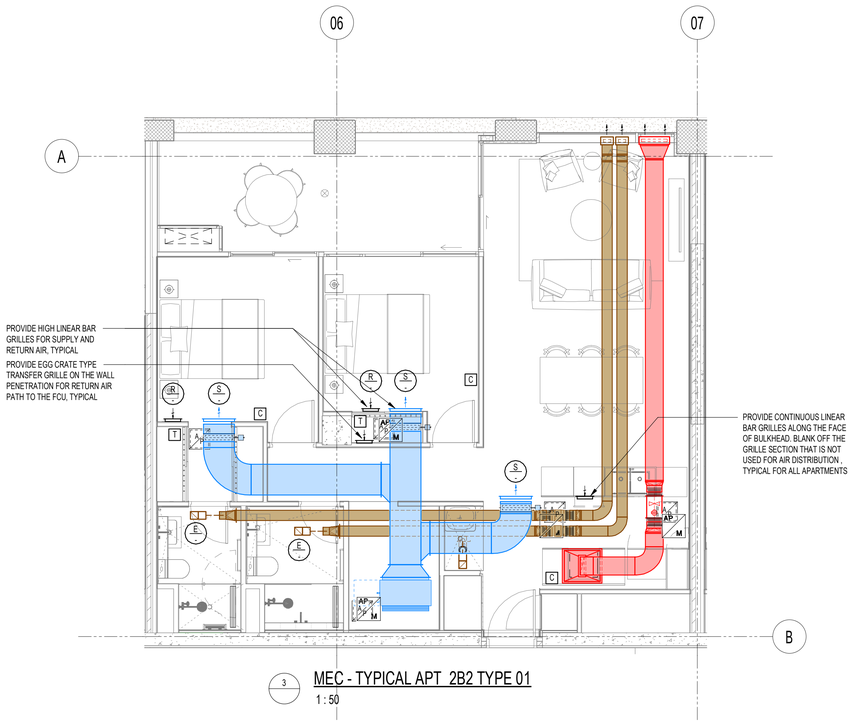
DO NOT SCALE



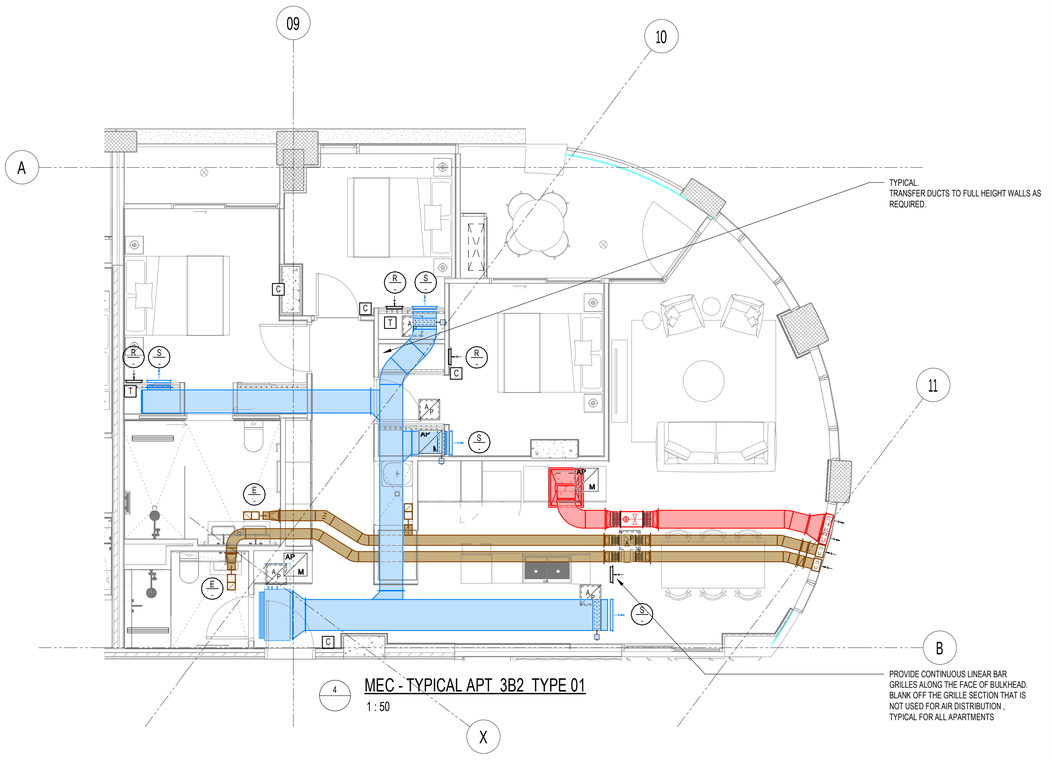
1 MEC - TYPICAL APT 1B TYPE 01
1 : 50



2 MEC - TYPICAL STUDIO TYPE 01
1 : 50



3 MEC - TYPICAL APT 2B2 TYPE 01
1 : 50



4 MEC - TYPICAL APT 3B2 TYPE 01
1 : 50

GENERAL NOTES

A. THE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE TOTAL CONTRACT PACKAGE INCLUDING THE DRAWINGS AND SPECIFICATION OF ALL CONSULTANTS.
B. ALL DIMENSIONS ARE NOMINAL AND MUST BE CONFIRMED ON SITE.
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SPECIFIC NOTES

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REV	DATE	BY	DESCRIPTION	CHK	APP
T2	02.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp
http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
TYPICAL APARTMENTS

SCALE @ B1:	CHECKED:	APPROVED:
1:50	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-1-100-01 REV: T2

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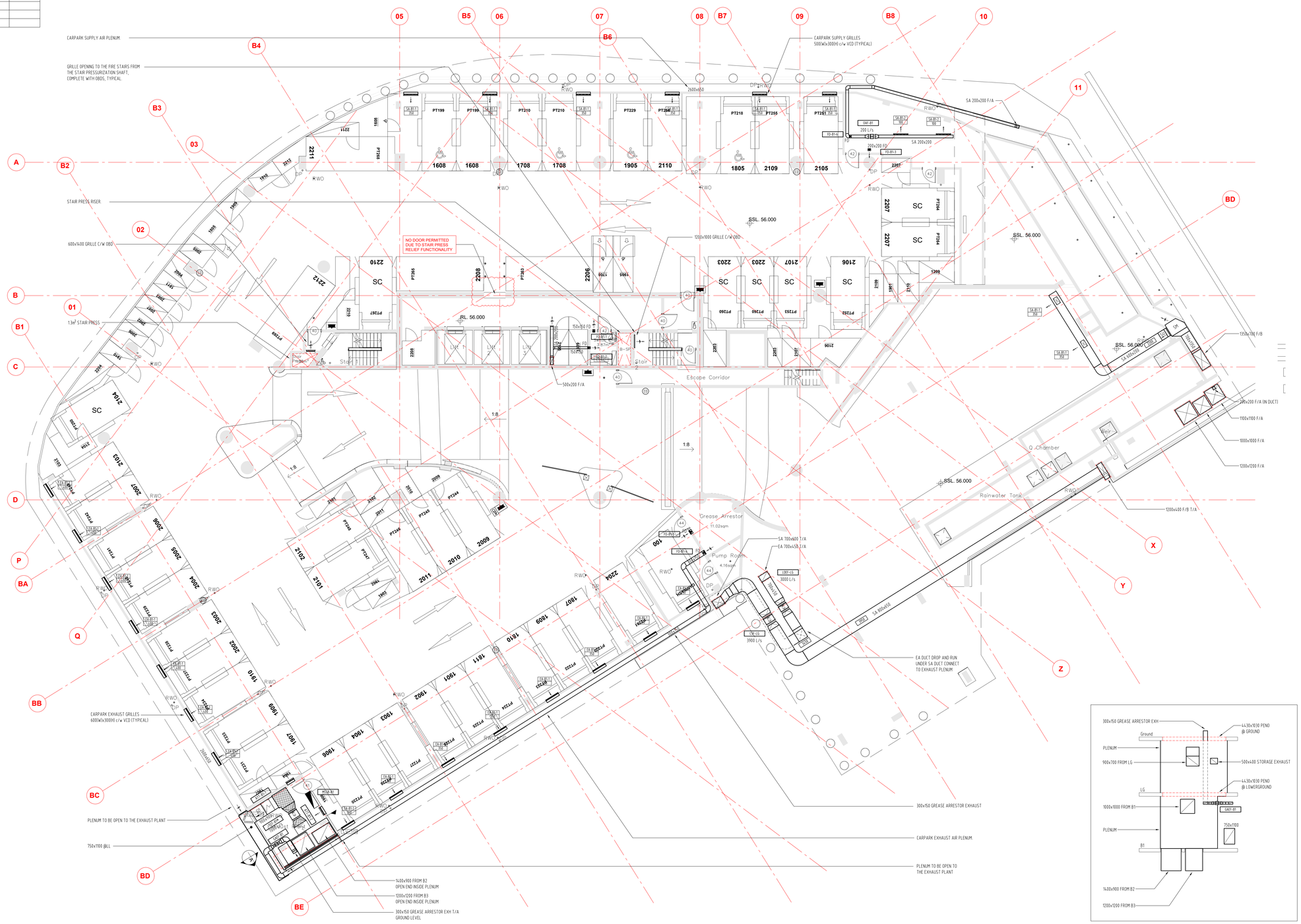
DRAWING CREATED IN REVIT

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	BASEMENT 1 VENTILATION LAYOUT	Drawing No:	A1-ME-B01-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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Section A

SCALE 1 : 100

FOR CONSTRUCTION

LEGEND:

- 450x300 x,y UNINSULATED 450x300 DUCTWORK 1430mm LONG
- EXTERNALLY INSULATED WITH 38mm INSULATION
- INTERNALLY INSULATED WITH 50mm INSULATION
- INTERNALLY INSULATED WITH 75mm INSULATION
- VOLUME CONTROL DAMPER
- FLEXIBLE CONNECTION
- FD FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL
- TYPICAL Ø150 FLEXIBLE DUCT U/N/O
- SIDE BLOW SUPPLY/EXHAUST AIR GRILLE C/W OBD
- EXHAUST AIR GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA 1,1,01 / 150 GRILLE DESIGNATION
- AC-1 UNIT DESIGNATION
- SoW / SW ref SOFFIT HEIGHT
- 1068 HEIGHT FROM SSL TO U/S OF DUCT

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
BASEMENT 1 VENTILATION LAYOUT

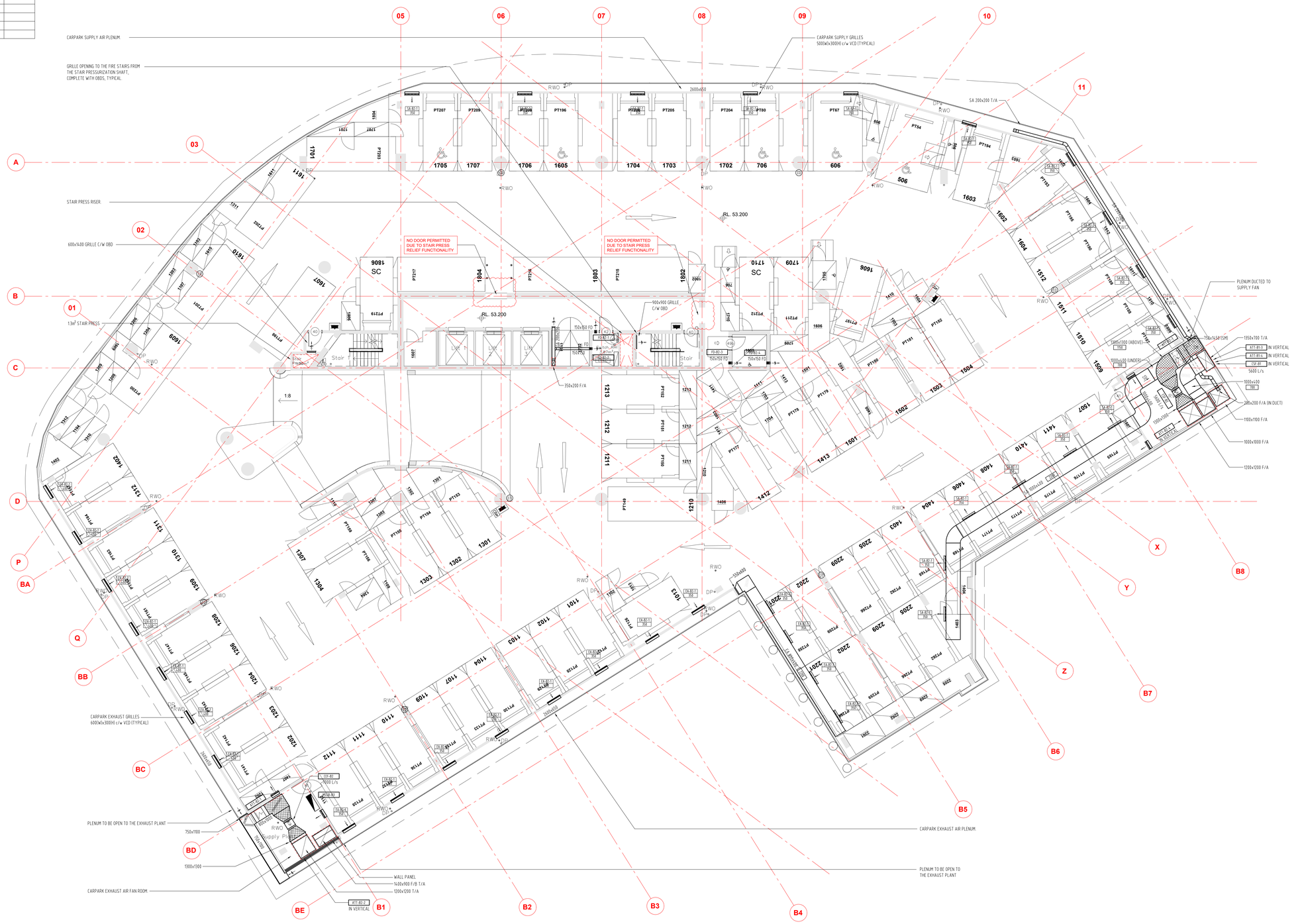
Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-B01-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	BASEMENT 2 VENTILATION LAYOUT	Drawing No:	A1-ME-B02-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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LEGEND:

- 450x300 ext — UNINSULATED 450x300 DUCTWORK 1430mm LONG
- EXTERNALLY INSULATED WITH 38mm INSULATION
- INTERNALLY INSULATED WITH 50mm INSULATION
- INTERNALLY INSULATED WITH 75mm INSULATION
- VOLUME CONTROL DAMPER
- FLEXIBLE CONNECTION
- FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL
- TYPICAL Ø150 FLEXIBLE DUCT U/O
- SIDE BLOW SUPPLY/EXHAUST AIR GRILLE C/W OBD
- EXHAUST AIR GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA 1.3/1 700 — GRILLE DESIGNATION
- AU-1 — UNIT DESIGNATION
- 3600 SOF ref — SOFFIT HEIGHT
- 3300 — HEIGHT FROM SSL TO U/S OF DUCT

A	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client: PARKVIEW

Mechanical Contractor:
SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project: BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title: MECHANICAL SERVICES
BASEMENT 2 VENTILATION LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-B02-01	01
Scale	1:100 @A0		

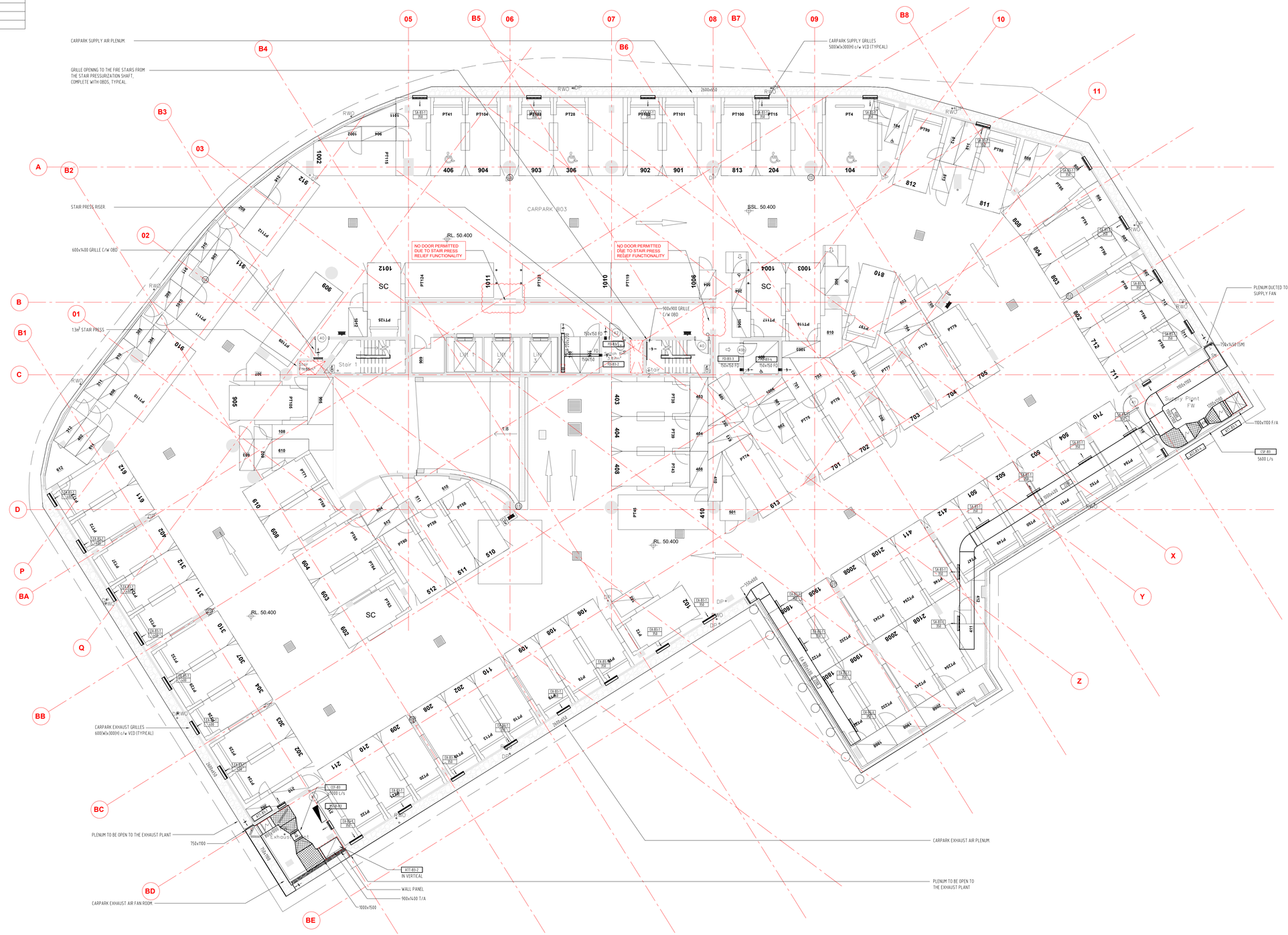
FOR CONSTRUCTION

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	BASEMENT 3 VENTILATION LAYOUT	Drawing No:	A1-ME-B03-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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CARPARK SUPPLY AIR PLENUM
GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT, COMPLETE WITH OBDS, TYPICAL
CARPARK SUPPLY GRILLES 500(W)x300(H) c/w VCD (TYPICAL)
STAIR PRESS RISER
600x1400 GRILLE C/W OBD
1.3m² STAIR PRESS
CARPARK EXHAUST GRILLES 600(W)x300(H) c/w VCD (TYPICAL)
PLENUM TO BE OPEN TO THE EXHAUST PLANT
CARPARK EXHAUST AIR FAN ROOM
CARPARK EXHAUST AIR PLENUM
PLENUM TO BE OPEN TO THE EXHAUST PLANT
WALL PANEL
900x1400 T/A
1000x1500
PLENUM DUCTED TO SUPPLY FAN
CARPARK B03
SSL 50.400
RL. 50.400
NO DOOR PERMITTED DUE TO STAIR PRESS RELIEF FUNCTIONALITY
900x900 GRILLE C/W OBD
Stair 1
Stair 2
Stairs
Stairs Exhaust
Story Flight FW
Lift 1
Lift 2
Lift 3
SC
RWO
CP
DP
2600x650
2000x650
1900x650
1100x1100 F/A
5600 L/s
750x1500 FSM
750x150 FD
1000x1000
1000x500
1000x1000
1000x1000
1000x1000

Regulated Design Record

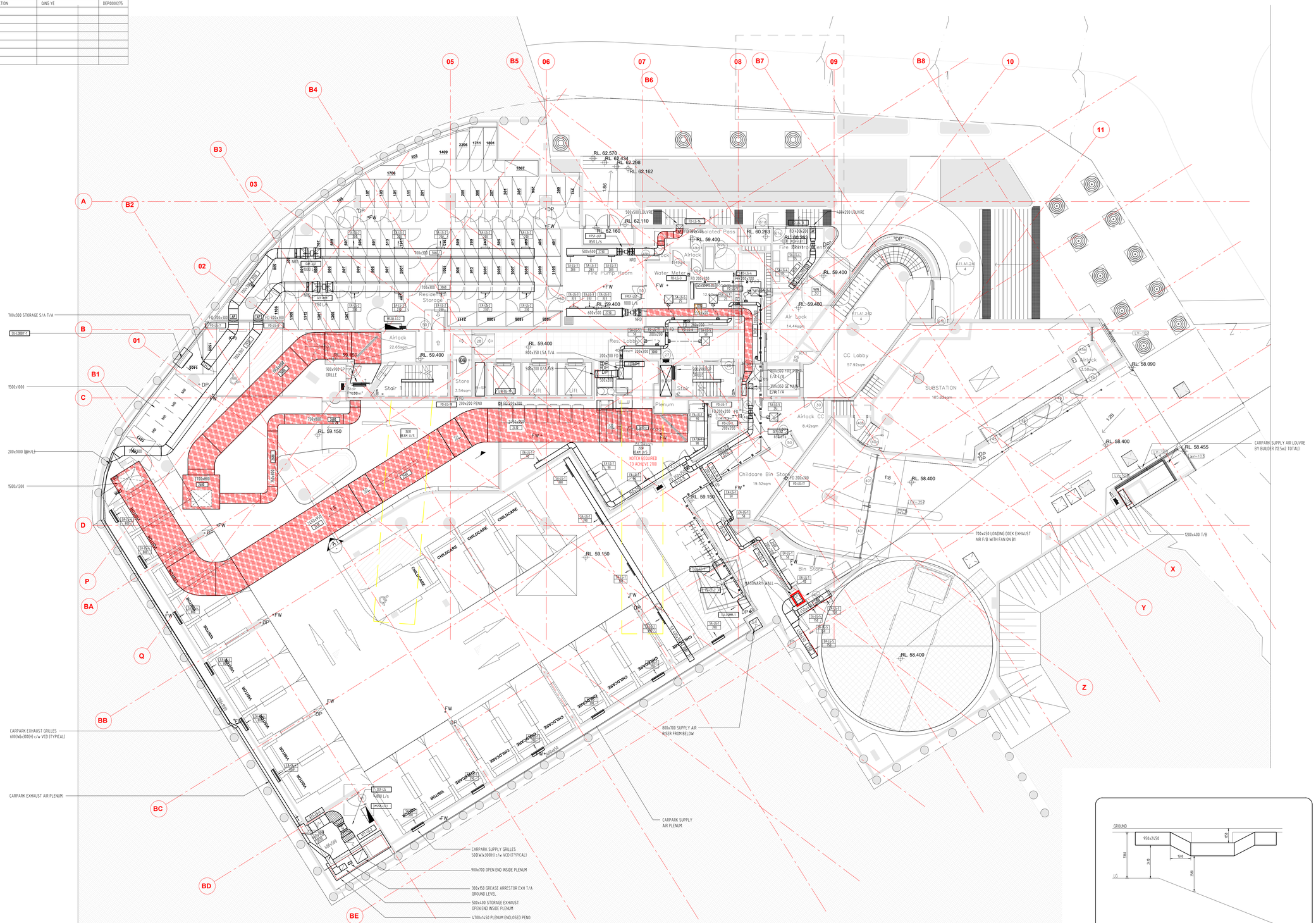
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LOWERGROUND VENTILATION LAYOUT	Drawing No:	A1-ME-BLG-01

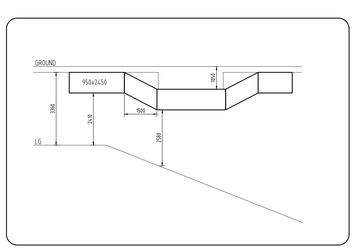
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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LEGEND:

- 450x300 ↳ UNINSULATED 450x300 DUCTWORK 1430mm LONG
- EXTERNALLY INSULATED WITH 38mm INSULATION
- INTERNALLY INSULATED WITH 50mm INSULATION
- INTERNALLY INSULATED WITH 75mm INSULATION
- VOLUME CONTROL DAMPER
- FD FLEXIBLE CONNECTION
- FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL
- TYPICAL Φ150 FLEXIBLE DUCT U/N.O
- SIDE BLOW SUPPLY/EXHAUST AIR GRILLE C/W OBD
- EXHAUST AIR GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA-LS-1 / 50 GRILLE DESIGNATION
- AF-1 UNIT DESIGNATION
- 3200 AFF SOFFIT HEIGHT
- 3200 HEIGHT FROM FFL TO U/S OF DUCT





SECTION A
SCALE 1:100

FOR CONSTRUCTION

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

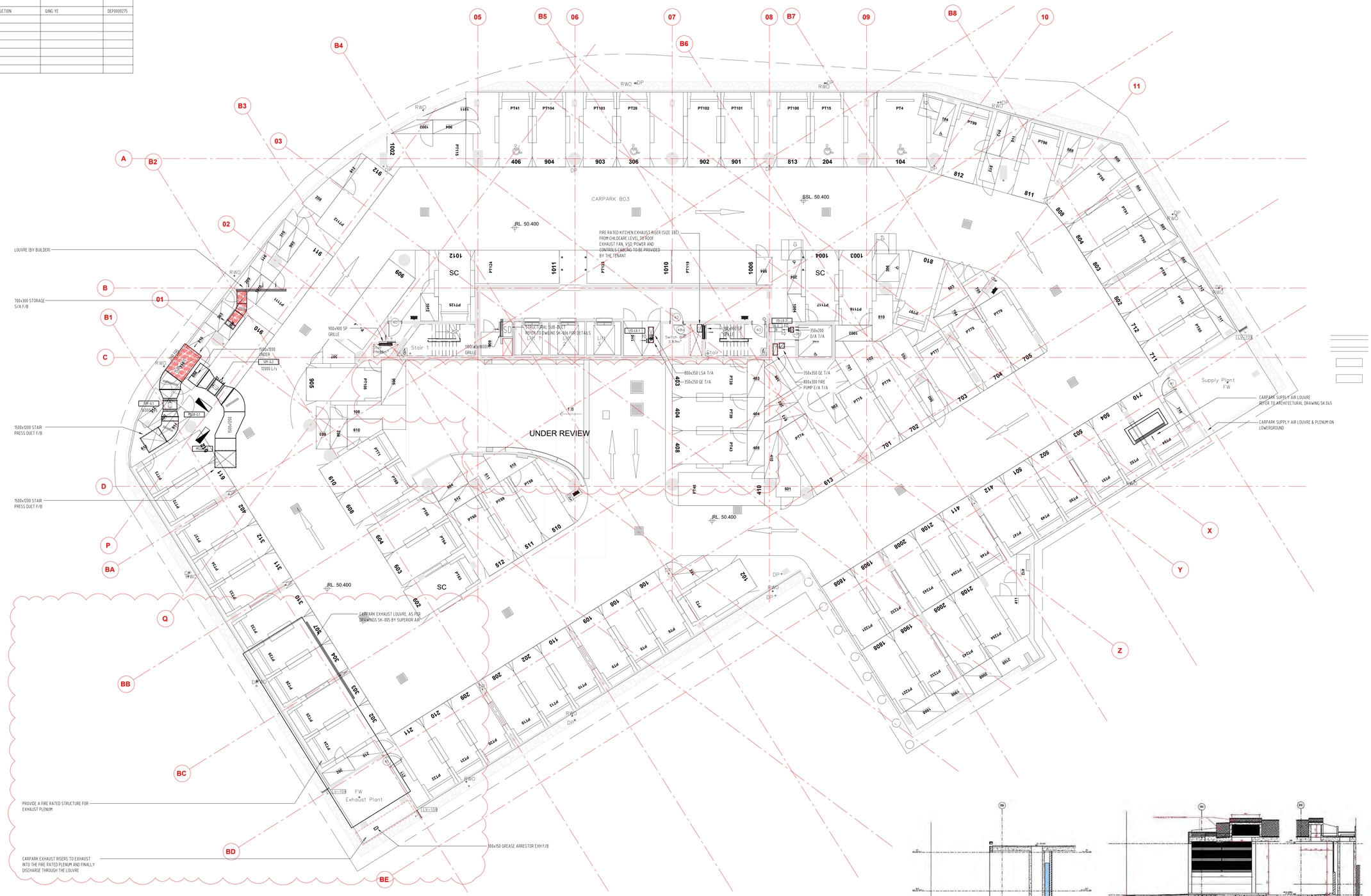
MECHANICAL SERVICES
LOWERGROUND VENTILATION LAYOUT

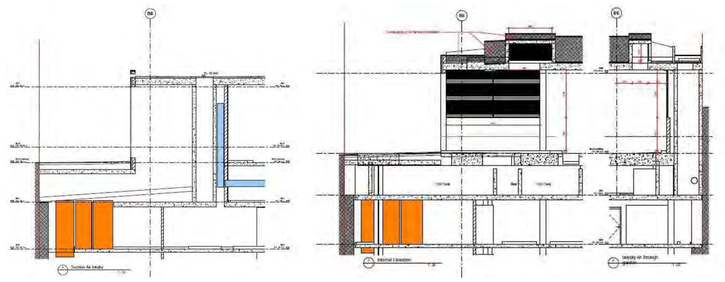
Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-BLG-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	GROUND LEVEL VENTILATION LAYOUT	Drawing No:	A1-ME-L00-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





ATTACHMENT FROM DRAWING SK.045

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LEGEND:

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- INTERNALLY INSULATED WITH 75mm INSULATION
- VOLUME CONTROL DAMPER
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
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- REFRIGERANT PIPE
- CEILING ACCESS PANEL
- TYPICAL Ø150 FLEXIBLE DUCT U/N/O
- SIDE BLOW SUPPLY/EXHAUST AIR GRILLE C/W OBD
- EXHAUST AIR GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA 1,181 / 10 — GRILLE DESIGNATION
- AU-1 — UNIT DESIGNATION
- 3430 SOF ext — SOFFIT HEIGHT
- 3300 — HEIGHT FROM SSL TO U/S OF DUCT

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

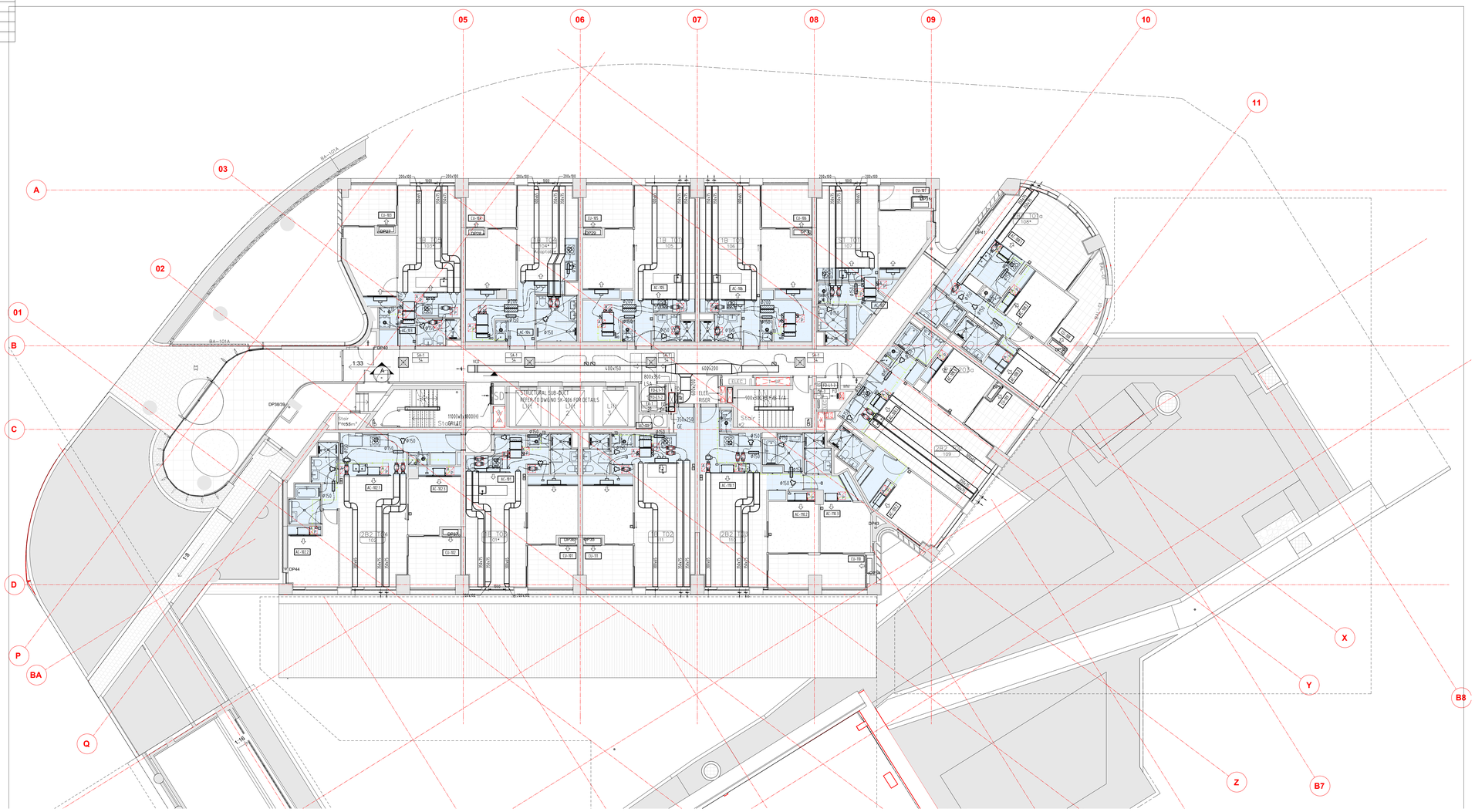
MECHANICAL SERVICES
GROUND LEVEL VENTILATION LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L00-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 1 AIR CONDITIONING LAYOUT
Drawing No:	A1-ME-L-01-01

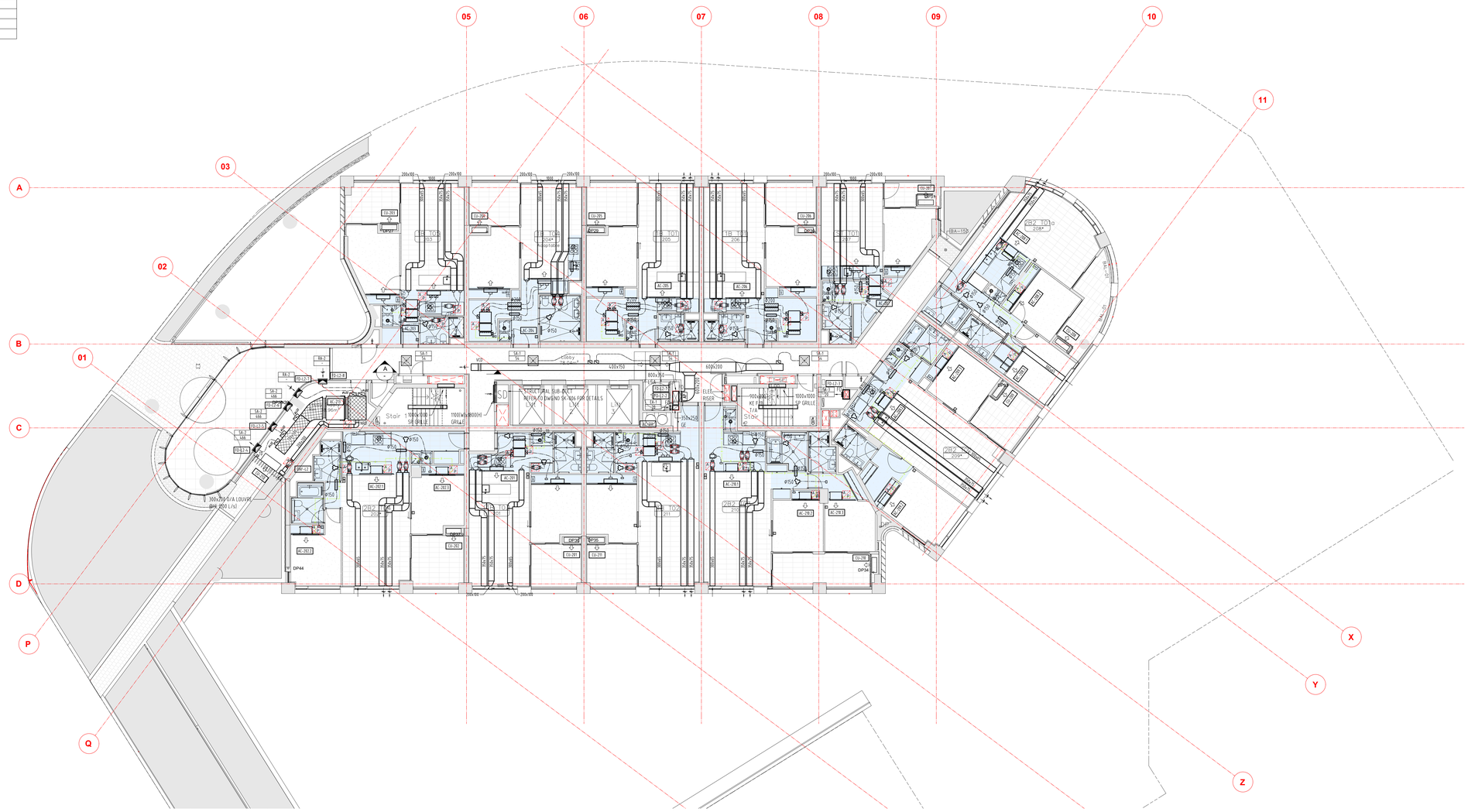
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 2 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L02-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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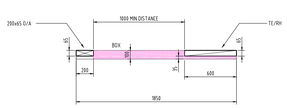


LEGEND:

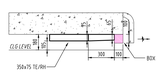
- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U/N.O
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- NRD — NON RETURN DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL 450x450 U/N.O
- TYPICAL Ø150 FLEXIBLE DUCT U/N.O
- INDOOR UNIT
- OUTDOOR UNIT
- TOILET/KITCHEN EXHAUST GRILLE C/W PLENUM
- TOILET/KITCHEN EXHAUST FAN
- TOILET/LAUNDRY EXHAUST GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- GRILLE DESIGNATION (e.g. SA-1 / 500)
- AC-XXX — UNIT DESIGNATION
- AC CONTROLLER
- SOFFIT HEIGHT (e.g. 2400 SOFFIT)
- HEIGHT FROM FFL TO U/S OF DUCT (e.g. 2100)
- 2400 CEILING BULKHEAD
- MECHANICAL RISER PENETRATION

NOTES:

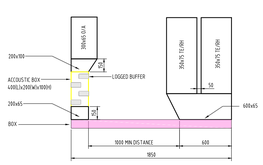
FOR ACCESS PANEL ABOVE CUPBOARDS, PANEL NEED TO BE REMOVABLE BY TOOLS



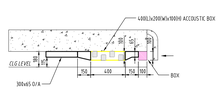
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)
SCALE 1:25



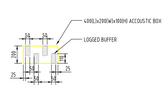
SECTION FOR TE/RH
SCALE 1:25



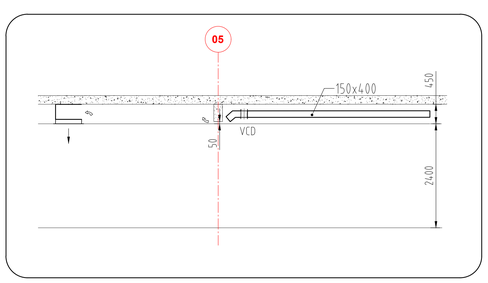
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)
SCALE 1:25



SECTION FOR O/A
SCALE 1:25



ACCOUSTIC BOX DETAILS
SCALE 1:25



Section A

SCALE 1 : 50

FOR CONSTRUCTION

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

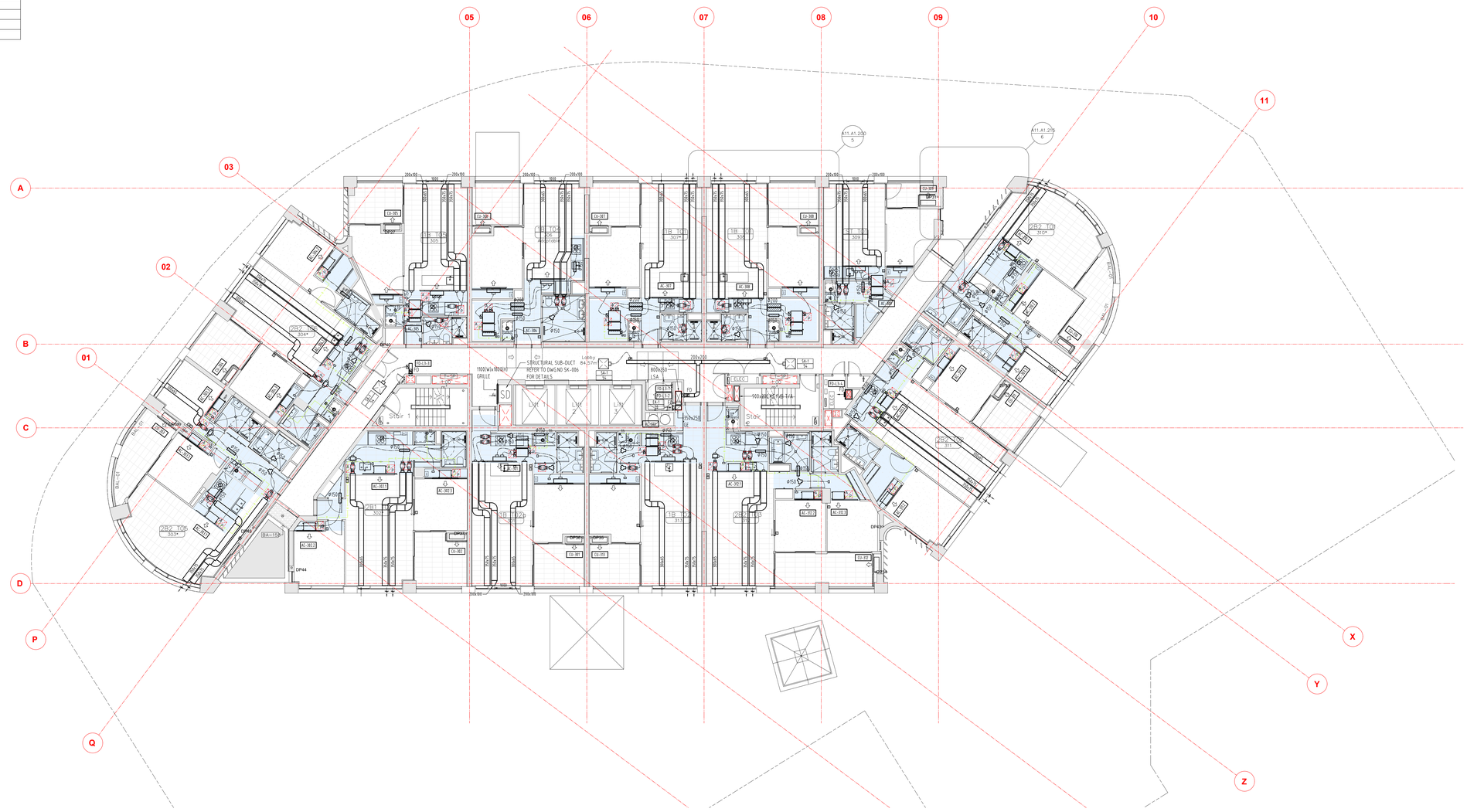
Title

MECHANICAL SERVICES
LEVEL 2 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L02-01	01
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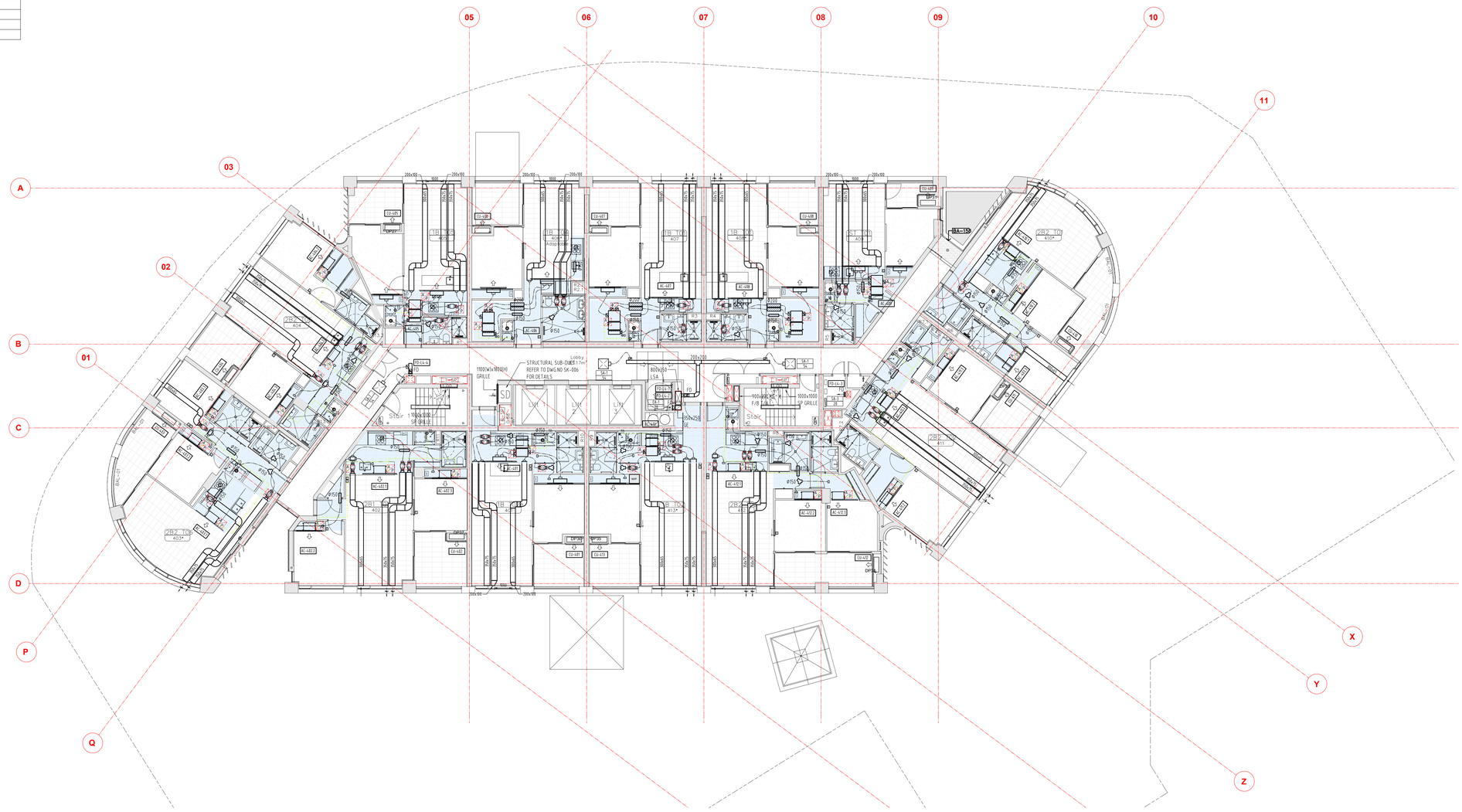
Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 3 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L03-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



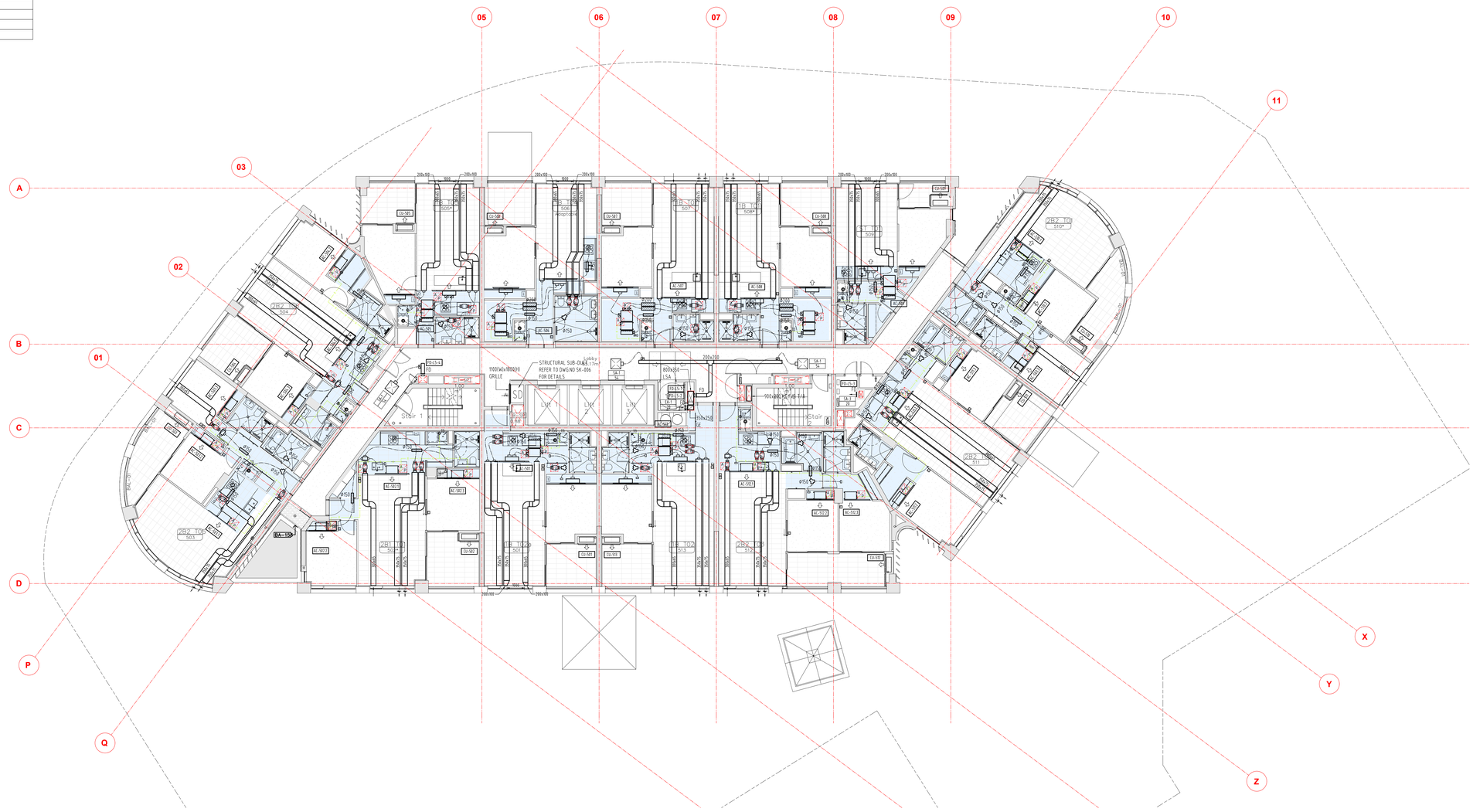
Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 4 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L04-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



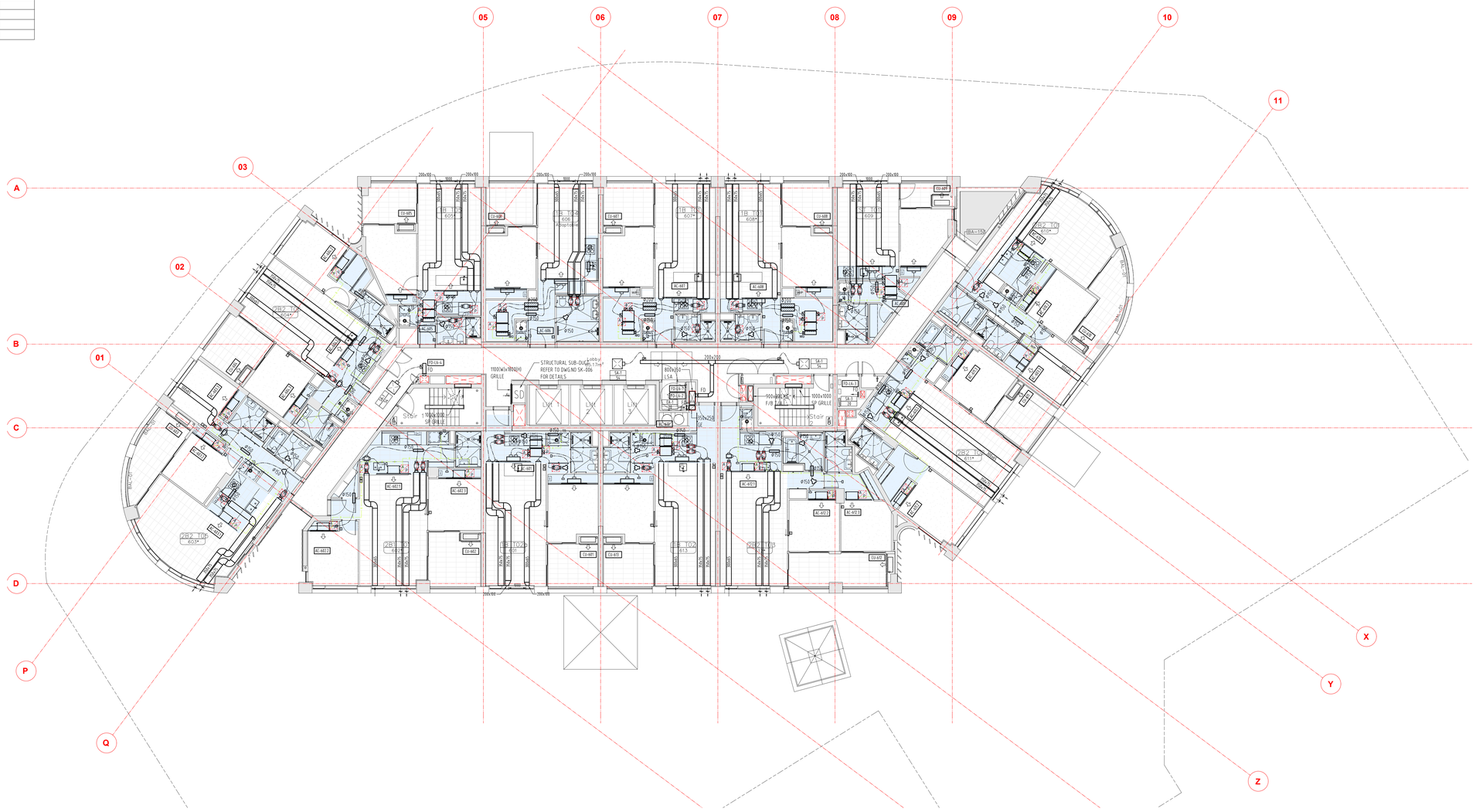
Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 5 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L05-01

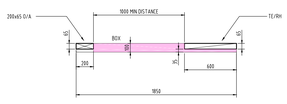
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 6 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L06-01

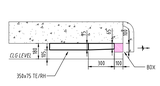
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





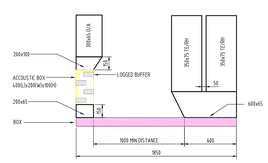
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)

SCALE 1:25



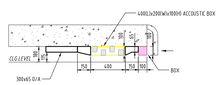
SECTION FOR TE/RH

SCALE 1:25



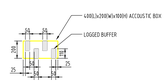
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)

SCALE 1:25



SECTION FOR O/A

SCALE 1:25



ACCOUSTIC BOX DETAILS

SCALE 1:25

FOR CONSTRUCTION

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LEGEND:

- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U.N.O
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- NRD — NON RETURN DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL 450x450 U.N.O
- TYPICAL Ø150 FLEXIBLE DUCT U.N.O
- INDOOR UNIT
- OUTDOOR UNIT
- TOILET/KITCHEN EXHAUST GRILLE C/W PLENUM
- TOILET/KITCHEN EXHAUST FAN
- TOILET/LAUNDRY EXHAUST GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA-1 — GRILLE DESIGNATION
- AC-XXX — UNIT DESIGNATION
- AC CONTROLLER
- SOFFIT HEIGHT
- 2100 — HEIGHT FROM FFL TO U/S OF DUCT
- 2400 CEILING BULKHEAD
- MECHANICAL RISER PENETRATION

NOTES:

FOR ACCESS PANEL ABOVE CUPBOARDS. PANEL NEED TO BE REMOVABLE BY TOOLS

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

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Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

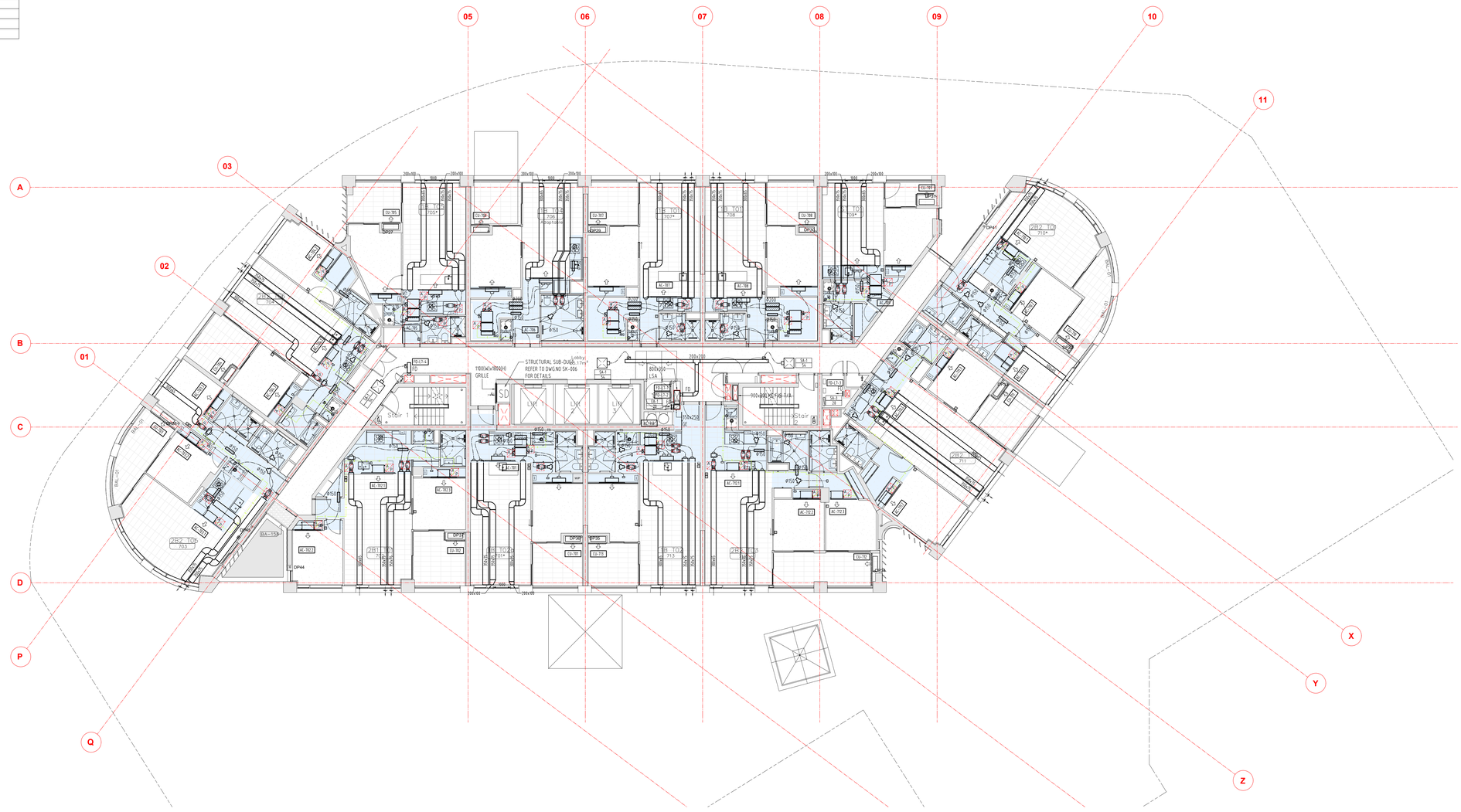
Title

MECHANICAL SERVICES
LEVEL 6 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L06-01	01
Scale	1:100 @A0		

Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 7 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L-07-01

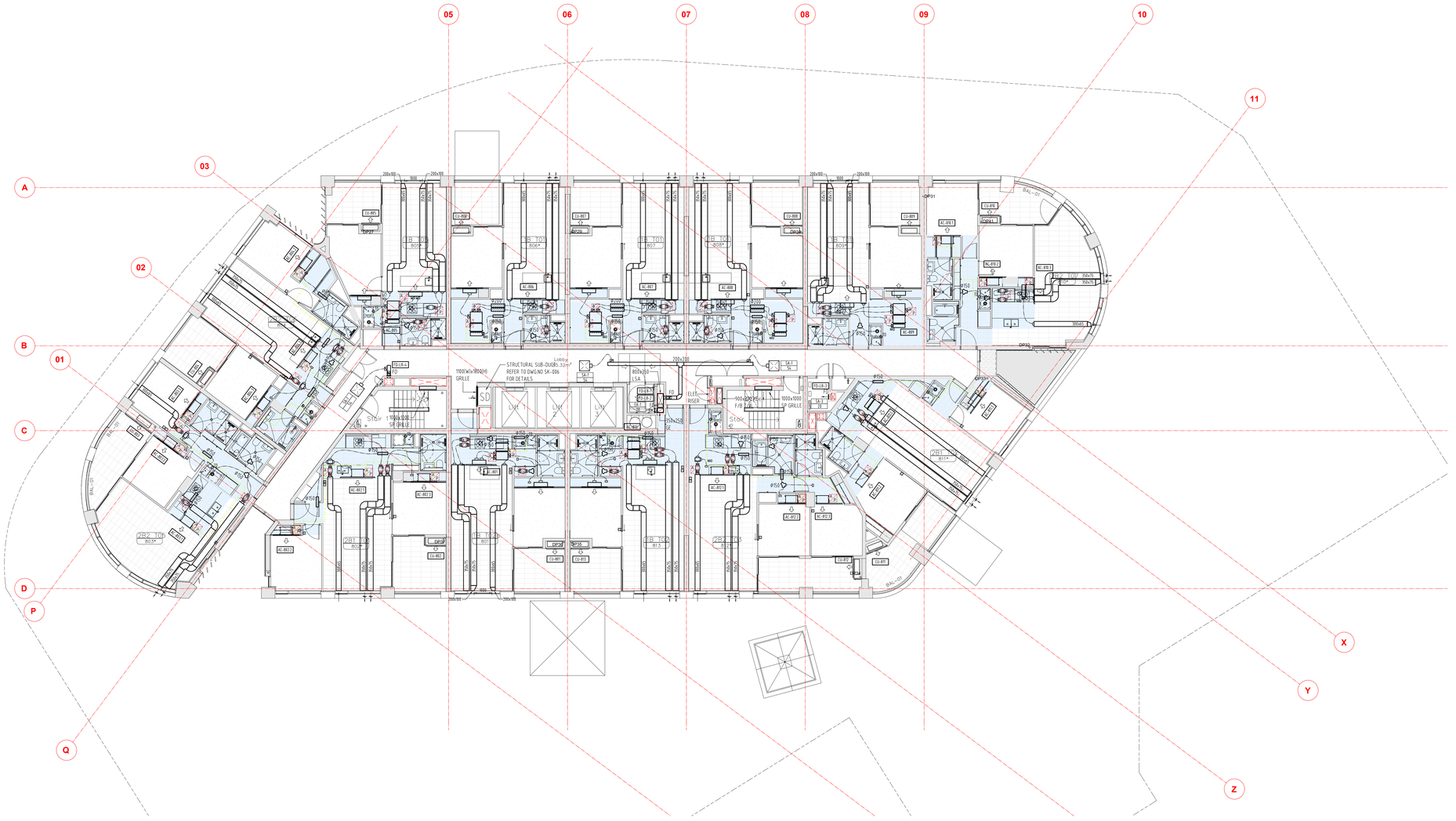
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record

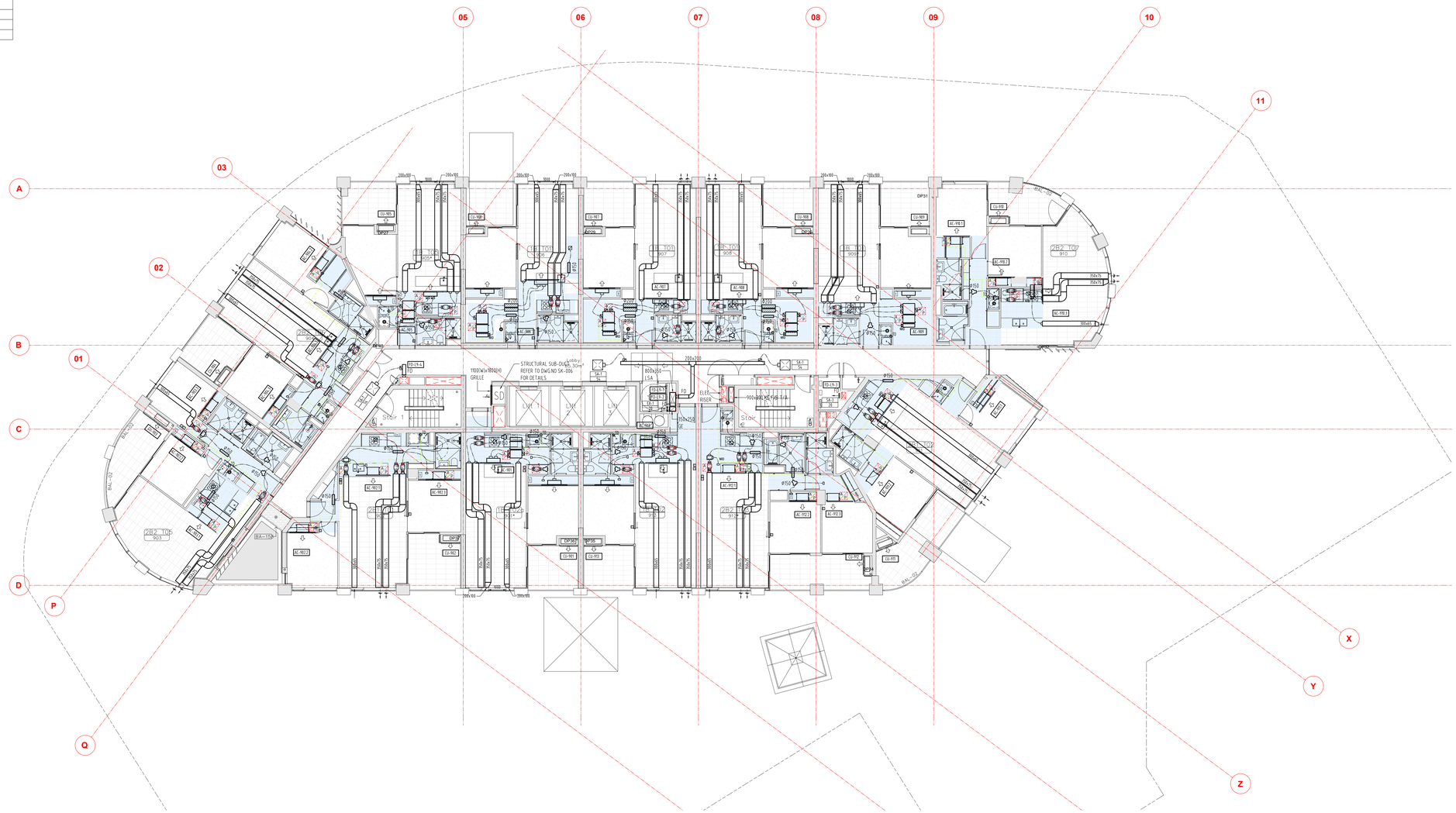
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Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 8 AIR CONDITIONING LAYOUT
Drawing No:	A1-ME-L-08-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 9 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L09-01

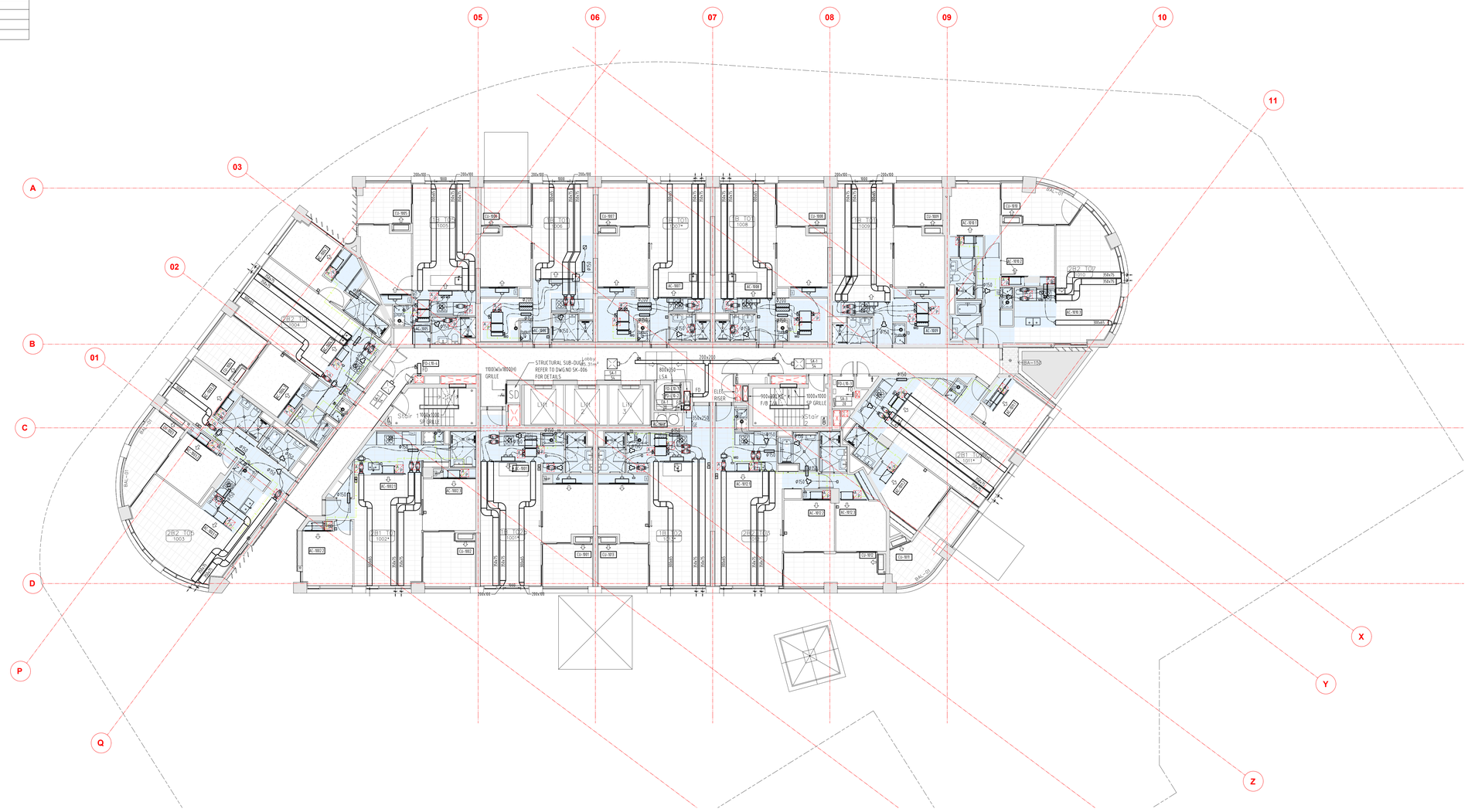
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

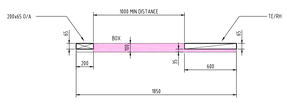


Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
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Drawing Title:	LEVEL 10 AIR CONDITIONING LAYOUT
Drawing No:	A1-ME-L10-01

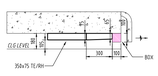
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





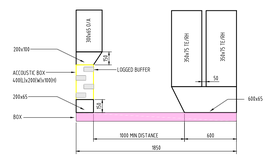
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)

SCALE 1:25



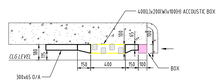
SECTION FOR TE/RH

SCALE 1:25



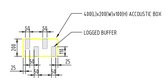
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)

SCALE 1:25



SECTION FOR O/A

SCALE 1:25



ACCOUSTIC BOX DETAILS

SCALE 1:25

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LEGEND:

- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U.N.O
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- NRD — NON RETURN DAMPER
- CONDENSATE DRAIN
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- CEILING ACCESS PANEL 450x450 U.N.O
- TYPICAL Ø150 FLEXIBLE DUCT U.N.O
- INDOOR UNIT
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- TOILET/KITCHEN EXHAUST GRILLE C/W PLENUM
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NOTES:

FOR ACCESS PANEL ABOVE CUPBOARDS. PANEL NEED TO BE REMOVABLE BY TOOLS

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

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E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

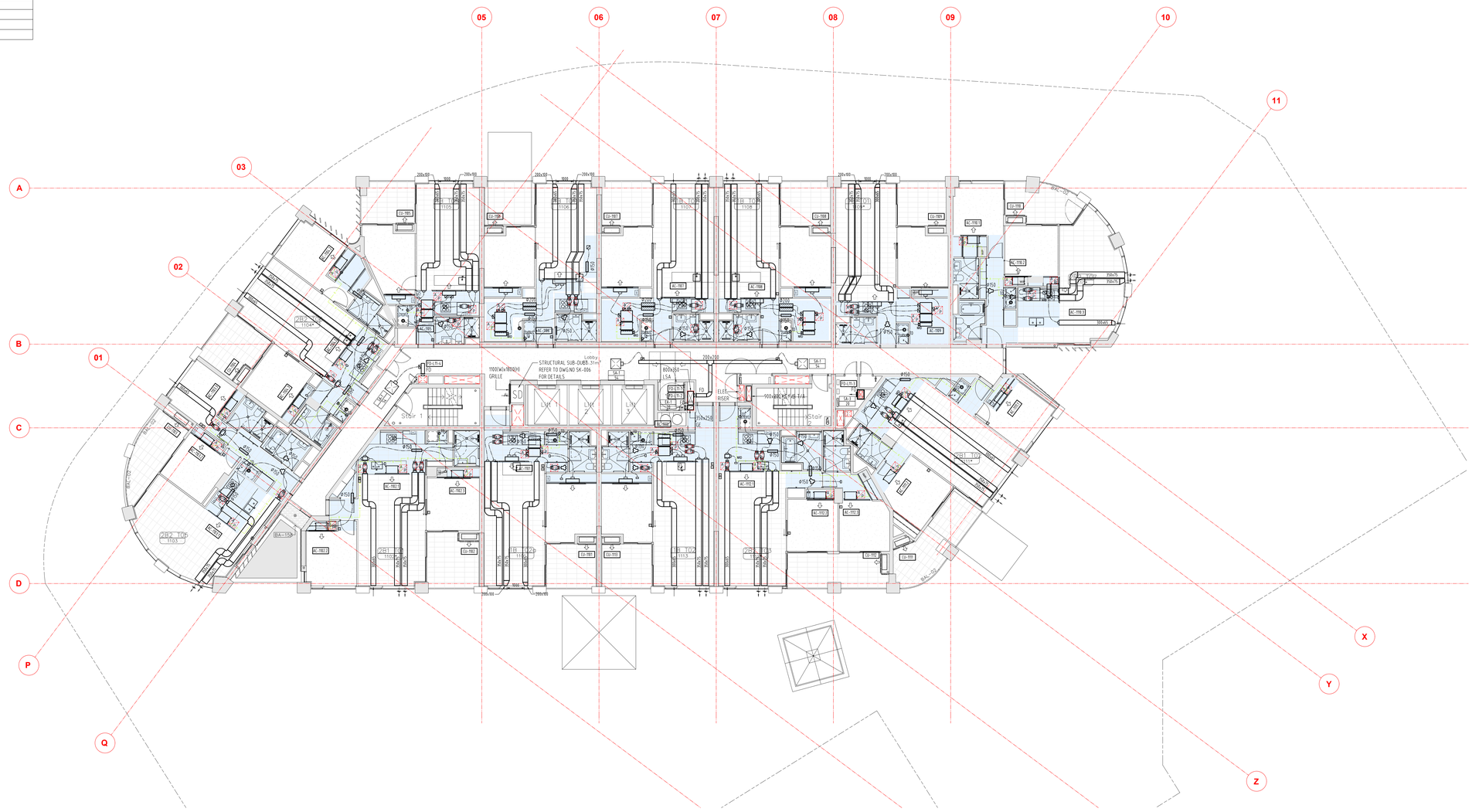
MECHANICAL SERVICES
LEVEL 10 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L10-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 11 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L11-01

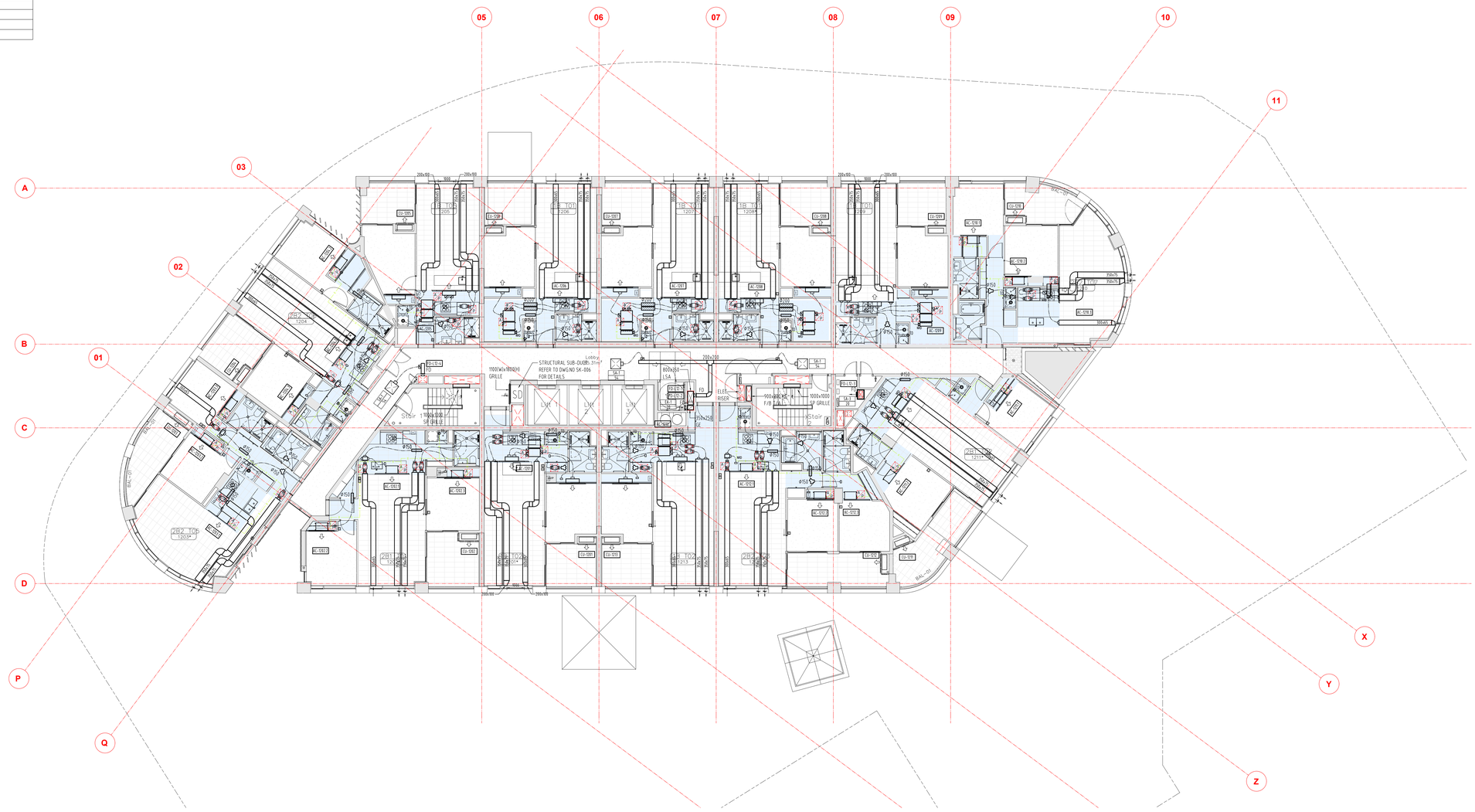
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record

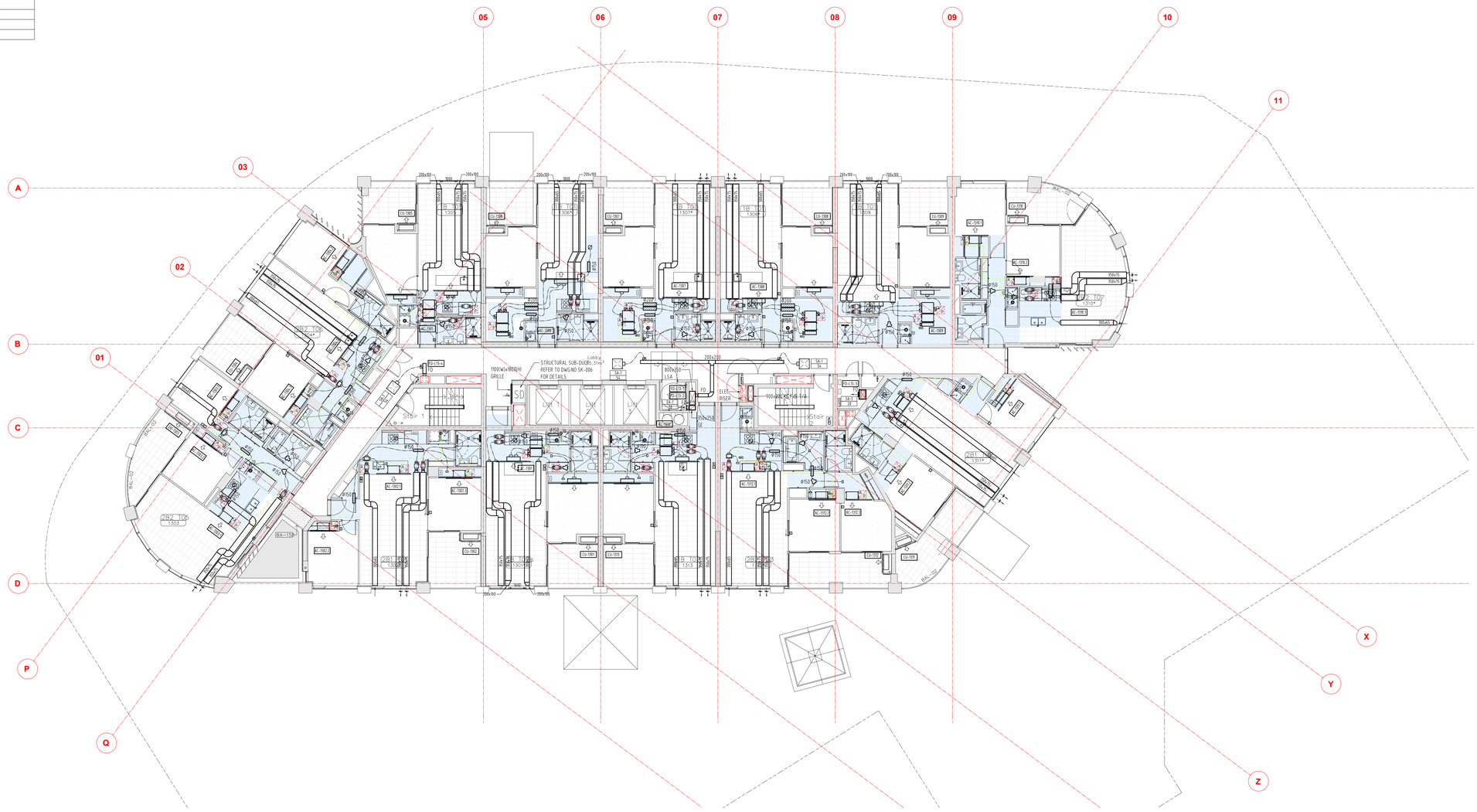
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Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 12 AIR CONDITIONING LAYOUT
Drawing No:	A1-ME-L12-01

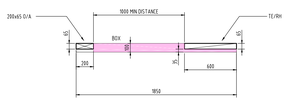
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 13 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L13-01

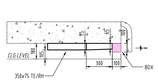
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





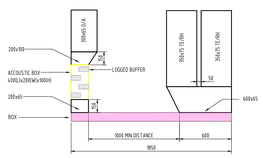
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)

SCALE 1:25



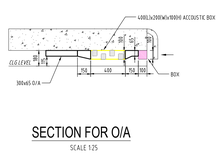
SECTION FOR TE/RH

SCALE 1:25



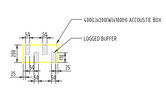
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)

SCALE 1:25



SECTION FOR O/A

SCALE 1:25



ACCOUSTIC BOX DETAILS

SCALE 1:25

FOR CONSTRUCTION

LEGEND:

- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U/N O
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
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- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL 450x450 U/N O
- TYPICAL ø150 FLEXIBLE DUCT U/N O
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- TOILET/KITCHEN EXHAUST FAN
- TOILET/LAUNDRY EXHAUST GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- GRILLE DESIGNATION
- AC-XXX — UNIT DESIGNATION
- AC CONTROLLER
- SOFFIT HEIGHT
- HEIGHT FROM FFL TO U/S OF DUCT
- 2400 CEILING BULKHEAD
- MECHANICAL RISER PENETRATION

NOTES:

FOR ACCESS PANEL ABOVE CUPBOARDS. PANEL NEED TO BE REMOVABLE BY TOOLS

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY. LTD.

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

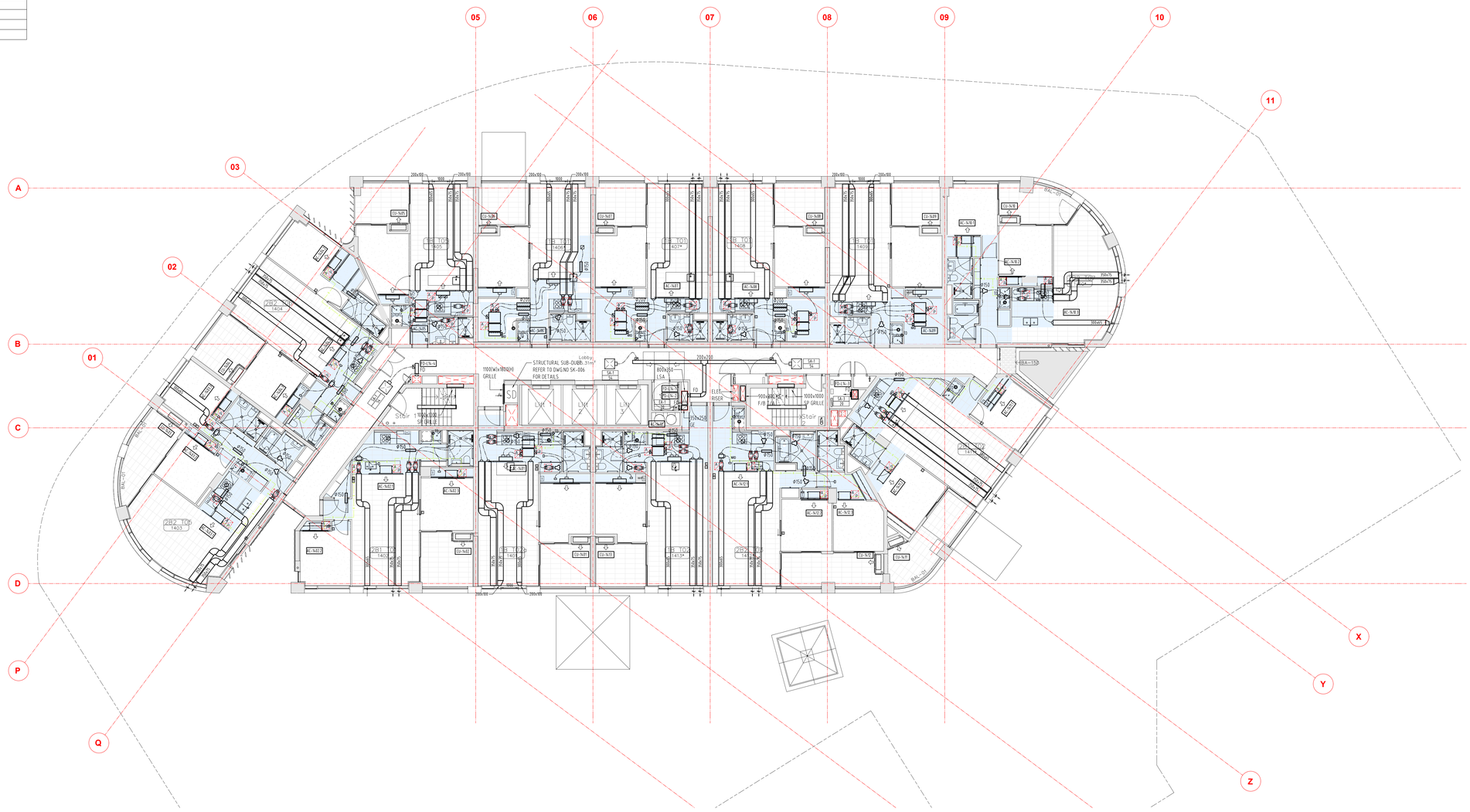
MECHANICAL SERVICES
LEVEL 13 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L13-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 14 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L14-01

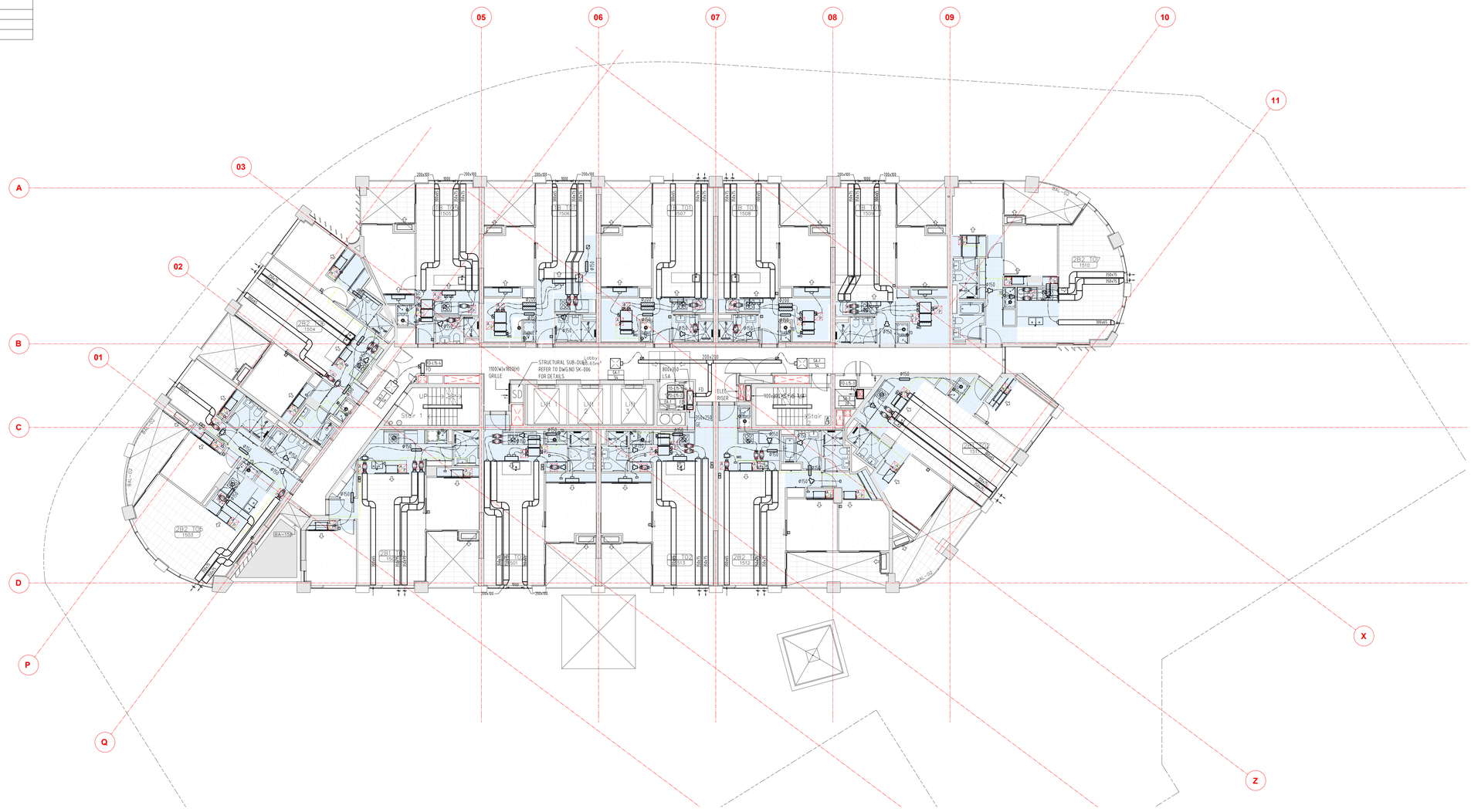
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

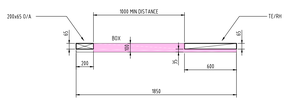

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Z
STRUCTURAL SUB-DUCT, 31m²
REFER TO DWG NO SK-006
FOR DETAILS
1100(W)x1850(H)
GRILLE
1000x1000
SG GRILLE
900x900
F/D GRILLE
ELEC. RISER
Lobby
Stair 1
Stair 2
LIFT 1
LIFT 2
LIFT 3
SD
FD
2B2 TOP
140.4
2B1 TOP
140.4
2B3 TOP
140.4
2B2 TOP
140.3
2B1 TOP
140.4
2B2 TOP
140.4
2B2 TOP
140.3
2B2 TOP
140.4
2B1 TOP
140.4
2B3

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 15 AIR CONDITIONING LAYOUT
Drawing No:	A1-ME-L15-01

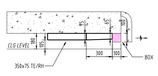
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





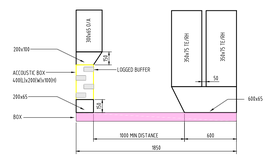
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)

SCALE 1:25



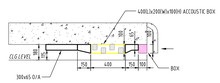
SECTION FOR TE/RH

SCALE 1:25



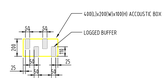
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)

SCALE 1:25



SECTION FOR O/A

SCALE 1:25



ACCOUSTIC BOX DETAILS

SCALE 1:25

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LEGEND:

- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U.N.O
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- NRD — NON RETURN DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL 450x450 U.N.O
- TYPICAL Ø150 FLEXIBLE DUCT U.N.O
- INDOOR UNIT
- OUTDOOR UNIT
- TOILET/KITCHEN EXHAUST GRILLE C/W PLENUM
- TOILET/KITCHEN EXHAUST FAN
- TOILET/LAUNDRY EXHAUST GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- G4 - L30 / 150 — GRILLE DESIGNATION
- AC-XXX — UNIT DESIGNATION
- AC CONTROLLER
- SOFFIT HEIGHT
- 2100 — HEIGHT FROM FFL TO U/S OF DUCT
- 2400 CEILING BULKHEAD
- MECHANICAL RISER PENETRATION

NOTES:

FOR ACCESS PANEL ABOVE CUPBOARDS. PANEL NEED TO BE REMOVABLE BY TOOLS

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

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E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

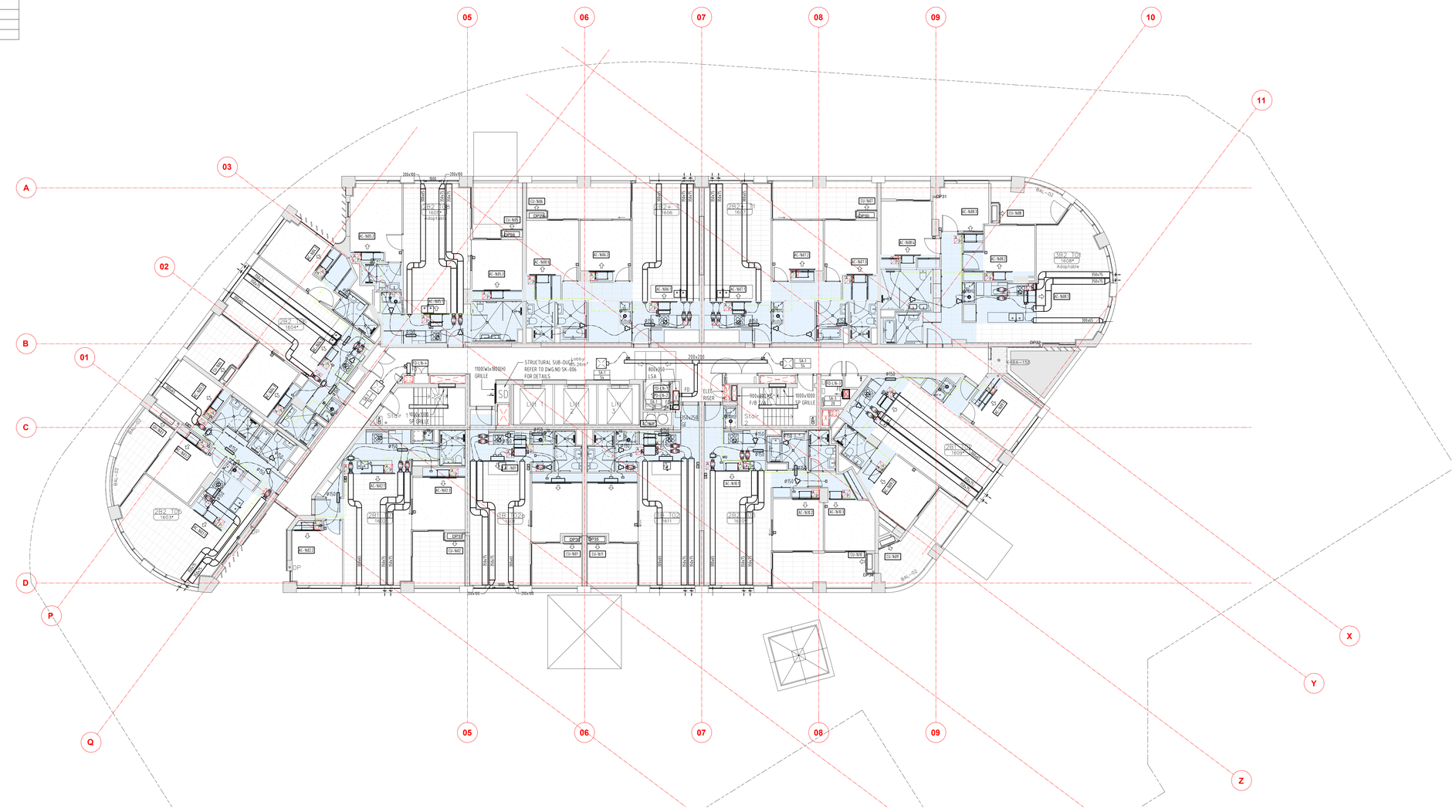
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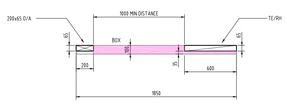
MECHANICAL SERVICES
LEVEL 15 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L15-01	01
Scale	1:100 @A0		

Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 16 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L16-01

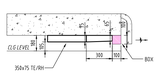
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





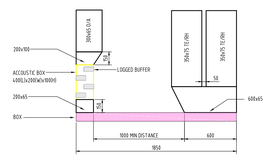
TE/RH & O/A TYPICAL DETAILS (FRONT VIEW)

SCALE 1:25



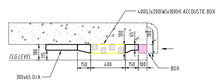
SECTION FOR TE/RH

SCALE 1:25



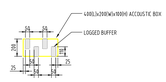
TE/RH & O/A TYPICAL DETAILS (PLAN VIEW)

SCALE 1:25



SECTION FOR O/A

SCALE 1:25



ACCOUSTIC BOX DETAILS

SCALE 1:25

FOR CONSTRUCTION

LEGEND:

- 350x75 — TOILET/KITCHEN EXHAUST DUCTWORK 350x75 U/N O
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- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- NRD — NON RETURN DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- CEILING ACCESS PANEL 450x450 U/N O
- TYPICAL Ø150 FLEXIBLE DUCT U/N O
- INDOOR UNIT
- OUTDOOR UNIT
- TOILET/KITCHEN EXHAUST GRILLE C/W PLENUM
- TOILET/KITCHEN EXHAUST FAN
- TOILET/LAUNDRY EXHAUST GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- GRILLE DESIGNATION
- UNIT DESIGNATION
- AC CONTROLLER
- SOFFIT HEIGHT
- HEIGHT FROM FFL TO U/S OF DUCT
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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

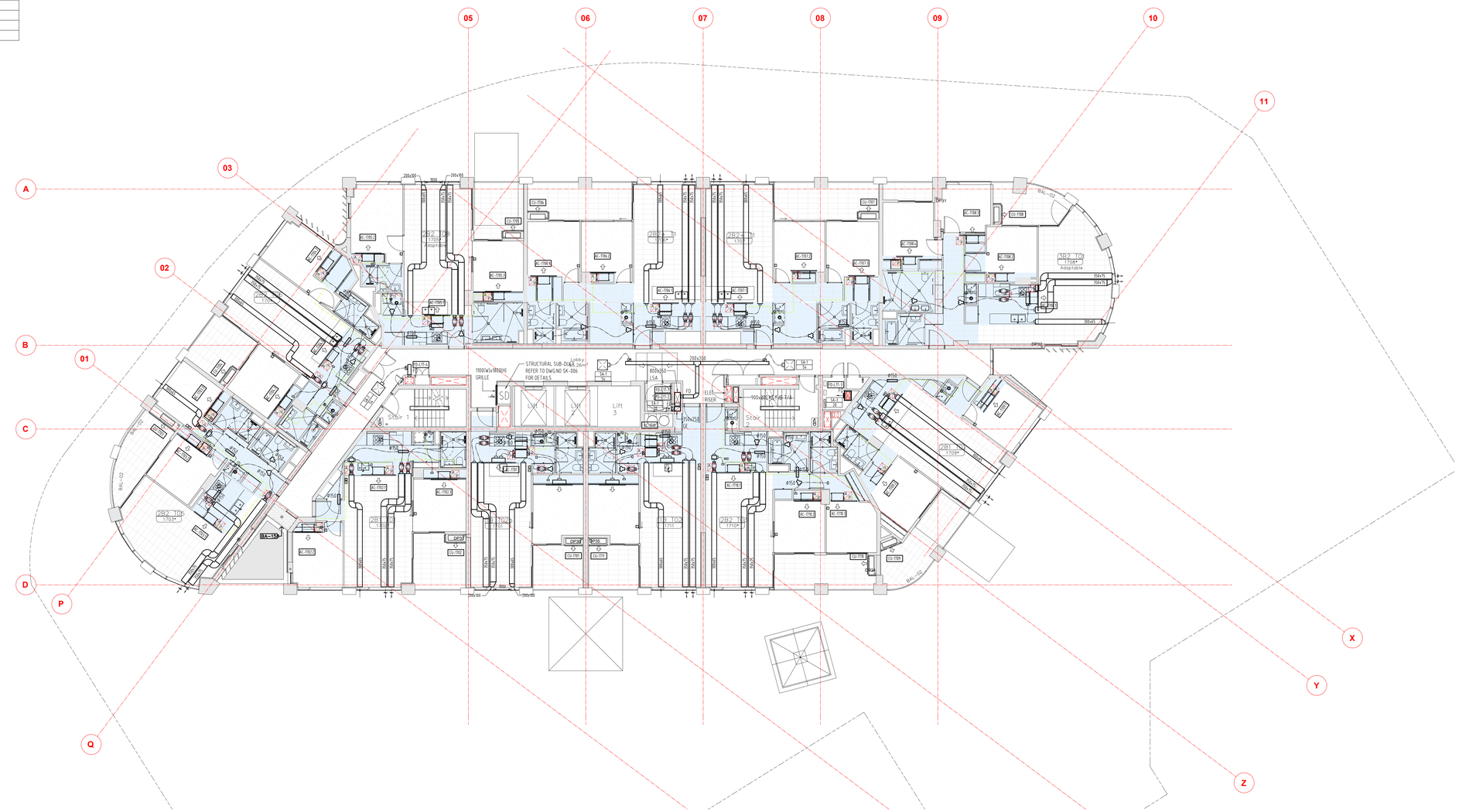
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MECHANICAL SERVICES
LEVEL 16 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
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Scale	1:100 @A0		

Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 17 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L17-01

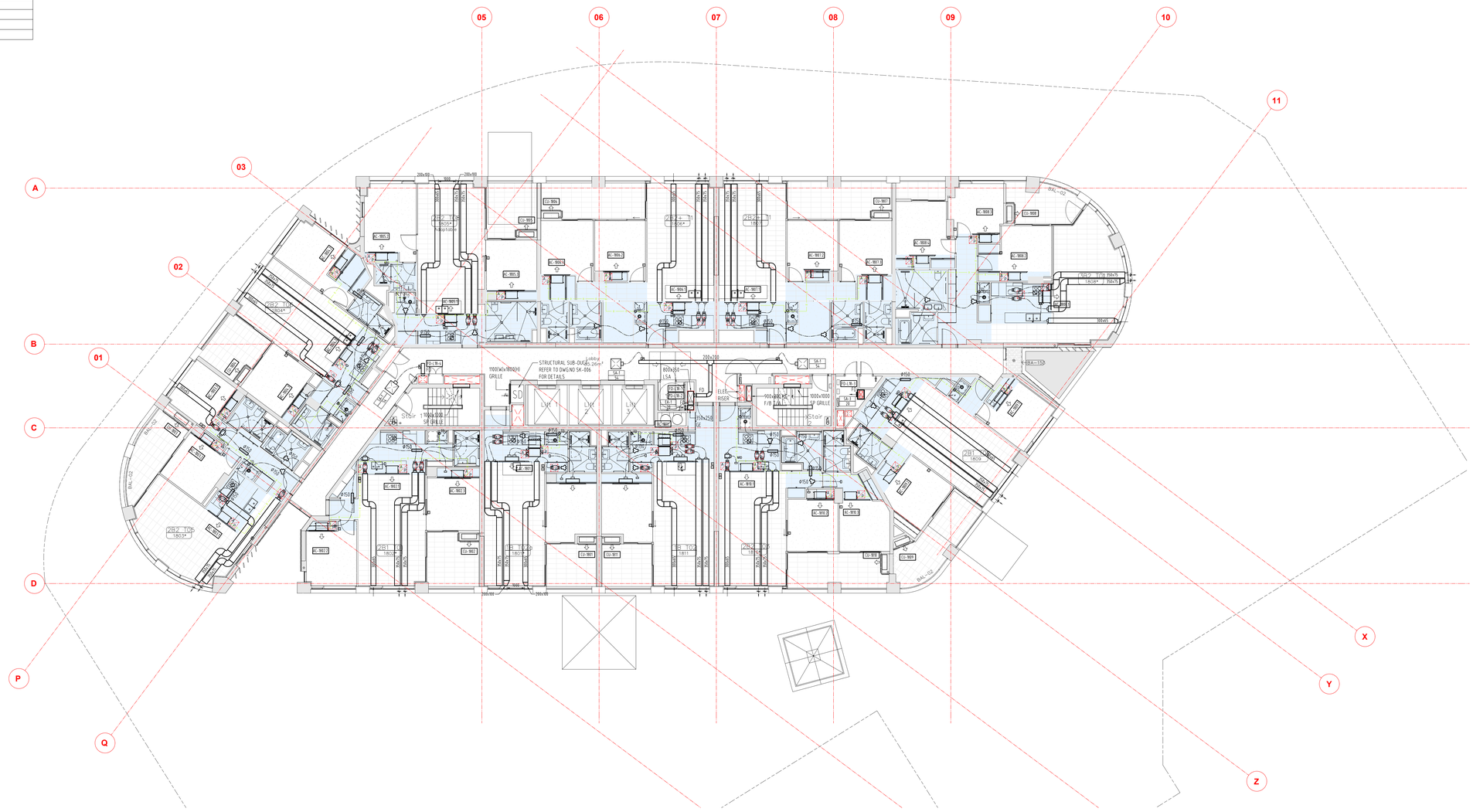
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 18 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L18-01

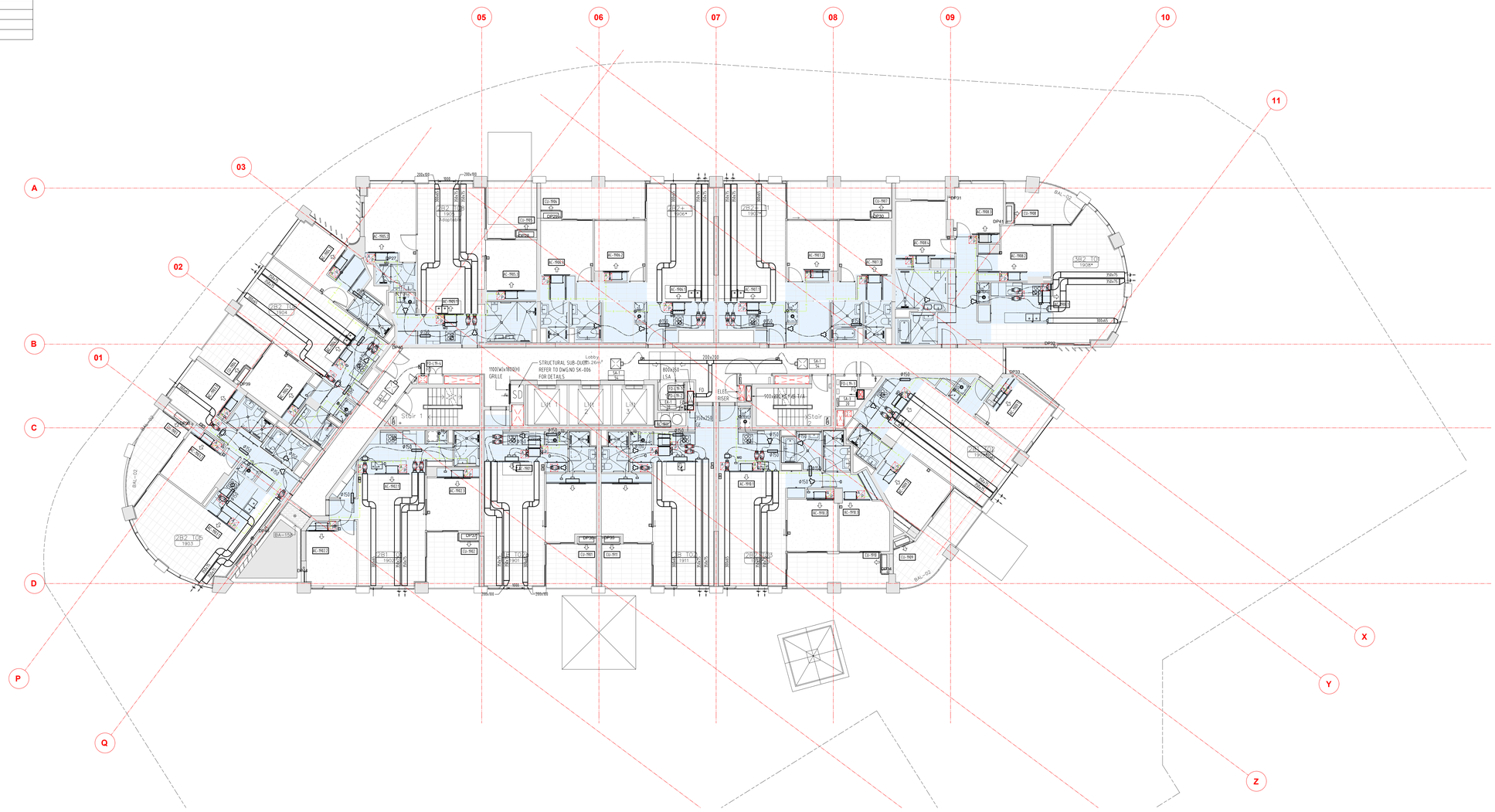
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record

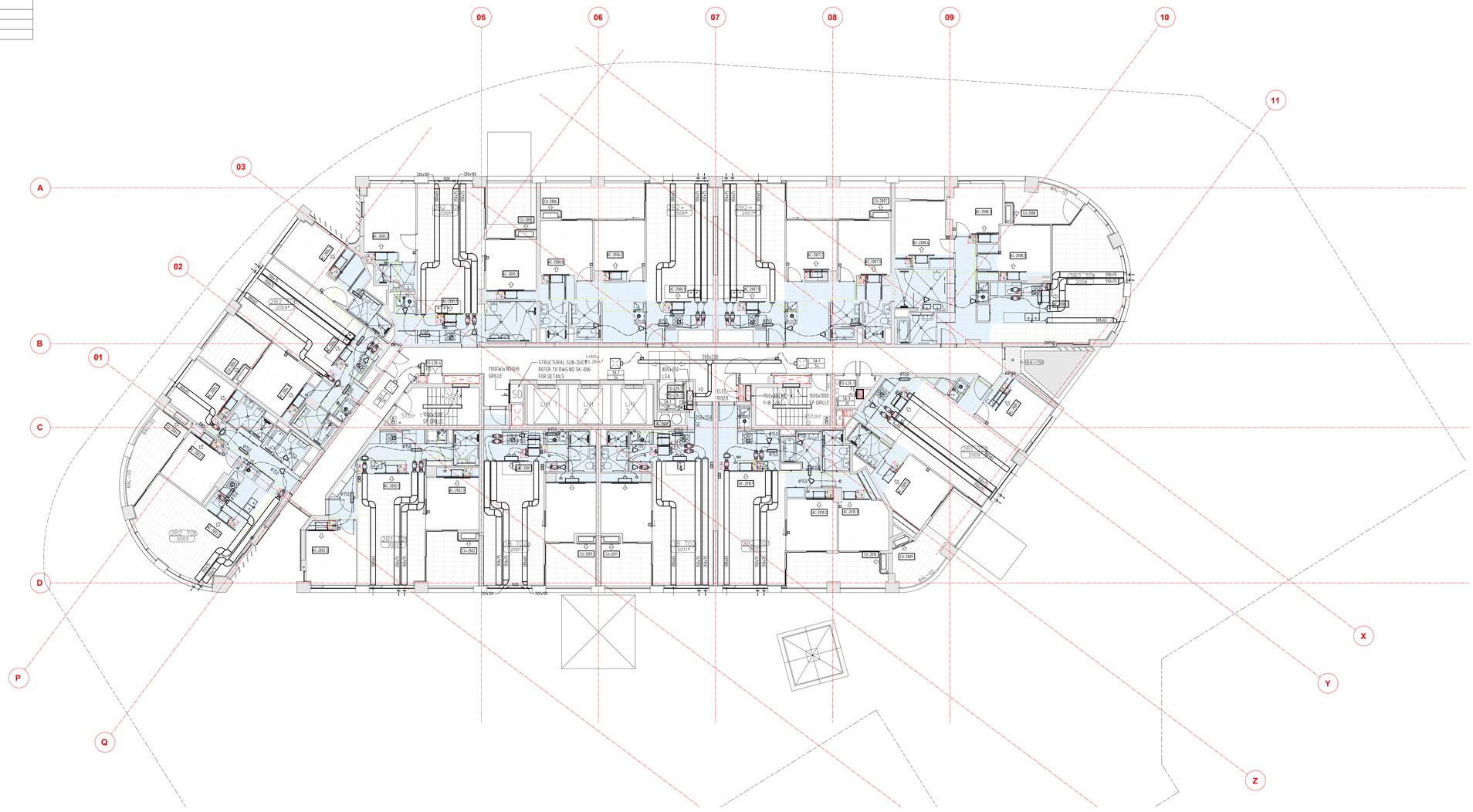
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 19 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L-19-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 20 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L20-01

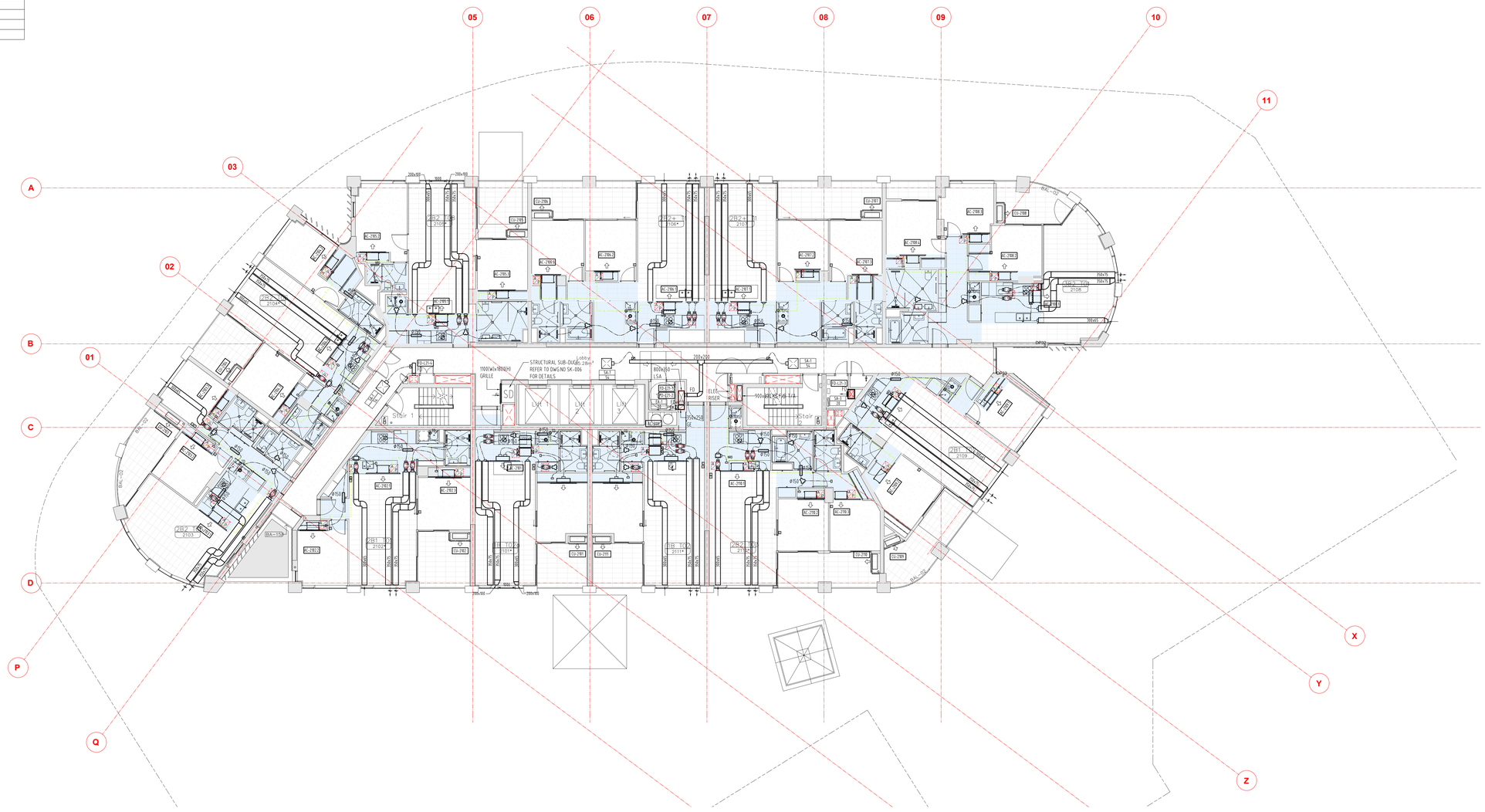
Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record

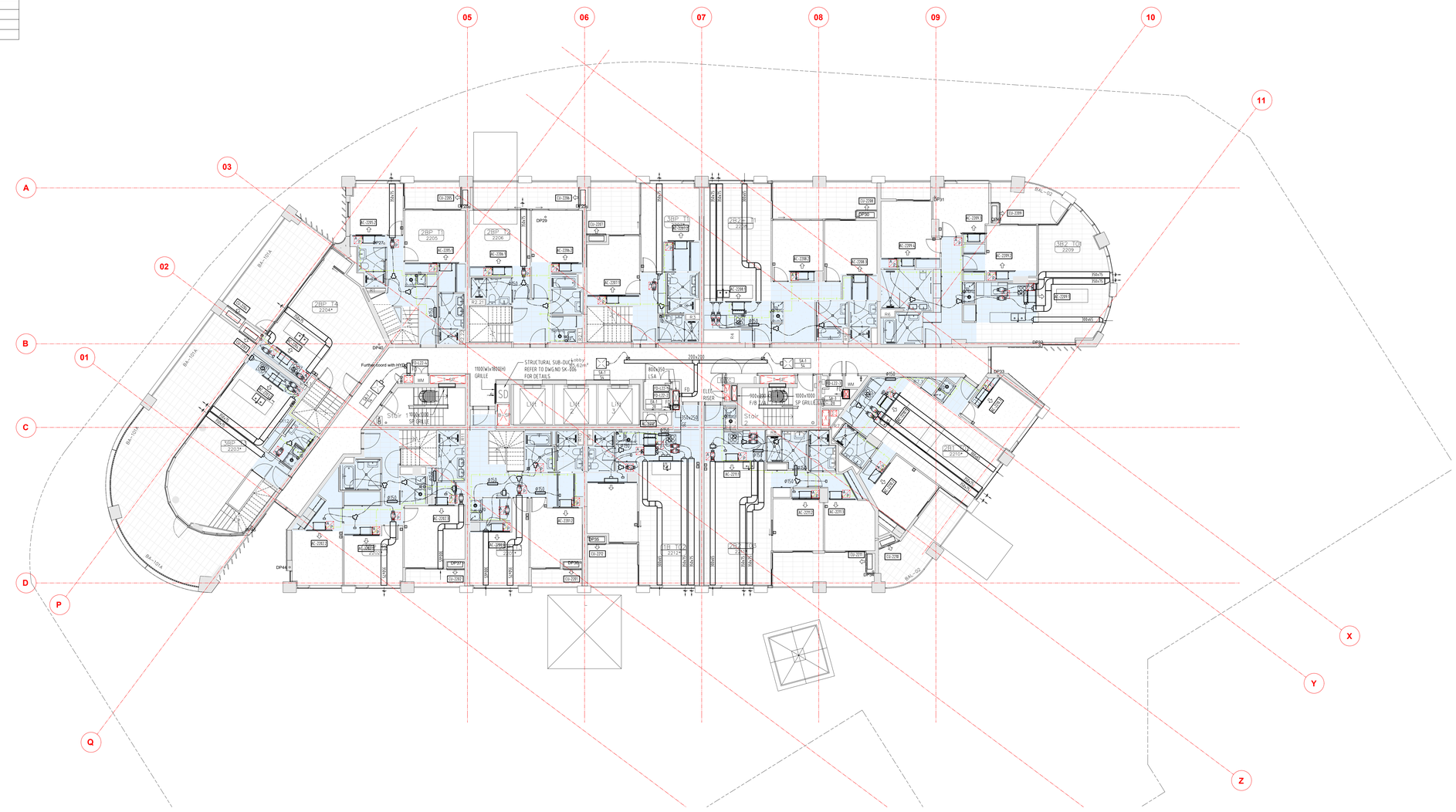
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 21 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L21-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



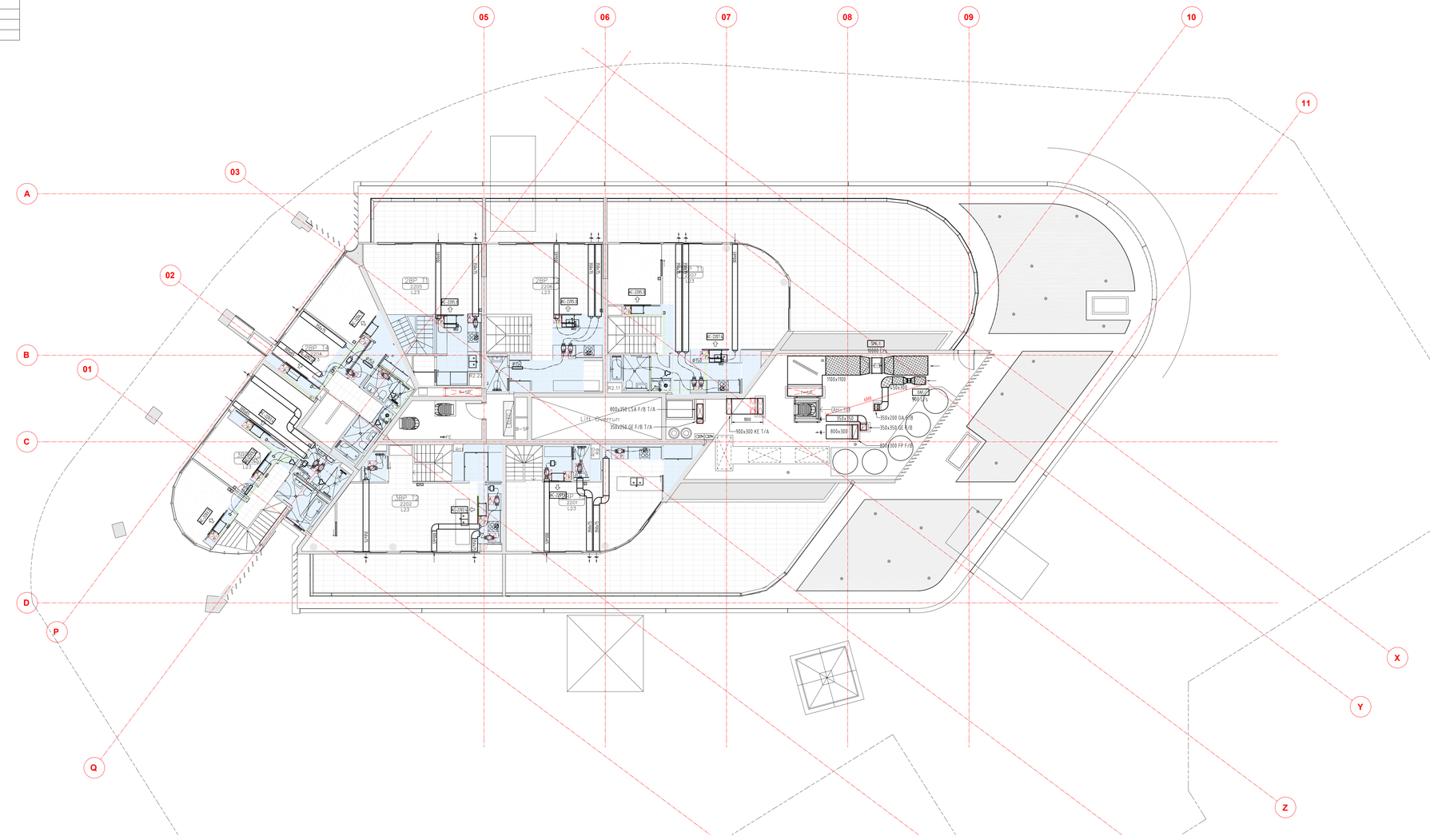
Regulated Design Record				
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA			
Project Title:	BUILDING A1 - IVANHOE ESTATE			
Consent No:	SSD8903		Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 22 AIR CONDITIONING LAYOUT		Drawing No:	A1-ME-L22-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 23 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L23-01

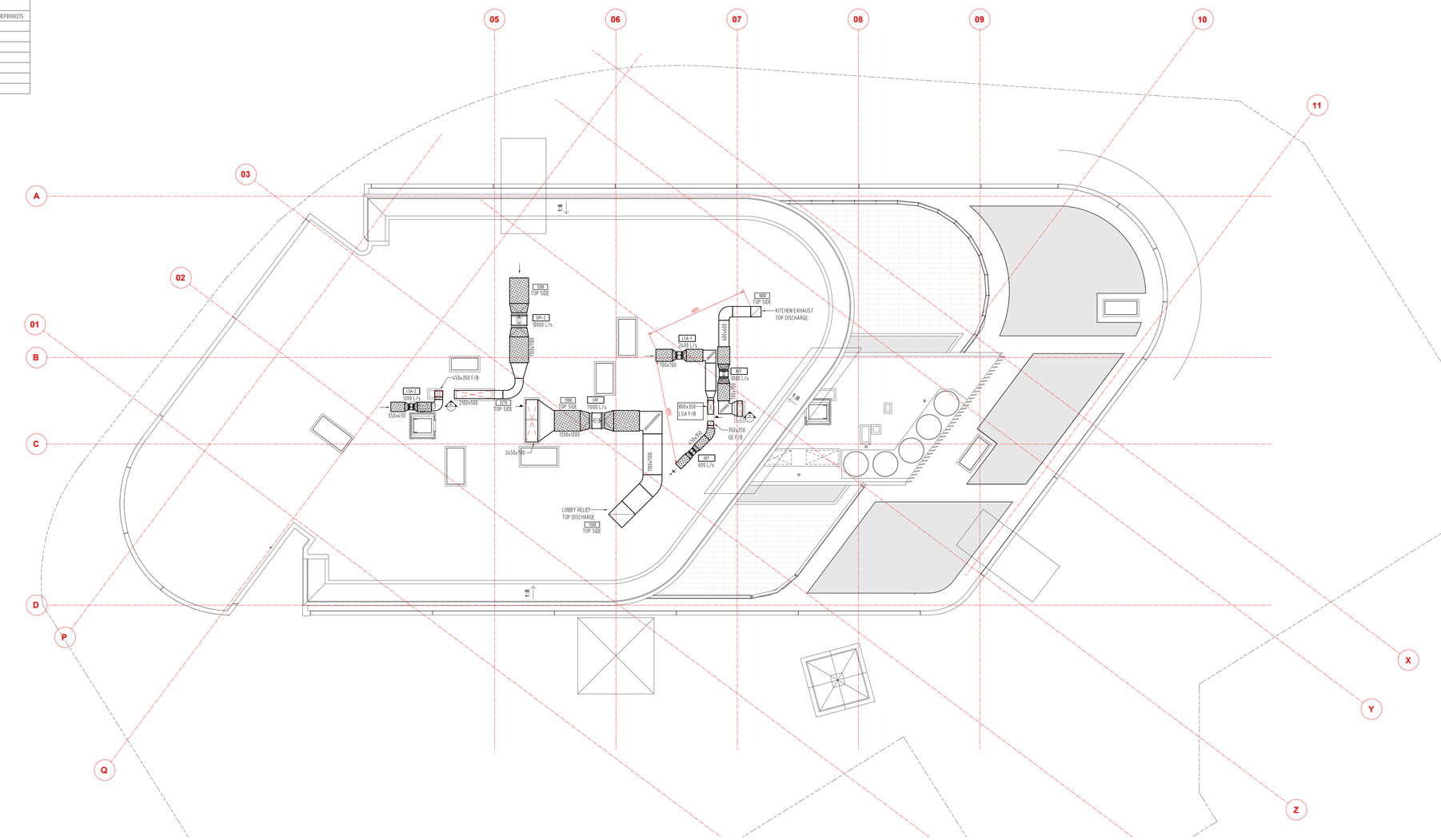
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01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

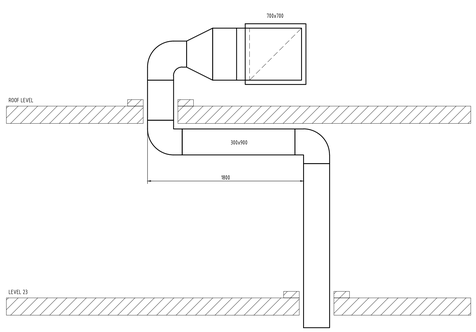

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AC-2207.1
AC-2202.1
AC-2201.1
P2.22
P2.11
P50
SPK.1
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800x300
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350x350 OE F/B
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Lift Overrun
FE
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Regulated Design Record

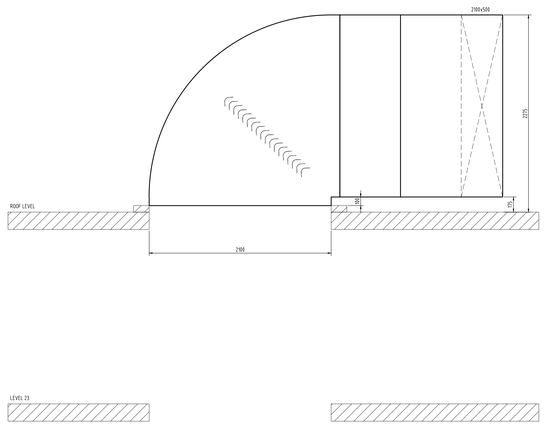
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LEVEL 24 AIR CONDITIONING LAYOUT	Drawing No:	A1-ME-L24-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275





KITCHEN EXHAUST (SECTION A)
SCALE 1:25



SPF-2 (SECTION B)
SCALE 1:25

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LEGEND:

- 450x300 H.M — UNINSULATED 450x300 DUCTWORK 1430mm LONG
- EXTERNALLY INSULATED WITH 38mm INSULATION
- INTERNALLY INSULATED WITH 50mm INSULATION
- INTERNALLY INSULATED WITH 75mm INSULATION
- VOLUME CONTROL DAMPER
- FLEXIBLE CONNECTION
- FD — FIRE DAMPER
- CIRCULAR SPIGOT WITH BUTTERFLY DAMPER
- SPIGOT WITHOUT DAMPER
- CONDENSATE DRAIN
- REFRIGERANT PIPE
- A/P — CEILING ACCESS PANEL
- TYPICAL Ø150 FLEXIBLE DUCT U/N.O
- SIDE BLOW SUPPLY/EXHAUST AIR GRILLE C/W OBD
- EXHAUST AIR GRILLE
- SQUARE DIFFUSER, 4 WAY BLOW
- TUNDISH BY HYDRAULIC TRADE
- SA-1.1/1 10 — GRILLE DESIGNATION
- AC-1 — UNIT DESIGNATION
- 3470 FSP ref — SOFFIT HEIGHT
- 2700 — HEIGHT FROM FFL TO U/S OF DUCT

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

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E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
LEVEL 24 AIR CONDITIONING LAYOUT

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-1-L24-01	01
Scale	1:100 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	AIR SCHEMATICS SHEET 1	Drawing No:	A1-ME-2-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

FOR CONTINUATION REFER TO DRAWING No. A1-ME-2-02



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Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

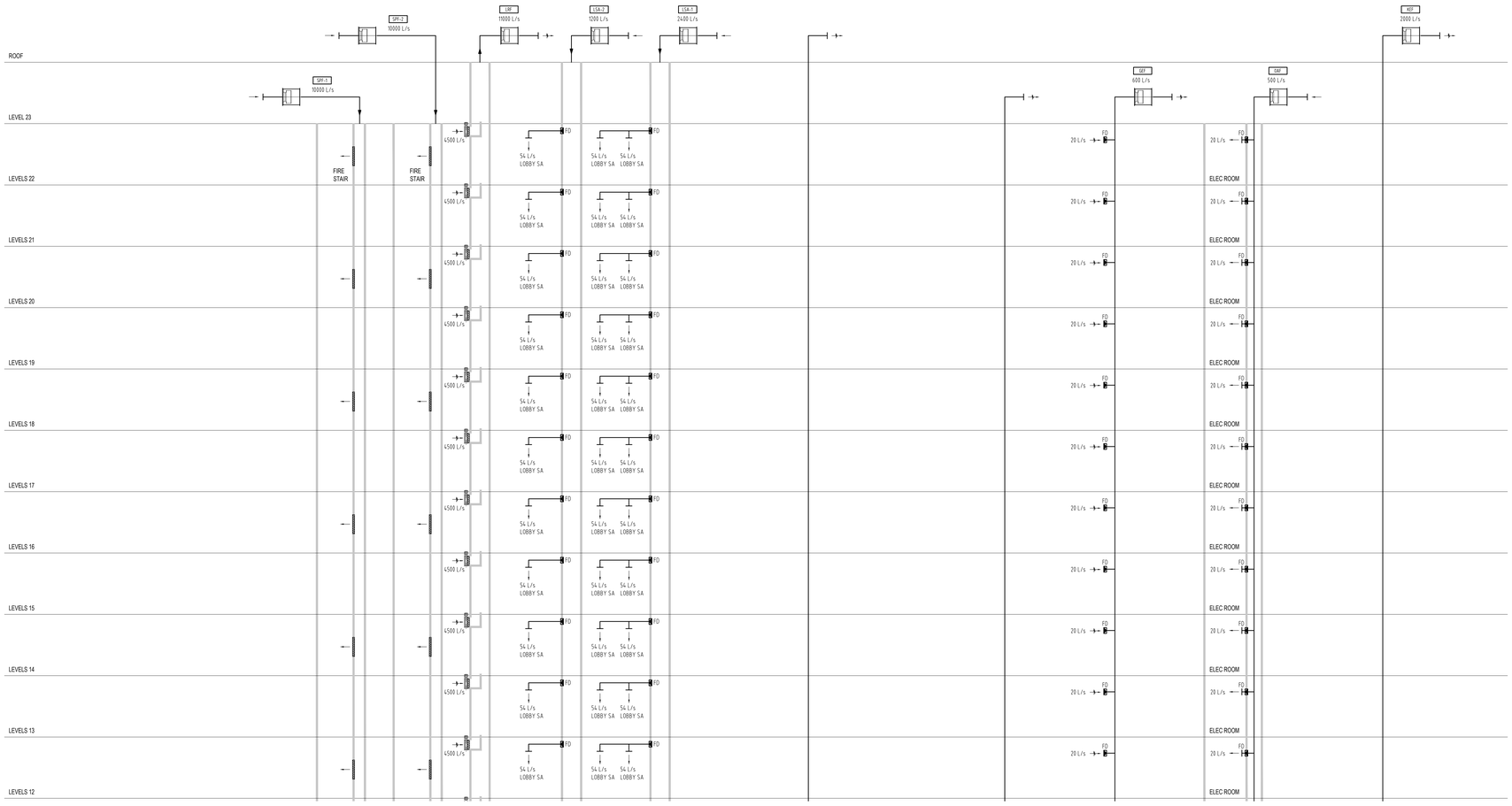
Title

MECHANICAL SERVICES
AIR SCHEMATICS SHEET 1

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-2-01	01
Scale	NTS @A0		

Regulated Design Record			
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	AIR SCHEMATICS SHEET 2	Drawing No:	A1-ME-2-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



FOR CONTINUATION REFER TO DRAWING No. A1-ME-2-01

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Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
AIR SCHEMATICS SHEET 2

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-2-02	01
Scale	NTS @A0		

FOR CONSTRUCTION

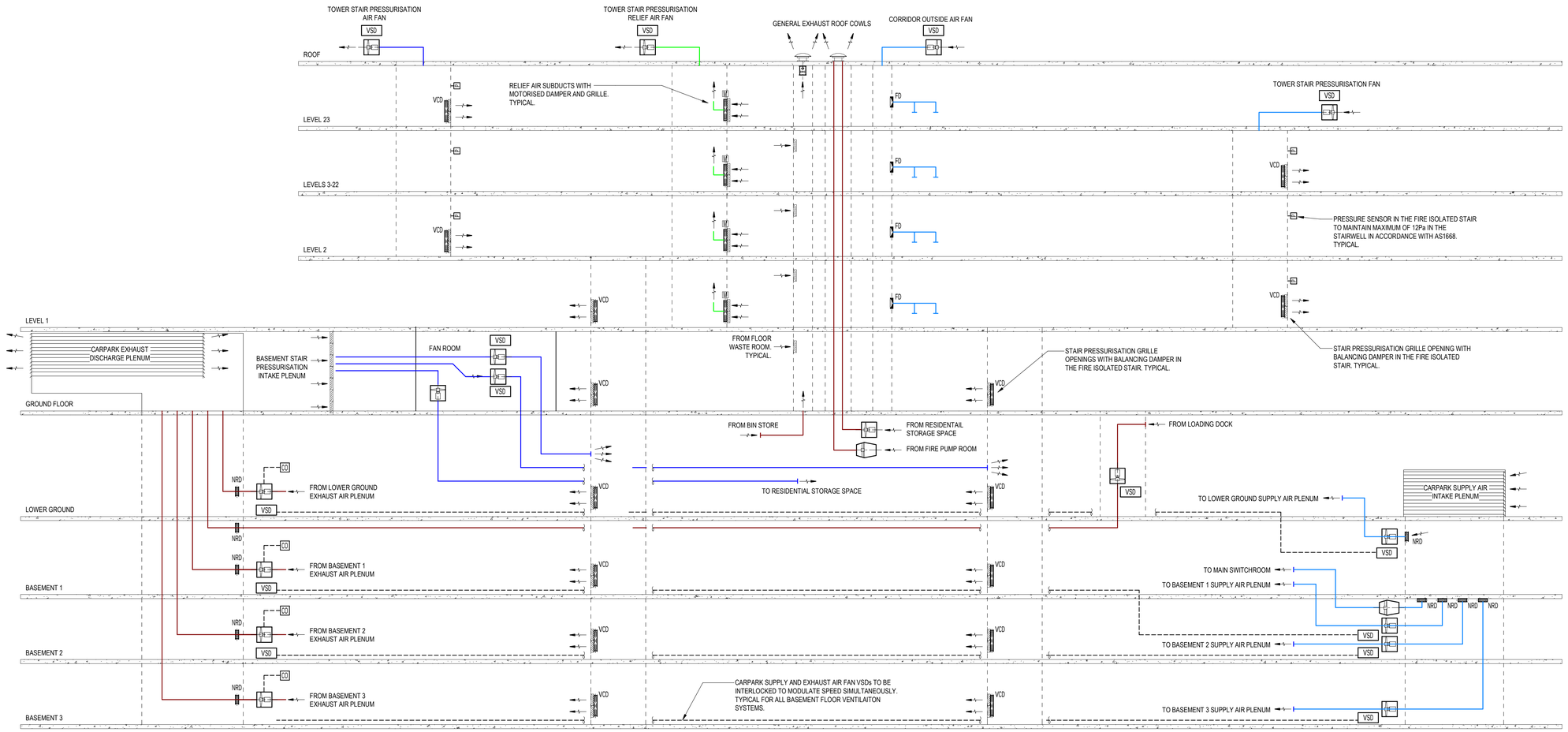
DO NOT SCALE

GENERAL NOTES

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D. THIS DRAWINGS SHOWS THE DESIGN INTENT FOR CONTRACTOR DESIGN DEVELOPMENT AND PRODUCTION OF WORKSHOP DRAWINGS
E. DRAWING TO BE READ IN CONJUNCTION WITH THE LEGEND OF SYMBOLS.

SPECIFIC NOTES

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C. CONTRACTOR TO REFER TO THE ARCHITECTURAL PACKAGE FOR CO-ORDINATED RCP LAYOUT AND FINAL SETTING OUT OF TERMINAL DEVICES AND ACCESS PANELS SHOWN ON MECHANICAL SERVICES DRAWINGS.
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REV	DATE	BY	DESCRIPTION	CHK	APP
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp
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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
VENTILATION SCHEMATIC

SCALE @ B1:	CHECKED:	APPROVED:
NTS	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-3-000-01 REV: T1

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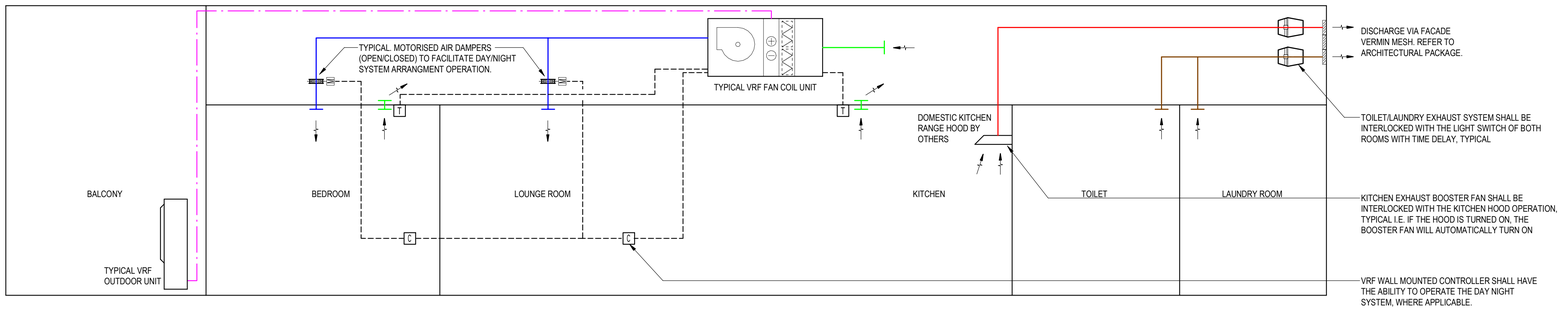
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TYPICAL APARTMENT SCHEMATIC

REFER TO LAYOUTS FOR NUMBER OF INDOOR UNITS. WHERE MULTIPLE INDOOR UNITS THEY ARE TO BE SERVED BY SINGLE OUTDOOR UNIT.

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T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
VENTILATION SCHEMATIC

SCALE @ B1:	CHECKED:	APPROVED:
NTS	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-3-000-02 REV: T1

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MEC - AIR - Dependent 2
1 : 100

DO NOT SCALE

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

STAIR PRESS RISER.

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

STAIR PRESS RISER.

MAIN SWITCHROOM SUPPLY AIR SYSTEM TO OPERATE BASED ON THE TEMPERATURE OF THE ROOM

NATURAL RELIEF AIR DUCT WITH FIRE DAMPER AND WALL LOUVRE

OAF-B1

SA 200x200

FD

CARPARK SUPPLY AIR DUCT TO OPEN INTO PLENUM.

2500x600

CARPARK SUPPLY AIR DUCT TO RUN AGAINST THE WALL INTO PLENUM.

SA 700X600

SUPPLY AIR RISER FROM FAN ROOM BELOW.

SUPPLY AIR RISER, TYPICAL

SUPPLY AIR RISER FROM ABOVE.

CO

SA 800x400

CSF-LG

NUMBER AND LOCATION OF CARBON MONOXIDE SENSORS TO MEET THE REQUIREMENTS OF AS1668.2. TYPICAL TO ALL CARPARK FLOORS.

CARPARK EXHAUST AIR PLENUM.

2600x650

MSSB-01

CEF -B1

CARPARK EXHAUST AIR FAN ROOM.

GENERAL EXHAUST RISER.

PLENUM TO BE OPEN TO THE EXHAUST PLANT

CARPARK EXHAUST AIR PLENUM.

LOADING DOCK EXHAUST AIR SYSTEM DISCHARGING INTO CARPARK EXHAUST PLENUM.

BA BB BC BD BE B1 B2 B3 B4 B5 B6 B7 B8

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P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
BASEMENT 01 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-B01-01 REV: T1

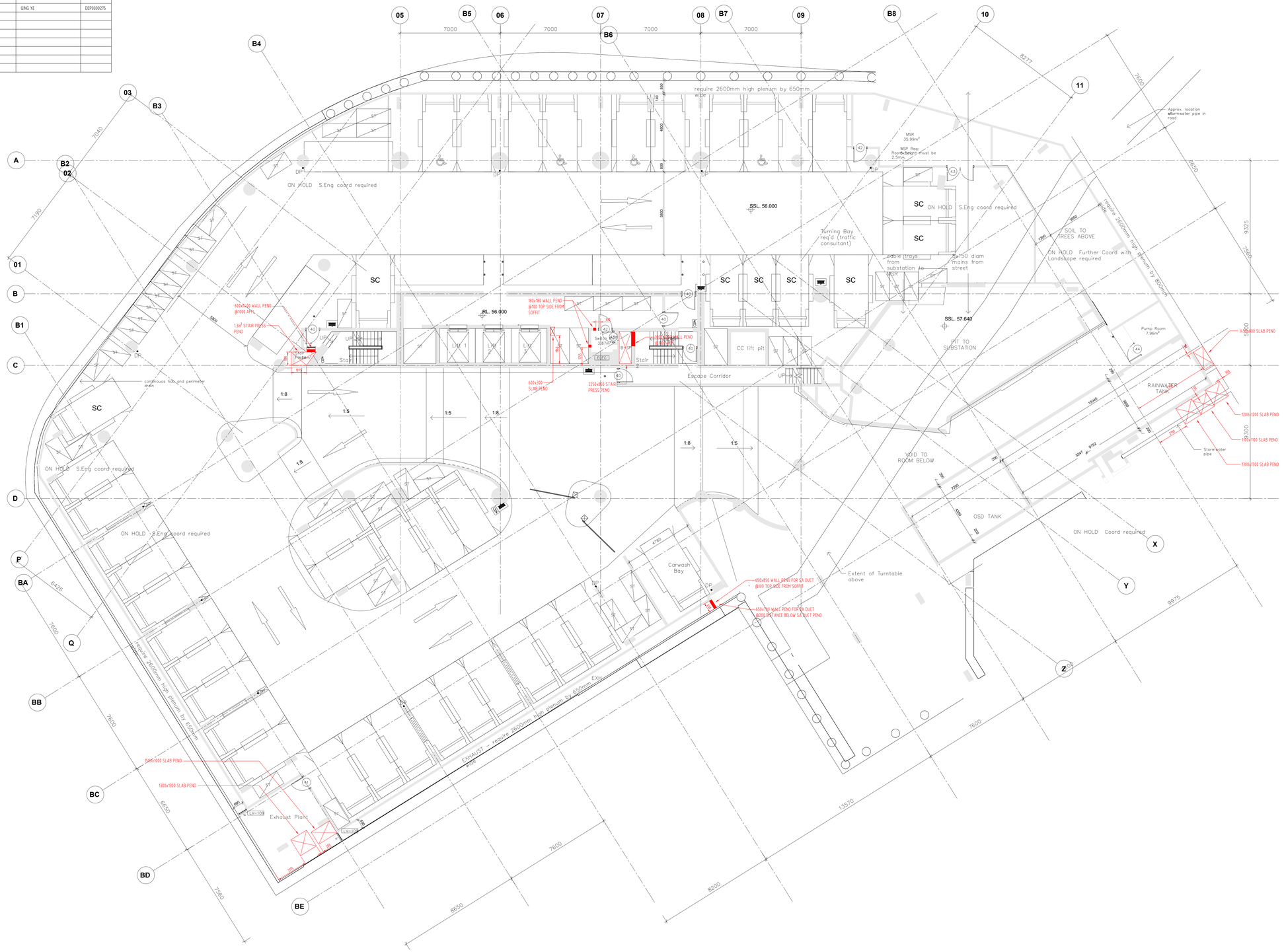
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Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	**Body Corporate Reg No:**	DEP0001256
Drawing Title:	BASEMENT 1 BUILDERSWORK	**Drawing No:**	A1-ME-4-B01-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



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Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD
Unit 1, 13 York Rd, Ingleburn NSW 2565
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E dafko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
BASEMENT 1 BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-B01-02	01
Scale	1:100 @A0		

DO NOT SCALE

CARPARK SUPPLY AIR PLENUM.

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

STAIR PRESS RISER.

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

STAIR PRESS RISER.

2600x650

SA 400x200

SA 800x600

2600x650

2600x650

CARPARK EXHAUST AIR PLENUM.

PLENUM TO BE OPEN TO THE EXHAUST PLANT

MSBB-B2

CEF -B2

CARPARK EXHAUST AIR FAN ROOM.

GENERAL EXHAUST RISER.

TO ENSURE COMPLIANCE COVERAGE OF THE CARPARK, EXHAUST AIR DUCTWORK TO RETICULATE FROM PLENUM AT HIGH LEVEL

CARPARK EXHAUST AIR PLENUM.

PLENUM TO BE OPEN TO THE EXHAUST PLANT

PLENUM TO BE OPEN TO THE EXHAUST PLANT

CARPARK SUPPLY AIR FAN ROOM.

CSF-B2

CSF-B1

BA BB BC BD BE B8 B7 B6 B5 B4 B3 B2 B1

DRAWING CREATED IN REVIT.

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T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
BASEMENT 02 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-B02-01 REV: T1

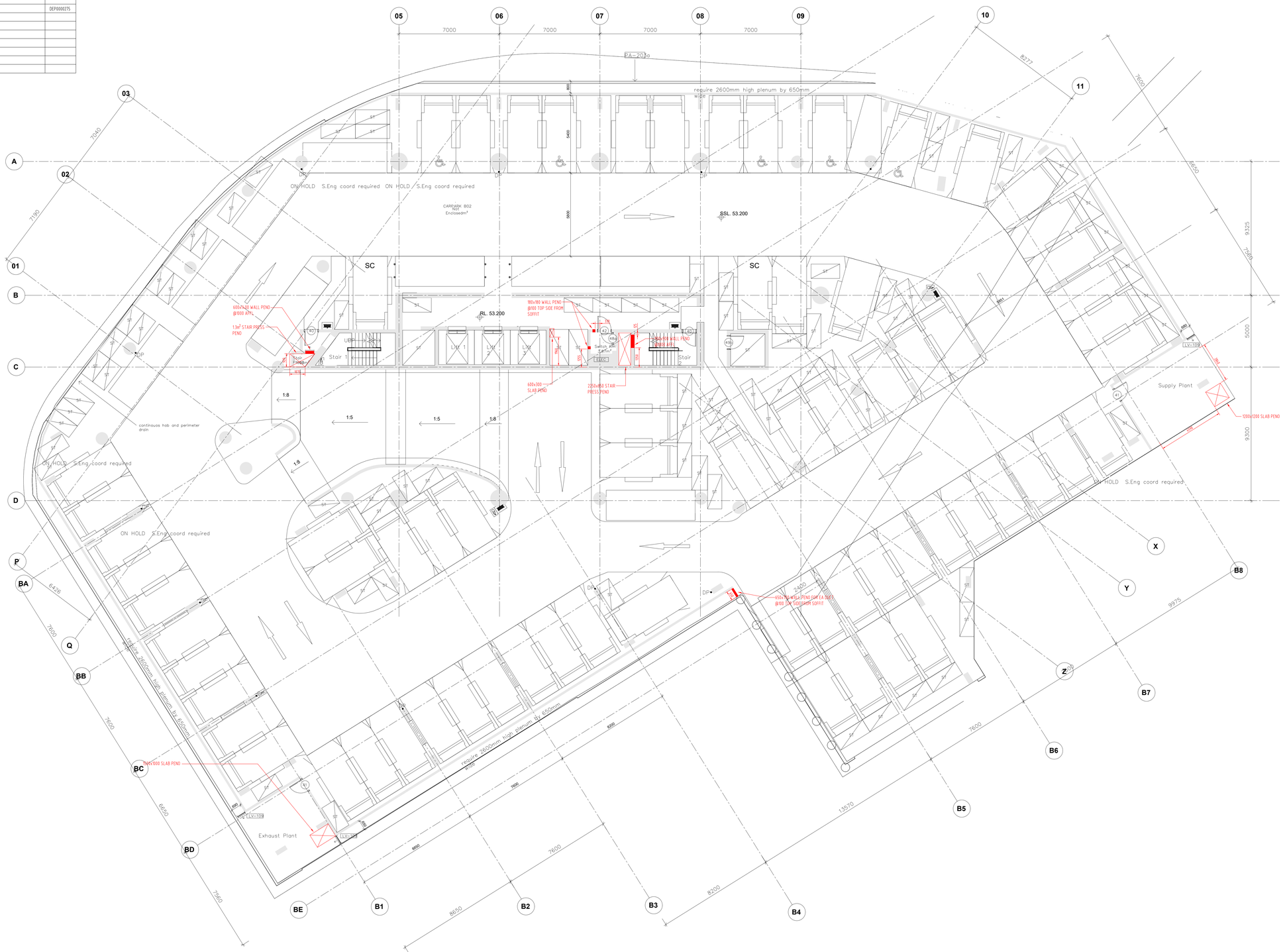
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Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	**Body Corporate Reg No:**	DEP0001256
Drawing Title:	BASEMENT 2 BUILDERSWORK	**Drawing No:**	A1-ME-4-B02-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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FOR CONSTRUCTION

01	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
BASEMENT 2 BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-B02-02	01
Scale	1:100 @A0		

DO NOT SCALE

CARPARK SUPPLY AIR PLENUM.
DIFFUSERS TO BE COMPLETE WITH
OBDS, TYPICAL

STAIR PRESS RISER.

GRILLE OPENING TO THE FIRE STAIRS FROM
THE STAIR PRESSURIZATION SHAFT,
COMPLETE WITH OBDS, TYPICAL.

2600x650

OA 200x200

PLENUM TO BE OPEN TO THE SUPPLY PLANT

CSF-B3

CARPARK SUPPLY AIR FAN ROOM.

SA 800x500

CARPARK EXHAUST AIR PLENUM.
GRILLES TO BE COMPLETE WITH OBDS,
TYPICAL.

2600x650

2600x650

MSSB-B3

PLENUM TO BE OPEN TO THE EXHAUST PLANT

CEF -B3

CARPARK EXHAUST AIR FAN ROOM.

GENERAL EXHAUST RISER.

TO ENSURE COMPLIANCE COVERAGE OF THE
CARPARK, EXHAUST AIR DUCTWORK TO
RETICULATE FROM PLENUM AT HIGH LEVEL

CARPARK EXHAUST AIR PLENUM.

PLENUM TO BE OPEN TO
THE EXHAUST PLANT

P BA BB BC BD BE B1 B2 B3 B4 B5 B6 B7 B8

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DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
BASEMENT 03 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
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PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-B03-01 REV: T1

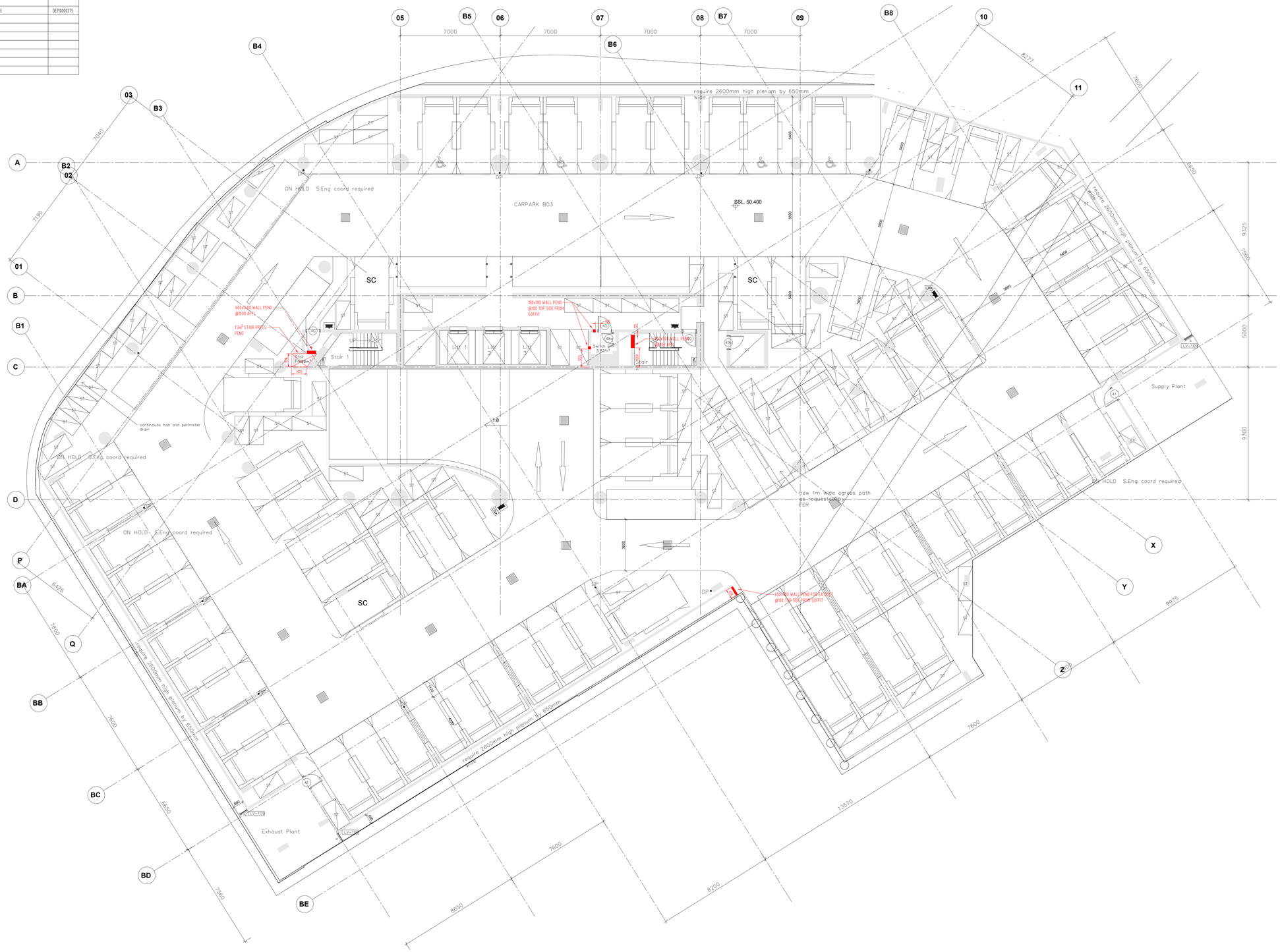
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Regulated Design Record

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Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	**Body Corporate Reg No:**	DEP0001256
Drawing Title:	BASEMENT 3 BUILDERSWORK	**Drawing No:**	A1-ME-4-B03-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
BASEMENT 3 BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-B03-02	01
Scale	1:100 @A0		

DO NOT SCALE

WEATHERPROOF FACADE LOUVRE FOR NATURAL MAKE UP AIR PATH

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

STAIR PRESS RISER.

EXHAUST AIR SYSTEM C/W FAN AND NON-RETURN DAMPER FOR FIRE PUMP ROOM. FAN TO OPERATE ONLY IN FIRE MODE

EXHAUST AIR DUCT WITH LOW LEVEL DROPPERS TO FLOOR LEVEL

GENERAL EXHAUST AND OUTSIDE AIR SYSTEMS RISER TO ROOF FOR GENERAL EXHAUST AND OUTSIDE AIR SYSTEMS.

RISER TO RUN ALL THE WAY TO THE ROOF TO INTAKE & DICHARGE.

OTHER OPTION IS TO PROVIDE FACADE LOUVRES IN GROUND OR LEVEL 1 FRO INTAKE AND EXHAUST RESPECTIVELY.

STAIR PRESS RISER.

CONCRETE RISER WILL BE SUFFICIENT.

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

OUTSIDE AIR SYSTEM C/W FAN AND FILTER BOX FOR STORAGE ROOM. DUCT RISER TO RETICULATE FROM THE FAN ROOM IN GROUND LEVEL. PROVIDE FIRE DAMPER WHERE THE DUCT PENETRATES THE FLOOR SLAB

VRF OUTDOOR UNIT SERVING THE MAIN LOBBY TO BE INSTALLED AS STACKED ON EACH OTHER, AT HIGH LEVEL ON WALL MOUNTED FRAMES C/W MANUFACTURER'S RECOMMENDED SUPPORT AND VIBRATION ISOLATION

CU-LOBBY-1

CU-COMM-1

OAF-LG1

SA 2500x600

SA 2500x600

GEF-LG2

GEF-LG1

AC-COMMS-1

FD

NRD

GEF-LG4

GEF-LG3

LDEF-1

SA 4000x900

2600x650

ARCHITECTURAL AIRLOCK NOT SHOWN ON BACKGROUND SET. AIRLOCK TO BE NATURALLY VENTILATED.

CARPARK SUPPLY AIR LOUVRE. 12m2 LOUVRE AREA REQUIRED, BASED ON 50% FREE AREA.

4000x3000 LOUVRE WILL BE SUFFICIENT

PROPOSED SUPPLY AIR RISER DROPS TO VOID IN FLOOR VELOW TO RUN UNDER THE SLAB.

SPACE PROVISION FOR FUTURE CHILDCARE TENANT AIRCONDITIONING PLANT.

SUPPLY AIR RISER FROM BELOW.

LOADING DOCK EXHAUST AIR RISER C/W INLINE FAN TO DROP DOWN & PENETRATE THE SLAB INTO THE VOID AND CONNECT TO CARPARK EXHAUST PLENUM.

CARPARK SUPPLY AIR PLENUM.

CARPARK EXHAUST AIR PLENUM.

MSSB-LG

CEF -LG

CARPARK EXHAUST AIR FAN ROOM.

GENERAL EXHAUST RISER.

BA BB BC BD BE B8 B7 B6 B5 B4 B3 B2 B1

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REV	DATE	BY	DESCRIPTION	CHK	APP
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp

http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
LOWER GROUND LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-BLG-01 REV: T1

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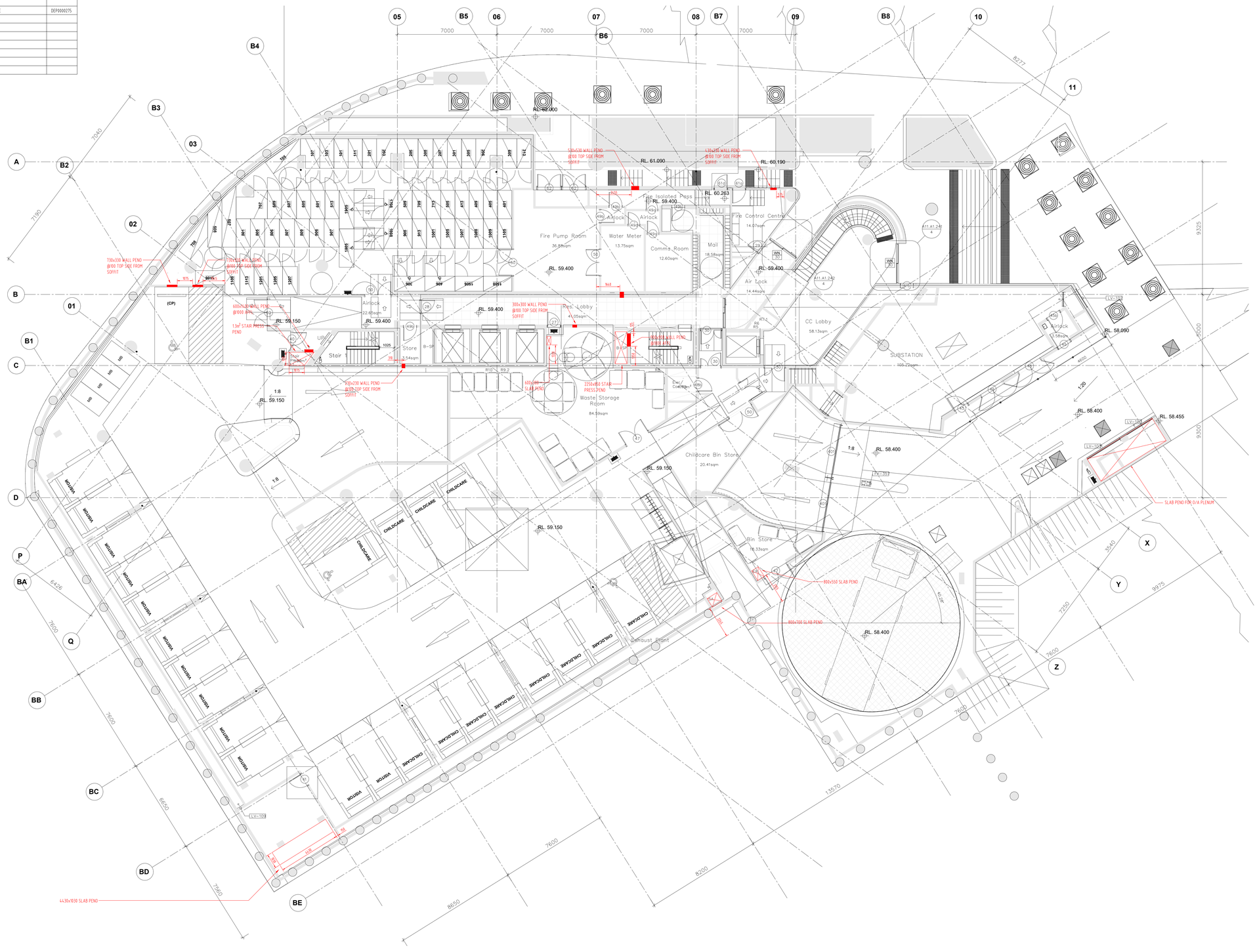
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Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	LOWERGROUND BUILDERSWORK	Drawing No:	A1-ME-4-BLG-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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01	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

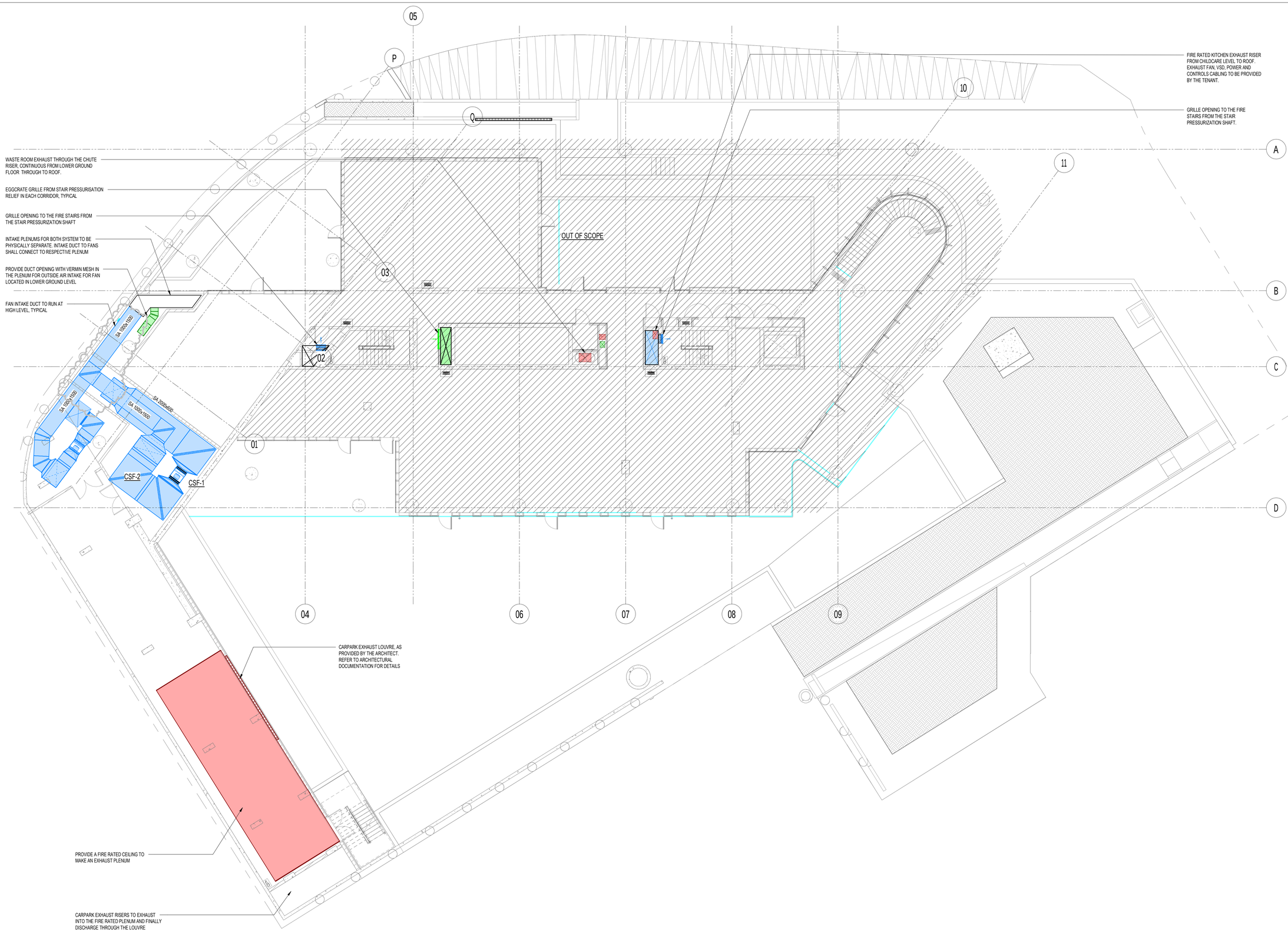
Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
LOWERGROUND BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-BLG-02	01
Scale	1:100 @A0		



DO NOT SCALE

GENERAL NOTES

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REV	DATE	BY	DESCRIPTION	CHK	APP
T3	29.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T2	02.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

wsp
http://www.wsp.com

CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
GROUND LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-L00-01 REV: T3

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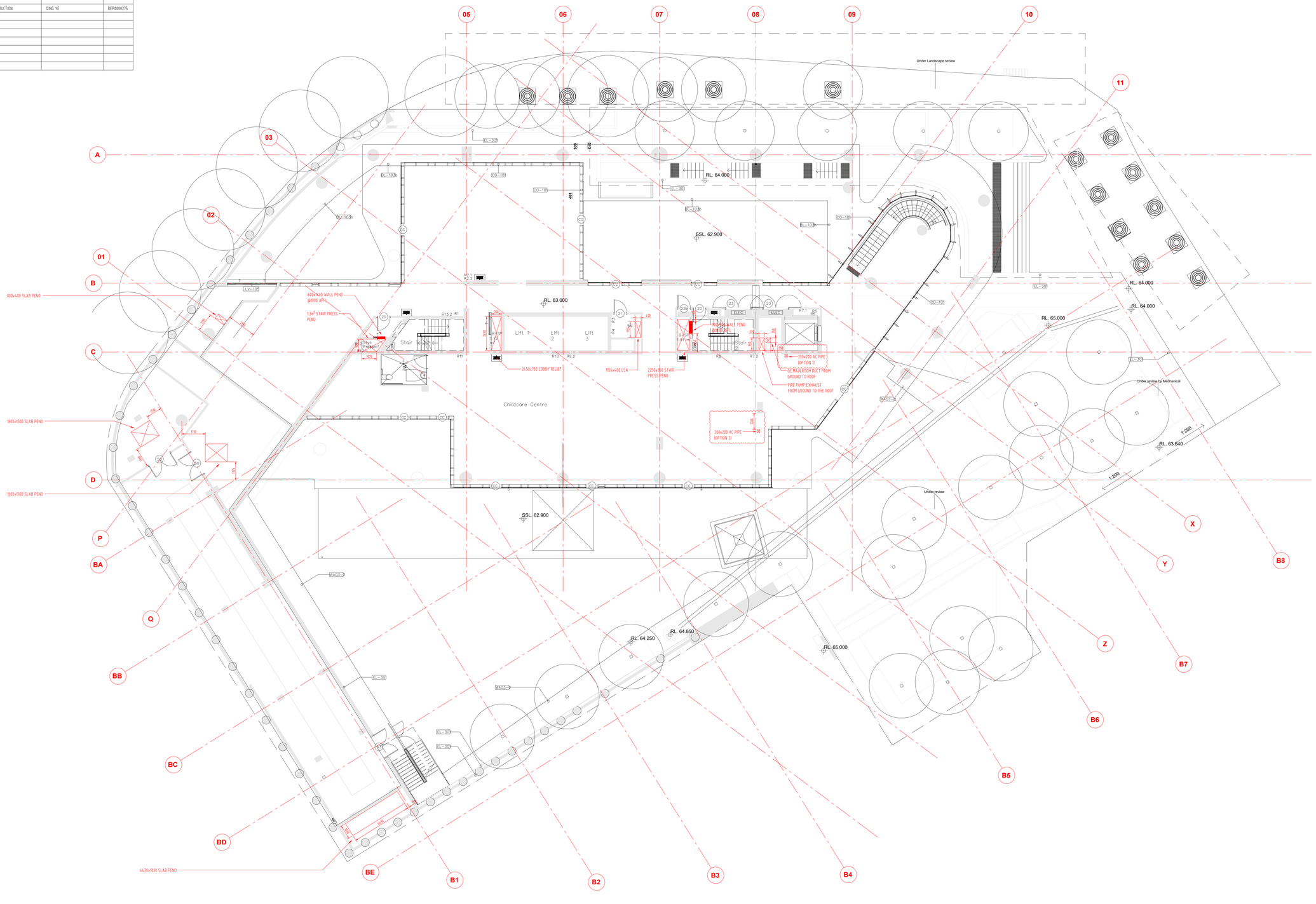
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Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	**Body Corporate Reg No:**	DEP0001256
Drawing Title:	GROUND FLOOR BUILDERSWORK	**Drawing No:**	A1-ME-4-L00-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

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Unit 1, 13 York Rd, Ingleburn NSW 2565
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E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
GROUND FLOOR BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-4-L00-02	01
Scale	1:100 @A0		

DO NOT SCALE



DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
T2	02.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
LEVEL 02 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	**DRAWN:**	**DATE:**
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-L02-01 REV: T2

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REV	DATE	BY	DESCRIPTION	CHK	APP
T2	02.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
TYPICAL FLOOR LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-L08-01 REV: T2

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P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
LEVEL 22 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-L22-01 REV: T1

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T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

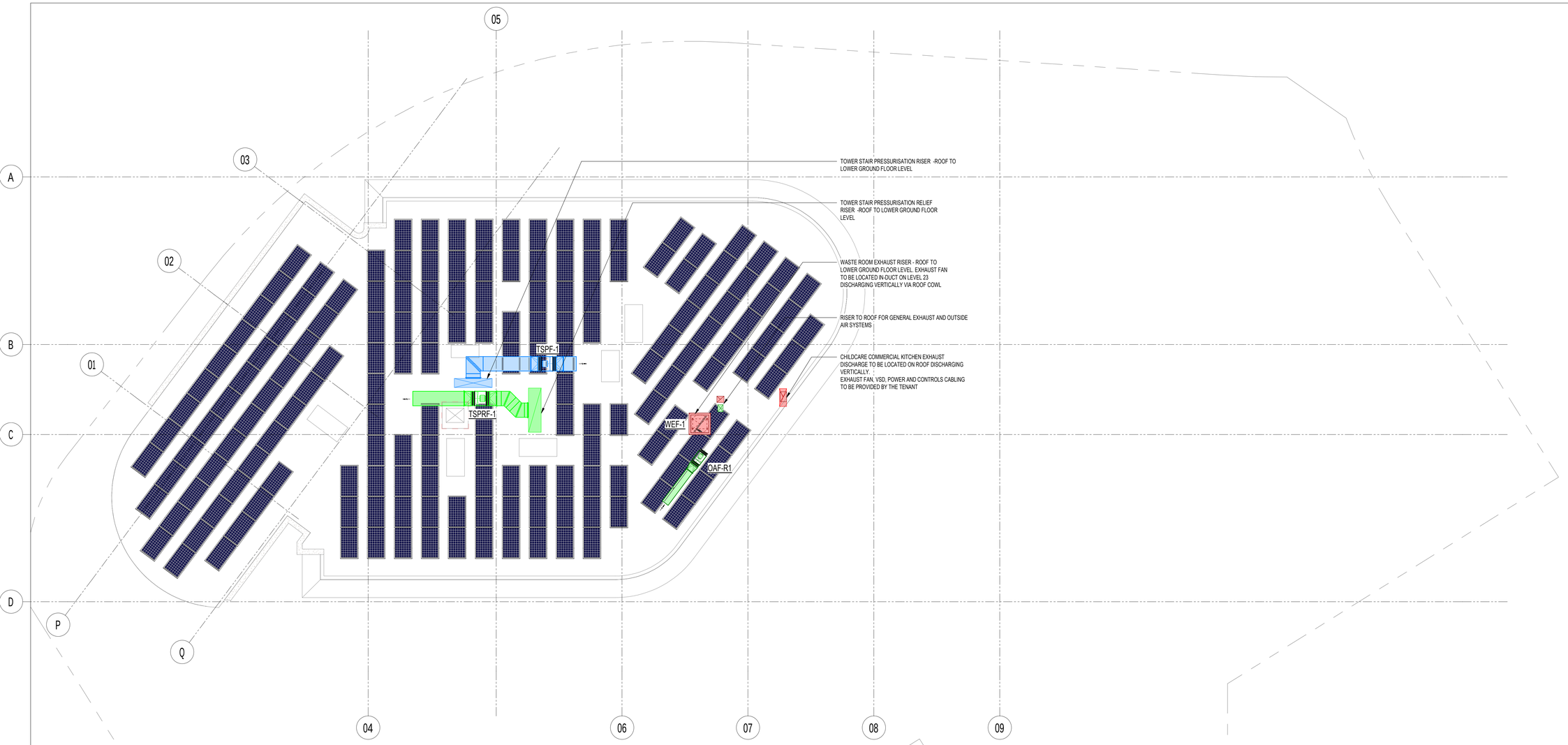
TITLE:
MECHANICAL SERVICES
LEVEL 23 LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
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PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

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REV	DATE	BY	DESCRIPTION	CHK	APP
T2	02.04.2020	BIM	TENDER ISSUE	AXJ	RAB
T1	13.03.2020	BIM	TENDER ISSUE	AXJ	RAB
P2	31.01.2020	BIM	DRAFT TENDER	AXJ	RAB
P1	17.01.2020	BIM	PRELIMINARY ISSUE	AXJ	RAB

DRAWING STATUS: TENDER

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CLIENT: FRASERS PROPERTY

ARCHITECT: BATESSMART

PROJECT:
BUILDING A1
IVANHOE ESTATE
MACQUARIE PARK

TITLE:
MECHANICAL SERVICES
ROOF LAYOUT

SCALE @ B1:	CHECKED:	APPROVED:
1:100	AXJ	RAB
PROJECT NUMBER:	DRAWN:	DATE:
PS106555	BIM	JAN 2020

DRAWING No: A1-ME-4-R00-01 REV: T2

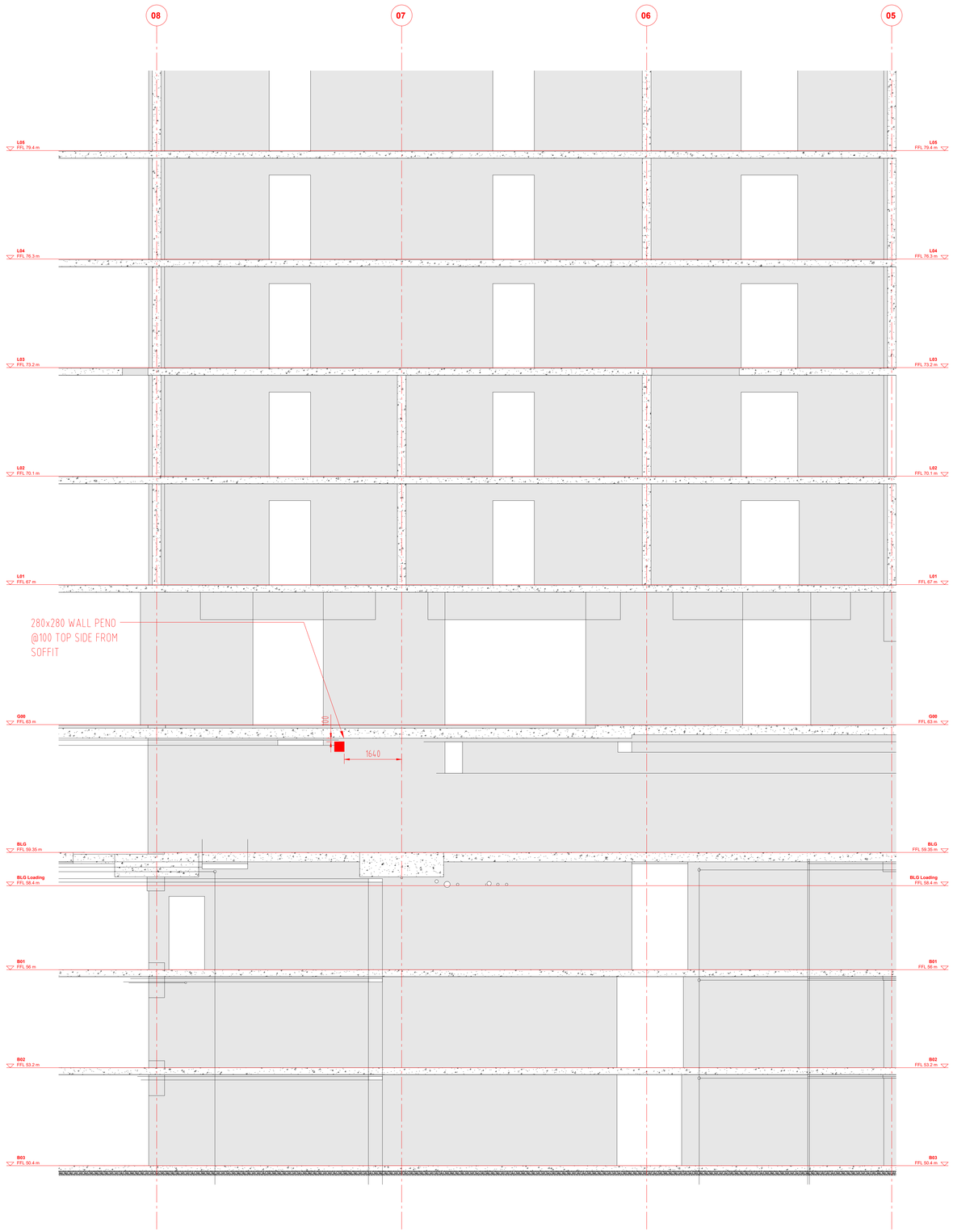
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Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	ELEVATION 1 BUILDERSWORK	Drawing No:	A1-ME-5-01

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



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Iss	Issued to/Amendment	By	Chd	Date
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DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY. LTD.

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T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

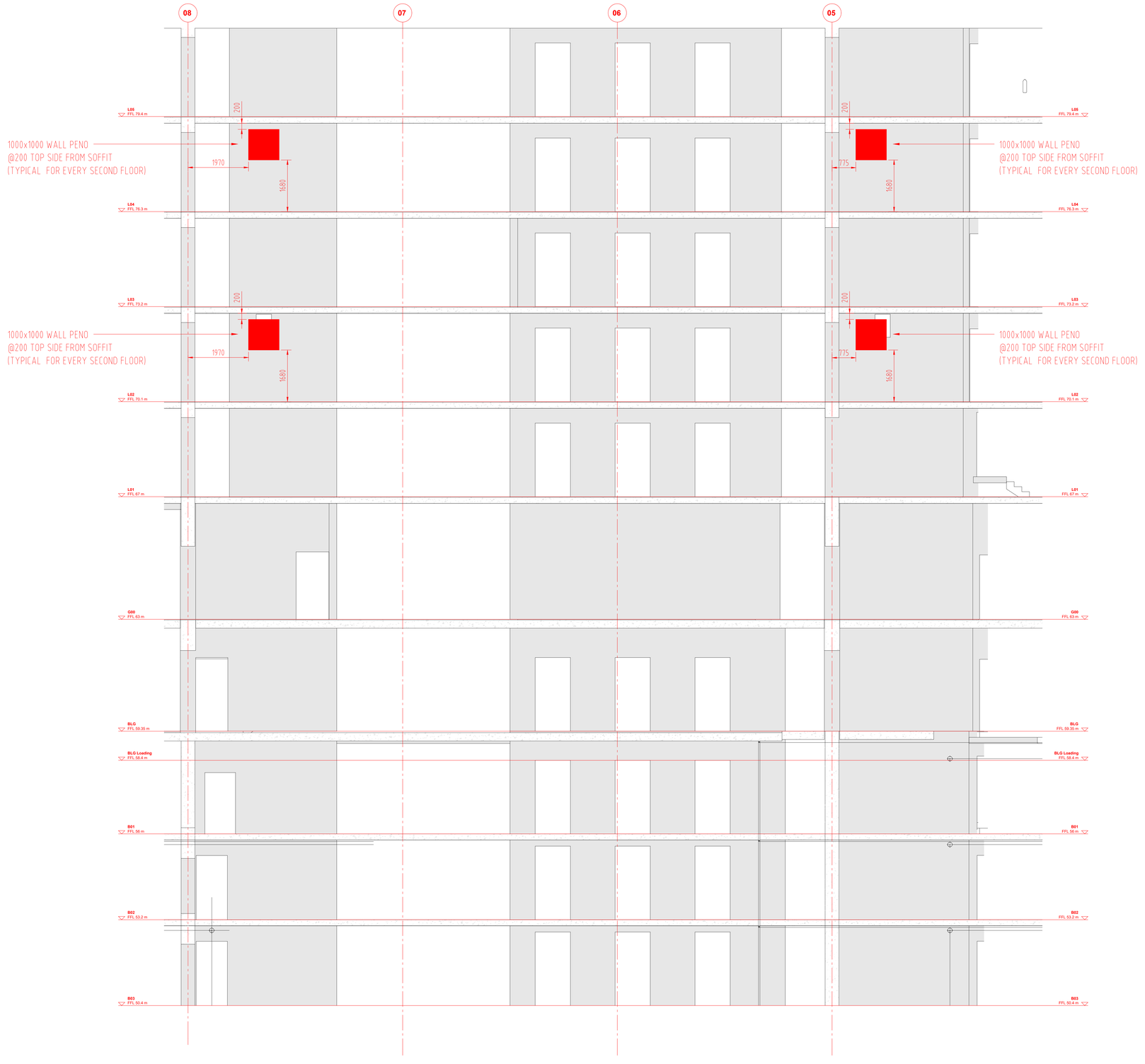
MECHANICAL SERVICES
ELEVATION 1 BUILDERSWORK

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-5-01	01
Scale	1:50 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	ELEVATION 2 BUILDERSWORK	Drawing No:	A1-ME-5-02

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
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Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

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E dstko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
ELEVATION 2 BUILDERSWORK

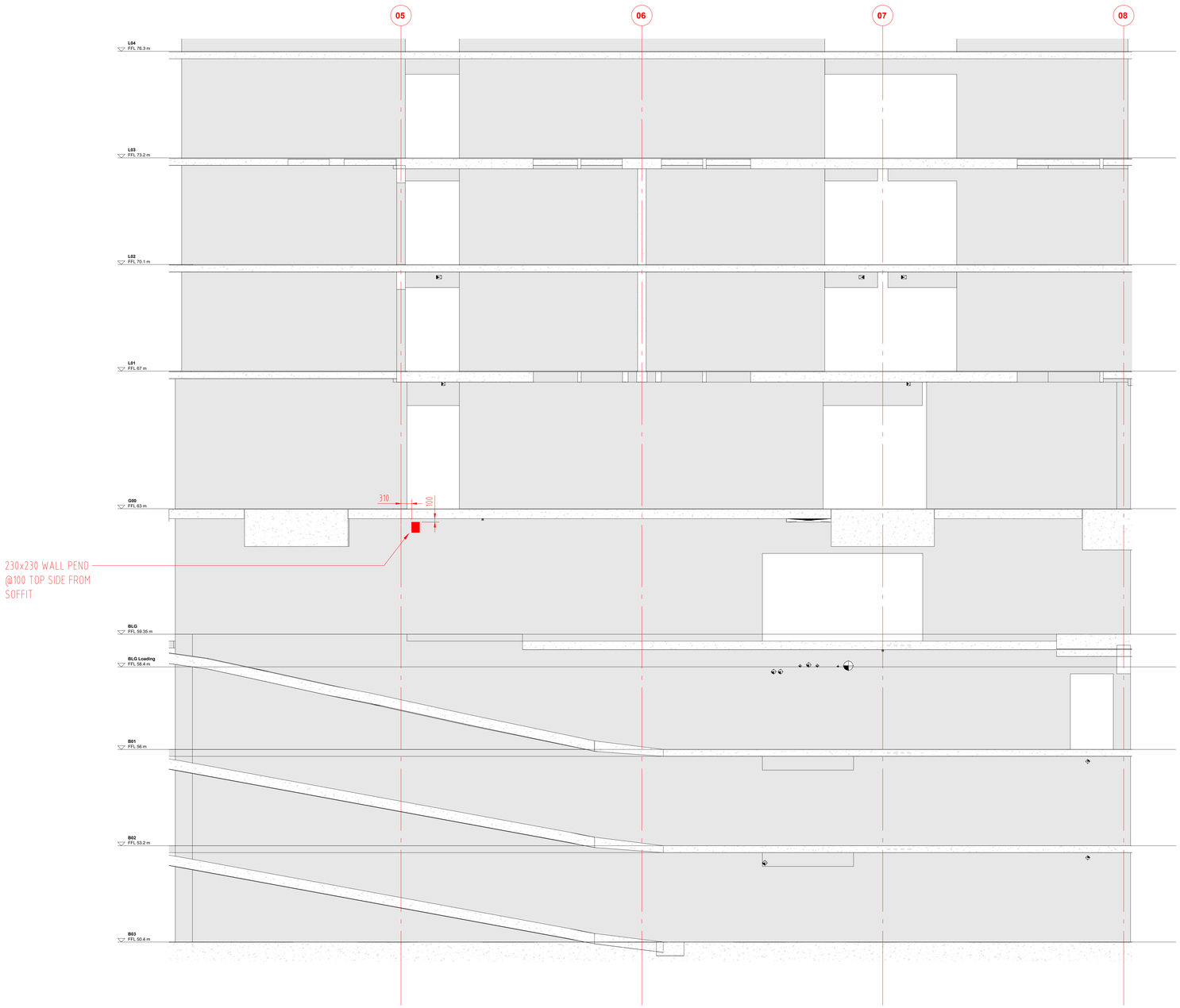
Date	Jun '21	Drawing No.	Amendment
Drawn	BP	A1-ME-5-02	01
Scale	1:50 @A0		

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	ELEVATION 3 BUILDERSWORK	Drawing No:	A1-ME-5-03

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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CW3

FOR CONSTRUCTION

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

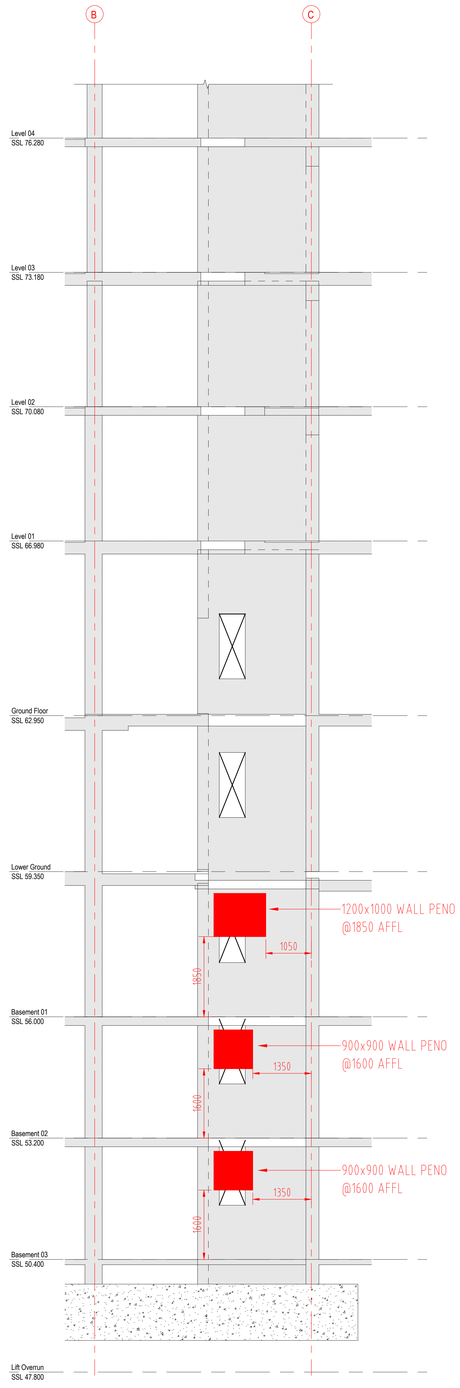
MECHANICAL SERVICES
ELEVATION 3 BUILDERSWORK

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Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

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MECHANICAL SERVICES
ELEVATION 4 BUILDERSWORK

Date Jun '21
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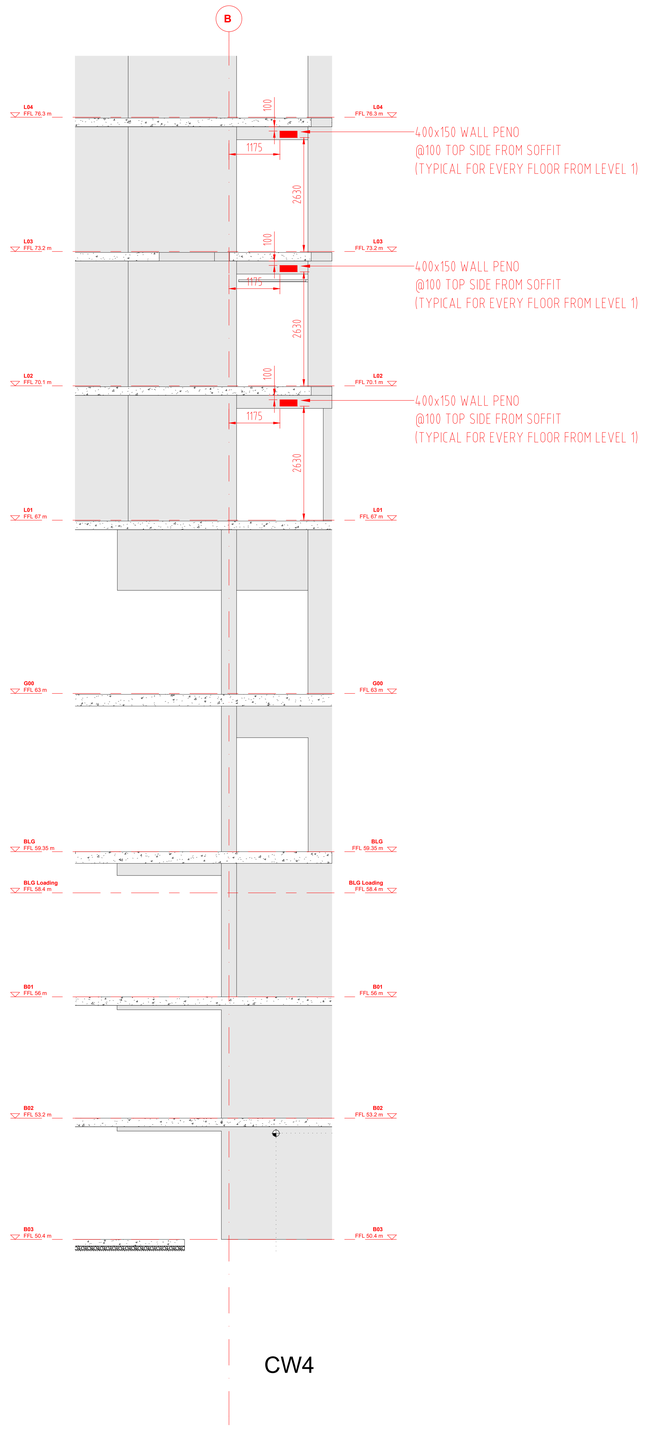
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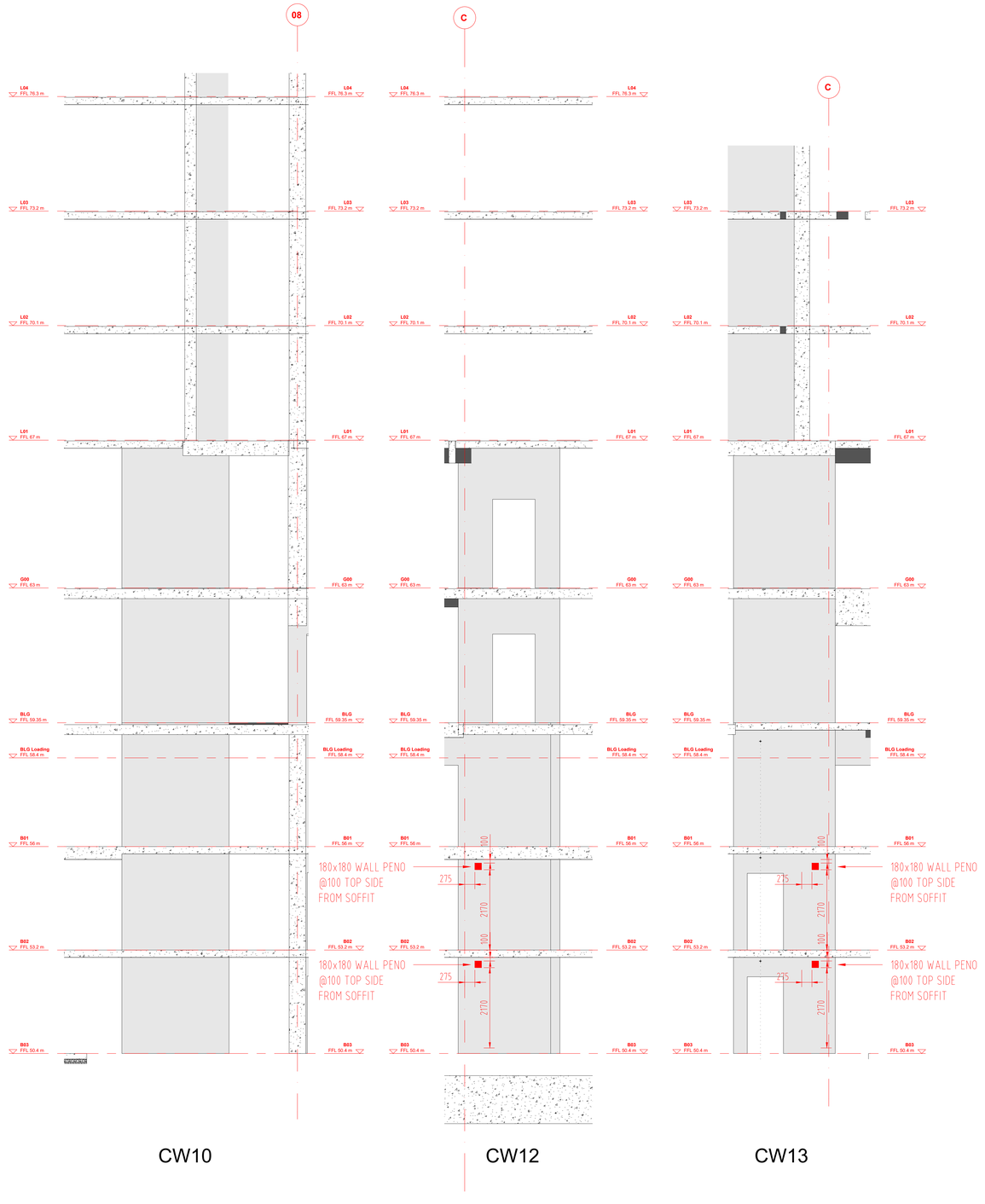
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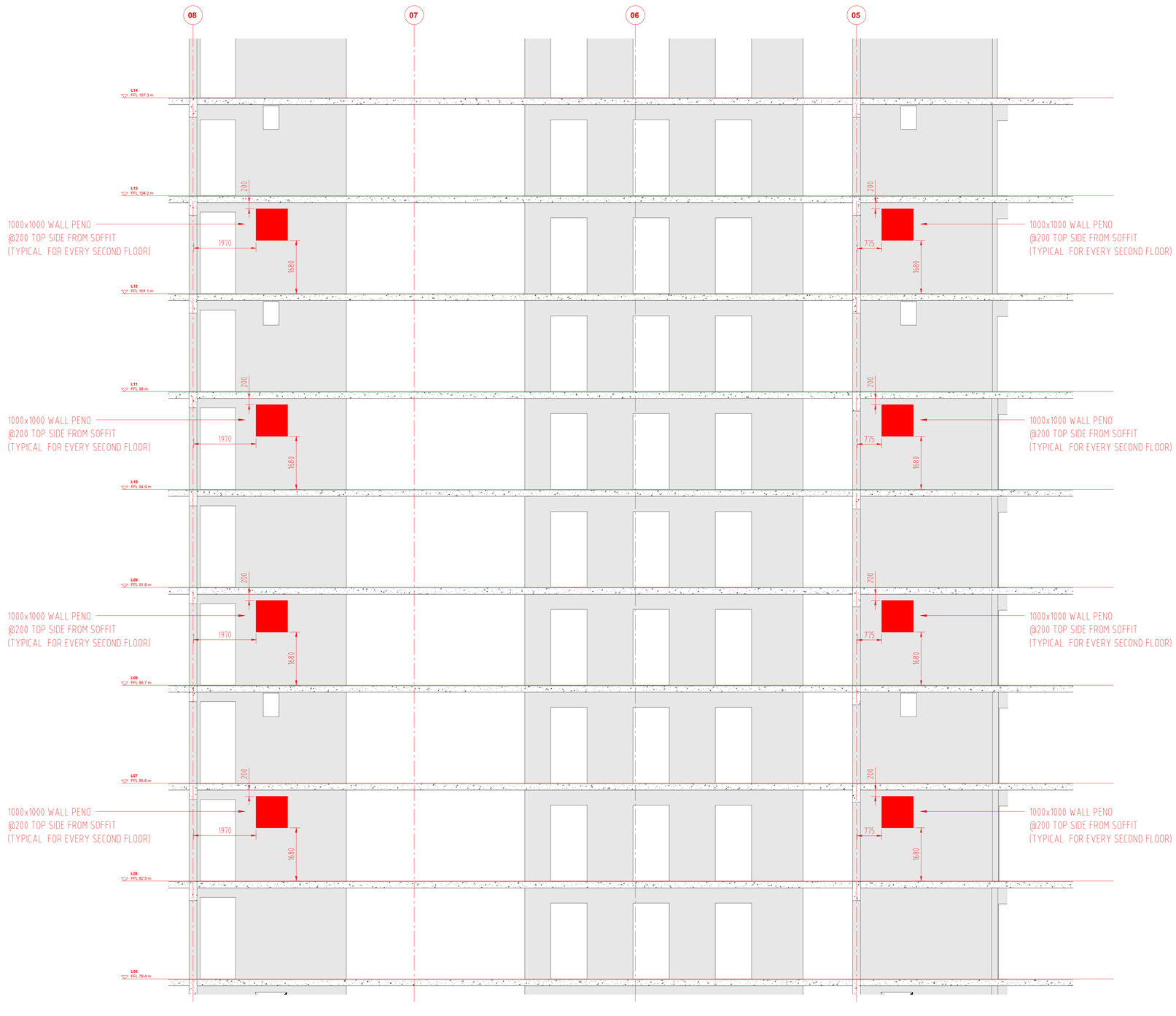
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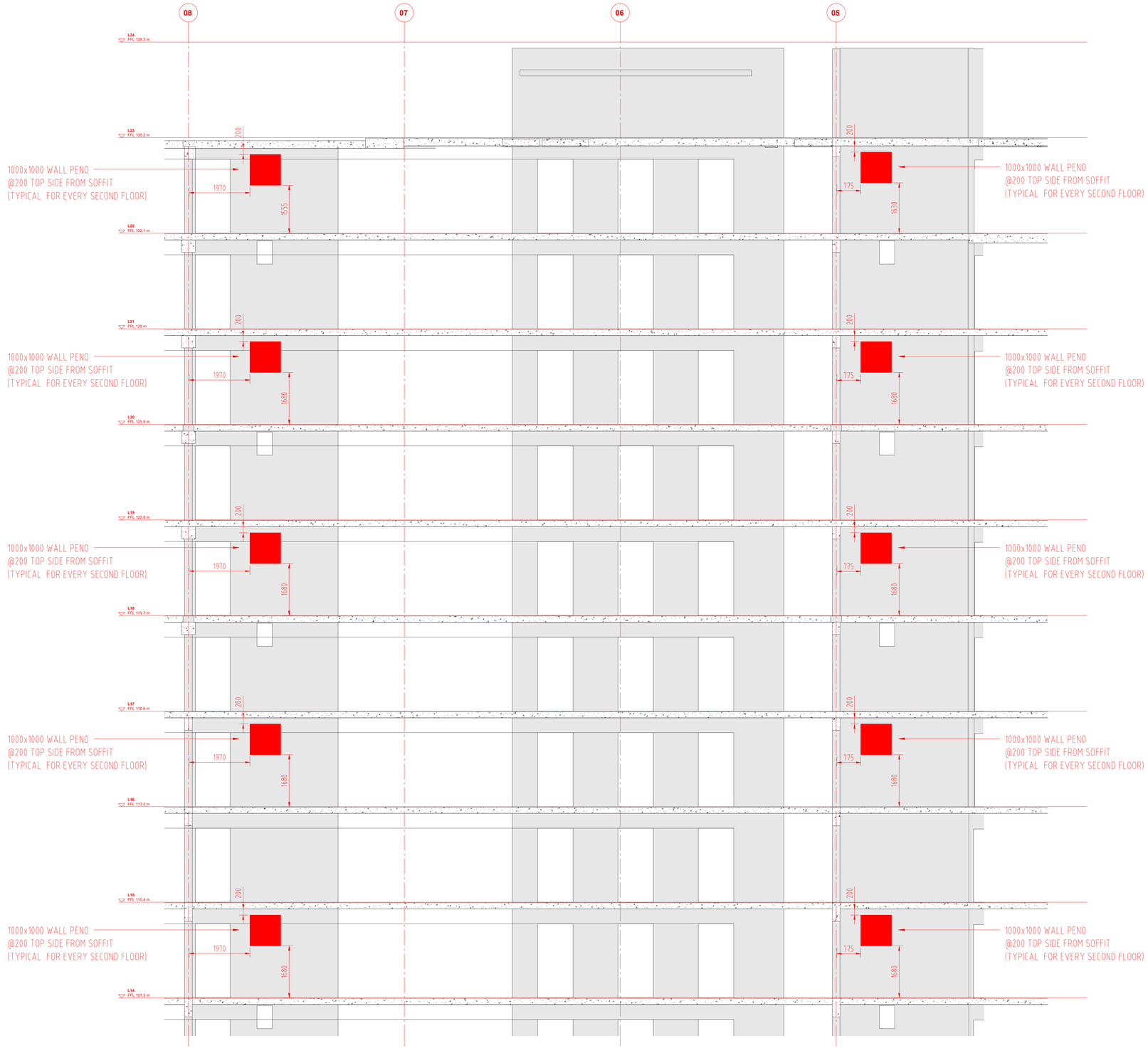
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ELEVATION 8 BUILDERSWORK

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Drawing Title:	ELEVATION 9 BUILDERSWORK	**Drawing No:**	A1-ME-5-09

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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
ELEVATION 9 BUILDERSWORK

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Reviewed by:	Rebecca Fitzgerald	31/03/2020	
Approved by:	Rob Beck	31/03/2020	

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DOCUMENT STATUS RECORD

This sheet records the Revision Code and Date Approval of the document.

For convenience, the nature of the revision is briefly noted under ‘remarks’, but these remarks are not part of the document.

Revision code	Date revised	Chapter / Section / Page revised, plus any remarks
00	17/01/2020	Draft Tender Issue for Comments
01	31/01/2020	Draft tender
T1	13/03/2020	Tender
T2	31/03/2020	Revised tender

1 PROJECT INFORMATION

1.1 GENERAL

This technical specification is to be read in conjunction with other tender documents issued including:

- Conditions of Tender
- Conditions of Contract
- Contract Preliminaries

This specification is a technical specification and for the purpose of this technical specification, 'works' shall mean all works or work as described in this specification and associated drawings

1.2 PROJECT TEAM

The Project Team includes the following team members:

PRINCIPAL/CLIENT	Ivanhoe Estate
DEVELOPMENT / PROJECT MANAGER	Frasers Ivanhoe
ARCHITECT	Bates Smart
CONSULTANT ENGINEER (MECHANICAL, ELECTRICAL, FIRE PROTECTION, HYDRAULIC, VERTICAL TRANSPORTATION)	WSP
SUSTAINABILITY CONSULTANT	WSP
FIRE SAFETY ENGINEER	Affinity Fire Engineering

1.3 THE PROJECT DESCRIPTION

1.3.1.1 GENERAL DESCRIPTION

The Ivanhoe Estate is a new mixed-use development proposed to be located within Macquarie Park. The project is proposed to be staged with Stage 1 to consist of Building A1.

The buildings consist of the following areas:

- → Market residential apartments;
- → Residential common areas;
- → Childcare; and
- → Basements.

This specification encompasses the mechanical services scope of works required for Stage 1.

2 GENERAL REQUIREMENTS

2.1 GENERAL

2.1.1 DEFINITIONS

Unless the context otherwise requires, the following definitions apply:

Supply: ‘Supply’, ‘furnish’ and similar expressions mean ‘supply only’.

Provide: ‘Provide’ and similar expressions mean ‘supply, deliver and install’ and include all testing, commissioning, tuning, interfaces etc.

Proprietary: ‘Proprietary’ means identifiable by naming manufacturer, supplier, installer, trade name, brand name, and catalogue or reference number.

Samples: Includes samples and prototypes.

Zinc-coated steel: Includes zinc-coated steel, zinc/iron alloy-coated steel and aluminium/zinc-coated steel.

2.1.2 SPECIFICATION OBJECTIVES

The intent of this Specification is to:

1. Provide a basis for competitive tendering for suitably qualified tenderers.
2. Allow competent Contractors to price the works.
3. Provide a clear statement of technical and performance requirements against which compliance can be assessed.
4. Provide documentation required by Authorities to demonstrate design compliance with statutory requirements for the purpose of building permit application.
5. Provide documentation detailing the scope and quality of the project for the purpose of Client’s confirmation of compliance to the Client’s project brief.
6. Define the requirements of the Contractor with respect to Quality Assurance.
7. Define the scope of services including project management, installation engineering, testing commissioning, maintenance and documentation to be provided.
8. Specify the technical requirements of the Installation.
9. The Specification relies upon the Contractor having the necessary specialist services resources to complete the detailed design, testing and commissioning of the installation in accordance with the design intent and the requirements of the specification and drawings.

2.1.3 DESIGN INTENT

1. Intent: The Contract documents are intended to call for complete, operational systems. Provide all items (major and minor), equipment, accessories and incidental work required for the completion of the installation and to ensure full integration.
2. Diagrammatic layouts: Layouts of service lines, plant and equipment shown on the drawings are diagrammatic only, except where figured dimensions are provided or calculable. Before commencing work, inspect the site, obtain all necessary measurements and information.

2.1.4 DISCREPANCIES IN DOCUMENTS

Give immediate notice in case of any ambiguity, discrepancy or inconsistency in the Contract document. Should conflict arise between the requirements of specification, drawings, mandatory requirements, standards including Standards Australia Codes, then the higher standard or most stringent requirements shall prevail and shall be deemed to have been included in the Contract. The Contract's order of documents precedence is not intended and shall not be applicable in this case

2.1.5 REFERENCED DOCUMENTS/STANDARDS

Use referenced documents/standards which are editions, with amendments, current 3 months before the closing date for tenders, except where other editions or amendments are required by Statutory Authorities.

2.2 QUALITY ASSURANCE

1. Provide a Quality Assurance plan in order to propose, establish, maintain, monitor and document a quality assurance system covering all aspects of the design, purchase, fabrication, installation and completion of the works. The plan shall be in accordance with ISO 9001./.2 (as appropriate).
2. Designate a Project Quality Inspector to discharge the quality plan, which must include the following minimum:
3. Inspect the installation works regularly and provide installation defects reports on regular basis in order to systematically reduce the incidences of installation defects. Submit copy of such defects lists to the Consultant Engineer upon request. This task can be delegated to qualified site foreman if applicable.
4. Check and sign off all shop drawings (including all third-party shop drawings) for conformance to requirements prior to submission. All such documents shall list all non-conformances with the Specification and Drawings.
5. Check and sign off equipment compliance schedule against the particular Specification requirements and equipment schedules prior to submission. All such documents shall list all non-conformances with the Specification and Drawings.
6. Check and sign off all samples for conformance to requirements prior to submission. All such documents shall list all non-conformances with the Specification and Drawings.
7. Check all tests required for proper manufacturing of the equipment.
8. Check and sign off all manufactured items for compliance prior to dispatch to site.
9. Check and sign off installation of all items under this Specification and Drawings. Provide signed off installation ITPs for every elements of installation (minimum floor by floor and/or for every individual area up to 1000sqm whichever is smaller).
10. Check all materials, welding, joining, terminations, fixing and finishes.
11. Check and sign off all associated ITPs for all on-site tests required to commission the works.
12. Check and sign off operating and maintenance manuals to ensure they contain adequate information to permit systems to be operated by the Client at the end of defects liability period. (Including adequate training and tuition of the nominated Client's representative).
13. Check and sign off all associated integrated ITPs for all integrated on-site tests required to commission the works and to be carried out by various systems.
14. All trades works including sub trades works shall form part of overall QA and required to have their ITPs, Shop drawings, technical submissions signed off also by the Project Quality Inspector. This sign off represent all required checking that these works are consistent and compliant with the rest of the works.

15 Submit the following documentation:

- **a** Quality System third party certification, if any, to the Standards specified by the Joint Accreditation System of Australia and New Zealand.
- **b** Quality manual detailing, corporate Q.A. policy statement, system element description, register of procedures and project specific ITPs.

16 Notice:

- **a** Inspect witness points: If notice for inspection is to be given in respect of parts of the works, advise if and when those parts are to be concealed. Inspect and provide signed off installation ITPs indicating appropriate methods of installation been carried out.
- **b** Inspection hold points: If notice of inspection is to be given in respect of parts of the works, do not conceal those parts without approval.
- **c** Minimum notice for inspections to be made: 4 hours for inspections full time on-site, otherwise 2 working days for on-site inspections, and 5 working days for local pre-delivery inspections.
- **d** Concealed services: Give notice so that inspection may be made of services to be concealed. Irrespective of Consultant Engineer inspection, inspect the works, sign off relevant ITPs and highlight any noncompliance and/or defects.

17 Witness tests: Give sufficient notice so that designated tests may be witnessed.

- **a** Minimum notice for tests to be witnessed is 5 working days for site tests; and 10 working days for local pre-delivery tests.
- **b** Test hold points: Do not carry out designated tests without approval.

18 Testing Authorities:

- **a** General: Except for Site Tests, have type tests carried out by authorities accredited by NATA to test in the relevant field, or an approved organisation outside Australia recognised by NATA through a mutual recognition agreement. Co-operate as required with testing authorities.
- **b** Site tests: Use instruments calibrated by authorities accredited by NATA.

19 Reports:

- **a** General: Submit copies of test reports, including certificates for type tests, showing the observations and results of tests and compliance or non-compliance with requirements.
- **b** Submit Installation Defects Reports carried out on regular basis to the Consultant Engineer upon request.

20 Concealment:

- **a** If tests are to be carried out on parts of the work, do not conceal those parts and do not commence further work on those parts until the tests have been satisfactorily completed and compliance verified.

2.3 ELECTROMAGNETIC COMPATIBILITY

1 Comply with Australian Communications Authority requirements for electrical and electronics products to limit electromagnetic interference (EMI).

2 Emissions:

- **a** Passive products with C-tick or Regulatory Compliance Mark (RCM) to AS/NZS 4417.3, marking of electrical products to indicate compliance with regulations – Specific requirements for electromagnetic compatibility regulatory applications.

3 Immunity:

a Electrical and electronic apparatus: To AS/NZS 4252.1, Electromagnetic compatibility – Generic immunity standard – Residential, commercial and light industry (EN 50082-1), or

b EN 5008-2, Electromagnetic compatibility – Generic immunity standard – Industrial environment.

4 Harmonics:

a Levels of emissions shall be in accordance with the electricity Distribution Code. Keep the THDI current to 5% Maximum for all individual components/equipment and at least to that level at the first supplying control panel for all components/equipment connected to the switchboard. Provide active harmonic filters within the component, or respective control panel. Do not rely on the external harmonic filters to be installed on the Main Switchboard(s). Refer to the remaining sections for more specific requirements. Chillers and large motor >10kW with VSDs requires dedicated harmonic mitigation measures to be effective at all operating levels (i.e. from no load to full load range)

2.4 BUILDING PENETRATIONS

2.4.1 FIRE RESISTING BUILDING ELEMENTS

1 Seal penetrations to comply with NCC using a system to AS 4072.1, Components for the protection of openings in fire-resistant separating elements – Services penetrations and control joints.

2 Comply with Section 3 of AS/NZS 1668:1, Fire and Smoke control in Multi Compartment Buildings.

AS4072.1 inter-alia Appendix B and AS1851 inter-alia Clause 17.2.3.1 shall be complied with in as-built documentation to identify all fire and smoke containment compartment walls and barriers. To satisfy specific identification requirements to AS4072.1 Appendix B4 and AS1851 Clause 17.2.4, permanently fixed labelling, tagging and signage of all passive fire and smoke containment systems must be provided for on-site identification. Fire stopping barriers and penetrations shall comply in particular with reference to a service label affixed adjacent to each fire stop barrier and service penetration (or close proximity group) as detailed on page 25 of AS4072.1 and page 165 of AS1851. This as-built provision amongst other as-built documentation and manuals is essential as part of handing over process of the project.

2.4.2 NON-FIRE RESISTING BUILDING ELEMENTS

1 Seal penetrations around conduits and sleeves. Seal around cables within sleeves. If the building element is weatherproof, acoustic rated or subject to pressure, maintain the rating. Acoustically seal penetrations through plantroom walls and floors.

2.4.3 CHASES

1 Cut, drill and chase as necessary, where possible avoiding finished work. Where chasing of finished work is essential, make good all damage to the original standards of the finishes.

2.4.4 LIMITATIONS

1 General: Do not penetrate, or chase the following without approval:

2 Structural building elements including external walls, core walls, fire walls, floor slabs, beams or columns.

3 Acoustic barriers.

4 Other building services.

5 Membrane elements including damp-proof courses, waterproofing membranes and roof coverings.

6 Membranes: If approval is given to penetrate membranes, provide a waterproof seal between the membrane and the penetrating compound.

2.5 REQUIRED SUBMISSIONS

1 Provide in good time to allow review without impediment to the programme, including possible amendment and resubmission: -

- a Copies of correspondence and notes of meetings with Authorities.
- b Documents showing approval of the Authorities whose requirements may apply to the work.
- c Certified schedule of compliance for all plant and equipment, prior to placing orders.
- d Factory test results where applicable.
- e All product data, performance test and commissioning results required by this Specification.
- f Shop drawings for fabrication and installation of all equipment and items supplied.
- g Manufacturer's product data for equipment, materials, components and systems including:
  - i Technical specifications and drawings.
  - ii Size, arrangement, operating and maintenance clearances.
  - iii Operating weight.
  - iv Type test reports.
  - v Performance and rating curves or tables marked with each selection showing for both duty point and for part load conditions the capacity; the energy consumption and power factor; and the sound power level.
  - vi Motor power requirements (both full load and starting).
  - vii Control details.
  - viii Recommendations for installation and maintenance.
  - ix Evidence of compliance with specified product certification schemes.
- h Inspection, test and commissioning plans for every section of the works. Detail:
  - i The procedure of how to complete the task.
  - ii The skill or competency of the person undertaking the works.
  - iii The review or testing procedure to assure satisfactory completion of the task.
  - iv The person within the Works Package's organisation authorised to sign-off the task as accepted.
- i Client handover/training proposals.
- j Record and installation drawings: Record all changes to equipment and services layouts, wiring and any other items during the construction period, which may have been incorporated into these works.
- k Operating and Maintenance manuals.
- l Maintenance/service records during the defects liability period.

2 Give notice before commencing work affected by the submissions, unless the submissions have been reviewed with no exception taken.

3 Do not commence production of equipment, materials, components of equipment, components or systems until submission has been reviewed with no exception taken.

4 Maintain and submit monthly a schedule of shop drawings and submissions to identify all proposed drawings and submissions designated in the following categories:

   a Accepted.

   b Submitted, awaiting acceptance (with submission date and revision number).

   c Not yet submitted.

5 Submit electronically (PDF or alternative agreed format).

6 Identify the project, Works Package, supplier/manufacturer, applicable product name, product number, included product options, and relevant specification references.

7 Where selected equipment or systems do not fully comply with this Specification and associated documents, submit details of proposed deviations for acceptance. Where such deviations require any changes to the structure, building works or services, these shall be provided by the Contractor without variation to the Contract. Apart from deviations listed, it shall be taken that the materials and equipment proposed meets with all other specified requirements. Review of equipment and materials is undertaken on this basis, and that non-complying equipment/materials may be rejected at any time – even if already installed.

8 Submit amended documents as appropriate, highlighting changes since the previous submission.

2.5.1 SAMPLES

2.5.1.1 TIMING

1 Co-ordinate submissions of samples as listed in the Schedules. Do not cause delays by making late submissions or submitting inadequate samples.

2.5.1.2 QUANTITY

1 Submit a sample of each designated item and 2 copies of supporting documentation. Include ancillary items such as fasteners and mounting brackets. Amend and resubmit samples which are not accepted.

2.5.1.3 IDENTIFICATION

1 Identify the project, Contractor, their agents or supplier, manufacturer, applicable product, model number and options, as appropriate and include pertinent Specification references.

2 Include service connection requirements and product certification.

3 Identify non-compliances with project requirements, and characteristics that may be detrimental to successful performance of the completed work.

2.5.1.4 SAMPLE ACCEPTANCE AND RETENTION

1 Do not commence work affected by samples until the samples have been accepted. Submit further samples as necessary.

2 Keep approved samples in good condition on site, until Practical Completion.

3 Incorporate in the works samples, which have been approved for incorporation. Do not incorporate other samples.

4 Installed items shall match accepted samples throughout the works.

2.6 MATERIALS, EQUIPMENT AND COMPONENTS

2.6.1 GENERAL

1 Provide new materials, equipment and components shall be new, of good quality and fit for purpose, selected for a reasonable service life. Do not provide without approval products that are obsolete, discontinued or about to be discontinued.

2 Identification of a proprietary item does not necessarily imply exclusive preference for the item so identified, but indicates a deemed to comply item.

3 Manufacturers: Provide equipment and associated accessories which are the products of established manufacturers regularly engaged in the manufacture of such equipment, who issue comprehensive rating data and certified test data on their products.

4 Consistency: For the whole quantity of each material or product use the same manufacturer or source and provide consistent type, size, quality and appearance.

5 Safety: Provide all necessary safety devices for the protection of personnel against injury and the protection of plant and equipment against damage including relief valves, belt guards, safety railing, and effective earthing of electrical components, electrical interlocks, warning lights, and signs, alarms and local lighting. Provide permanent lifting eyes for equipment exceeding 40kg.

6 General: Select, if no selection is given, and transport, deliver, store, handle, protect, finish, adjust, prepare for use, and use manufactured items in accordance with the current written recommendations and instructions of the manufacturer or supplier.

7 Instructions: Submit the recommendations and instructions, and advise of conflicts with other requirements.

8 Project modifications: Advise of activities that supplement, or are contrary to, manufacturers or suppliers' written recommendations and instructions.

9 Product certification: If products must comply with product certification schemes, use them in accordance with the certification requirements.

10 Provide permanently fixed plates indicating manufacturer, model, serial number, capacity and electrical data for all equipment. Lettering height: 5mm maximum, 1.5mm minimum.

11 Provide materials or products are supplied by the manufacturer in closed or sealed containers

2.6.2 FINISHES AND VISUAL ELEMENTS

1 Surfaces shall be flat and free of noticeable distortion, warping and twisting.

2 Edges and corners accessible to users dressed to avoid cutting if touched.

3 Pressings shall be accurate in dimension and profile to ensure consistent mating and clearance gaps and pressing shape.

4 Mating surfaces between adjacent pressings - flush and accurate to produce smooth distortion free joint.

5 Provide protection against damage until Practical Completion.

6 Surface shall be clean, undamaged and free of stains

2.6.3 MANUFACTURERS' OR SUPPLIERS' RECOMMENDATIONS

1 General: Select, if no selection is given, and transport, deliver, store, handle, protect, finish, adjust, prepare for use, and use manufactured items in accordance with the current written recommendations and instructions of the manufacturer or supplier.

2 Instructions: Submit the recommendations and instructions, and advise of conflicts with other requirements.

3 Project modifications: Advise of activities that supplement, or are contrary to, manufacturers or suppliers' written recommendations and instructions.

4 Product certification: If products must comply with product certification schemes, use them in accordance with the certification requirements.

2.6.4 CLEANING AND PROTECTION OF FINISHED WORK

During handling and installation of work at the site, clean and protect work in progress and adjoining work. Apply suitable protective covering on newly installed work where required to ensure freedom from damage or deterioration at a time of Completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary throughout remainder of construction period. Adjust and lubricate operable components to ensure operation without damaging effects.

2.6.5 PROHIBITED MATERIALS

1 Do not use any of the following materials:

- **a** Lead where the metal or its corrosion products may be directly ingested, inhaled or absorbed, or any lead-based paints or primers.
- **b** Chromate paint pigment or chromate water treatment.
- **c** Urea formaldehyde foam or materials which may release formaldehyde in quantities which may be hazardous or irritant.
- **d** Synthetic mineral fibres except in accordance with Worksafe Australia National Standard and National Code of Practice.
- **e** Materials in which chlorofluorocarbons, hydrochlorofluorocarbons or hexa-fluoroacetones have been used as a blowing agent.
- **f** Chlorofluorocarbons.
- **g** Polychlorinated biphenyls.
- **h** Other substances generally known to be deleterious to health or safety or which would adversely affect the works.
- **i** Any that would be contrary to achievement of a required project Green Star or other sustainability rating.

2.7 INSTALLATION

2.7.1 GENERAL

1 General: Carry out the work in a proper and workmanlike manner.

2 Arrangement: Install equipment and services parallel or perpendicular to building elements. Organise reticulated services neatly. Provide for movement in both structure and service. Under suspended ground floors, keep services at least 150mm clear above ground surface, additional to insulation.

3 Movement and expansion: Provide expansion facilities in ductwork, piping, cables, cable trays and supports to accommodate thermal expansion and movement at structural expansion joints.

4 Protection: Protect equipment from weather and the ingress of dirt, moisture, vandalism and tampering.

5 Access: Provide access to all components requiring entry, inspection or maintenance.

6 If interruptions to supply of any service are required co-ordinate the shutdowns to the satisfaction of the Superintendent, advise the occupants, minimise inconvenience, and advise when supply is reinstated. Arrange shutdowns out of hours.

2.7.2 SERVICES/UTILITIES CONNECTIONS

1 If the utility provider elects to perform or supply part of the works, make the necessary arrangements. Install equipment supplied, but not installed, by the utility provider.

2 Connect to utility provider services or service points. Excavate to locate and expose connection points. On completion reinstate the surfaces and facilities which have been disturbed. Pay connection charges.

2.7.3 SYSTEM INTEGRATION

1 Interconnect system elements so that the installations perform their designated functions.

2.7.4 SETTING OUT OPENINGS AND MAKING GOOD

1 The Specification Drawings are diagrammatic only and unless otherwise stated shall not be used for determining the precise positions of equipment outlets and like features. The exact location of these shall be determined on site and/or from shop drawings.

2 All chases, ducts, recesses and penetrations in structural elements not shown on the building and structural drawings shall be subject to approval.

3 Provide the precise location of all openings, fixings and similar items of work required for these works.

4 Determine requirements at such times as not to cause delay to the work.

5 Check all items to ensure correct positioning.

6 Wrongly located or omitted openings, fixings and similar items of work resulting from incorrect or lack of inter trade coordination shall be remedied and paid for under these works.

2.7.5 WORKS PROGRAMME AND TIME CHART

1 Sufficient information of construction phase activities shall be provided to enable preparation of a detailed construction programme incorporating activities of every trades.

2 The programme of work shall be arranged in consultation with all Trades and the installation shall be completed according to the agreed programme.

3 The Works programme shall clearly show the start and completion dates with the typical activities listed below. The list is indicative.

4 Submission of shop drawings and major technical submissions.

5 Shop fabrication

6 Ordering of plant and materials.

7 Delivery of plant and materials.

8 Erection, testing and painting/identification of pipework/cable trays/ conduits/ducts in false ceilings.

9 Erection of duct and pipe risers and installation of electrical wiring in vertical building risers before building riser walls are completed and closed.

10 Permanent power connection.

11 Commencement of fitting offs and final terminations.

12 Authorities acceptance tests.

13 Commencement of testing.

14 Commencement and Completion of plant commissioning.

2.7.6 METALWORK

1 General: Use metalwork capable of transmitting the loads imposed, and sufficient to ensure the rigidity of the assembly without causing deflection or distortion of finished surfaces. Construct to prevent rattle and nuisance.

2 Metal separation: Prevent contact between electrolytically dissimilar metals, by using concealed insertion layers.

3 Edges and surfaces: Keep clean, neat and free from burrs and indentations. Remove sharp edges.

2.7.7 FIXING

1 Fix all plant to structure in approved manner, either directly or via secondary structure as required. Submit details of types of fixings, locations and loads for approval.

2 Fix only light weight items to non-structural building elements.

3 Do not pierce waterproof roofs, floors or walls with fixings.

4 Fasteners to comply with appropriate Australian / New Zealand Standards.

5 Use proprietary corrosion resistant fasteners capable of transmitting the loads imposed, and sufficient to ensure the rigidity of the assembly. Use metal expansion bolts for concrete and masonry. Do not use explosive charge fixings without approval.

6 Corrosion protection: Use corrosion resistant, chemically and electrolytically compatible fasteners. Provide insulating spacers where necessary.

2.8 CO-ORDINATION

Comprehensive co-ordination of all services and associated building work form part of the Works.

These responsibilities shall include:

1 Co-ordination of the works as required.

2 Management of the advance procurement of equipment to meet programme.

3 Co-ordination of in-ground and in-ceiling services routes, including trenching, trays and pipework.

4 Management of the preparation and approval of fully co-ordinated drawings including penetration drawings.

5 Management of services testing and commissioning

6 Ensuring provision of all test results and required certifications to obtain Certificate of Occupancy from the relevant Building Surveyor.

During the construction period the works require that a competent supervisor is provided on site responsible for the comprehensive co-ordination of all engineering services, including civil, structural, electrical, mechanical, hydraulics, fire and lift services.

Responsibility for the proper direction, supervision, control and co-ordination of the work forms part of the works and shall assist all other trades in every way possible in meeting this responsibility.

All services shall be thoroughly co-ordinated prior to installation. Should work proceed without co-ordination being undertaken and authorisation by those with such responsibility and should other trades subsequently not be able to effectively proceed with their respective installation, the work initially undertaken shall be removed and reinstalled at the expense of the Contractor.

Any claims for additional costs or delays due to the lack of effective co-ordination by the various trades shall be rejected.

Arrange and co-ordinate all interconnection testing with other services systems, e.g. fire mode tests, power failure testing, etc.

2.8.1 CO-ORDINATION OF INSTALLATION WITH CEILING TILES AND FINISHES

Co-ordination shall be carried out to ensure that all building and services elements such as air ducts, outlets and light fittings, sprinklers, speakers and other ceiling elements are installed in a co-ordinated manner, such that all services can be connected and maintained as indicated on the Architectural Reflected Ceiling Plans.

2.9 SAFETY IN DESIGN

Safety in Design risk management shall form an integral part of these works and shall conform to the requirements of the Workplace Health and Safety (WHS) Act 2011 & WHS Regulations 2011.

The Safety in Design process shall conform to the State-relevant Compliance and Guidance documentation.

General principles of risk management to be followed shall be as AS/NZS ISO 31000 (2009) Risk Management – Principles and Guidelines.

The National Standard for Construction Work (NOHSC:1016) shall be used to align design risk management practice with construction risk management practice.

The Safety in Design Risk Assessment shall include but not be limited to:

1. Understand the range of work activities associated with the intended use of the building / structure as a work place.
2. Identify hazards, assess risks (quantify and rank), identify control measures, implement control measures, review and prepare risk register prior to construction of work. Monitor and review throughout construction and operation. The process includes review and acknowledgement of residual risks identified and communicated by the designer as defined by the WHS Act and Regulations.
3. Elimination or where this is not reasonable practicable, minimisation of any risk to health and safety of any person. The process includes, recommendation of design alternatives that shall eliminate / reduce risks, recommendation of control measures for residual risks; organising participate and facilitating Safety in Design workshops as required.
4. Report in writing, on health and safety aspects and risks of the design identified. Implementation of control measures which shall be monitored and reviewed throughout construction and operation.
5. Provide at the conclusion of the project all residual risk information, in the form of a Safety in Design File and the related instruction and training as required to ensure an understanding of the safety aspects of the installation.

Where local regulatory practice differs from the above the more onerous shall be used as the basis for compliance.

3 PROJECT REQUIREMENTS AND DESCRIPTION OF WORKS

3.1 GENERAL

Unless varied by Specification Addenda, the requirements set out below in this section are mandatory and no deviation is permitted.

List and allow in your tender form all of the items called in and listed in this section. No deviation from requirements of this section is permitted unless approved by Superintendent in writings during the tender process.

3.2 ROLES AND RESPONSIBILITIES

3.2.1 OBLIGATIONS OF THE CONTRACTOR

The tender documentation has been prepared on a D&C basis.

The Principle will not be producing any further design documentation beyond this tender specification and tender drawings.

The services to be provided by the Contractor shall be the provision of labour, material and equipment necessary to design, document and certify the building services.

The Contractors Building Services Installer shall carry out the design so that at all times the documentation complies with, as a minimum:

1. Tender Documentation (Including design criteria set out in section 3 of this specification)
2. All Project Documents and Briefs
3. Legislature Requirements NCC, Codes, Standards and development approvals
4. Building Certifiers requirements / report
5. Fire Engineering Report
6. Acoustic Report
7. Best Design practices
8. Safety in design obligations
9. ESD Requirements

In addition, the Contractor has the following obligations:

- **a** To raise in good time, issues requiring design input or clarification from the Consultant Engineer, particularly in respect to:
  - **i** interpretation of the Specification or drawings;
  - **ii** problems in complying with the Specification together with suggested alternative/substitutions;
  - **iii** matters in the Contractor's opinion, are omissions not discovered during the tender process, together with suggested alternatives/substitutions

b To allow the design verification costs of the Consultant Engineer when suggesting alternatives and departures from this Technical Specification and accompanying Drawings.

c To certify compliance with Authority requirements.

d To pay all fees applicable to the works.

e To obtain all Authority permits and certificates to allow the progress of the work.

f To provide manufacturer's and construction drawings of sufficient detail to allow proper fabrication, co-ordination and installation and a scale not less than 1:50; incorporating all post-tender changes to architectural and structural drawings.

g To provide samples and prototypes where specified.

h To provide manufacturer's factory test records (type tests and witnessed tests) and site installation inspection and sign-off certifying that the completed installation comply with the manufacturer's installation guidelines and requirements

i To provide the completed Services installation that is fully and correctly commissioned and fine-tuned and, that is functional and operable efficiently in compliance with all requirements of this Technical Specification.

j To provide copies of all monthly/ quarterly maintenance and servicing reports required to the Consultant Engineer.

k To certify compliance with Contract documents, including all variation instructions, at Practical Completion.

3.2.2 CONTRACTOR'S DESIGN RESPONSIBILITIES

The Contractor shall complete the design as part of the works. Design shall be fully co-ordinated with all other designers such as the architectural design, Fire Engineering Report, Building Certifiers report, lighting design, other services installations etc.

The Contractors Building Services Installer will be required to provide certification letters etc. to the Building Certifier as requested to achieve all required approval and occupancy permit.

Mechanical design responsibilities shall be generally as follows, but not limited to

1 Ensuring that the detailed design undertaken is fully co-ordinated and compatible with the remainder of the project

2 Ensuring that the detailed design undertaken is fully in accordance with the projects design criteria set out in section 3 of this specification

3 Heat load calculations to determine all plant capacities

4 Ventilation calculations for all areas including basement carpark, loading dock, miscellaneous areas etc.

5 Check space requirements of equipment and services which are indicated diagrammatically in the tender documents. Select equipment with dimensions to suit the available space.

6 Lay out equipment and services to be accessible for operation, maintenance and replacement and so as not to interfere with access to other installations. Make offsets as necessary.

7 Set out access ways 2.1m high and 1.0m wide (minimum) to all major plant clear of all obstructions, unless otherwise approved.

8 Co-ordinate the layout of plant and services with the building layout and structure, and with other plant and services.

9 Neatly group services, with separate layers for crossing services.

10 Interface details with other trades.

11 Size and location of penetrations in walls and floors.

12 Physical co-ordination of installation with other trades.

13 Provision of electrical loads to electrical trade and compare with design loads cable sizes and circuit protection devices, seeking design direction where discrepancies occur.

14 Co-ordination of the construction of the installation.

15 Details of electrical wiring and control diagrams of all equipment supplied showing all interconnections between equipment to enable the necessary wiring to be undertaken.

16 Thermal expansion accommodation and anchorage, including provision of bellows or bends, taking into account final installation details and consistent with specified requirements.

17 Mounting, support and fixing details, and fasteners, including any secondary structure which may be required.

18 Cable installation details and derating factors.

19 Settings for protection equipment, time delays, time switches etc.

20 Capacity, location, design and sizing of cable support, trunking and conduit systems.

21 Acoustic design or modification of actual selected equipment that may require change, to meet with the noise levels specified. Such change to approval of the Consultant Engineer. Specified levels to be achieved with all plant operating.

22 Selection of all anti-vibration mountings to suit the particular application of the mounts

23 Valve, damper and access locations.

24 System water capacities and chemical additives.

25 Final locations of control sensors, detectors, thermostats, switches, outlets.

26 Calculate system resistances to fluid flow based upon the actual duct and pipe layout, plant layout and selected equipment. Allow for dirty filters and diversified flows. Allow for standby plant and future demand as shown.

27 Amend piping, fans, pumps, motors and electrical power supplies to suit the requirements of the actual installation. Submit amended selections for review. Comply with the stricter of the NCC Section J maximum power ratings and those in the Schedules.

28 Calculate cable rating and voltage drops based upon actual cable lengths and selected make of cables. Allow for standby plant and future demand as shown. Take into consideration installation conditions, and external influences short-circuit fault levels and ratings of protection equipment

29 Design and certification for main pipe anchors and expansion/contraction devices. Contractor must co-ordinate the required fixings with the structural engineer to confirm the support design is suitable for the supporting structure.

30 Design and certification of seismic restraint

31 BMS Control systems including integration with all other trades inclusive of electrical meters.

32 Fire and Life Safety Design

FIRE AND LIFE SAFETY DESIGN

The building services design is to comply with the following

33 NCC/BCA

34 NCC/BCA Consultants Report

35 Australian Standards including but not limited to AS1668.1 and 2, AS1851

36 Project Fire Engineering Report (FER)

37 Authority requirements

38 Project Building Certifiers requirements

39 The Contractors Mechanical Installer is to produce the following documentation as part of the design;

40 Fire compartmentation drawings

41 Smoke zone layout drawings

42 Smoke hazard management air schematic drawings. Schematic to include smoke zone exhaust air quantities.

The contractor is responsible for producing a compliant cause and effect matrix including the above requirements.

Fire matrix documentation is to be progressively developed in accordance with construction documentation programme.

For a project of this size the Fire Matrix documentation will be a considerable undertaking. Preparation of the Fire matrix is to be co-ordinated with the FER, Fire Services Installer and BMS installer. Fire Matrix to include testing documentation provisions such that the matrix can be used on-going for AS1851 Routine Service of Fire Protector Systems and Equipment. Fire Matrix to be co-ordinated with Fire Services Installer documentation/installation and BMS documentation/installation.

Fire matrix to include all items (i.e. in addition to Mechanical Services) which are required to have a fire mode operation such as but not limited to;

43 Door release mechanisms

44 Operable doors/ Revolving

45 Smoke curtains

46 Passive smoke vents

47 Carpark management systems

48 Gas shut off valves

49 Lifts

3.2.3 CONSULTANT ENGINEER

The following section is provide for information as a guide only.

During the construction phase the Consultant Engineer's role is:

1 Analysis of schedule of technical data and alternatives offered.

2 Review of shop drawings for the purpose of establishing compliance with design intent.

3 Review of samples for the purpose of establishing compliance with the Specification.

4 Review of Contractor's Services trade inspection and test plans (ITPs) for each section of the works.

5 Periodic review of the progress of the works on the site, noting any observations with respect to quality of the installation or materials used.

6 Issue of any clarification (Consultants Advice) required to interpret the Specification and Drawings.

7 Prepare and issue Consultants Advice if required to amend the Specification and or Drawings

8 Accompanied by the Contractor's representative, randomly inspect and verify test records achieved by witnessing Contractor's test demonstrations.

9 Review and with attendance by the Contractor's representative, random commissioning data achieved by witnessing Contractor's test demonstrations.

10 Review Contractor's Services trade Q.A. records including ITPs.

11 Inspect the works at Practical Completion

12 Review Client training proposals.

13 Review 'As Installed', and operating and maintenance documents.

14 Review maintenance records during the defects liability period.

15 Inspect the works at the end of defects liability period

3.2.4 ALTERNATIVE PRODUCTS

Should the part of the work be proposed to be done quicker, better or more effectively by substitution of materials or methods other than those specified, the details of such substitutions or alternatives shall be included in the Tender, including a comprehensive Report including any performance and life cycle analysis in support of the proposals.

Where the words 'equal or approved' are used in this Technical Specification, permission may be requested to use a substitute for what is specified, provided it and the relevant manufacturer of the item certify in writing that the substitute is of equal, or better quality and effectiveness to that specified.

Submit for approval full details to allow verification that the alternative products comply with the Contract Documents. Provide a certificate for each alternate product confirming that the proposed alternative product complies with the contract documents. Include all compliance and non-compliance items related to Project Brief, Specifications and Contract Drawings. State if use of proposed alternatives shall necessitate alteration to other parts of the works and include consequential costs.

1 Allow for additional work resulting from the utilisation of an approved alternative product, including additional or revised statutory approvals, changes to adjacent work, re-submission of shop drawings and any costs incurred by the Consultant Engineer in assessing such alternative products. Allow for Consultant Engineer Review cost based on agreed Market hourly rates. These sums are to be paid irrespective of the alternatives being selected or not.

Proposals for substitution must include details of:

1 Changes to adjacent work, if any.

2 Cost differences.

3 Life cycle cost differences

4 Quality differences and advantage to the Client.

5 Lead time and program changes.

6 Certificate of compliance.

3.3 DESCRIPTION OF WORKS

Whether or not particular works are described in the Technical Specification all items and materials needed for the complete works are required and shall be installed unless clearly excluded.

The project includes the detailed design, supply, delivery, installation, commissioning, tuning, testing, placing into service, maintenance, warranty and defects liability of materials, labour and plant of the services systems in accordance with this Technical Specification. All components and systems shall be complete in every respect and tested and commissioned unless otherwise noted specifically.

3.3.1 GENERAL

1 Allow to decommission, make safe and remove any existing redundant services to be deleted within the area of works.

2 Site visit and familiarization with the site conditions and scope of work required under this contract and making required allowances to complete the works.

3 All necessary negotiations including formal submissions as required with all Authorities/utilities having jurisdiction including obtaining of design approval and final certification of the installed systems by an independent certifier approved by the Authority. Payment of all fees associated with the authorities/utilities connections and permits for the installation.

4 Provision of detailed safety in design analysis and ensure the installation is in compliance with the Site's safety in design proposal including all regulatory requirements.

5 Engagement and Coordination with the Green Star / Sustainability Consultant and the Independent Commissioning Agent, including timely preparation of documents as required by them.

6 Allow for all requirements in relation to alternatives proposed for the project. Allow for Consultant Engineer review cost based on agreed market hourly rates. These sums are to be paid irrespective of the alternatives being selected or not.

7 Management and coordination of overall services shop drawing process including providing timely input into the process to allow fully coordinated shop drawing production for all services. Active engagement and provision of nominated staff for input into the multidisciplinary coordination workshops in relation to shop drawing production as well as onsite installation methodology and integrated commissioning of multi-disciplinary interfaces.

8 Coordinate with the Electrical trade and advise final equipment selections and their power requirements prior to their ordering and installation of submains to respective switchboard to ensure correct submain cable selections- Submains cabling from the MSB is provided to the mechanical switchboards. Provide all lugs, cable glands and gland plates for the Electrical trades so they can terminate the cabling and do the final connection to your respective switchboard. Any submains/sub-circuit to secondary switchboards/control panels shall be included in the respective services Works Packages.

9 Provision of QA plan including inspection, testing, commissioning ITPs for all systems installed.

10 Preparation of "For Construction" and "Shop Drawings" coordinated with other services prior to commencement of works including services layouts at the same scale as the design drawings.

11 Detailed design and preparation and submission of design schematics and calculations prior to shop drawing.

12 Preparation and submission of shop drawings and equipment schedules prior to construction. Refer to Section 3 for additional Information.

13 Provision of all samples and technical submissions.

14 Identification and coordination of penetrations, provision of fire/smoke sleeves and sealing of all wall, floor, ceiling penetrations to the required fire/smoke/acoustic rating.

15 Provision of vibration isolation for all rotating equipment.

16 Provision of seismic restraints, including design.

17 Provision of all painting and finishes including identification and labelling schedules,

18 Provision of As-Built drawings and O&M Manuals in compliance with a uniform overall Site Services Documentation System.

19 Preparation and supply of complete and detailed Operating and Maintenance Manuals which include all commissioning data in both hard and

soft copy format. Ensure Operation and Maintenance Manuals clearly indicate on an individual equipment basis a schedule of maintenance routines, inspections, preventative maintenance procedures, test surveys and records conducted on the fire and smoke protections systems installed as outlined in AS1851. Generic type procedures / inspections are not acceptable.

20 Provision of all training for staff in the operation and preventative maintenance of the systems. Training of the nominated building facility management staff to the level of understanding of day by day operation of the services systems.

21 Twelve (12) months statutory testing, servicing, maintenance, defect liability and warranty of all services systems/equipment installed under this contract from the date of Practical Completion.

22 Fine tuning commissioning of all systems during the defects liability period as per Green Star/NABERS requirements. The tuning shall involve inspection, check and all adjustments of all systems and controls every three (3) months after the date of Practical Completion. Detailed final recommissioning of all systems shall be carried out at the end of the defect liability period.

3.3.2 INTER SERVICES WORKS

1 Provision of ventilation to substation rooms (subject to confirmation from the Authority), including ducts, grilles, louvers, fire dampers and the like, unless where the provisions are agreed to be separately provided under a managed contract or by a third party (such as a Contractor or by the network authority).

2 Provision of all mechanical services cabling and control wiring from mechanical services switchboards to all mechanical plant including secondary mechanical switchboards and any integrated mechanical devices requiring control such as automated louvres.

3 Provision of ventilation to Fire Pump Room.

4 Provision of access panels in ducts requiring sprinklers and smoke detectors to be fitted.

5 Connection of mechanical drains from equipment to tundishes.

6 Final connection and extension of water supplies to mechanical equipment e.g. cooling towers, boilers etc.

7 Coordination and Connection of BMS/BAS controls and monitoring for all services.

8 Provision of ventilation/cooling to lift machine rooms and lift shafts.

9 Provision of vermin proof and weather proof ventilation grille and fire damper on the outside of the lift well to suit the ventilation opening at the top of lift well. MRL lifts only.

10 Provision of vermin proof and weather proof ventilation louvres as located on the drawings, unless where the provisions are agreed to be separately provided under a managed contract or by a third party (such as a Contractor or by the network authority).

3.3.3 MECHANICAL WORKS SYSTEMS

3.3.3.1 SYSTEMS

1 Air Conditioning Systems

- **a** Variable refrigerant flow (VRF) air cooled systems
- **b** Split systems

2 Ventilation Systems

- **a** Natural ventilation strategies
- **b** Outside air systems

- **c** Residential toilet exhaust systems
- **d** Domestic kitchen exhaust systems
- **e** Common area exhaust systems
- **f** Stair pressurisation systems
- **g** Stair pressurisation relief systems
- **h** Carpark supply and exhaust systems
- **i** Provision for a commercial kitchen exhaust systems

3 Control Systems

- **a** Proprietary VRF residential apartment control systems
- **b** Building Management System

4 Mechanical Electrical Systems

- **a** Switchboards

3.3.3.2 SCOPE

1 Direct expansion (DX), air cooled VRF type, reverse cycle air conditioning (AC) units comprising but not limited to; outdoor units, in-ceiling fan coil unit(s) (FCUs) with centrifugal supply air fans, aluminium finned, copper tube cooling coils with in-built condensate trays, insulated refrigerant pipework, air filters, power supplies, sensors, proprietary controls system and associated components. All FCU's shall be provided with insulated stainless steel safety tray under separately trapped and drained to the nearest tundish.

2 The contractor shall coordinate the design of the VRF outdoor unit enclosure with the architect. The enclosure design shall be developed during the design development phase, such that it provides adequate ventilation for heat rejection purposes and adequate clearances for maintenance purposes. Computational fluid dynamics modelling shall be undertaken, if deemed required to determine this. The contractor shall be responsible for ensuring that the VRF system manufacturer provides product warranties for the project.

3 All supply air systems serving residential apartments shall come complete with diffusers and grilles, flexible ductwork, motorised dampers to all spigot connections to facilitate control of supply air in each apartment zone/ room. Diffusers / grilles to appear continuous in appearance with the active sections connected to the relevant supply air system.

4 Domestic kitchen exhaust systems comprising but not limited to; proprietary low-profile plastic ductwork (Ducttech or approved equivalent), fan, controls and accessories. Provide ceiling access panels for maintenance access to exhaust fan. Kitchen hood shall be supplied by the proprietary hood supplier.

5 Residential toilet exhaust systems in apartments comprising but not limited to; fans, low pressure, low velocity proprietary low-profile plastic ductwork (Ducttech or approved equivalent), grilles, filters, spigots, flexible ductwork, diffusers, non-return dampers, weatherproof louvres or vermin mesh and control systems.

6 Commercial kitchen exhaust air systems for childcare tenancy comprising, but not limited to, fire rated sheet metal ductwork and riser. System to be capped within the childcare tenancy. Commercial kitchen exhaust ductwork shall be provided with ductwork access panels to meet AS1668.1, where relevant.

7 Car park exhaust air and supply air systems comprising, but not limited to, fans, variable speed drive, sheet metal ductwork, grilles, dampers and CO control system. Pitot measuring points shall be installed adjacent to all car park fans for flow verification. Isolation switches shall be provided for all fans located within plenums. The switches shall be located external to their plenums however local to the fans (for safety in design purposes), as indicated on drawings. The car park exhaust air system shall be installed as a 'life safety' system in line with the requirements of AS1668.

8 Stair pressurisation systems, separate for car park and residential tower comprising but not limited to; backward centrifugal fans, ductwork, variable speed drives, grilles, balancing and non-return fire dampers, pressure sensors, hard wired controls from the electrical essential switchboard. All systems shall be in accordance with AS1668.1.

9 In residential tower, stair pressurisation relief air system shall be via corridor comprising but not limited to; backward centrifugal fan, subducts, variable speed drive, grilles, balancing, non-return. fire dampers, hard wired controls from the electrical essential switchboard. All systems shall be in accordance with AS1668.1. Smoke relief in car park shall be via car park exhaust fans i.e. during fire mode operation, the basement stair pressurisation fans and the car park exhaust fans shall operate simultaneously while the car park supply air fans shall be turned off.

10 The contractor shall coordinate the design of the stair pressurisation relief air intake on each floor with the architect, including but not limited to grille sizing, grille selection and any architectural amendments required.

11 Mechanical ventilation systems including outside air and general exhaust system for common areas and back of house areas (residential storage, waste room, corridors, plant rooms and switchrooms, etc) including but not limited to: new roof mounted exhaust fan complete with speed control for balancing purposes, low pressure, low velocity sheet metal ductwork complete with grilles, balancing dampers, filters, roof cowls, power supplies and controls.

12 Fire rated ductwork as shown on drawings and as required based on final fire compartmentation drawings.

13 Provision of dampers (splitter, butterfly, opposed blade volume control, etc.) as required to facilitate balancing whether or not specifically indicated on the drawings.

14 Mechanical services switchboards comprising but not limited to all electrical power and control wiring from the mechanical services switchboards to mechanical equipment. Perform maximum demand calculations as noted in Schedules Section. Provide separate non-essential/essential/fire essential switchboards as scheduled. Termination of sub mains provided by the Electrical Works Package.

15 Complete commissioning of the mechanical systems including but not limited to: air conditioning systems, ventilation systems, stair pressurisation systems and smoke hazard management systems. Mechanical Works Package shall adhere to the requirements of Section 13 Testing, Commissioning and Handover, in particular, requirement for NEBB certified commissioning personnel, Testing and Commissioning Program, Inspection and Test Plans, and Testing and Commissioning Procedures. Mechanical Works Package shall note the requirement to allow for the engineer to witness 25% of final commissioned data. Where witness testing reveals commissioned data is not within allowable specified valves and requires re-balance, re-commissioning and re-witness, the Mechanical Works Package shall be charged for the Consultant Engineer's time-cost at standard hourly rates to re-witness any final commissioned data previously witnessed as not satisfactory.

16 Building Management System (BMS) to all common area equipment including but not limited to; controllers, software, hardware, operator interface, input devices, sensors, actuator, training, testing and commissioning. Refer to the controls section of this specification for functional design description of all systems. The contractor shall coordinate the final location of BMS headend with Frasers Ivanhoe and the architect during the design development phase.

17 For the residential apartments, each apartment shall utilise a stand alone proprietary VRF control system including but not limited to; controllers, software, hardware, operator interface, input devices, sensors, actuator, training, testing and commissioning. Refer to controls section of this specification for functional description of all systems.

18 Items as specified and shown to provide enhanced sustainability to the project.

19 Provision of vibration isolation for all rotating equipment.

20 Provision of seismic restraints, including design.

21 Painting, labelling and identification of all mechanical systems including but not limited to: air conditioning systems, ventilation systems, smoke exhaust systems, hot water systems, industrial gases, chilled water systems, L.P gas systems, compressed air and vacuum systems including hot smoke tests for smoke exhaust systems.

22 Provision of minor core holes and penetrations. Placing, casting in and protection of pipe sleeves and conduits. Chasing is not acceptable.

23 Provision of support systems, structure and framework to support mechanical systems (e.g. ductwork, fans, fan coil units, compressed air, refrigerant pipework, cable trays and the like) comprising but not limited to hot dipped galvanised uni-strut, square hollow section, rolled steel angle or similar (to span structural roof members / roof purlins), metal strap, wires, support saddles, clamps, clips and fasteners. Mechanical support systems shall include but not limited to internal and external guy wire system (including roof and structural steel fixing systems) to support flues located internally (below roof from equipment) and externally (above roof).

24 Packing and sealing around duct penetrations to provide fire rated/acoustic sealing as required.

25 Hoisting or lowering of equipment where not provided by the building trade. All necessary scaffolding and access ladders for placing of mechanical plant during installation, commissioning and services during defect liability period

26 Metal plinth surrounds for mechanical plant including but not limited to: chillers, cooling towers, chemical dosing pot, water heaters, pumps, storage tanks, side stream filtration, packaged air conditioners, air handling units, condensing units, switchboards and fan coil units where applicable.

27 Provision of insulated condensate drain pipework to tundishes.

28 Submissions Schedule in accordance with Section 3.

29 Provision of 12 months defects liability period from the date of practical completion.

30 Provision of complete service and maintenance of all systems during the defects liability period.

31 Provision of all ongoing commissioning and tuning as required by Green Star.

3.4 SYSTEM DESCRIPTIONS

The following system description is based on the WSP Return Brief report and is reproduced for information only.

3.4.1 COOLING & HEATING SYSTEMS

3.4.1.1 RESIDENTIAL APARTMENTS

The space cooling and heating strategy for the apartments is as follows:

- In-ceiling mounted VRF fan coil units with outdoor unit located in balcony in a louvered cupboard.
- For standard 1 bedroom and studio apartments, a single fan coil unit shall be provided per apartment designed for a day/night zone arrangement, where architecturally possible i.e. the fan coil unit capacity shall be sized for the day time peak. Each zone shall have the capability of being individually controlled. The contractor shall commission the zone dampers on a proportional basis.
- For standard 2, 3 bedroom and penthouse apartments, multiple fan coil units shall be provided per apartment in line with the architecture. Day/night zone arrangement shall be utilised by means of dampers and ductwork where architecturally possible. Each zone shall have the capability of being individually controlled. The contractor shall commission the zone dampers on a proportional basis.Where not architecturally possible, the function of a day/night zone arrangement shall be achieved by means of controls.
- Fan coil unit controls shall be standalone for each apartment with a wall mounted proprietary controller located near the apartment entrance as the primary point of control. The user shall be able to control on/off operation, mode of operation, temperature set point and fan speed using this controller.
- Fan coil unit controls shall also be provided to the bedrooms via a simplified and secondary wall-mounted controllers. The user shall be able to control on/off operation, temperature set point and fan speed using this controller.

- Temperature feedback to main controller shall be via temperature sensors within the return air grilles. An average shall be utilised where multiple rooms are served, e.g. two bedrooms.

3.4.1.2 COMMON CORRIDORS

Outside air (not tempered / conditioned) is provided to the common corridors.

3.4.2 VENTILATION SYSTEMS

3.4.2.1 RESIDENTIAL APARTMENTS

Apartments shall be naturally ventilated through the architectural facade design, designed in accordance with F4.6 of NCC (by others).

Each bathroom and laundry shall be ventilated by a mechanical exhaust air system. In general, apartment bathroom and laundry exhaust air systems shall reticulate horizontally via proprietary low profile ductwork and shall be discharged to façade. Control of the exhaust fans shall be interlocked to all bathroom light switches with a run on timer; interlocked to the operation of the clothes dryer / washer electrical circuit with a run on timer.

Each domestic kitchen shall be ventilated by a mechanical exhaust air system, with air exhausted via the range hood (rangehood specified by the architect and provided by others). Domestic kitchen exhaust air systems shall reticulate horizontally via proprietary low-profile ductwork and shall discharge to the façade. A booster fan shall be provided as part of the system. Control of the exhaust fans shall be interlocked with range hood operation.

Make up air for both the bathroom and laundry and domestic kitchen exhaust air systems shall be provided via openable doors and windows in the apartment.

3.4.2.2 TOWER COMMON CORRIDORS

The common corridors shall be mechanically ventilated utilising an outside air system with the intake at roof level.

3.4.2.3 WASTE ROOMS

The main bin store room in lower ground floor shall be provided with dedicated exhaust air systems discharging at roof level. The waste room on each floor shall be provided with an exhaust air system via same exhaust riser with branch take-offs and a grille opening into the room. The waste room exhaust shall operate continuously 24 hours, 7 days per week.

3.4.2.4 CAR PARK AND LOADING DOCK

The basement car park levels shall be ventilated using mechanical exhaust and supply air systems. Car park exhaust and supply shall operate continuously 24 hours, 7 days per week controlling to Carbon Monoxide (CO) levels in line with AS1668.2.

3.4.3 STAIR PRESSURISATION AND STAIR PRESSURISATION RELIEF AIR SYSTEMS

3.4.3.1 RESIDENTIAL TOWER

Each residential tower fire isolated stair shall be provided with a dedicated stair pressurisation system. Supply air shall be provided via fans with VSD control on the roof and shall reticulate vertically via risers to the stair. Supply air grille openings shall be provided every second floor into the fire isolated stair.

Stair pressurisation relief shall be provided from the residential common corridors utilising mechanical means. A fan with VSD control shall be located on the roof. Relief air shall reticulate from the residential common corridors vertically via subducts into the riser to discharge at roof level. The relief air riser shall have grilles opening into the common

corridor on each floor with motorised smoke dampers.

3.4.3.2 BASEMENT CAR PARK

Each basement fire isolated stairs shall be provided with a dedicated stair pressurisation system. Supply air shall be provided via fans with VSD control, located in the ground floor fan room. Supply air shall reticulate vertically via risers to the stair. Supply air grille openings shall be provided every second floor into the fire isolated stair.

The car park exhaust air system shall serve as the stair pressurisation relief for the basement fire isolated stairs during fire mode.

3.5 SHOP DRAWING AND CONSTRUCTION DRAWING REQUIREMENTS

Prepare and submit dimensioned drawings showing details of the fabrication, layout and installation of all plant and equipment, including relationship to building structure and other services.

Prepare and submit drawings of penetrations and “built-in” components in the same form and manner as described for the processing of shop drawings. All penetration measures shall relate to grid lines, co-ordinates or relative levels.

Submit co-ordinated penetration drawings in sufficient time for review. Any failure to submit requirements within sufficient time for revision of structural drawings, resulting in re-working of the structure or re-ordering of structural components shall be responsibility of Contractor and shall not constitute any claim for variation or delay. All penetration measures shall relate to grid lines, co-ordinates or relative levels.

Provide drawings generally in accordance with the design drawings supplied with this specification.

Sheet sizes: Standard metric series, all sheets the same size. Plant room layout plans 1:50 scale, with sections and details at 1:20 scale. All services Floor plans at 1:100 scale, with detailed sections.

Drawings:

1. Access to and removal of all plant including locations and sizes of access doors to be installed in finished building surfaces.
2. Schematic and layout drawings of piping, tray and conduits, electrical and controls.
3. Switchboard and control panel layouts and schematics with terminal numbering.
4. Locations of all control sensors, valves and actuators.
5. Detail of all interfaces with other services and utilities.
6. Services co-ordination drawings for spatial co-ordination with building structure and other services with details for restricted locations.
7. Control logic diagrams with settings.
8. Foundations, plinths, chases, ducts, pits and penetrations through structure.
9. Layout and details of services cast in concrete. (for co-ordination and review by structural engineer /architect)
10. Structural support details and methods of fixing to structure.
11. Construction loadings (for structural engineer review).
12. Lifting point loads. (for structural engineer review)
13. Maintain current sets of drawings on site and progressively record variations which lead to creation of as-built drawings.

Please note when shop drawings review comments states “satisfactory subject to comments”, resubmit the revised drawings with comments incorporated within a period of no longer than 2 weeks. However, this should not stop the installation works.

3.6 SITE PROVISIONS AND BUILDING WORKS IN CONNECTION

1 This clause is provided to highlight the project requirements in relation to the Site provisions as well as Building Works in Connection BWIC and to ensure that they have been allowed for part of the Contractor Tender submission. Contractor is responsible for demarcation of tasks and responsibilities between various trades in relation to these items to suit his/her delivery methodology.

2 Site Provision include but not limited to;

- **a** Hoisting and Lowering:
- **b** Scaffolding:
- **c** Temporary Services – Water, Electricity:
- **d** Site facilities including Sheds.
- **e** Power and Fuel for Testing and Commissioning

3.6.1 BUILDING WORKS IN CONNECTION

Allow for the following;

1 Demolition:

- **a** Services decommissioning, disconnection from supply, capping and sealing.
- **b** Services demolition and removal.

2 Ground Works: Services trenches; excavation and backfilling.

3 Concrete:

- **a** Chasing, coring, cutting and making good.
- **b** Placing, casting in and protection of pipe sleeves and conduits.
- **c** Bases and plinths for equipment (excluding galvanised steel edge surround to be provided as part of the Mechanical Services Works Package).
- **d** Piers and beams under cooling towers, fluid coolers and adiabatic coolers.
- **e** Water-proof curbs round floor penetration in plant rooms.
- **f** Sealed air rise shafts for supply and exhaust systems where shown on the mechanical drawings, including fire rating where required.

4 Masonry:

- **a** Chasing, coring, cutting and making good.
- **b** Plant enclosures, masonry air ducts and service risers.

5 Structural Steel:

- **a** Lifting beams.

b Platforms and walkways for maintenance to equipment.

6 Roofing:

a Openings and under flashings including over flashings

b Services works.

c Roof access walkways.

7 External Walls:

a Metal louvre grilles complete with bird mesh for air intakes and exhausts.

8 Internal walls

a Setout of cut-outs including cut-out and trimming of openings

9 Doors:

a Cut-outs in doors and trimming of openings

b Undercutting of doors for ventilation purposes.

c Access doors and hatches for maintenance of Services equipment.

10 Ceilings:

a Removal and replacement of ceiling tiles.

b Co-ordination of penetrations.

c Ceiling access panels to equipment, valves, dampers and duct access panels above solid ceilings.

d Sealed air Plenums for smoke exhaust systems.

11 Dry wall/ Plenum Construction

a Sealed air plenums for supply and exhaust systems where show on the drawings, including fire rating and thermal insulation where required.

b Co-ordination of penetrations.

c Vapour barriers within walls where required.

3.7 SERVICES INTERFACE WORKS

Contractor is responsible to carry out the works outlined under all contract documents including this Specification to achieve a fully operational installation including all required interfaces between various systems. Whilst the responsibilities for interface works and division of works is solely with Contractor the following information is provided for guidance only. Contractor has full control to alter and modify the trade allocation/demarcation of interface works to suit the Contractor's overall programme and delivery methodology in order to achieve a fully integrated, interfaced and operational whole services installations, systems and sub-systems.

Table below indicate key areas where different work packages shall interface with each other. Column 1 indicate the disciplines/work packages identified and column 2 and 3 outline the key interface works between these two work packages.

	DISCIPLINE 1	**DISCIPLINE 2**
Elec 1 / Mech 2	— Collaboration and working with mechanical trade who is responsible for the management and coordination of overall services shop drawing	— Coordinate and advise after final equipment selections the mechanical equipment for each

	DISCIPLINE 1	DISCIPLINE 2
	process. Electrical contractor to provide timely input into the process to allow fully coordinated shop drawing production for all services. — Coordinate all works with the mechanical contractor prior to equipment ordering to ensure the final location and provision of all electrical equipment is correct. Coordination works to include but not be limited to maximum electrical demand loads, submain cabling, circuit breakers, open integration platform connections / protocols etc. — Supply and install of sub-mains to Mechanical Services Switchboards. All cables to be tested, dressed and prepared for termination. — Supply and install of power cabling and in-ceiling isolators local for mechanical services equipment including apartment fan coil units and fans. — Supply and install the LLI communications cabling from any monitored equipment to the BMS, e.g., emergency lighting system, UPS alarm and meters. — Confirmation of communications rack equipment load to mechanical contractor for AC selection	MSSB to ensure correct submain cable selections for the respective MSSB — Provision of all lugs, cable glands and gland plates for submain terminations and provision of final connections of submains to all MSSBs — Responsibility for the management and coordination of overall services shop drawing process. The mechanical contractor shall host multidisciplinary coordination workshops in relation to shop drawing production as well as onsite installation methodology and interfaces. — Provide final mechanical equipment selections to the electrical contractor. — Supply and install mechanical services switchboard and all cabling from switchboard to mechanical services equipment. Final termination of submains to switchboard shall be by the mechanical contractor. — Final connection of all mechanical services equipment in the apartments to the isolators provided by the electrical contractor. — Terminate LLI cabling from any monitored equipment, e.g,, emergency lighting system, UPS and meters to BMS. — Provision of HLI from BMS including cabling and final connections to respective electrical system equipment locations and all graphic screens to depict clearly such interfaces — Supply and install of current sensing devices on power circuits supplying apartment clothes washer / dryer power points. — Supply and install of time delay devices within apartments. — Provision of air conditioning system for communications room
Fire 1 / Mech 2	— Collaboration and working with mechanical trade who is responsible for the management and coordination of overall services shop drawing process. Fire contractor to provide timely input into the process to allow fully coordinated shop drawing production for all services. — coordination workshops in relation to shop drawing production as well as onsite installation methodology and interfaces. — Provide shut down signal wiring from the Fire Indicator Panel to each MSSB and each motorised smoke damper control panel. Refer to cause and effects matrix prepared by the	— Responsibility for the management and coordination of overall services shop drawing process. The mechanical contractor shall host multidisciplinary coordination workshops in relation to shop drawing production as well as onsite installation methodology and interfaces. — Provide a terminal strip within each MSSB to accept fire shut down signal. — Provide all control wiring and relays within each MSSB to shut down required plant. — Termination of fire control cabling to MSSBs c/w fire trip relay for mechanical system shut

	DISCIPLINE 1	DISCIPLINE 2
	mechanical contractor for quantities and locations. — Provide a Fire Fan Control Panel with all manual controls and indication wired to the terminal strip in each MSSB to initiate fire mode operation of plant — Provide all programming at the FIP to initiate plant operation in accordance with the cause and effects matrix. — Mimic diagram of the air conditioning system to show air flow paths and equipment locations for all air conditioning systems involved with the AS 1668 Fire Fan Controls. The mimic diagram is an integral part of the FFCP. — Supply and install of sprinkler protection in plenums and kitchen exhaust ductwork. — Supply and install of in-duct smoke detectors where required to meet code, e.g., in stair pressurisation systems. — Provide details of heat dispersion from final fire pump selections to the mechanical trade. — Prepare tactical fire plans. — Run the communications cabling from the FIP to the BMS. — Cabling for high and low level sensors in fire water tanks. — Supply and install override switch and cabling to motorised smoke control dampers.	down upon receipt of fire alarm and reset signal (as required). — Provide final cause and effects matrix for all mechanical equipment during fire mode. — Provide access panels and drilling and sealing of metal ductwork for the mounting of sprinklers as applicable. — Supply and install access panels in ducts requiring smoke detectors to be fitted. — Provide ventilation to the pump room. — Provide ventilation to fire control room — Provide pressurisation system to fire control room — Provide all required AS 1668 control details for incorporating into the tactical fire plans. — Terminate communications cabling within the BMS software / interface module. — Terminate cabling to BMS to monitor water level in the fire tanks. — Terminate fire control cabling to motorised smoke control dampers
Hyd 1 / Mech2	— Collaboration and working with mechanical trade who is responsible for the management and coordination of overall services shop drawing process. Hydraulics contractor to provide timely input into the process to allow fully coordinated shop drawing production for all services. — Coordinate location and provision of tundishes and floor wastes for all mechanical equipment	— Responsibility for the management and coordination of overall services shop drawing process. The mechanical contractor shall host multidisciplinary coordination workshops in relation to shop drawing production as well as onsite installation methodology and interfaces. — Connection of mechanical drains from equipment to tundishes.
VT1 /Mech2	— Confirmation of all heat loads that shall arise in lift machine areas for determination of ventilation louvre sizing. — Supply and installation of wire mesh screens to meet the requirements of AS1735.2 (clause 5.3) on the inside face of the lift well to suit ventilation opening at the top of lift well. MRL Lifts only.	— Provision of vermin proof and weather proof ventilation grille and fire damper on the outside of the lift well to suit the ventilation opening at the top of lift well. MRL lifts only

4 DESIGN AND PERFORMANCE CRITERIA

4.1 GENERAL

1 The following standards are applicable throughout the project.

2 National Construction Code 2019 (Referred throughout this specification as NCC) including all relevant Australian Standards called in the NCC

3 Relevant Occupation/Workplace Health and Safety legislation

4 The Environmental Protection Authority

5 WorkCover

6 Any other Authority having jurisdiction over all or part of the installation to ensure that the equipment and installation, when manufactured and installed, shall comply with the rules and regulations.

The following standards are applicable throughout the project as a minimum. Where items of equipment are required the relevant Australian Standard to the equipment shall apply. If clarification required, the Contractor shall seek clarification at the time of tender.

Where Australian Standards and Codes do not exist, the appropriate British Standard or Code shall apply.

Details of documents applicable to this:

4.2 AUSTRALIAN/NEW ZEALAND STANDARDS AND CODE (MECHANICAL SERVICES)

STANDARD / CODE	TITLE
AHRI 410	Forced-circulation air-cooling and air-heating coils
AHRI 450	Water-cooled refrigerant condensers, remote type
AHRI 460	Performance rating of remote mechanical-draft air-cooled refrigerant condensers
AHRI 480	Refrigerant-cooled liquid coolers, remote type
AHRI 540	Performance rating of positive displacement refrigerant compressors and compressor units
AS ISO 7.1	Dimensions, tolerances and designation
AS ISO 1000	The international system of units (SI) and its application
AS 1045	Acoustics - Measurement of sound absorption in a reverberation room
AS 1074	Steel tubes and tubulars for ordinary service
AS/NZS 1125	Conductors in insulated electric cables and flexible cords
AS/NZS 1163	Cold-formed structural steel hollow sections

STANDARD / CODE	TITLE
AS/NZS 1167.1	Welding and brazing - Filler metals - Filler metal for brazing and braze welding
AS/NZS 1167.2	Welding and brazing - Filler metals – Filler metal for welding
AS 1170.4	Structural Design actions – Earthquake actions in Australia
AS/NZS 1200	Pressure equipment
AS 1210	Pressure vessels
AS 1228	Pressure equipment – Boilers
AS 1271	Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels
AS 1284.1	Electricity metering - General purpose induction watthour meters
AS 1318	Use of colour for the marking of physical hazards and the identification of certain equipment in industry (known as the SAA Industrial Safety Colour Code)
AS 1319	Safety signs for the occupational environment
AS 1324.1	Air filters for use in general ventilation and air-conditioning - Application, performance and construction
AS 1324.2	Air filters for use in general ventilation and air-conditioning - Methods of test
AS 1345	Identification of the contents of pipes, conduits and ducts
AS 1349	Bourdon tube pressure and vacuum gauges
AS 1359.0	Rotating electrical machines - General requirements - Introduction and list of Parts
AS/NZS 1359.5	Rotating electrical machines - General requirements - Three-phase cage induction motors – High efficiency and minimum energy performance standards requirements
AS 1359.30	Rotating electrical machines - General requirements - Preferred outputs and frame sizes
AS 1359.31	Rotating electrical machines - General requirements - Three-phase induction motors - Operation on unbalanced voltages
AS 1359-101	Rotating electrical machines - General requirements - Rating and performance
AS 1359.114	Rotating electrical machines - General requirements - Vibration measurements and limits
AS 1366.1	Rigid cellular plastics sheets for thermal insulation - Rigid cellular polyurethane (RC/PUR)
AS 1366.3	Rigid cellular plastics sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS 1397	Continuous hot-dip metallic coated steel sheet and strip – coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1428.1	Design for access and mobility – General requirements for access – New building work
AS 1428.2	Design for access and mobility – Enhanced and additional requirements – Buildings and facilities
AS 1428.3	Design for access and mobility – Requirements for children and adolescents with physical disabilities

STANDARD / CODE	TITLE
AS 1432	Copper tubes for plumbing, gas fitting and drainage applications
AS/NZS 1477	PVC pipes and fittings for pressure applications
AS 1530.1	Methods for fire tests on building materials, components and structures – Combustibility test for materials
AS 1530.2	Methods for fire tests on building materials, components and structures – Test for flammability of materials
AS/NZS 1530.3	Methods for fire tests on building materials, components and structures - Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1530.7	Methods for fire tests on building materials, components and structures – Smoke control assemblies – Ambient and medium temperature leakage test procedure
AS 1548	Fine grained, weldable steel plates for pressure equipment
AS/NZS 1554.1	Structural steel welding - Welding of steel structures
AS/NZS 1554.6	Structural steel welding - Welding stainless steels for structural purposes
AS 1569	Copper and copper alloys - Seamless tubes for heat exchangers
AS/NZS 1571	Copper - Seamless tubes for air-conditioning and refrigeration
AS 1572	Copper and copper alloys - Seamless tubes for engineering purposes
AS 1604.1	Specification for preservative treatment – sawn and round timber
AS 1628	Water supply - Metallic gate, globe and non-return valves
AS 1657	Fixed platforms, walkways, stairways and ladders - Design, construction and installation
AS/NZS 1665	Welding of aluminium structures
AS/NZS 1668.1	The use of ventilation and air-conditioning in buildings - Fire and smoke control in buildings
AS 1668.2	The use of ventilation and air-conditioning in buildings – Mechanical ventilation in buildings
AS 1674.1	Safety in welding and allied processes - Fire precautions
AS 1674.2	Safety in welding and allied processes - Electrical
AS 1682.1	Fire, smoke and air dampers - Specification
AS 1682.2	Fire, smoke and air dampers - Installation
AS/NZS 1716	Respiratory protective devices
AS 1722.2	Pipe threads of Whitworth form – Fastening pipe threads
AS 1796	Certification of welders and welding supervisors
AS 1851	Routine service of fire protection systems and equipment
AS 1852.441	International electrotechnical vocabulary – Switchgear, control gear and fuses
AS 1910	Water supply - Float control valves for use in hot and cold water

STANDARD / CODE	TITLE
AS 1939 Supplement 1	Degrees of protection provided by enclosures for electrical equipment (IP Code) - Wallchart 1 (Supplement 1 to AS 1939-1990)
AS 1939 Supplement 2	Degrees of protection provided by enclosures for electrical equipment (IP Code) - Wallchart 2 (Supplement 2 to AS 1939-1990)
AS/NZS 2053.1	Conduits and fittings for electrical installations - General requirements
AS/NZS 2053.2	Conduits and fittings for electrical installations – Rigid plain conduits and fittings of insulating material
AS/NZS 2053.3	Conduits and fittings for electrical installations - Rigid plain conduits and fittings of fibre-reinforced concrete material
AS/NZS 2053.4	Conduits and fittings for electrical installations – Flexible plain conduits and fittings of insulating material (IEC 60614-2-5 Ed. 1.0 (Bilingual 1992))
AS/NZS 2053.5	Conduits and fittings for electrical installations – Corrugated conduits and fittings of insulating material
AS/NZS 2053.7	Conduits and fittings for electrical installations - Rigid metal conduits and fittings
AS/NZS 2053.8	Conduits and fittings for electrical installations – Flexible conduits and fittings of metal or composite material (IEC 60614-2-5 Ed. 1.0 (Bilingual 1992))
AS 2239	Galvanic (sacrificial) anodes for cathodic protection
AS/NZS 2243.3	Safety in laboratories – Microbiological safety and containment
AS/NZS 2243.6	Safety in laboratories – Plant and equipment aspects
AS/NZS 2243.8	Safety in laboratories - Fume cupboards
AS/NZS 2243.9	Safety in laboratories – Recirculating fume cupboards
AS/NZS 2280	Ductile iron pipes and fittings
AS/NZS 2310	Glossary of paint and painting terms
AS 2467	Maintenance of electrical switchgear
AS 2528	Bolts, stud bolts and nuts for flanges and other high and low temperature applications
AS 2625.1	Mechanical vibration - Evaluation of machine vibration by measurements on non-rotating parts - General guidelines
AS 2670.1	Evaluation of human exposure to whole-body vibration – General requirements
AS 2700	Colour standards for general purposes
AS 2738	Copper and copper alloys - Compositions and designations of refinery products, wrought products, ingots and castings
AS 2784	Endless wedge belt and V-belt drives
AS 2832.1	Cathodic protection of metals – Pipes and cables

STANDARD / CODE	TITLE
AS 2832.4	Cathodic protection of metals – Internal surfaces
AS 2848.1	Aluminium and aluminium alloys - Compositions and designations - Wrought products
AS 2971	Serially produced pressure vessels
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3003	Electrical installations – Patient areas
AS/NZS 3008.1.1	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical Australian installation conditions
AS/NZS 3013	Electrical installations – Classification of the fire and mechanical performance of wiring system elements
AS/NZS 3100	Approval and test specification - General requirements for electrical equipment
AS 3111	Approval and test specification - Miniature overcurrent circuit-breakers
AS/NZS 3191	Electric flexible cords
AS/NZS 3200.1.1	Approval and test specification – Medical electrical equipment – General requirements for safety – Collateral Standard: Safety requirements for medical electrical systems
AS/NZS 3200.1.2	Approval and test specification – Medical electrical equipment – General requirements for safety – Collateral Standard: Electromagnetic compatibility – Requirements and tests
AS/NZS 3200.1.4	Approval and test specification – Medical electrical equipment – General requirements for safety – Collateral Standard: Programmable electrical medical systems
AS/NZS 3200.1.8	Approval and test specification – Medical electrical equipment – General requirements for safety – Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems
AS/NZS 3200.2.41	Approval and test specification – Medical electrical equipment – Particular requirements for safety – Surgical luminaires and luminaires for diagnosis
AS/NZS 3439.1	Low-voltage switchgear and control gear assemblies - Type-tested and partially type-tested assemblies
AS/NZS 3439.2	Low-voltage switchgear and control gear assemblies - Particular requirements for busbar trunking systems (busways)
AS/NZS 3439.3	Low-voltage switchgear and control gear assemblies - Particular requirements for low-voltage switchgear and control gear assemblies intended to be installed in places where unskilled persons have access for their use – Distribution boards
AS/NZS 3439.4	Low-voltage switchgear and control gear assemblies - Particular requirements for assemblies for construction sites (ACS)
AS/NZS 3500.0	Plumbing and drainage – Glossary of terms
AS/NZS 3500.1	Plumbing and drainage – Water services
AS/NZS 3500.1.1	Plumbing and drainage – Water supply – Performance requirements
AS/NZS 3500.2	Plumbing and drainage – Sanitary plumbing and drainage

STANDARD / CODE	TITLE
AS/NZS 3500.2.1	Plumbing and drainage – Sanitary plumbing and drainage - Performance requirements
AS/NZS 3518	Acrylonitrile butadiene styrene (ABS) compounds, pipes and fittings for pressure applications
AS 3645	Essential requirements for gas equipment
AS/NZS 3666.1	Air-handling and water systems of buildings - Microbial control - Design, installation and commissioning
AS/NZS 3666.2	Air-handling and water systems of buildings – Microbial control – Operation and maintenance
AS/NZS 3666.3	Air-handling and water systems of buildings – Microbial control – Performance-based maintenance of cooling water systems
AS/NZS 3666.4	Air-handling and water systems of buildings – Microbial control – Performance-based maintenance of air handling systems (ducts and components)
AS 3688	Water supply – Metallic fittings and end connectors
AS 3690	Installation of ABS pipe systems
AS 3715	Metal finishing - Thermoset powder coating for architectural applications of aluminium and aluminium alloys
AS/NZS 3750	Paints for steel structures
AS 3768	Guide to the effects of temperature on electrical equipment
AS 3865	Calculation of the effects of short-circuit currents
AS/NZS 3879	Solvent Cements and Priming Fluids for PVC (PVC-U and PVC-M) and ABS Pipes and Fittings
AS/NZS 3947.3	Low-voltage switchgear and control gear - General rules
AS/NZS 3992	Pressure equipment - Welding and brazing qualification
AS 3996	Access covers and grates
AS 4041	Pressure piping
AS 4072.1	Components for the protection of openings in fire-resistant separating elements - Service penetrations and control joints
AS 4180.1	Measurement of drift loss from cooling towers - Chloride balance method
AS 4180.2	Measurement of drift loss from cooling towers – Lost chlorine method
AS/NZS 4200.1	Pliable building membranes and underlays - Materials
AS/NZS 4200.2	Pliable building membranes and underlays – Installation requirements
AS/NZS 4251.1	Electromagnetic compatibility - Generic immunity standard - Residential, commercial and light industry
AS 4254.1	Ductwork for air-handling systems in buildings - Flexible duct
AS 4254.2	Ductwork for air-handling systems in buildings - Rigid duct
AS 4260	High efficiency particulate air (HEPA) filters - Classification, construction and performance

STANDARD / CODE	TITLE
AS/NZS 4417.3	Regulatory compliance mark for electrical and electronic equipment - Specific requirements for electromagnetic compatibility regulatory applications
AS 4506	Metal finishing - Thermoset powder coatings
AS/NZS 4680	Hot-dipped galvanized (zinc) coatings on fabricated ferrous articles
AS 4702	Polymeric cable protection covers
AS/NZS 4766	Polyethylene storage tanks for water and chemicals
AS/NZS 4776.1.1	Liquid-chilling packages using the vapour compression cycle – Method of rating and testing for performance – Rating
AS/NZS 4776.1.2	Liquid-chilling packages using the vapour compression cycle – Method of rating and testing for performance – Testing
AS/NZS 4776.2	Liquid-chilling packages using the vapour compression cycle – Minimum energy performance standard (MEPS) and compliance requirements
AS/NZS 4791	Hot-dip galvanized (zinc) coatings on ferrous open sections, applied by an in-line process
AS/NZS 4792	Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process
AS/NZS 4859.1	Mineral wool thermal insulation – General criteria and technical provisions
AS/NZS 5149.1	Refrigerating systems and heat pumps—Safety and environmental requirements - Part 1: Definitions, classification and selection criteria
AS/NZS 5149.2	Refrigerating systems and heat pumps—Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation
AS/NZS 5149.3	Refrigerating systems and heat pumps—Safety and environmental requirements - Part 3: Installation site
AS/NZS 5149.4	Refrigerating systems and heat pumps—Safety and environmental requirements - Part 4: Operation, maintenance, repair and recovery
AS/NZS 5601.1	Gas installation – General installations
AS ISO 8601	Data elements and interchange formats - Information interchange - Representation of dates and times
CIBSE	Commissioning Codes
IEC 60085	Electrical insulation – Thermal evaluation and designation
NCC	Section J

4.2.1 OTHER APPLICABLE DOCUMENTS

The design shall comply with the Real Utilities brief document.

4.3 SEISMIC RESTRAINTS

4.3.1 DESIGN STANDARD

1 NCC - Building Code of Australia.

2 AS 1170.4 - Structural design actions - Earthquake actions in Australia

4.3.2 DESIGN PARAMETERS

The following design parameters shall be used to design the Engineering Services equipment and fastenings as per AS1170.4:

Importance Level	TO BE DETERMINED DURING DESIGN DEVELOPMENT BY THE CONTRACTOR
Site Sub-Soil Class	TO BE DETERMINED DURING DESIGN DEVELOPMENT BY THE CONTRACTOR

Design and install the scope of works to withstand the earthquake forces determined from the above design criteria in accordance with the requirements of the NCC and AS1170.4.

4.4 DESIGN CRITERIA

PARAMETER	DESIGN CRITERIA
External Ambient Conditions	Summer — 33.9°C dry bulb maximum — 23.2°C wet bulb maximum Winter — 6.3°C dry bulb minimum
Internal Conditions	Summer — 24°C dry bulb temperature at point of control Winter — 21°C dry bulb temperature at the point of control Relative humidity generally in the range 40% - 60% but noting that no active humidity controls are specified
Air Conditioning System Controls Tolerance	±1.5°C dry bulb at point of control
Solar	Refer architectural documentation and Section J reporting for glazing construction and properties Day/night system sizing for apartments
External conduction	Refer architectural documentation and Section J reporting for building fabric construction and properties Day/night system sizing for apartments

Internal conduction	Adjacent non-air conditioned spaces included
Ventilation	AS 1668.2 in general 20% improvement upon AS 1668.2 for residential apartment toilet and laundry exhaust
Infiltration	Perimeter zones: 0.5 air changes per hour Centre zones: 0 air changes per hour
People	Number of people in bedrooms = 2 per bedroom. Number of people in living areas = Sum of number of people in bedrooms within that apartment 70 Watts/person sensible 70 Watts/person latent
Lighting	NCC Section J maximum illuminance levels
Equipment	The higher of 500W/living room and 150W/bedroom; OR 15Watts/m²
Ductwork	Rigid steel ductwork: Maximum air velocity: 6m/s; Maximum pressure drop: 0.8Pa/m Low profile ductwork: 10Pa/m

5 PAINTING, PROTECTION AND IDENTIFICATION

5.1 GENERAL REQUIREMENTS

1 Select painting and finishes in accordance with the area environmental conditions.

2 Review the risk assessment and statutory and authority requirements completed as part of the system testing, commissioning and handover requirements and provide labelling and signage as determined.

3 Where exposed to view paint exposed equipment, cable trays, ductwork and pipework

4 Where ductwork, pipework, cable trays exposed to view is not specified to be painted, all factory and installation markings shall be removed.

5 All black steel surfaces and surfaces subject to corrosion shall be primed with at least two coats of primer and protected.

6 Protect all items of work during dispatch and whilst on site during progress of installation.

7 Fabricated pipe and steelwork shall be delivered to site prime coated

8 Concealed pipe work to be prime coated

9 If exposed to view, paint new services and equipment including in plant rooms, except chromium, anodised aluminium, GRP, UPVC, stainless steel, non-metallic flexible materials and normally lubricated machined surfaces. Repaint proprietary items only if damaged.

10 Do not combine paints from different manufacturers in a paint system.

11 Remove or protect fixtures, equipment, surfaces and labels before starting to paint, and re-instate after completion of painting.

12 All internal surfaces of air outlets and openings exposed to view shall be painted matt black

13 Repair factory finishes if damaged with identical finishes.

14 Finish visible joints made by welding, brazing or soldering using methods appropriate to the class of work (including grinding or buffing) before further treatment such as filling, painting, galvanising or electroplating.

15 If galvanised surfaces have been cut or welded after galvanising, prime the affected area using zinc rich organic binder AS/NZS 2312.

16 Before applying coatings to metalwork, complete cutting, drilling and other fabrication, remove all grease, oil and other contaminants and prepare surfaces to AS 1627.0

17 Use relevant Australian Standards for the following finishes; Galvanising, Electroplating, Anodising, Thermoset powder coating, Two-pack liquid coating, Air-drying enamel, Stoving enamel

5.2 SUBMISSIONS

1 Provide the following submissions or samples:

- **a** Proposed Labelling Systems.
- **b** Schedule of statutory, maintenance and operating signage.

c Valve Identification

5.3 CORROSION PROTECTION

5.3.1 GENERAL

1 Apply corrosion protection measures to all metallic surfaces.

2 Select an appropriate protective coating system to suit atmospheric corrosivity category as defined in referenced Standards/Codes.

3 Fastenings are to be protected to have a corrosion resistance equivalent to the parts fastened.

4 All welding is to be completed before any corrosion protection treatment is applied.

ATMOSPHERIC CORROSIVITY CATEGORY	TYPICAL EXTERIOR ENVIRONMENTS	TYPICAL INTERIOR ENVIRONMENT
C1: Very Low	Few alpine regions	Heated or air conditioned buildings, such as most of commercial buildings. Unheated or non-air conditioned buildings in semi-sheltered locations remote from marine or industrial influence
C2: Low	Dry, rural areas as well as other regions remote from the coast or sources of pollution. Typical areas occur in arid and rural inland regions, most inland cities and suburbs of cities on sheltered bays.	Unheated or non-air conditioned buildings, where some condensation may occur, such as warehouses and sports halls, can be in this category. Proximity to the coast is an important factor.
C3: Medium	Coastal areas with low salinity	Food processing plants, laundries, breweries, printing works, dairies
C4: High	Sea-shore (calm)	Swimming pools, dye works, paper manufacturers, foundries, smelters and chemical processing plants, livestock buildings
C5-I: Very High (Industrial)	Sea-shore /offshore	-
C5-M: Very High (Marine)	Shoreline (severe surf)	Adjacent to acidic processes
T: Inland Tropical	Non-coastal tropics	-

5.3.2 PROTECTION FOR STEEL SURFACES

1 Apply corrosion protection to meet the performance criteria scheduled in the table below.

2 Standards of surface preparation procedures and of corrosion treatments are to meet the specified criteria and the referenced Standards/Codes for the relevant application.

3 Surface preparation procedures and coating systems for corrosion protection are to meet all relevant requirements of the referenced Standards/Codes.

ATMOSPHERIC CORROSIVITY CATEGORY	SURFACE PREPARATION	COATING SYSTEM
C1: Very Low	Class Sa 2½ Blast Cleaning 'Very thorough' (commonly called 'near white') blast cleaning which removes millscale, rust and foreign particles to the extent that only traces remain.	1st Coat – zinc phosphate alkyd primer, 75 microns thick 2nd Coat – full gloss alkyd finish, 50 microns thick 3rd Coat – full gloss alkyd finish, 50 microns thick **Or** Factory applied zinc primer and thermoset powder coated finish
C2: Low	Class Sa 2½ Blast Cleaning	1st Coat – zinc phosphate alkyd primer, 75 microns thick 2nd Coat – full gloss alkyd finish, 50 microns thick 3rd Coat – full gloss alkyd finish, 50 microns thick **Or** Factory applied zinc primer and thermoset powder coated finish
C3: Medium	Class Sa 2½ Blast Cleaning	1st Coat – Organic zinc primer, 75 microns thick 2nd Coat – polyurethane, 100 microns thick Or Factory applied zinc primer and thermoset powder coated finish
C4: High	Class Sa 2½ Blast Cleaning	1st Coat – Organic zinc primer, 75 microns thick 2nd Coat – polyurethane, 100 microns thick **Or** Factory applied zinc primer and thermoset powder coated finish
C5-I Very High Industrial	Manufacturer's recommendation	To approval
C5-M Very High Marine	Class Sa 2½ Blast Cleaning	1st Coat – Organic zinc primer, 75 microns thick 2nd Coat – polyurethane, 100 microns thick Or Factory applied zinc primer and thermoset powder coated finish
T Inland Tropical	Class Sa 2½ Blast Cleaning	One coat inorganic zinc coating, 75 microns thick **Or** zinc or aluminium thermal spray metallic coating.

5.3.3 PROTECTION FOR NON-FERROUS METALLIC SURFACES

1 Standards of surface preparation procedures and of corrosion treatments are to meet the specified criteria and the referenced Standards/Codes for the relevant application.

2 Surface preparation procedures and coating systems for corrosion protection are to meet all relevant requirements of the referenced Standards/Codes.

5.4 PAINTING

5.4.1 LOW VOC

The following additional requirements are to be met if required by the Green Star Schedule in Schedules.

1 All painted surfaces to use low-VOC paints.

2 VOCs are to be in accordance with The Australian Environmental Labelling Association, Inc. Standard No: AELA 23-2005 'Australian Voluntary Environmental Labelling Standard Architectural and Protective Coatings'. Conformance with VOC levels listed in this standard (refer to table below) shall be demonstrated by providing test reports from laboratories accredited to carry out the relevant tests and/or calculations and appropriate documentation of production methods and quality controls.

PRODUCT TYPE	MAXIMUM VOC CONTENT (G/LITRE)
Latex Primer for galvanised iron and zincalume	60
Exterior latex undercoat	55
Interior latex undercoat	65
Interior gloss	75
Interior semi-gloss	16
Exterior gloss	75

3 VOC limits on architectural coatings covered. Allowable levels include water content in the formulation.

4 For solvent-based coatings the paint shall not contain VOCs in excess of 200g/litre. For recycled paints the VOC level (averaged across batches) in the paint must not exceed 100g/litre.

5 The VOC content of the paint shall either be calculated from the VOC data for each of the raw materials or, experimentally by ASTM D3960, as qualified the Australian Environmental Labelling Association, Inc. Standard No: AELA 23-2005 'Australian Voluntary Environmental Labelling Standard Architectural and Protective Coatings'.

6 Where the raw material is a mixture of compounds, some of which contain VOCs, the VOC content of the mixture may in turn be calculated from the VOC content of the individual components. Where this is not known, it must be determined by the methodology detailed in AELA 23-2005.

5.4.2 PREPARATION OF SURFACES

1 Preparation: all surfaces shall be prepared by thorough cleaning of all dirt, grease, scale, welding flux and corrosion in accordance with AS/NZS 2312.

2 For galvanised surfaces that have been subsequently cut or welded, prime the affected area with organic zinc rich coating for protection of steel to AS/NZS2312, two pack or accepted alternative.

3 Prime/undercoat all surfaces. Galvanised and non-ferrous surfaces must be etch primed.

5.4.3 APPLICATION

1 First coat: apply the first coat immediately after the substrate preparation and before contamination of the substrate can occur.

2 Apply all paint systems in strict accordance with manufacturer's recommendations.

3 Finish: each coat of paint or finish shall be uniform in colour, gloss, thickness and texture and free of runs, sags or blisters.

5.4.4 FINISHING

1 Concrete Bases: 2 coats synthetic emulsion paint

2 Equipment Panels/Switchboards: 2 final coats full gloss enamel

3 Equipment: Factory spray application

4 Other surfaces: 2 final coats full gloss enamel

5.5 COLOURS

Paint colours nominated are to be in accordance with AS 2700 and AS 1345.

5.6 IDENTIFICATION AND LABELLING

5.6.1 GENERAL

1 Mark all systems and equipment including wiring, piping, control panels, switchboards, ductwork, equipment cabinets, conduits, controls, gauges, valves and fittings to that they are readily identifiable.

2 Equipment requiring special maintenance procedures or presenting occupational health and safety hazards: provide permanent labels complying with statutory requirements.

3 Locate labels so that they are easily seen and either attached to, below or next to item referred.

4 Labelling to match installation documentation schedules.

5 For systems containing hazardous materials provide labelling in accordance with AS 1318.

6 Where a pipe or duct passes through a wall, slab or partition provide labelling each side.

7 Equipment and Service labels shall be in accordance with the Legend of Symbols nomenclature for the respective service. Provide appropriate Emergency and Operating Instructions to every equipment and system.

8 Provide text and simple diagrams where practicable. Locate at a fixed point and point of operation.

9 Affix hazardous equipment with warning signs.

10 Labels shall be permanent.

11 Type: select from the following:

- **a** Engraved and black filled lettering on stainless steel or brass plate, minimum 1mm thick mechanically fixed.
- **b** Stencil with black or white lettering contrasting with background.
- **c** Engraved two-colour laminated plastic mechanically fixed.
- **d** Adhesive labelling.
- **e** Painted.

12 Adhesive labels and laminated plastic labels shall not be used where exposed to the environment.

13 Painted labels shall be in the same finish paint type as the installation.

5.6.2 LABELLING REQUIREMENTS

ITEMS	REQUIREMENTS
Pipework	Labelling and lettering to AS 1345 and AS1318
Conduits	Labelling and lettering to AS 1345
Exposed Conduits	Labelling and lettering to AS 1345
Valves	Labels shall be colour coded laminated labels indicating service, function and normal position, and attached to hand wheels or spindles using a vandal resistant permanent chain/ring
Switchboards(general)	**1** Main switches: 10mm. **2** Outgoing electrical functional units: 8mm. **3** Automatic controls electrical equipment and instruments: 5mm. **4** Rear covers of switchboards: 5mm. **5** Components inside electrical enclosures and control panels: 3.5mm **6** Locate labels so that they are easily seen from normal access adjacent to the item being marked. Do not install labels on components normally removed or replaced.
All equipment such as chillers, pumps, fans, air handling units, generators including controls, gauges and fittings to that they are readily identifiable	**1** Label in accordance with the specification abbreviations, symbols and acronyms scheduled or otherwise approved. **2** Locate labels so that they are easily seen from normal access adjacent to the item being marked. Do not install labels on components normally removed or replaced. **3** Major equipment nameplates: 40mm. **4** Minor equipment nameplates: 20mm. **5** Danger, warning and caution notices: 10mm for heading, 5mm for test. **6** Warning notices: 7mm. **7** Minor lettering: 3mm. **8** Lettering Style: Helvetica Medium. **9** Fixing: Use mechanical fixings. Do not penetrate isolation vapour barriers. **10** Equipment requiring special maintenance procedures or presenting occupational health and safety hazards: provide permanent labels complying with statutory requirements. **11** Equipment requiring consumables including replacement belts, oils, filters and strainers: provide labels indicating consumable component details and quantities and corrective maintenance trigger point such as filter pressure drop.
Fire services in ceiling identifications	**1** Provide identification to ceiling tile or access panel for servicing to test drain valves, flow switches, concealed detectors or similar. **2** Use colour markers of ‘black’ for general servicing and ‘red’ for Code required identification e.g. concealed detectors. **3** Use self-adhesive ‘dot’ type markers on ceiling suspension or plastic headed pins for insertion in ceiling material.

6 INSPECTION, TESTING, COMMISSIONING, HANDOVER AND DEFECTS LIABILITY PERIOD

6.1 GENERAL

1 This section sets out the engineering and quality assurance requirements for the completion of the installation, inspection regime, testing, commissioning, handover and defects liability period.

6.1.1 DESIGN

Complete the detail engineering of the testing commissioning and handover of the works to the specified requirements.

Comply with applicable authority design guidelines and codes of practice and requirements.

Commissioning guidelines as detailed by CIBSE Commissioning Codes shall be used as a minimum to undertake the commissioning of services listed in this section.

6.1.2 PRACTICAL COMPLETION REQUIREMENTS

1 Notwithstanding any other provisions of the Contract with regard to the granting of Practical Completion, the following requirements, listed in order of importance / priority, shall be completed and completion submissions made prior the date of Practical Completion:

2 Minimum submissions required for application for Occupancy Permit:

3 Submission of signed off testing and commissioning schedules to confirm that Testing and Commissioning has been finalised and that all plants and systems operate in a safe, stable and automatic manner under all conditions of full and partial load - full commissioning data.

4 Submission of Authority approvals including Statutory Authority approvals and Certification of Compliance with the NCC

5 Submission of Certification that works comply with the Contract Documents

6 Operating Instruction and Maintenance manual sections covering all Safety Services as required by regulations

7 Other submissions:

8 Submission of correctly and completely executed ITPs including test results completed in accordance with the Contractors Quality Plan and the satisfaction of the Consultant Engineer

9 Adequate training and instruction of the Principal's representatives in safe operation of the plant

10 Official Equipment manufacturer's acceptance certification for the installation

11 Completed Operating and Maintenance manuals and 'as built' drawings

12 The Defects Liability period may be extended in the event:

- **a** Specific systems fail to achieve the desired outcomes after two attempts are made to rectify the drawback. These specific systems include those that are fire and life safety or business / mission critical to the Principal.

b If there have been more than three (3) attempts to rectify the defect, in which instance a further 12 months of monitoring shall be required after the defect is rectified to monitor that the desired outcomes are achieved without further shortfalls.

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6.3 MANAGEMENT OF INSPECTION, TESTING, COMMISSIONING, HANDOVER AND DEFECTS LIABILITY PERIOD COMMITMENTS

6.3.1 GENERAL

1 Manage the whole process to

a Ensure complete execution of Project Specific Quality Plan and specifically Installation and Commissioning ITPs are completed progressively from commencement of the project.

b Test and verify the operation of individual items of plant and equipment, sub-systems, systems and the overall installation including the interfaces with other building services systems forming part of the project.

c Create and record accurately and verify all "As Built "drawings progressively prior to services being concealed by construction of ceilings, wall cavities and shafts.

d Ensure completed Operating and Maintenance manuals inclusive of comprehensive system descriptions, operating modes and associated control functionality, tailored and project specific manufacturers literature.

e Responsive defects rectification process during the construction phase as well as post Practical Completion during Defects Liability Period.

f Ensure Responsive approach towards maintenance and operational fine tuning during the Defects Liability Period

6.3.2 SEQUENCE OF ACTIVITIES

Generally, follow the sequence of activities listed below. Modify to suit specific requirements of the project however no reduction of scope is allowed.

1 Submission of Project specific Project Quality Plan including generic and project Specific ITPs within the first quarter of the project programme after site possession.

2 Ongoing inspection of installation works by relevant Quality Manager and/or his nominated staff for meeting project quality requirements including preparing Inspection reports (listing all observed installation defects) not longer than fortnightly and also checking that all Installation ITPs are signed off.

3 Initiate Safety in Design process and documentation where applicable

4 Evidence of adequate commissioning programme allowance in construction programme.

5 Production and submission of commissioning Inspection and Test Plan (ITP) 12 weeks after site possession

6 Amendment to ITP as necessary and re-submission at least 1-2 weeks after the original submission.

7 Submission of controls manufacturer's functional descriptions elaborating on the methodology proposed to implement the requirements of the control strategies the manufacturer's controls functional descriptions shall be prepared and submitted at least 12 weeks prior to start of installation and commissioning of controls systems.

8 Nomination of those to be involved in commissioning including individuals with responsibility for management, engineering and field testing and commissioning.

9 Liaison with and briefing of Authorities to ensure that the connection to their assets and commissioning procedures and resultant data provided for their approval is consistent with their requirements and records.

10 Preparation of periodic (minimum monthly) progress reports on testing and commissioning.

11 Early and active engagement of Independent Commissioning Agent ICA where applicable.

12 Early (within the first quarter of the project construction programme) submissions of Operating and Maintenance Manual (for Safety Services and, for preliminary draft of the overall manual). Confirmation of acceptance of proposed Electronic Operating and Maintenance Manual software/platform.

13 Submission of detailed commissioning procedures for review by the Consultant Engineer. Submission shall be made early, at least 12 weeks prior to the commencement of commissioning when the project construction period greater than 12 months, or 6 weeks when the project construction period is less than 12 months' duration.

14 Rectification of all defects likely to interfere with testing and commissioning.

15 Commencement of "As Built" drawing production

16 Carryout preliminary commissioning including pre-commissioning procedures until achievement of correct operation and performance. Providing statement that the pre-commissioning activities for each system are completed.

17 Testing and commissioning of major plant and equipment, complete systems, interfaces between systems and finally all systems which interact together under normal or emergency conditions.

18 Integrated testing and commissioning of multi systems (including multi-disciplinary systems) and their associated interfaces

19 Inclusion of all completed Commissioning ITPs in the Operating and Maintenance Manual.

20 Rectification of any further defects and deficiencies found during testing and commissioning.

21 Provide notification of completion of remedial work in sufficient time to permit re-inspection as necessary before the intended date for re-testing.

22 Repetition of sequence of activities as necessary until works comply with acceptance criteria as set out in the ITPs.

23 Final handover of Final Operating and Maintenance Manuals

24 Certification that works comply with the Contract Documents and with the NCC and Statutory Authorities and are ready for granting of Practical Completion.

6.3.3 SUBMISSIONS

Required submissions include but not limited to the following;

1 Installation and commissioning Inspection and Test Plans ITPs. 4 Copies of ITPs to be supplied, 3 bound into Installation Manuals and 1 bound separately

2 Evidence of periodic (weekly) Quality Inspection/defects reports

3 Testing and commissioning procedures including integrated commissioning procedures.

4 Evidence of Safety in Design process during the construction phase is completed where applicable

5 Evidence of currency of calibration of equipment to be used in commissioning procedures.

6 Records of all pre-commissioning checks and final commissioning data. All records/data to be certified as being conducted in accordance with agreed and approved procedures.

7 Manufacturers' certificates for all proprietary items, to confirm that the installation complies with their installation and maintenance requirements prior to start-up of equipment. Certificates shall also be provided at commencement of equipment installation to confirm their requirements with respect to installation are being provided for.

8 Manufacturers' test certificates of all capacity/performance verification checks carried out at factory prior to dispatch to site.

9 Accurate and verified (by QA manager) "As Built" drawings

10 Complete Operating and Maintenance Manuals (Electronic system/package and, unless instructed otherwise, hard copies)

11 Warranties

12 Maintenance Plan and Schedules following acceptance of technical submission and installation minimum 4-8 weeks prior to Practical Completion with priority with respect to timely completion given to plan and schedules covering Safety Services.

6.3.4 INSPECTION AND TEST PLANS

1 Inspection and test plans are to be prepared specifically for the project but may be based on or customised from generic ITPs. All commissioning result forms shall be completed, including the following:

Tested By: …… Please print	Witnessed By: ……
Signed: ……	Signed: ……
Date: ……	Date: ……
Test Device used: ……	
Serial Number: ……	
Date of Calibration: ……	
Method of Testing: ……	

2 List acceptance criteria for each element and sub-element of the installation in ITPs. Acceptance criteria to include:

- **a** Specification details in regard to materials, construction methods, physical requirements, performance and operational requirements.
- **b** Schedule of Technical Data in respect of make, model and performance details of equipment.
- **c** Shop drawings.
- **d** Control logic and diagrams.
- **e** Authority inspection and testing requirements.
- **f** References to specific clauses of this Specification for acceptance criteria

6.3.5 COMMISSIONING INSTRUMENTATION

1 All instrumentation used in the commissioning of the installation shall be managed in accordance with the requirements of AS 3912 or NEBB.

2 Reference instruments are to be NATA certified.

3 All commissioning results to include instrument calibration documentation.

6.3.6 COMMISSIONING PERSONNEL

1 Provide only qualified registered / licensed personnel specific to the trades as required by local regulations, and where regulatory requirements do not apply, personnel certified by appropriate industry bodies.

2 Submit a schedule of key commissioning personnel together with their qualifications prior to undertaking commissioning activities on site.

3 All personnel used in the commissioning of the installation shall be managed in accordance with the requirements of NEBB and shall be NEBB certified.

6.4 TESTING AND COMMISSIONING

6.4.1 TESTS

Site testing shall include but not limited to the following:

1 Pre-energisation tests.

2 All ductwork systems pressure tests

3 All pipework systems pressure tests

4 Preliminary commissioning

   a Air systems

   b Water and condensate systems

   c Controls and electrical

5 Final commissioning

   a Major items of plant and equipment and components

   b Systems and sub-systems

   c Inter-system operation and interfaces

6 Additional tests as required by relevant Authorities

7 Performance tests

   a Summer

   b Winter

6.4.2 PRE-ENERGISATION TESTS

Prior to energisation of any system with electrical connections, conduct the following tests:

1 Tightness of screwed and bolted connections.

2 Physical integrity.

3 Correct phasing. Check phase rotation is consistent throughout the project and is the same as the supply.

4 Motor rotation.

5 Insulation resistance tests.

6 Test operation of all trips, interlocks, motor driven devices, contactors and control circuits and devices by instigating or simulating inputs.

7 Checks: Before starting, verify that each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, circuit protection or for other conditions which may cause damage.

8 Tests: Verify that tests, meter readings and specified electrical characteristics agree with those required by the manufacturer.

9 Load tests: Carry out simulated and on-line load tests for any standby generators or UPSs.

10 Wiring: Verify wiring and support components for equipment are complete and tested.

11 Starting up: Execute starting up under supervision of manufacturer's representative in accordance with manufacturers' instructions.

12 Electrical load balance: Measure phase currents and balance electrical loads.

13 Insulation resistance: Check that the insulation resistance values are within limits.

14 Report: Submit a report demonstrating that equipment has been properly installed and checked and is functioning correctly.

6.4.3 PRELIMINARY COMMISSIONING

6.4.4 AIR SYSTEMS

1 Check all dampers for correct operation.

2 Clean air handling unit interiors and clean or replace air filters as necessary.

3 Check and adjust air diffusers and grilles for direction and throw.

4 Balance and adjust air flows for each system and sub-system so as to achieve air flows within 0% to +10% of specified rates allowing for filters partly obstructed to simulate 50% loaded.

5 Check index run is not provided with any dampers. If any dampers are provided, these shall be fully open and demonstrated as part of the witness tests.

6 Make sure velocities through filters and coils do not exceed the design limits.

6.4.5 WATER AND CONDENSATE SYSTEMS

1 Follow the procedures set out in 'Water Treatment' clauses of this specification prior to commencing balancing.

2 Balance and adjust water flows for each system and sub-system so as to achieve 0% to +5% of the specified flow rates.

3 Check and verify pressure and flow activated controls, relief devices, bleeds, vents, drains, etc.

4 Check index run is not provided with any valves. If any valves are provided, these shall be fully open and demonstrated as part of the witness tests.

6.4.6 CONTROLS AND ELECTRICAL

1 Check and verify the correct operation of each item of control equipment and of each control system.

2 Check and verify correct performance of all instrumentation, lights, timers, relays and safeties under all working conditions.

3 Calibrate, set and adjust control instruments, control systems and safety controls.

6.4.7 FINAL COMMISSIONING

1 Undertake final commissioning in 3 stages:

- **a** Major items of plant and equipment and components.
- **b** Systems and sub-systems.
- **c** Inter-system operation and interfaces.

2 Final commissioning to include:

- **a** Testing of performance of individual plant items and components.
- **b** Testing of operating sequences, interlocks and safeties.
- **c** Final air and water balancing.
- **d** Electrical testing and verification to AS/NZS 3000.
- **e** Final controls calibration.
- **f** System operation under all operating modes and under all conditions of load.
- **g** Inter-system operation and correct interfacing connections under all operating conditions and under simulated fire conditions.
- **h** Noise and vibration tests.
- **i** Thermographic survey of mechanical switchboards.
- **j** Water treatment tests and water analysis.
- **k** Environmental audit (if required).
- **l** Rectification and correction of any defects and deficiencies.
- **m** Cleaning of plant room, switchboards and all mechanical services equipment and devices.

6.4.8 ENVIRONMENTAL AUDITS

1 Requirements:

- **a** Present environmental audit findings in an environmental test report suitable for use as a benchmark for future audits.
- **b** Conduct environmental audits for locations scheduled.
- **c** Environmental audits to cover:

Indoor Air Quality:	Carbon dioxide
	Carbon monoxide
Indoor Comfort Conditions:	Temperature

6.4.9 PERFORMANCE TESTS

1 Conduct air conditioning performance tests over 2 periods of up to 5 consecutive days each period in Summer and Winter. During each testing period, log the following at hourly intervals:

- **a** Ambient dry and wet bulb temperatures in a shaded location.
- **b** Internal dry and wet bulb temperatures in representative locations.
- **c** Estimated number of persons in each area.
- **d** Estimated kW of lighting and heat producing appliances.
- **e** Any other factors effecting cooling loads.
- **f** Velocities through each cooling and heating coil on each air handling unit.
- **g** Velocity through each set of filters on each unit.

2 Calculate the plant thermal capacity at peak operating conditions obtained from the test results.

3 Undertake any adjustments to controls or to air and water quantities as may be required to correct any deficiencies found during the performance testing.

6.4.10 ADDITIONAL GREEN STAR REQUIREMENTS (WHERE APPLICABLE)

The following additional requirements are to be met if required by the Green Star Schedule in Schedules.

1 Comprehensive pre-commissioning, commissioning and quality monitoring are to be performed in accordance with ASHRAE Guideline 1 or CIBSE Commissioning Codes.

2 Provide a complete commissioning report which confirms that all commissioning is in compliance with the contract documents. The report must also include a list of outstanding commissioning issues, records of all functional/commissioning testing undertaken and list any seasonal testing required in the future.

3 Owner instruction to be spread over at least two sessions separated by at least two months. Issues covered must include:

- **a** Energy and environmental features of the design.
- **b** Review of the controls set-up, programming, alarms and trouble shooting.
- **c** Operating and Maintenance manuals.
- **d** Building operation including start-up, normal operation, unoccupied operation, seasonal changeover and shutdown.
- **e** Interactions with other systems.
- **f** Optimising energy efficiency.
- **g** OH&S issues.
- **h** Maintenance requirements and sourcing replacements.
- **i** Occupant satisfaction feedback.

4 Allow to coordinate the above with Electrical and Hydraulics Works Packages so that a whole-building approach is achieved.

5 Separately from the routine maintenance and servicing, provide detailed formal quarterly reviews of the Mechanical Services of the system and provide written reports detailing the status of the system, changes made, etc. As a minimum, each review shall include:

- **a** All system set points and timers.
- **b** Rectification of all BMS alarms and other faults.
- **c** Full load commissioning tests of both heating and cooling systems in the appropriate season.
- **d** Minor adjustments to BMS programmes, set points, air flows, water flows, etc. as found necessary from operating experience or as advised by the Consultant Engineer to time the system for optimum performance and energy efficiency.

6 Provide a formal final recommissioning of the mechanical services in the final month before Final Completion (12 months after Practical Completion). As a minimum, this is to include:

- **a** A written report as per the quarterly review.
- **b** All quarterly issues.
- **c** Review and reconfirmation or adjustment of all flows and controls relating to cooling (chillers, cooling towers, pumps, etc.), heating (boilers, pumps, etc.), air flows (fan coil unit and air handling unit overall

supply/return/outdoor air flows), ventilation (all supply and exhaust systems).

d Remeasure and adjust as necessary maximum chilled, heating and condenser water flows to major equipment (i.e. excludes VAV reheat coils for example).

e Remeasure and adjust as necessary overall air distribution from risers at each floor (i.e. excludes detailed on-floor rebalances).

7 Engagement of an Independent Commissioning Agent (ICA) as per Green Star requirements whose role shall be to provide commissioning advice to the design team and to the Building Owner and to monitor and verify the commissioning of the HVAC and building control systems. The independent commissioning agent shall report directly to the Building Owner and the primary goal of the agent is to independently identify system deficiencies as early in the project as possible and track their status until corrected.

8 The ICA's role and responsibilities include:

a Be an objective advocate of the Building Owner.

b Review basis of design and design intent as well as preliminary working drawings.

c Create a commissioning plan and direct the commissioning process that covers the following (if present): air distribution systems, boilers, automatic controls, lighting, refrigeration systems, hot and cold water systems.

d Introduce standards and strategies early in the design process.

e Set target requirements in the contract documents to ensure implementation of selected measures.

f Coordinate with the Building Owner, design team and Contractor throughout the commissioning, testing and adjustment phases.

g Observe all testing, review and approve the Contractors test results.

h Prepare final commissioning report including recommendations to the Building Owner regarding the performance of commissioned building systems.

6.4.11 COMMISSIONING

Operate the installation to prove the performance, capacities and ability to provide the required service.

Undertake commissioning in 4 stages:

1 Individual component functionality testing including verification of defects free installation

2 Major items of plant and equipment and components.

3 Systems and sub-systems.

4 Inter-system operation and interfaces.

Commissioning to include:

1 Performance of individual plant items and components.

2 Operating sequences, interlocks and safeties.

3 Final controls calibration.

4 System operation under all operating modes and under all conditions of load.

5 Inter-system operation and correct interfacing connections under all operating conditions and under simulated fire conditions.

6 Noise and vibration tests.

7 Thermoscan survey of switchboards.

8 Environmental audit as required by Authorities.

9 Rectification and correction of any defects and deficiencies.

10 Continue commissioning until achievement of correct performance and operation.

11 Final air and water balancing.

12 Electrical testing and verification to AS/NZS 3000.

13 Water treatment tests and water analysis.

14 Cleaning of plant room, switchboards and all equipment and devices.

6.5 FINAL CONTRACT AND HANDOVER DOCUMENTATION

6.5.1 GENERAL REQUIREMENTS

1 Documentation is required in electronic and hard copy format. Electronic documentation shall be supplied on the latest Microsoft and AutoCAD Software versions at the time of Practical Completion.

2 Scope of the documentation and format requirements comprise:

Document	Format	Sets
Operating and Maintenance Manuals, including Final commissioning data	Electronic installed on BAS File Server	1
	CD ROM – Microsoft Office Latest Version	3
	Hardcopy	3
As Built Drawings	CD ROM – AutoCAD	3
	Hardcopy – Full Size with hanging strips	1
	A3 Size	2
Control Software	CD ROM	1
OH&S Safety Signage	Permanent	1

6.5.2 AS BUILT DRAWINGS

1 All as Built/As Installed documents submitted shall have a stamp with similar words to the following and be signed prior to submission for review.

AS INSTALLED DRAWING

We certify that this drawing is an accurate record of the work installed by our company under the terms of our contract.

Contractor's Name

……

Contractor's Address

……

……

Signed …… Date ……

Printed ……

2 Progressively record changes to form a record of work as installed.

3 Prepare and submit for approval as-built drawings covering all aspects of the work.

4 Show dimensions, types and locations of equipment, cables, piping, ductwork pits and markers in relation to permanent site features and other underground services.

5 Show the 'as-installed' locations of building elements, plant and equipment with particular emphasis on items requiring maintenance or clearing.

6 Show off-the-grid dimensions where applicable. Include relationship to building structure street features and other services and changes made during commissioning.

7 Show inverts of drainage and relative locations of gully and boundary traps

8 Provide as Built documentation as per Schedule of Required as Builts:

6.5.3 OPERATING AND MAINTENANCE MANUALS

1 Provide comprehensive Operating and Maintenance documentation to cover all installations in order to provide a detailed understanding of the plant and its operation, an aid for training of operators, a reference for fault diagnosis and a framework for preventative and breakdown maintenance.

2 Submit manuals in two stages. Stage 1 include all of the sections (generally sections 1-5) of manuals excluding final testing and commissioning records and As Built drawings. This manual shall be submitted well in advance of the Practical Completion and should be signed off by the Consultant Engineer at least 4-6 weeks before programme Practical Completion Date.

3 First draft manuals Stage 1: Submit a first draft manual 8-10 weeks before the date for practical completion for review.

4 Second drafts Stage 1: Following receipt of comment on the first draft and not later than 2 weeks after submit a completed second draft for review. Incorporate comments.

5 Third Draft Stage 1&2: Include all remaining sections and submit 2-3 weeks before Practical Completion. Incorporate all changes and resubmit until all comments are addressed to the satisfaction of the Consultant Engineer.

6 Final copies Stage 1&2: Submit 3 sets of final volumes within 2 weeks after practical completion. Incorporate feedback from review and from training of Principal's staff, including preparation and insertion of additional data. Include a section containing commissioning test reports.

7 Revisions: Prior to final completion, submit 3 sections sets of loose leaf amendments for insertion in the manuals, incorporating feedback from the maintenance period.

8 Warning and Cautions: Include to emphasise conditions hazardous to personnel or equipment, giving instructions to avoid the hazard. Format to be:

9 **WARNING:** An examining or testing procedure or practice which must be observed or risk loss of life or injury to personnel.

10 **CAUTION:** An examining or testing procedure or practice which must be followed or risk damage to equipment.

11 The manual shall be neatly prepared and bound in one, or a series of, vinyl hard-back folder with lettering on the front and the spine including the following information:

OPERATION AND MAINTENANCE MANUAL	VOLUME NUMBER
PROJECT NAME	DATE OF ISSUE

XX SERVICES — CONTRACTOR

CONSULTANT ENGINEERS – WSP — SUB CONTRACTOR

12 Pagination: Number pages consecutively. Double sided on A4 size (minimum 50%) recycled white (minimum CIE whiteness of 140) paper, with reinforced binder perforations.

13 Ring size: 50mm maximum, with compressor bars.

14 Dividers: Durable divider for each separate element, with typed description of system and major equipment components. Clearly print short titles under laminated plastic tabs.

15 Drawings: Fold illustrative drawings to A4 size and accommodate them in plastic pockets in the binder. Title block to be visible without removal of drawing

16 All aspects of the style and quality of the manual, including folders and contents shall be submitted for approval prior to completion.

17 After the draft copy, has been approved, supply 3 copies of the manuals for issue to the Principal and the Consultant Engineer.

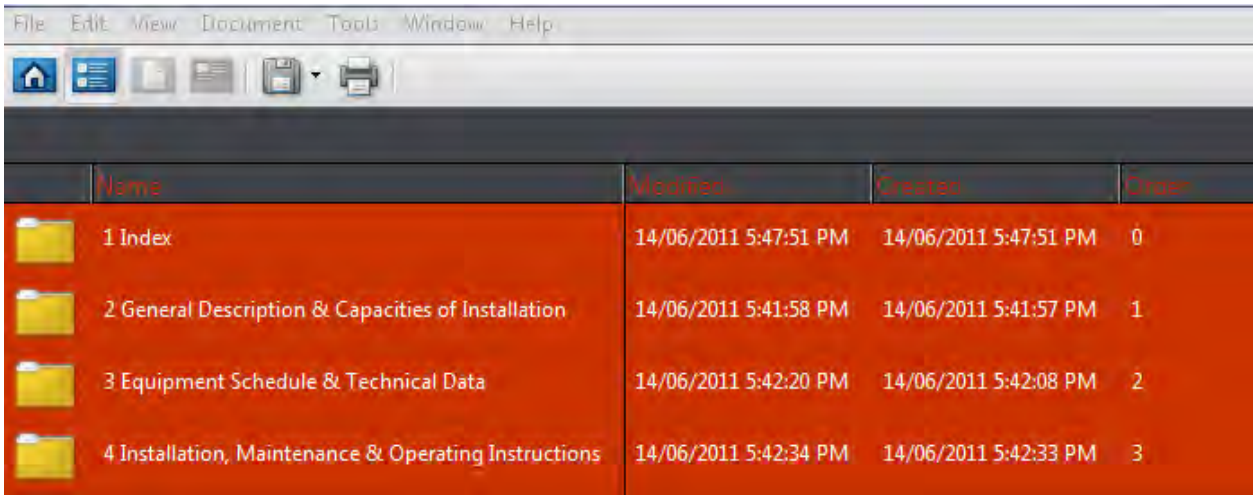
18 Allow for loading the manual onto the Building BAS systems (where available) and arrange to provide the manual including commissioning results.

ELECTRONIC/DIGITAL FORMAT

1 Documents shall be stored in DVD Disc or Potable USB Flash Drive Storage Drive. Provide labelling to the storage media.

2 Electronic Storage device shall not be “copy protected”.

3 Manual shall be contained within **a single searchable PDF** accessible via Adobe or similar PDF reader. PDF shall be indexed, divided in to folders and titled. Each folder shall contain relevant electronic/digital format documentation in line with the contents specified below. Refer below of a screen print of Adobe Reader for a typical arrangement.



“Screen Shot” for Reference

4 Avoid submitting manually scanned Manufacturers’ data, where possible include only searchable PDF documentation.

5 Include only relevant diagrams, equipment data in clear concise English. Avoid jargon and esoteric pseudonyms.

6 Provide each document included in the PDF with the following naming convention:

7 Section “X” – “Document Description”.pdf

8 Provide clear scanned copies of Statutory Certificates of Compliance

- a Accessible Dwg format CAD drawings of the as-built documentation shall be contained within the PDF.

INSTALLATION MANUAL FORMAT

1 Section 1 – Index

- a Index all sub-divisions of each section including lists of drawings, equipment, etc. for quick reference.
- b Include index in every volume of the manuals.

2 Section 2 - General Description and Capacities of Installations:

- a Divide into sub-sections for general items and for each individual system as appropriate and include full details
- b Include a directory: Names, addresses and telephone, email and facsimile numbers of Principal, Consultant Engineer, Sub-Consultants, Contractor, Sub-Contractors and names of responsible parties.
- c Include a scope of works: Statement of scope of services and interfacing with other Contracts.
- d Include an installation description: General description of installation.
- e Systems description: Technical description of the systems installed, written to ensure that the Principal's staff fully understand the scope and facilities provided. Identify function, normal operating characteristics and limiting conditions. Include schematic diagrams.
- f System performance: Technical description of the modes of operation of the systems installed.

3 Section 3 – Equipment:

- a Sub-divide as for Section 2 and list all major items of equipment installed complete with manufacturer's name, agent's name, contact details, model and/or type No., serial No., size, design ratings and including all relevant data necessary for re-ordering or replacing the equipment or components of same. As far as practicable, all equipment should be broken down to individually identifiable items.
- b Provide manufacturers' technical literature for equipment installed, assembled specifically for the project, excluding irrelevant matter. Mark each product data sheet to clearly identify specific products and component parts used in the installation and data applicable to the installation. Do not include advertising literature. Cross out any section of literature which is not applicable to the project.

4 Section 4 – Installation, Maintenance and Operating Instructions:

- a Sub-divide as for Section 2 and include manufacturer's installation, maintenance and operating instructions for each item of equipment.
- b Emergency maintenance procedures, including telephone numbers for emergency services and after hour's contact for suppliers and Contractors and procedures for fault finding.
- c Manufacturer's technical literature as appropriate. Register with manufacturer as necessary. Retain copies delivered with equipment.
- d Detailed recommendations for preventative maintenance frequency and procedures which should be adopted by the Principal to ensure the most efficient operation of the systems installed. Include inspection, testing and maintenance programme in tabular form showing frequency and level of routine checks for each item.
- e Safe trouble shooting, disassembly, repair and reassembly, cleaning, alignment and adjustment, balancing and checking procedures. Provide logical step-by-step sequence of instructions for each procedure. Include calibration and recommissioning of controls.
- f Schedule of spares recommended to be held on site, being those items subject to wear or deterioration and which may involve the Principal in extended deliveries when replacements are required. Include complete nomenclature

and model numbers, and local sources of supply. Include sectionalised diagrams of machines identifying component parts.

g Schedule of normal consumable items, local sources of supply and expected replacement intervals up to a running time of 40,000 hours. Include lubricant and lubrication schedules for equipment where applicable.

h Add to the manufacturer's technical literature, for assembly, operating, maintenance and disassembly, safety information for all plant, systems or structures installed within the project or for existing plant, systems or structures where assembly, operating, maintenance and disassembly are altered or amended by the installation of plant, systems or structures within the project.

i The added safety information shall be included at relevant sections of the manufacturer's literature and not as a separate part and shall be made clear and obvious to the user of the manual.

5 Section 5 – Plant Operating Instructions:

a Sub-divide as for Section 2 and provide a complete description and correct sequence of all actions necessary to start-up, operate and shut-down all plant including procedures for seasonal changeovers where applicable. These instructions shall include full information on such items as normal and abnormal gauge readings, instrument settings and control points, differentials, time delays, oil levels, water temperatures, and all similar relevant variable and adjustable items, to permit checking and adjustments where practicable and identification of hazardous conditions or malfunction of plant. In addition, the instructions shall include information on the immediate action to be taken in the event of hazardous conditions arising.

b Add to the manufacturer's technical literature, for assembly, operating, maintenance and disassembly, safety information for all plant, systems or structures installed within the project or for existing plant, systems or structures where assembly, operating, maintenance and disassembly are altered or amended by the installation of plant, systems or structures within the project.

c The added safety information shall be included at relevant sections of the manufacturer's literature and not as a separate part and shall be made clear and obvious to the user of the manual.

6 Section 6 – Performance Test Results:

a This section shall be sub-divided as for Section 2 and shall include all performance test results as outlined in previous Clauses.

7 Section 7 – Certificates and Warranties

a Statutory Certificates of Compliance for:

b Electrical work.

c Plumbing drainage or gas-fitting work.

d Refrigeration or air conditioning and ventilation work.

e Copies of manufacturers' warranties.

f Certificates from authorities and utilities.

g Production certification.

h Copies of test certificates for the installation and equipment used in the installation.

8 Section 8 – Drawings

a Drawings and technical data: As necessary for the efficient operation and maintenance of the installation.

6.5.4 WARRANTIES

Warranty periods are deemed to end at expiry of defects liability period unless specified otherwise.

Name the Principal as warrantee. Register with manufacturers as necessary. Retain copies delivered with components and equipment.

Commence warranty periods at practical completion or at acceptance of installation, if acceptance is not concurrent with Practical Completion.

If installation is not being manufactured and product warranty is conditional on the manufacturer's approval of the Contractor, submit the manufacturer's written approval of the installing firm.

6.5.5 REQUIRED OPERATING INSTRUCTIONS

1 Provide operating instructions and schematic diagrams mounted alongside equipment to meet statutory requirements, e.g. Fire Brigade. Diagrams to be colour-coded, colour-fast, laminated and mounted.

6.5.6 TRAINING OF PRINCIPAL'S NOMINATED PERSONNEL

1 The service of a fully knowledgeable Commissioning Engineer shall be required for a period of 2 full working weeks to instruct the Owner's nominated representatives in all details of the plant operation.

2 Conduct training at agreed time, at system or equipment location.

3 Immediately after Practical Completion, explain and demonstrate to the building users or nominated representative, the purpose, function and maintenance of the installations.

4 Use qualified personnel who are knowledgeable about the installations.

5 Prior to Practical Completion, explain and demonstrate to the Principal's nominated personnel the purpose, function, operating and maintenance of the installations.

6 Use items and procedures listed in the Operation and Maintenance manuals as the basis for detailed instruction of Principal's nominated personnel.

7 Conduct training at agreed time, at each system of equipment location.

8 Upon completion, submit certificates of training, signed by trainer and trainees.

9 Provide qualified manufacturer's training representatives who are knowledgeable about the installations

10 The services of the Contractor's Commissioning Engineer and BAS controls commissioning engineer shall be required for a period of 8 weeks after Practical Completion to assist the operator in the operation of the Facility.

11 During the warranty period, provide technical assistance and advice to the Principal's nominated personnel regarding the operation and maintenance of the plant.

12 For equipment requiring seasonal operation, demonstrate during the appropriate season and within 6 months of Practical Completion.

13 Include copy of training material within the O&M Manual

6.5.7 SPARE PARTS SCHEDULE

At least 8 weeks before the date for Practical Completion, submit a schedule of spare parts necessary for maintenance of the installation. State against each item the recommended quantity, and the manufacturer's current price, including for

1 Packaging and delivery to site;

2 Checking receipt, marking and numbering in accordance with the spare parts schedule;

3 Referencing equipment schedules in the operation and maintenance manual; and

4 Painting, greasing and packing to prevent deterioration during storage.

6.6 POST PRACTICAL COMPLETION AND DEFECTS LIABILITY PERIOD

6.6.1 WARRANTY AND DEFECTS LIABILITY

Warrant the whole of the Contract Works, for the Defects Liability Period (DLP), against defective workmanship and materials and against non-compliance of equipment and/or complete system with specified performance and operation.

The Defects Liability Period shall continue for a period of 12 months after the date of issue of Practical Completion and during this period, the Contractor shall be responsible for making good on a timely manner, defects arising from the defective design materials, premature component failures, or workmanship or from any act of the Contractor that may develop in the work.

Perform maintenance during the warranty period to maintain warranty conditions. Maintenance shall comply with the current regulatory requirements.

In the event of inclusion of equipment normally covered by a lesser time warranty, or whose warranty would otherwise normally expire during the warranty period, allow for and include the costs of extending such warranty to that covering up to the end of the Defect Liability Period.

Where warranted work or equipment has failed, the warranty shall recommence on the date of acceptance of the rectified work for an additional period of time, extended by the period during which the Principal was without the use of the work or equipment. For rectified work involving new replaced equipment, the warranty for the new component shall be from date of replacement for the 12 months or longer as required by this specification

6.6.2 GENERAL DLP MAINTENANCE SCOPE

Maintenance services shall include:

1 Preparation of a maintenance management plan which includes a detailed maintenance programme, equipment schedules, statutory and preventative maintenance schedules, OH&S risk assessment, inspection and testing schedules, breakdown rectification management and reporting systems. Submit maintenance plan and schedules prior to Practical Completion

2 Preventative and corrective maintenance and testing services to assure specified system reliability and availability.

3 Statutory maintenance and testing required by the Building Regulations and other authorities.

4 Breakdown and system fault responses. Attend site, ascertain cause of alarm and rectify where possible. Make system alterations at own cost to prevent future system faults. Pay any Authority charges resulting from callout on system faults.

5 Statutory regular system fire and life safety system control and performance verification test to be carried out after hours.

6 Comply with Building and Occupational Health and Safety Regulations. Comply with manufacturer's recommended maintenance programme and schedules.

7 Monthly maintenance and servicing in accordance with maintenance schedules recommended by equipment manufacturers.

8 Rectification of defects at Contractors cost.

9 Replacement of consumables at Contractors cost during the maintenance period.

10 Submission of monthly reports to Principal and Consultant Engineer on maintenance activities performed.

11 Provision and filling out log book which must be kept on site, detailing all visits.

12 Service personnel to be available for call out on a 24 hour per day, 7 day per week basis. Response time for emergency and corrective maintenance must not exceed 2 hours.

13 Comply with AS/NZS 3666.2. AS/NZS 3666.3 and AS/NZS 1677.2.

14 Maintenance, testing and inspections in accordance with regulatory requirements and relevant Australian Standards industry guidelines. (such as AIRAH DA19 HVAC&R Maintenance Manual).

15 Operation and verification in conjunction with other services trades, of all fire and life safety systems. Such testing to be undertaken at 6 monthly intervals.

6.6.3 FINAL COMPLETION

Final Completion shall not be granted until maintenance records are complete and signed off and until all defects have been rectified and inspected.

The Maintenance and Defects Liability Period may be extended unless maintenance and servicing visits have been made and reported as specified.

6.6.4 SUBMISSIONS

1 Provide;

2 Maintenance management plan.

3 Monthly Maintenance reports.

4 Completed maintenance records

Mandatory maintenance records to include monthly maintenance and service reports, including water treatment reports, reports on all defects and their rectification, certification of the correct operation of essential services, a maintenance log book and any other records which must be kept in order to comply with legislative or OH&S requirements.

Monthly Maintenance and Service Reports to include:

1 Check list of all items serviced and inspected.

2 Description of maintenance performed.

3 Notes on supplementary maintenance required.

4 Comprehensive water treatment report.

Maintenance Log Book to include:

1 Schedule of all equipment.

2 Schedule of all control sensors and control set point values.

3 Register of maintenance visits and cross reference to service reports.

4 Register of work performed under headings of preventive maintenance, corrective and emergency maintenance and defects rectification.

The Maintenance Log Book is to be kept in a locked cabinet provided for the purpose in an agreed location on site.

At the conclusion of each maintenance visit the log book is to be duly completed and signed off by an authorised representative of the Principal /Building Owner and service records are to be forwarded to the Principal /Building Owner or his representative within 3 days of each visit.

6.6.5 DLP PREVENTATIVE MAINTENANCE AND TESTING

GENERAL

As a minimum, carry out all maintenance and servicing recommended by the manufacturer of each piece of equipment at the recommended intervals

MECHANICAL SERVICES REQUIREMENTS

The following minimum items shall be carried out for applicable equipment, as well as those required by Codes, Standards and the manufacturers. As a minimum requirement or where in doubt as to the applicability of any particular maintenance regime, the maintenance schedules as identified in Appendix A of the AIRAH DA19 HVAC&R Maintenance Manual shall take precedence and form part of the maintenance management plan.

Monthly

1 Check and adjust all belt drives and couplings.

2 Check and clean all washable filters.

3 Check and report on necessity for replacement of removable filter media and disposable filters.

4 Oil and grease all bearings.

5 Clean as necessary drip trays, strainers and other sediment collecting items, which may become fouled.

6 Adjust and repack as appropriate, glands of all pumps and valves.

7 Check refrigerant system for leaks and supply replacement refrigerant as necessary to leave the plant tight and fully charged at all times. Drier cores to be replaced as necessary.

8 Test cooling towers for Legionella and carry out tower clean in accordance with AS/NZS 3666.1.

9 Check, test and report on chemical treatment and dose as required.

10 All manufacturers recommended maintenance items.

Quarterly

1 Monthly items, plus the following:

2 Check operation, setting and calibration of all controls.

3 Check all motors for temperature rise, operating current and leakage.

4 Check and record compressor head pressures and operation of HP, LP and oil pressure cut outs.

5 Check and adjust boilers and burners.

Six monthly

1 Quarterly items, plus the following:

2 Check internal and external vibration isolation.

3 Check, test and report on all fire detection and protection systems including smoke spill systems, stairwell pressurisation systems and fire shut down controls.

4 Check operation of all electrical switchgear including setting and operation of motor overloads.

Last maintenance visit at 12 months

1 Six-monthly items, plus the following:

2 Complete clean of cooling towers and condenser water systems.

3 Removal of end covers from condensers and evaporators and cleaning of tubes and all internal surfaces.

4 Removal of oil and drier cartridges on compressors and refrigeration systems and replacement of same with new cartridges.

5 Arranging for a testing authority to analyse refrigerant and oil samples for impurities and to submit a thorough report.

6 Check all motor starters and relay controls.

7 Check and megger all electric motors and check overloads.

8 Undertake thermal scanning of switchboards and report thereon.

9 Check all system safeties.

10 Replace all air filter media and disposable filters.

11 Thoroughly check chiller cathodic protection systems.

12 Thoroughly check cooling tower side stream filtration equipment.

13 Check, test and report on a building fire safety control test including testing of fire detection systems, smoke control systems, electric duct heaters, fire dampers and smoke and heat vents; Certify the correct operation of essential services in accordance with the requirements of the BCA.

14 The date for the final maintenance visit to be advised 7 days prior to the proposed visit so that a Principal's representative may be present to inspect the equipment when end covers are removed.

7 MECHANICAL PLANT AND EQUIPMENT

7.1 GENERAL

1 This section sets out the engineering and quality assurance requirements for the design, materials components, fabrication, installation and testing of the Mechanical Services equipment.

2 Plant and equipment shall be suitable for the application and comply with the requirements of this Specification and the relevant Statutory Authorities:

- **a** Meet structural and architectural conditions.
- **b** All equipment to achieve a workmanlike appearance with adequate provision for maintenance and replacement.
- **c** Be of service proven design and shall operate satisfactorily within the standard ranges of capacities.
- **d** Provide a lead time in the replacement of parts agreed with the owner/operator
- **e** Include safety devices for the protection of both construction and operational personnel against injury and the protection of plant and equipment against damage and comply with occupational health and safety requirements.
- **f** All equipment to be provided with adequate provision for lifting, installation maintenance and replacement of heavy parts.
- **g** Include all equipment safety devices and signage required to protect the equipment against damage.
- **h** Carry visible manufacturer's nameplates permanently fitted to each and every item of equipment and showing the manufacturer's name, type and/or model number, serial number, and all essential operating data such as speed, capacity, voltage, current draw, etc.
- **i** Additional nameplates shall be provided where required to provide permanent details of equipment performance details as scheduled in the equipment schedules such as pump duty and capacity, etc.

7.2 MOTORS

7.2.1 GENERAL

1 Where available, all motors shall be the MEPS High Efficiency type to AS/NZS 1359.5.

2 Unless specified otherwise select all motors continuously rated squirrel cage metric induction type to be non-overloading at all operating conditions.

3 Comply with AS 1359.0 and AS 1360.11. Where this is not possible, submit full details of variations to these requirements with the tender.

4 Design specifically to operate on either 400Volts 3 phase or 230 Volts single phase supply 50Hz and of high efficiency performance.

5 Select enclosures suitable for the conditions of operation and adequately protected against corrosion.

6 In plant room areas and for open drive compressors use the drip proof or totally enclosed fan cooled type.

7 Use totally enclosed fan cooled fan motors in conditioned air streams.

8 Use totally enclosed air cooled axial flow fan motors.

9 Use totally enclosed fan cooled motors exposed to weather. Fully weather-proof using additional seals, shrouds, etc., as required and fitted with porous drain plugs.

10 Select motors suitable for direct on line starting having minimum Class B insulation and rated for Class B temperature rise, with the exception of smoke exhaust fans associated with fire and smoke control.

11 Provide motors with insulated motor bearings where motors are to be operated by variable speed drives.

12 Provide motors used for smoke control with totally enclosed fan cooled enclosures with insulation in accordance with AS/NZS 1668.1.

13 Select fan motors for air cooled condensers having minimum Class F insulation and rated for Class F temperature rise.

14 Provide Class F and Class H insulated motors with high temperature leads and terminals. Bearings packed with high temperature grease and guaranteed for operation at the specified duty.

15 Motors required to operate within Hazardous Zones shall be suitable for the Hazard Zone within which it is to operate and as a minimum shall be of the specific scheduled requirements.

16 Install motors in dynamic and electrical balance free from vibration during starting and running.

17 Ensure the torque characteristics are suitable for the load characteristics.

18 Design synchronous speed: Not exceeding 24 rps unless otherwise specified.

19 Power output ratings: Not less than those shown in the 'Schedule of Equipment'.

20 Ensure the locked rotor torque is adequate to provide satisfactory starting of the load being driven considering the load inertia and all other relevant factors but in any case, not less than 150% full load torque.

21 Locked rotor current: Not exceeding the limitations specified in AS 1359 for Design B Motors.

22 Fitted with thermal overloads.

23 Carefully match motors driving high inertia loads such as centrifugal fans to the load, bearing in mind the starting method, in order to accelerate the load to full speed well within the maximum start time specified by the motor manufacturer, without overheating of the motor or its associated starting equipment.

24 End shield mount bearings wherever possible and having a minimum service life of 100,000 hours' continuous operation at the installed duty where possible.

25 On small motors, up to and including 15kW incorporate permanently lubricated 'sealed for life' bearings.

26 Lubricate by means of readily accessible lubrication points, capable of greasing with the motor in operation.

27 Fit pressure relief devices such that grease cannot enter the motor for motors over 15kW.

28 Provide captive dust caps on lubrication points.

7.2.2 MOTOR PROTECTION AND CONTROL

1 Accept responsibility for selection of correct types of starting equipment.

2 Ensure starter selected gives proper overload protection during starting.

3 Overloads: In circuit at all times except for smoke spill fans to AS/NZS 1668.1.

4 Starting equipment and/or the drive motor shall be rejected if tripping during starting occurs.

5 Set overloads to the full name plate current of the motor.

6 Provide positive temperature co-efficient thermistors for motors rated at 11kW and above.

7 Do not provide thermistor protection for motors that operate only on fire conditions and are essential for fire and smoke control as defined in AS 1668.2. Such items include smoke exhaust air fans and stairwell pressurising fans.

7.2.3 VARIABLE SPEED OPERATION

1 Ensure each speed controlled motor is compatible with the associated variable frequency speed controller to provide smooth operation over the entire speed range, without objectionable noise.

2 Select the electric motor capable of continuous operation at any constant speed setting throughout the speed range, without overheating.

3 Provide supplementary cooling of the motor as required to prevent overheating at sustained low speed where so recommended by the manufacturer.

7.3 BELTS, PULLEYS AND DRIVES

7.3.1 GENERAL

1 Select all belts, pulleys, couplings and drives as the products of one manufacturer, and to be dynamically balanced and aligned in accordance with the drive manufacturer's recommendation.

7.3.2 PULLEYS

1 'Fenner Dodge' or approved equivalent fixed with keyed taper lock bushes to shafts.

7.3.3 BELTS

1 A minimum two belts are required on each pulley.

2 Belt drives: 'V' belt type and the drive assembly incorporating belt tension adjustment.

3 Belt drives: Size for ≥ 125% of motor power and capable of transmitting the full starting torque without slip.

4 Belts: Wedge belts to AS 2784, consisting of matched sets of at least 2 belts.

5 Mark belt size in a prominent location on the fan casing.

7.3.4 FLEXIBLE COUPLINGS.

1 Rubber pin shear spacer type of 'Thomas' or approved equivalent.

2 Guards for belt drives shall completely enclose the drive, be adequately ventilated, readily removable, allow for adjustment of belts and components and permit speed measurements to be taken with a tachometer at pulley shafts without guard removal.

3 Use guards for couplings of rigid construction and permitting ventilation of the enclosed components.

4 Align all belts.

5 Align flexible couplings by a firm specialising in the work.

7.3.5 DRIVE SHAFTS

1 Designed so that the first critical resonant speed of the shaft is ≥ 130% of design maximum operating speed.

2 Double width fans with shaft diameter > 60 mm: Filleted stepped type to permit easy impeller removal.

3 Keyed with taper-lock fixing devices for fixing of pulleys.

4 Countersunk ends for tachometer application or, where the end of the shaft is not accessible, make provision for use of stroboscope or optical tachometer.

5 Material: Mild steel or high tensile steel, as appropriate for the duty. Provide corrosion protection by solvent removable petroleum based protective coating formulated for machinery shafts and parts.

DRIVE GUARDS

Provide rigid, removable belt guards on all fans where drive is accessible while motor is running. Provide the following:

1 Tachometer opening.

2 Perforated sides on double width, double inlet fans.

3 Weatherproof construction, ventilated and drained where exposed to weather.

4 Material: Open mesh or perforated metallic-coated sheet steel.

7.4 AIR CONDITIONING UNIT – VARIABLE REFRIGERANT VOLUME

7.4.1 GENERAL

1 Provide variable refrigerant volume (VRV) split type multi air conditioning system (reverse cycle system) consisting of one outdoor unit and multiple indoor units, each having the capacity to cool or heat only, i.e., not simultaneously.

2 Operate on refrigerant, R410A, R134a or other approved non-CFC/HCFC refrigerant.

7.4.2 CONDENSING UNITS

1 Compressor:

- **a** The compressor shall be a highly efficient scroll type, equipped with invertor controls capable of changing the speed in accordance to the cooling or heating load requirements.
- **b** Units having multiple compressors shall be able to operate even in the case that one of the compressors is out of order.

2 Heat Exchanger:

- **a** The heat exchanger shall be constructed with copper tubes mechanically bonded to aluminium fins to form a cross fin coil. Aluminium fins shall be treated with anti-corrosion resin film.

3 Refrigerant Circuit:

- **a** The refrigerant circuit shall include liquid and gas shut off valves and solenoid valves. All necessary safety devices shall be provided to ensure the safety operation of the system.

4 Safety Devices:

a Each outdoor unit shall be provided with high pressure switch, overload relay, inverter overload protector and fusible plugs.

5 Oil Recovery System:

a Units shall be equipped with an oil recovery system to ensure stable operation with long refrigerant piping.

7.4.3 FAN COIL UNITS

1 General:

a Provide units consisting of coils, control valves and refrigeration pipework, supply air fan, controls, accessories and electrical connections, mounted within an insulated enclosure.

2 Enclosures:

a Duct connections: Provide spigots or flanged connections.

b Insulation: Provide foil faced acoustic insulation. Minimum 50mm thick.

3 Unit Safe Tray:

a Provide galvanised tray under evaporator unit and condenser unit. Run drain line separately to unit drain line to nearest waste.

4 Cooling Coils:

a Maximum 480 fins/m.

b 2.25m/s maximum face velocity.

5 Controls:

a Provide controls and safeties required for safe, efficient and reliable operation, including the following:

i Centralised multi-functional controller able to control each indoor unit individually or grouped in zones.

ii Local controllers for individual indoor units.

iii Unit shall be equipped with self-diagnostic for easy and quick maintenance and service.

iv Control system to be integrated with BMS (see Control Section).

7.5 ADDITIONAL GREEN STAR REQUIREMENTS

The following additional requirements are to be met if required by the Green Star Schedule in Schedules.

1 All insulation is to be free of ozone depleting gases in manufacture and composition.

2 All painted surfaces to use low-VOC paint (refer to Painting and Identification for further details).

7.6 COIL – REFRIGERANT

7.6.1 CONSTRUCTION

1 Counter flow circuit of copper tube.

2 Mechanically bond aluminium fins to the tubes.

3 Not to exceed 400 fins per metre.

4 Pressure test to the greater of 2000kPa or 1.5 times the working pressure for at least 1 hour by either submerging in warm water and applying air (or other gas under pressure) or hydrostatic test. After testing, dehydrate, charge with dry nitrogen to 7 kPa (minimum), and seal.

5 Guaranteed for 1000kPa working pressure or to suit refrigerant whichever is the greater.

6 Face velocities: Not exceeding 2.0m/s.

7 Face dimensions not exceeding 750mm high or 2000mm long.

8 Braze all core joints and brass adaptor connections with approved copper brazing alloys.

9 Heavy gauge aluminium for associated top and bottom support frames and tube end plates.

10 Mount banks of cooling coils on common support fabricated from minimum 50mm x 50mm x 5mm steel angle framework hot dipped galvanised after fabrication.

11 Coil supports not to penetrate condensate tray.

12 Prevent contact between dissimilar metals using neoprene gaskets or equal.

7.6.2 CONDENSATE TRAY

1 Under each cooling coil.

2 Fabricate from a minimum of 1.0mm thick copper or 0.9mm stainless steel sheet.

3 Provide upstanding edges not less than 75mm high and a lip to prevent condensate overflow.

4 Grade each tray with waste connection from bottom of the tray.

5 Drains on built up air handling units not less than 40mm diameter.

6 Provide water trap to suit fan pressure and be not less than 50mm of water.

7 Provide insulation to underside of tray.

7.6.3 PROTECTION DURING TRANSPORT AND ERECTION

1 Prevent fin and tube damage by factory fitted sheets of 'Masonite' or sheet metal.

2 Fit this protection prior to coils being shipped from the factory.

3 Do not remove protection until shortly before commissioning.

4 Comb damaged fins straight.

5 Prevent ingress of foreign matter and moisture during transport and storage via plastic end caps.

7.7 CONDENSING UNIT – HELICAL ROTOR AIR COOLED

7.7.1 GENERAL

1 Comprise refrigeration compressor/s, dry expansion evaporator and air cooled condenser.

2 Sealed and shipped with a refrigerant or dry nitrogen charge.

3 Rated and tested to ARI 550.

4 Operate on refrigerant, R-134a or other approved non-CFC/HCFC refrigerant.

5 All heavy parts fitted with lifting lugs.

6 Be capable of continuous and stable operation under reduced capacities down to 30% of its full load capacity.

7 Machine to be mounted on spring sets.

7.7.2 COMPRESSOR AND DRIVE

1 Close grain cast iron compressor casing.

2 Operate at maximum 48 rps.

3 Over speed test the rotor assemblies.

4 Controlled temperature integral forced feed lubrication system.

5 Stepless capacity regulating control.

6 Open or Hermetic refrigerant cooled induction type motors suitable for full or reduced voltage starting.

7.7.3 CONDENSER

1 Coils fabricated from seamless copper tubing with aluminium fins mechanically bonded to the tubes.

2 Passivate coils post assembly with corrosion inhibitor to provide maximum coil corrosion protection.

3 Fitted with an integral sub cooling circuit to give a minimum of 6.5K sub cooling.

4 Fully balanced direct drive, condenser fans of aluminium or zinc plated steel fitted with removable safety guards.

5 Fan motors complying with the ‘Motors’ Clause in this Section of the Specification.

7.7.4 EQUIPMENT ENCLOSURE AND FRAMING

1 Designed for satisfactory operation in an exposed location.

2 Casings manufactured from galvanised sheet steel.

3 Support legs, framing and structural members formed from 3mm minimum thickness steel.

4 Fitted with a compressor and control compartment ventilated and internally lit for service and maintenance purposes.

5 All metal work factory finished powder coated or 2 pack painted.

7.7.5 SAFETY AND OPERATING CONTROLS

1 Factory fitted control panel either electronic or containing gauges operating pilot lights, switches and safety controls identifying engraved labels for all equipment, fixed with screws or rivets.

2 Indication and interlocks to protect against the following:

INDICATION

1 System on.

2 Voltage for each phase for solid state starters.

3 Drawn current on each phase.

4 Electrical current limited set point.

5 Condensing unit diagnostics.

6 Hours run meter.

7 Start counter.

8 General fault relay.

9 Refrigerant suction and discharge temperatures.

10 Compressor oil pressure.

INTERLOCKS AND SAFETY DEVICES

1 Condenser high pressure.

2 Bearings high temperature.

3 Motor winding high temperature.

4 Refrigerant low temperature.

5 Low oil pressure.

6 Compressor capacity control to ensure no load starting.

7 Oil pump delay timer.

8 Compressor short cycling.

9 Motor overload control.

REMOTE MONITORING

1 Common alarm signal connected into a remote monitoring system.

2 Interface to enable building management system to interrogate the control panel, or reset the set points.

OPERATION

1 Compressors start unloaded and subsequent loading and unloading by the control system.

2 Capacity control system to maintain desired setting by modulation of the compressor slide valve.

3 Maximum current drawn control to limit the compressor motor by monitoring the 3 phases of supply power.

4 Control to permit continuous manual control of power demand at operating points from 40 – 100% of full load power.

5 Condenser fan starters, associated switchgear and relays.

7.8 CONDENSING UNIT – SPLIT SYSTEM

7.8.1 GENERAL

1 Sealed and shipped with a full refrigerant charge, or a holding charge of refrigerant.

2 Rated and tested to ARI or AREMA standards.

3 Provide with service valves at the suction and liquid connections.

7.8.2 COMPRESSOR

1 Reciprocating or scroll type.

2 Operate at maximum 48rps.

3 Hermetic refrigerant cooled induction type motors suitable for full voltage starting.

4 Incorporate crankcase heater and suction accumulator for reciprocating compressor.

7.8.3 CONDENSER

1 Sufficient heat rejection capacity to maintain the saturated refrigerant not higher than 17k above the design ambient dry bulb temperature.

2 Coils, fabricated from seamless copper tubing with aluminium fins mechanically bonded to the tubes.

3 Epoxy coated fins shall be used in corrosive or marine environments.

4 Fitted with an integral sub cooling circuit to give a minimum of 6.5k sub cooling.

5 Fully balanced direct drive, condenser fans fitted with removable safety guards, selected for minimum noise.

6 Fan motors shall be weather proof and incorporate sealed for life bearings.

7.8.4 EQUIPMENT ENCLOSURE AND FRAMING

1 Designed for satisfactory operation in an exposed location.

2 Casings manufactured from painted galvanised sheet steel.

3 Support legs, framing and structural members formed from galvanised steel, factory painted.

7.8.5 SAFETY AND OPERATING CONTROLS

1 Factory fitted control panel containing contactors, relays, switches and safety controls identifying permanent labels for all equipment.

2 Interlocks to protect against the following:

- a Condenser high pressure.
- b Suction low pressure.
- c Compressor motor winding high temperature.
- d Compressor short cycling.

7.9 AIR FILTERS

7.9.1 GENERAL

1 Comply with AS1324.1, AS1324.2 and AS4260 (HEPA filters). Where this is not possible submit full details of variations to these requirements with the tender.

2 Install filters with sufficient provision for maintenance and the replacement of media. Allow for service access from the dirty air side of filters.

3 The bottom of plenums and housings to be trafficable without damage by service personnel.

4 Include mezzanine access catwalk on filter banks higher than 2400mm for service access without the use of ladders.

5 Install mounting frames with a continuous airtight silicone seal between each frame. Seal airtight filter frames and adjoining casings. Provide adequate structural support to the frames against air pressure forces and mechanical action during filter replacement.

6 Base all filter modules and mounting frames on the standard universal size of 610mm/610mm.

7 Manufacture mounting frames from folded Galva bond or stainless steel. Mounting frames to be open and free from integral wire supports or mechanisms.

8 Fit mounting frames with spring retaining clips and a continuous neoprene gasket at the filter to frame contact surface. Clips must not insert under gaskets but fix to tags on front of frame. Do not use self-adhesive foam strip gaskets or 'P' type clips.

9 Do not use slide type housings unless specified. Slide housings where used shall comprise 'Farr' Glide pack or equal approved with tested bypass leakage at less than 1% at 375 Pa pressure differential and comprise side removable universal filter holding frames.

10 Provide gauges across filters where scheduled.

- **a** Non DDC projects – Dial type, graduated 0 – 500 Pa, Connect the gauge to the filter chamber with copper or aluminium tubes. Level, adjust and permanently mark gauges at the appropriate pressure – 'Filter Dirty – Replace'.
- **b** DDC Projects – Provide DDC analogue static pressure transducers on each unit, Connect the transducers to the filter chamber with copper or aluminium tubes. Pressure switches may be acceptable subject to approval.

11 Full test reports shall be submitted for all filters offered.

12 No system shall be operated without filters in place.

13 Provide engraved labels to filter chamber access doors clearly identifying the installed filter combination and F ratings. e.g.

- **a** Filtration:
  - **i** Primary Filter: F5
  - **ii** Secondary Filter: F8

14 Select filters at maximum 2m/s face velocity unless otherwise noted.

7.9.2 TEMPORARY PRE-FILTERS

1 Install to protect all filters prior to fan start up on all units.

2 Do not remove from the installed permanent filters until just before practical completion is achieved.

3 Renew temporary filters when combined pressure drop of dirty pre-filters and the installed filters exceeds the dirty pressure drop allowance of the installed permanent final filters alone.

4 When tested to AS1324.2 the average arrestance of the temporary filter media shall not be less than 90%. (G4)

5 For pre-filters, use either disposable panel filters or media fitted across the front of permanent filters.

7.9.3 LINT SCREENS

1 Lint screens shall be of the removable flat panel type with woven polypropylene washable media complete with aluminium frames and stainless steel wire support.

2 At the design maximum air flow the effective face velocity shall not exceed 2.5 m/s and the initial (clean) resistance shall not exceed 50 Pa.

3 When tested to AS1324.2 the screen shall have an average arrestance of not less than 30%.

4 Each panel shall comprise a fabricated 12mm thick aluminium frame containing the media. Provide clips to hold the panels tightly in position and to ensure a positive seal between the panels and the holding frames or final filters.

7.9.4 FILTERS – DISPOSABLE DRY MEDIA PANEL

1 Filters shall be of the disposable extended surface cardboard frame type with a 595/595mm panel type 100mm thick and of dry, fire resistant construction. The non-woven media shall be supported on an expanded metal backing grid integrally adhered into a die cut, rigid, beverage board housing. Pleat separators as part of the cardboard frame shall maintain Media pleats.

2 The prefilters shall achieve the following performance criteria when tested to AS 1324.2:

CLASSIFICATION TO AS 1324.2		F4	F5
For Rating face velocity	m/s	2.5	2.5
Maximum final resistance	Pa	250	450
Minimum efficiency	%	20	25
Average efficiency	%	20-40	40-60
Average arrestance	%	>90	>95%
Dust holding capacity @ 250 Pa resistance	gram	250	200

3 Each filter shall include a permanent identification label stating the make, model and F rating.

7.9.5 FILTERS – DISPOSABLE DRY MEDIA EXTENDED SURFACE

1 Filters shall be of the disposable, modular extended surface type, with 595/595mm frame and dry fire resistant construction.

2 The filter module shall be corrosion resistant, and rigid to provide an airtight seal with mounting frame gasket and permanently retain and support the filter media in a leak free manner. Media shall be adhesive sealed or mechanically fixed into the module to eliminate air bypass leakage.

3 Filter media shall be constructed of dry unbreakable fibres. Media shall be fully sealed and supported against air flow induced movement and bypass and arranged for even air flow across the full area of the media.

4 Filters with adhesive coatings or of media that sags or of arrangements requiring permanent installed wire supports to the mounting frames shall be rejected. Where sewn seams are employed they shall be sealed against ‘pin hole’ leakage of air or dust via the stitching.

5 Filter modules achieving the following performance criteria when tested to AS 1324.2.

CLASSIFICATION TO 1324.2		F6	F7	F8	F9
For Rating face velocity	m/s	2.5	2.5	2.5	2.5
Maximum final resistance	Pa	450	450	450	450
Minimum efficiency	%	30	60	80	85
Average efficiency	%	60-80	80-90	90-95	95-98
Average a life arrestance	%	>98	>99	>99	>99

Dust holding capacity @ 375 Pa resistance	gram	400	300	200	180

6 Each filter shall include a permanent identification label stating the make, model and F rating.

7.9.6 FILTERS – MEPA, HEPA AND ABSOLUTE

1 Filters shall consist of pleated glass paper media with corrugated separators sealed into a rigid housing. Filters shall suffer no deterioration in performance under conditions of 100% relative humidity and 120°C. All filters shall be acceptance tested using the hot DOP method to AS 4260 clause 5.1 (a) prior to dispatch with the filter housing and shipping packaging clearly labelled with the test results for air flow, pressure loss and efficiency.

2 Protect all filters against dirt during shipment and construction installation and do not operate until air systems are thoroughly cleaned and earlier filter stages installed.

3 Fix filters to the casings on airtight gasket seals by fixings that provide for filter removal and testing.

4 Place filters in regular operating condition before the fans to which they connect are run for any purpose.

5 Site test upon installation completion to AS 1807.6 or AS 1807.7 and achieve a minimum integrity of 99.97%.

6 Where fan filter modules are, scheduled fans shall be variable speed direct drive to enable airflow adjustment throughout the filter life. Fans shall plug in to a 240 volt 10-amp single phase GPO.

7.9.7 TERMINAL HEPA FILTER MODULE

1 Ducted HEPA filter ceiling module complete with adjustable distribution plate, room side air sampling port with removable plug for checking of static pressure and challenging aerosol measurement; separate damper control port with removable plug for adjustment of the air distribution plate

2 Anodized extruded aluminium filter frame with integral gel filled channel and knife edge filter seal for positive leak-tightness

3 One-piece aluminium hood with spun inlet collar

4 Filter module replaceable from the room

5 Provided with powder coated expanded metal face grille

6 Comply with “Filters” above.

7.9.8 AIR CONTAMINATION CONTROL UNITS

1 The air contamination control units shall comprise ‘Cosa-Tron’ or approved equal units that accelerate natural Brownian motion characteristics to achieve air cleaning effect.

2 Units shall be installed strictly in accordance with manufacturers requirements. Provide access to the electrodes for service inspection cleaning and removal. Modular plenum units for small fan coil and air handling units shall provide slide out electrode removal. Custom assembled units installed to built up or larger air handling units shall comprise a trafficable housing floor and service personnel access. Unit housings shall be airtight. Electrode assemblies shall be surrounded by sheet metal facing.

3 Each air contamination control unit shall comprise power generator connecting the electrode assembly with High Voltage and high frequency screens mounted to insulating support frame and separators. The power generator shall be of ‘solid state’ construction and of capacity for the electrode area served. Each power generator shall provide:

   a Remote monitoring of status.

b Input power circuit breaker and output fuses.

c On/off switch.

d Access door safety interlock door jamb switches to any plenum door permitting access to electrodes.

4 The proposed combination air cleaner shall have demonstrated, in tests conducted by an independent scientific test laboratory, a statistically significant capability to substantially control gases as nominated below, and respirable particles in the conditioned space. It shall utilise an electrical excitation field which accelerates the natural Brownian motion characteristics of atmospheric gases, liquids and solids causing collisions, absorption, adhesion and coalescence, enhancing the ability of the air stream to carry these contaminants to the exhaust or filter banks. Systems shall not utilise an ionisation process or require media beds to establish a scientifically traceable control of contaminants. It shall also be demonstrated not to produce ozone. Gases for which a statistically significant control shall be demonstrated, in tests by an independent test laboratory, are formaldehyde (CH2O), ammonia (NH3), sulphur dioxide (SO2) and carbon dioxide (CO2). All of the test data shall have been submitted to a scientific journal for peer review and published.

5 Each air handling system nominated shall be equipped with a Combination Air Cleaning System such that all the air supplied to the occupied space first passes through the filter(s) and then through the electrodes. (On outside air or economiser air handlers, the electrodes shall be positioned between the primary and the secondary filter.)

7.9.9 ODOUR FILTERS – ACTIVATED CARBON IMPREGNATED MEDIA

1 Activated carbon filters shall consist of 20mm polyester non-woven media impregnated with powdered activated carbon as a dry processed carbon composite. The media shall be arranged in a Vee formation 300mm deep in 610 x 610mm modules designed for airtight sealing of media and simple replacement. Activated carbon shall have an activity level of not less than 60% when tested with Carbon Tetrachloride.

7.9.10 GASEOUS FILTERS – POLLUTANT ABSORBER

1 Filters for atmospheric pollutant removal shall consist of either:

a Vaporsorb (DPCC) Dry Processed Carbon Composite of activated carbon particles and catalyst chemical treatment on 6mm polyester non-woven media carrier. This media shall be pleated and sealed into a 610 x 610mm frame 300mm deep providing a surface area of 4.25m².

b Purafil Chemisorbent media comprising a blend of potassium permanganate impregnated activated alumina and granular activated carbon retained in 25mm deep Vee form trays in a disposable module 600mm x 300mm and 300mm deep.

c The filter media shall be selected for the specific pollutant requiring control. The maximum face velocity shall not exceed 1.5 m/s nor the initial pressure drop 50 Pa.

7.9.11 FILTERS – GREASE

1 Construction: 50mm thick, washable aluminium or stainless steel type complying with AS/NZS 1668.1.

2 Face velocity: Not exceeding 1.8m/s.

3 Initial (clean) resistance: approximately 20Pa. Dirty resistance at rated capacity 100Pa.

4 Average grease filtering efficiency: 90% @ 1.8m/s.

5 Holding frame: Integral to exhaust hood with drain holes to grease gutter.

7.10 FAN COIL UNIT – PANEL CONSTRUCTION

7.10.1 GENERAL

1 Complete with air filters, holding frames, inlet plenum, coils, insulated drain tray, centrifugal fan and electric heater where scheduled, enclosed in insulated galvanised steel casing.

7.10.2 CASING

1 Minimum 1.0mm thick Galva bond or zincanneal sheet folded to form panels to accommodate the thickness of acoustic insulation.

2 Outside surface flush without external framing, internal stiffening may be used.

3 Panels structurally sound and vibration free and with gasketted joints.

4 Provide access panels to allow easy access to all necessary areas.

5 Fit access panels with steel sash clamps for ease of removal.

7.10.3 FAN

1 Forward curved type.

2 Sized to provide air flow rates of 10% more than specified against the corresponding increased system resistance.

3 Select for efficient operation at design flow.

4 To operate from 40 to 110% of design capacity without going into surge condition.

5 Discharge velocity: Not exceeding 10m/s. at design air flow unless specifically approved.

6 Comply with ‘Motors’ and ‘Belts, Pulleys and Drives’ Clauses in this Section of Specification where applicable.

7 Noise spectra to be provided for all proposed fans in terms of Sound Power Levels measured in accordance with ISO 5136:2003 (BS 848-2.5:2003) in 1/1 Octave Bands Centre Frequencies 63 Hz – 8 kHz.

7.10.4 BEARINGS

1 Self-aligning ball or roller type bearings with lubricated retaining and dust excluding seals.

2 Operating life of not less than 30,000 hours.

7.10.5 COILS AND CONDENSATE TRAYS

1 Comply with ‘Coils’ Clauses in this Section of Specification.

7.10.6 AIR FILTERS

1 Comply with ‘Air Filters’ Clause in this Section of Specification and as Scheduled.

7.10.7 INSULATION

1 Acoustically insulate entire casing with 25mm thickness mineral wool or fibreglass, density not less than 48kg/m^3.

2 Face with perforated foil laminate sheet, retained by flush fitting caps.

3 Install access panels and separate joints with not less than 25mm edge return of surface material. NO RAW edges.

7.10.8 ELECTRIC HEATERS

1 Where provided, electric heaters must cover at least 85% of the face of the cooling coil.

2 Note that a MANUAL reset HPT is required in every unit.

7.11 FAN CENTRIFUGAL

7.11.1 GENERAL

1 Centrifugal fans: Backward curved, aerofoil blade, limit load type with V-belt drives, drive guards, motors and steel bases.

2 Select fans and motors to provide air flow rates of 5% more than specified against corresponding increased system resistance without unstable operation.

3 Able to be used for variable volume applications for maximum efficiency at 70% to 80% of design air flow and operate from 40% to 110% of design capacity without going into a surge condition.

4 Discharge velocity at design air flow: Not to exceed 9 m/s.

5 Comply motor and drive with the 'Motors' and 'Belts, Pulleys and Drives' Clauses in this Section of Specification.

6 Provide fan operating status/interlock by flow switch mounted in the discharge side of the fan, conditioner, casing or duct.

7 Alternatively, differential pressure sensor or current sensor as part of the control system may be used.

8 Fan contactors and auxiliary relays fed from the fan power supply are not to be used for fan status or interlock signals unless in series with a remote sensor such as differential pressure switch or flow switch.

9 Noise spectra to be provided for all proposed fans in terms of Sound Power Levels measured in accordance with ISO 5136:2003 (BS 848-2.5:2003) in 1/1 Octave Bands Centre Frequencies 63 Hz – 8 kHz.

7.11.2 CASING

1 Mild steel plate braced as necessary depending on duty.

2 Incorporate angle flanged outlets, curved inlet rings, sealed access panels and 40 diameter screwed and plugged drain connections.

3 Fit lifting lugs on fans over 500mm diameter. Access panels to casings of fans with impellers ≥ 650 mm diameter to provide full access to the fan interior. Seal panels airtight with neoprene gaskets

4 Fit access panels with wedge type clamps to provide airtight sealing.

5 Use removable curved inlet rings to allow removal of impeller.

7.11.3 IMPELLERS

1 Mild steel all welded construction, die-formed aerofoil blades and front plates, balanced both statically and dynamically.

2 Securely key hub to the drive shaft.

7.11.4 DRIVE SHAFT

1 Machined high tensile steel and stepped to facilitate easy impeller removal.

2 Countersink shaft ends at the shaft centres to take a tachometer.

7.11.5 BEARINGS

1 Self-aligning ball or roller type fitted with lubricant retaining and dust excluding seals.

2 Select for an operating life of not less than 100,000 hours.

3 Accommodate in grease relief housings, lubricate through grease nipples situated in readily accessible positions.

4 For single width fans with impellers < 1250 mm diameter and double width fans with impellers < 950 mm diameter provide pillow-block mounted, self-aligning ball bearings, sealed for life, with a minimum rating fatigue life of 40 000 hours.

5 For single width fans with impellers ≥ 1250 mm diameter and double width fans with impellers ≥ 950 mm diameter: Provide plummer-block mounted roller bearings to, with seals and grease relief, with a minimum rating fatigue life of 20 000 hours. Extend grease nipples for ready access.

7.12 FAN – AEROFOIL AXIAL FLOW

7.12.1 GENERAL

1 Non-overloading aerofoil type of approved manufacture, minimum efficiency of 65% at the design air flow rate.

2 Select to provide air flow rates of 10% more than that specified against the corresponding increase in system resistance.

3 Delete, cover in controls section.

4 Noise spectra to be provided for all proposed fans in terms of Sound Power Levels measured in accordance with ISO 5136:2003 (BS 848-2.5:2003) in 1/1 Octave Bands Centre Frequencies 63 Hz – 8 kHz.

7.12.2 CASING

1 Flanged hot dipped galvanised tubular extending over the length of the fan and motor (unless specified otherwise).

2 Provide an airtight access door suitably placed for fan inspection, on units above 450mm diameter.

3 Use matching flanges for mounting fans within the ductwork. Do not connect flexible connections directly to fan inlet or discharge flanges. Fit flexible connections at first duct connection.

4 On open systems fit inlet cones complete with heavy gauge galvanised steel mesh guards and provide manufacturer's standard 15deg. conical diffuser on outlet to convert velocity head to static pressure.

7.12.3 IMPELLER

1 Adjustable pitch, injection moulded, glass reinforced polypropylene on fans up to 1000mm diameter; aluminium alloy on larger sizes, car park exhaust and kitchen exhaust.

2 Balance statically and dynamically.

7.12.4 FAN MOTOR

1 Comply with the 'Motors' Clause in this Section of Specification.

2 Ball or roller type bearings, sealed for life on fans up to 1200mm diameter, grease packed fitted with lubricant retaining and dust excluding seals extended through the casing on larger sizes. All selected for an operating life of not less than 100,000 hours.

7.12.5 CONSTRUCTION – SMOKE EXHAUST

1 To fully comply with AS/NZS 1668.1.

2 To continue operating when handling spill air at 200°C for a period of not less than two hours.

3 To continue operating when handling spill air at 300°C for a period of not less than thirty minutes in a non-sprinkle red building.

4 Do not fit motors mounted in the air stream with integral high temperature cut-outs.

7.12.6 ACCESS:

1 < 1000 mm diameter: Sight hole in casing plugged with an airtight removable closure.

2 ≥ 1000 mm diameter: Provide access panels, securely bolted to casings and sealed with neoprene gaskets, for maintenance.

7.13 FAN – ROOF MOUNTED

7.13.1 GENERAL

1 Totally weatherproof centrifugal, mixed flow or axial flow housed in a compact base fitted with weathering skirt surmounted by a bird-proof cowl with a curved contour.

2 Select fans and motors to provide air flow rates of 10% more than specified against corresponding increase in system resistance.

3 Comply with the 'Motors' and 'Belts, Pulleys and Drives' Clauses in this Section of Specification.

4 Provide fan operating status/interlock by flow switch mounted in the discharge side of the fan, conditioner, casing or duct.

5 Alternatively, differential pressure sensor or current sensor as part of the control system may be used.

6 Fan contactors and auxiliary relays fed from the fan power supply are not to be used for fan status or interlock signals unless in series with a remote sensor such as differential pressure switch or flow switch.

7 Noise spectra to be provided for all proposed fans in terms of Sound Power Levels measured in accordance with ISO 5136:2003 (BS 848-2.5:2003) in 1/1 Octave Bands Centre Frequencies 63 Hz – 8 kHz.

7.13.2 CONSTRUCTION

1 All welded and hot dipped galvanised after fabrication or fibreglass suitably stiffened and braced.

2 Isolate all rotating parts from casings by approved resilient mountings.

7.13.3 FAN/MOTOR ASSEMBLY

1 Comply with the 'Motors' Clause.

2 Motor bearings: Ball or roller type, sealed for life selected for an operating life of not less than 30,000 hours.

3 Allow access to motor and fan via a hinged cowl or a service door in the cowl.

4 Position motors and impellers to allow servicing from above the roof.

7.13.4 CONSTRUCTION – SMOKE EXHAUST

1 To fully comply with AS/NZS 1668.1.

2 To continue operating when handling spill air at 200°C for a period of not less than two hours.

3 To continue operating when handling spill air at 300°C for a period of not less than thirty minutes in a non-sprinkle red building.

4 Do not fit motors mounted in the air stream with integral high temperature cut-outs.

7.14 FAN – IN LINE CENTRIFUGAL

7.14.1 GENERAL

1 In-duct mounted type of approved manufacture with the motor located in the air stream.

2 Select fans and motors for air flow rates of 10% more than specified against corresponding increase in system resistance.

3 Provide fan operating status/interlock by flow switch mounted in the discharge side of the fan, conditioner, casing or duct.

4 Alternatively, differential pressure sensor or current sensor as part of the control system may be used.

5 Fan contactors and auxiliary relays fed from the fan power supply are not to be used for fan status or interlock signals unless in series with a remote sensor such as differential pressure switch or flow switch.

6 Noise spectra to be provided for all proposed fans in terms of Sound Power Levels measured in accordance with ISO 5136:2003 (BS 848-2.5:2003) in 1/1 Octave Bands Centre Frequencies 63 Hz – 8 kHz.

7.14.2 CONSTRUCTION

1 Fan casing: Galvanised sheet steel or rigid PVC, with facility for removal of impeller/motor assembly without disconnecting the fan assembly from the ductwork.

2 Fan impeller, Aluminium, GRP, galvanised steel or rigid PVC with backward inclined blades.

7.14.3 FAN/MOTOR ASSEMBLY

1 Comply with the 'Motors' Clause, in this Section of the Specification.

2 Motor bearings: Ball or roller type, sealed for life selected for an operating life of not less than 30,000 hours.

7.15 ELECTRIC RESISTANCE HEATERS

1 Comply with AS 1668.1-1998 and relevant statutory Authority and local Fire Authority.

7.15.1 HEATER ELEMENTS

1 Low temperature totally enclosed stainless steel strip type suitable for black heat operation.

2 Surface temperature not in excess of 400°C when tested to AS 3102 requirements.

3 Provide sheet steel enclosure with removable cover over the terminals.

4 Do not mount any other equipment under this cover.

5 Connect with high temperature cable minimum V105PVC.

6 Connect earth strap to removable element plate from the main earth connection to the unit.

7 Use fully withdrawable elements without damage to high temperature protection sensing elements.

7.15.2 INSTALLATION

1 Construct from Galva bond.

2 Arrange to ensure even temperature distribution across the air stream and readily removable as a unit.

3 Fit element sheathings with screwed bushes where they pass through the casing into the terminal box.

4 Make all joints airtight to prevent transfer of moist air from duct into the terminal box.

5 Equipment and wiring installation to comply with the SAA Wiring Rules, AS 1668.1, and requirements of relevant statutory Authority.

6 Totally protect each bank by means of fuses or ACBs.

7 Electrically inter-lock with the associated conditioner supply fan motors so that the elements cannot be energised unless the fan motor contactor has closed. (Vane switches in the fan discharge or centrifugal switches on the fan motor shall not be accepted).

8 Suitably label each terminal cover or adjacent duct describing the zone served by the heater bank.

9 Line each casing with 6mm thick non-combustible asbestos free material of thermal conductance not greater than 30W/m²K at 100°C extending not less than 300mm on each side of the heaters.

10 Fit manual re-set safety thermostat downstream with an adjustable set point or as otherwise specified in the 'Controls' Section.

11 Safety thermostat range: 30°C to 150°C with an initial setting of 80°C.

12 Provide air proving switch of approved differential pressure, diaphragm type located at the supply air fan discharge. Wire in series with the safety controls.

7.16 ROOF COWLS

1 Totally weatherproof type.

2 Compact base fitted with weathering skirt surmounted by a bird-proof cowl with a curved contour.

3 Fibreglass construction.

4 Maximum design pressure drop of 15Pa.

7.17 VEHICLE LEVELS MONITORING SYSTEM

7.17.1 GENERAL

1 Separate carbon monoxide monitoring system.

2 Remote sensing type systems.

3 Regulate automatically (via the BMS) the mechanical ventilation systems serving the vehicle levels.

4 Each system shall be able to display gas concentration at any point in the system on demand.

5 Comply with AS1668.

6 Individual fault monitoring circuitry so that a fault on any channel is known, but does not interfere with the operation of other channels.

7.17.2 SENSORS

1 Temperature and humidity – compensated to minimise false alarms.

2 Mounted in steel, tamper-proof wall mounted enclosures.

7.17.3 WIRING

1 Good quality shielded cable, or as recommended by the system manufacturer.

7.17.4 INTERFACE TO BMS

1 Two voltage free output contacts for each zone monitored shall be provided from each monitoring control unit. The contacts shall open for the two alarm level conditions: first alarm levels – 25PPM CO, 15PPM NO; second alarm levels – 50PPM CO, 25PPM NO. The contacts shall be suitable for switching of an extra low voltage signal (24V DC) sourced from the Building Automation System (BAS). An additional fault output for each zone shall be provided.

2 Fan logic control shall be programmed into the Building Automation System. Each monitoring unit shall incorporate the following functions:

- **a** Provide variable delay for first level alarm “ON”.
- **b** Provide variable delay for second level alarm “ON”.
- **c** Provide variable delay for min. “ON” time for first and second levels.
- **d** Provide variable delay for min. transfer time for first and second levels.

8 PIPING, VALVES AND FITTINGS

8.1 GENERAL

8.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, materials, components, general installation and testing of the Mechanical Services piping systems.

2 Piping systems shall be complete with all valves, fittings, vents, drains, expansion facilities, anchors, supports and other items necessary for their safe, reliable and efficient testing, commissioning, operation and maintenance.

3 Piping systems, permitted material selections, design pressure, temperature ranges and testing criteria and procedures are specified in the Schedules.

8.2 DESIGN

8.2.1 GENERAL

1 Complete the detail design and engineering of the piping installation to the specified requirements.

8.2.2 DESIGN PRESSURE

1 Design pressure shall be not less than the sum of the following:

- **a** Maximum hydrostatic pressure taking account of closed system pressurisation or head tank height.
- **b** Pump shut-off head with maximum size impeller – pump selections to be confirmed following selection of equipment and controls.

8.2.3 PIPE ANCHORS, EXPANSION JOINTS AND SUPPORTS

1 Pipework anchors, supports and expansion joints shall be specifically designed and selected to accommodate weight of full piping, pressure thrust forces (including those generated by test pressures), thermal expansion and contraction, seismic restraint requirements, and building dynamic and time-dependent movement and plant movement. All anchors, supports and expansion joints shall be to the pipe manufacturers' recommendations.

2 Report to be provided by the Contractors specialist supplier according to the Contractors final equipment selections and system layout.

3 Proprietary type tested pipework anchors may be used for light duty anchor installations.

4 For systems operating above 750kPa design pressure, pipework anchor design shall be carried out by qualified structural engineer to comply with relevant structural codes. Submit structural reaction forces and installation details for acceptance.

5 Pipework installation and jointing systems to be designed in accordance with supplier design manuals for systems with specific requirements.

6 All pipework anchors and expansion joints shall have permanent access arrangements for inspection and maintenance.

7 Provide hot dip galvanised external pipework structural steel supports.

8 For water systems, Victaulic flexible couplings may be used to accommodate thermal growth and contraction, and for the elimination of expansion loops; where approved by the Consultant Engineer. Where loops are required, use flexible couplings on the loops.

9 All materials for anchors, expansion joints and supports shall be compatible with pipe materials and not result in dissimilar metal corrosion or fatigue/cracking in plastic or metal pipes.

8.2.4 REFRIGERATION SYSTEMS

1 Piping design shall be generally in accordance with AS/NZS 1677.1 and, where applicable, equipment manufacturer's guidelines.

2 Refrigerant piping shall be sized and designed so as to achieve proper oil return, freedom from slugging and trapping of refrigerant and oil.

3 System design shall include oil traps, reservoirs, oil stills and suction separators necessary to provide satisfactory operation of the system.

8.3 QUALITY ASSURANCE

1 Refer to the Mechanical Services Specification *General Requirements* for requirements in relation to quality assurance.

2 The following details additional submissions, requirements and approvals in relation to the design, materials, components, fabrication, installation and testing of the Mechanical Services piping systems:

- **a** Design Submissions
  - **i** System pipe schematics confirming system design, materials selection, expansion and contraction design, anchors, jointing, valves and fitting selections, gauges and DDC service points, testing and commissioning information.
  - **ii** System operating pressures incorporating final equipment selections and installation layout noting closed loop system pressurisation or make-up tank head.
  - **iii** Pipe selection and jointing method schedule including quality assurance procedures.
  - **iv** Pipe expansion/contraction device support and pipe anchor thrust and weight forces at test pressure conditions.
  - **v** Structural design for pipe riser supports and anchors indicating structural loads and building contraction and expansion provisions.
- **b** Material and Equipment Submissions
  - **i** Valve Schedule: schedule of valve types indicating application, manufacturer, figure number, materials, pressure rating.
  - **ii** All grooved joint couplings and fittings shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.
  - **iii** All castings used for coupling housings, fittings, valve bodies, etc., shall be date stamped for quality assurance and traceability
- **c** Shop Drawings
  - **i** Pipework support, expansion and anchor details.

ii Grooved joint couplings and fittings shall be shown on drawings and product submittals, and shall be specifically identified by the manufacturer's style or series designation.

d Installation

i Qualification and training records for welders, pipe joiners and supervisors.

ii The grooved joint coupling manufacturer's factory trained representative shall provide on-site training for the Contractor's field personnel in the use of grooving tools and installation of grooved joint products. The representative shall periodically visit the project site to ensure best practices in grooved installation are being followed. (A distributor's representative is not considered qualified to conduct the training or field visits.)

e Testing and Inspection

i Allow for non-destructive testing or cutting out up to three welded joints and for opening up at least three other types of joints in each system for inspection. Make good joints cut out or opened up after inspection.

ii Records of hydrostatic and pressure testing.

f Completion

i Compliance statement with respect to the NCC Clause C3.15 fire resistance requirements for services openings including submission of type test reports in accordance with AS 4072.1 and AS 1530.4.

8.4 PIPING SYSTEMS

8.4.1 GENERAL

1 Supply piping in clean, full standard, straight lengths, free from any defects, mill scale, rust, burns, dents and kinks and protected against mechanical damage.

8.4.2 COPPER

1 Pipes:

a Pipes: AS 1432: Type A or Type B for specified design pressure and temperature ranges. Copper Alloy: AS 2738 Designation 122.

b All pipe to be Hard Drawn.

2 Joints:

a Brazed: Use either capillary fittings to AS 3688, or expand one pipe over the other leaving minimum clearance and an effective overlap not less than:

PIPE SIZE DN	OVERLAP MM
< 20	12
≥ 20 to < 32	15
≥32 to < 50	25
≥50 to < 80	30
≥80 to <125	35
≥125	40

b Brazing alloys to AS 1167 and comprise a minimum of 5% silver.

c Flanged: Copper alloy flanges to AS 2129 selected for design pressure and temperature, minimum Table E, brazed to pipe or alternatively may be floating type connected to pipe via a silver soldered copper Van Stone socket with inbuilt tube stops. Backing flanges polyester resin coated steel or composite material, Cop-a-Mate or equal.

d Nuts, bolts and washers used in flanges to AS 2129 Appendix C and AS 2528; stainless steel, galvanised or zinc plated after manufacture with non-conductive bushes.

e Roll Grooved: Victaulic Style 607H, Installation-Ready, for direct stab installation without field disassembly. Housings shall be cast with offsetting angle pattern bolt pads for joint rigidity. Manufactured to copper-tubing dimensions. (Flaring tube or fitting ends to accommodate alternate sized couplings is not permitted.)

f Victaulic Style 641 flange adaptor.

g Brazed joints to steel pipe and fittings not permitted.

3 Connections:

a Use flanged, screwed, compression or roll grooved connections to valves, equipment and fittings arranged to permit removal of any item of equipment without cutting pipework or without breaking any structure.

b Screwed connections to be silver soldered bronze socket unions.

4 Bends:

a Smooth finish without any discernible flattening or corrugation.

b Minimum centreline radius of not less than one and a half times the diameter.

c Victaulic Style 610 or 611 are acceptable.

d Standard proprietary bends may be used subject to compliance with above conditions.

5 Branches:

a Branches from main pipelines to be of swept tee type fabricated from abovementioned bends.

6 Reducers:

a Use concentric reducers or Victaulic Style 650 type on all vertical lines.

b Use eccentric reducers or Victaulic Style 651 on all horizontal lines, connections to pump suctions to have flat on top and to other items of equipment with the flat of the eccentric arranged on the top or bottom of the pipe to allow venting and drainage as required.

8.4.3 ABS AND UPVC

1 Pipes:

a ABS: AS 3518.
UPVC: AS/NZ 1477.

b Min Wall thickness ABS: class 9, UPVC PN9 or higher to suit selected pressure and temperature rating.

2 Joints:

a Socket formed solvent cement welded type to piping manufacturers recommendations and instructions for applications where pipework is located in plant rooms, with allowances for changes in direction via bends and offsets and is not subject to excessive thermal expansion.

b When subject to expansion and contraction and long lengths of piping above 200mm are involved, use Durapipe post formed expansion units with lipped neoprene 'O' ring or alternatively use rubber bellows type.

3 Connections:

- **a** Flanged joints for connections to valves, fittings and equipment to consist of ABS/UPVC flanges, galvanised backing rings drilled to match flanges and neoprene gaskets.

4 Bends:

- **a** Plain radius type.
- **b** Fabricate large bends from mitred standard type having at least five sections per bend and with sections welded with hot gas filler rod technique or other approved.
- **c** Cover all fabricated fittings with an applied layer of 60g CMS fibreglass, consolidated with polyester resin type RP161 at the rate of 1.2 to 1.9kg per m².

5 Branches:

- **a** Use standard tee type branch connections for smaller pipes.
- **b** Use telescopic branch connections for larger pipes to ensure a smooth entry of water to the reduced port.
- **c** Use preformed saddles fully welded to the pipe for branch connections for flow switches, sensors and other fittings.

6 Reducers:

- **a** Use concentric reducers on all vertical lines.
- **b** Use eccentric reducers on all horizontal lines. Connections to pump suctions to have flat on top and to other items of equipment with the flat of the eccentric arranged on the top or bottom of the pipe to allow venting and drainage as required.

8.4.4 REFRIGERANT COPPER

1 Pipes:

- **a** Pipes: AS/NZS 1571. Type A or Type B for specified design pressure and temperature ranges.
- **b** Use refrigerant grade copper to suit application.
- **c** All pipe to be Hard Drawn.
- **d** Deliver to the site in clean moisture free coils and straight lengths with sealed ends and keep it clean and free of moisture at all times during construction.
- **e** Comply with all applicable Australian Standards, Codes, Statutory Requirements and Regulations.
- **f** Neatly install true and square and with the minimum number of bends with all necessary brackets and supports to provide firm fixings and obviate sagging.
- **g** Tape uninsulated lines for isolation from direct contact with ferrous materials.
- **h** Provide insulated lines with timber saddles or galvanised sheet metal sleeves to obviate compression of the insulation at points of support.
- **i** Provide suction risers with traps at all low points and the line sizes shall be such that they shall ensure adequate gas velocities for the return of oil up the risers.

2 Joints:

- **a** Silver soldered to AS 4041, AS 3688, AS/NZS 1677.1.

b Use demountable connections to valves, equipment and fittings arranged to permit removal of any item of equipment without cutting pipework and without breaking any structure.

c Flared compression fittings may be used up to 20mm. Use compression fittings to AS/NZS 1677.1.

d Flanges to be Table E copper alloy flanges to AS 2129, of silver soldered type with recessed gaskets.

e Use flange bolts, nuts and washers complying with AS 2129 and AS 2528, of stainless steel, or galvanised or zinc plated after manufacture and with non-conductive bushes.

f Use flange gaskets of Klingerit 400 Universal type.

g Brazed: Use either capillary fittings to AS 3688, or expand one pipe over the other leaving minimum clearance and an effective overlap not less than:

PIPE SIZE DN	OVERLAP MM
< 20	12
≥ 20 to < 32	15
≥32 to < 50	25
≥50 to < 80	30
≥80 to <125	35
≥125	40

h Brazing alloys to AS 1167.1 and comprises a minimum of 5% silver.

3 Connections:

a Use fittings such as couplings of forged and wrought copper type of Heldon manufacture or offered equal.

4 Bends:

a Use fittings such as elbows and return bends of forged and wrought copper type of Heldon manufacture or offered equal.

5 Branches:

a Use fittings such as tees, stop ends and Y pieces of forged and wrought copper type of Heldon manufacture or offered equal.

6 Reducers:

a Use fittings such as reducing bushes of forged and wrought copper type of Heldon manufacture or offered equal.

b Use concentric reducers on vertical lines.

c Use eccentric reducers on horizontal lines and connections to equipment with the flat of the eccentric arranged at the top or bottom as appropriate for gas venting or oil and liquid return as appropriate.

8.4.5 POLYETHYLENE (PE)

1 Pipes:

a To AS/NZS 4130.

2 Fitting and Components:

a To AS/NZS 4129 and 4131.

3 Installation:

a To AS/NZS 2033.

4 Jointing:

a Permanent joints: Solvent cement

b Demountable joints: Piping ≤ DN 50: Threaded fittings. Piping > DN 50: Flanges with backing rings.

8.5 VALVES AND FITTINGS

8.5.1 GENERAL REQUIREMENTS

1 Use valves suitably sized for the application and at least line size unless used for control when a smaller size may be necessary.

2 Select valves and fittings to meet the operating pressures and operating characteristics of the relevant systems and to meet higher test pressures where applicable.

3 Design pressure of valves and fittings not less than the system design pressure.

4 All isolating valves and throttling valves shall be rated for full shut-off pressure.

5 All valves and fittings shall be installed in accordance with manufacturer's recommendations and with valve shafts installed on or above the horizontal plane and with all tapping points a minimum of 45 degrees off the vertical downwards plane.

6 Provide extended shafts or bodies for insulated valves to allow full thickness of insulation.

7 Valves up to 50mm diameter; screwed connections to AS 1722.1, or with Victaulic Vic-Press connections.

8 Valves over 50mm diameter; flanged connections to AS 2129 Type E minimum or Victaulic rolled groove.

9 Handwheels and handles to be removable with the direction of closing to be marked clearly.

10 Select valves to water supply authority approval where applicable; valves to be stamped with approval details.

11 For each type of valve and fitting, valves and fittings to be supplied from one manufacturer throughout the project.

12 Where copper alloy valves used, select valves of dezincification resistant type.

13 Tag all valves and flow measuring devices for identification purposes. Valves with Handwheels: Provide a circular brass disc attached to the valve by a stainless-steel wire drawn through the holes in the disc on each valve provided with operating handwheel or lever stamp the valve identification mark on the disc in characters 10 mm high. Valves without handwheel: Mark by aluminium or brass strap 20 mm wide by 90 mm long stamped in the same manner as the valve identification discs. Attach by wire to the body of the valves.

8.5.2 REFRIGERANT SYSTEMS VALVES AND FITTINGS

1 Refrigerant Valves:

a Forged steel, brass or bronze, packed cap, back seating type of F. L. Hudson manufacture or equal.

b Alternatively, a packed, capped ball valve of low loss type of Apollo manufacture.

c Use brass packed valves with brass caps or packless valves of Heldon manufacture.

d Suitable for operation on 240V ± 10%, 50Hz supply within an ambient temperature range of 0°C to 40°C and a maximum operating pressure differential of up to 850kPa.

e Check valves of lifting type with manual lifting provisions.

f Supply and install individual gauge valves as close to equipment and main lines as possible.

2 Thermometer Pockets:

a Supply and install thermometer pockets on each compressor suction and discharge line.

3 Refrigerant Pressure Gauges:

a 100mm chrome plated flanged pressure gauges with dials marked with combined pressure temperature scales.

b Supply and install gauges for each compressor to measure suction pressure, discharge pressure and oil pressure.

4 Refrigerant Sight Glass and Dryness Indicator:

a Heldon or equal.

b Install prior to each expansion valve and at least 500mm downstream of solenoid valve.

c Provide 'bulls-eye' type of brass or bronze construction, designed to minimise sediment deposits, clearly show inadequate refrigerant flows and indicate the presence of moisture in the refrigerant by means of a colour change.

5 Refrigerant Solenoid Valve:

a Supply and install a solenoid valve of Danfoss or Sporlan make at least 600mm upstream of sight glass.

b Size valve for minimum pressure drop.

6 Refrigerant Expansion Valve:

a Pilot operated of Sporlan, Danfoss or equal manufacture.

b Brass or bronze with stainless steel trim and having copper capillaries and sensor bulbs.

c Provide thermostatic expansion type with external equalisers and adjustable super-heat controls.

d Provide correctly sized orifices for the loads and pressure drops involved and capillaries of adequate length to permit correct location of the sensor bulbs on the suction lines.

e Incorporate all valves with integral fine mesh filters fitted to the inlet connections.

7 Refrigerant Dryer:

a Supply and install a refrigerant dryer in a valved bypass in the liquid line from the liquid receiver or condenser to the evaporator.

b Brass or copper construction with brass or stainless steel mesh screens and charged with silica-gel or activated alumina desiccant.

8 Refrigerant Strainer:

a Supply a strainer of YK or equal manufacture in the main liquid line with isolating valves to permit maintenance.

9 Pressure Relief Valve:

a Supply and fit pressure relief valves, bursting disc or fusible plug set to operate at a test pressure at least 175kPa below the test pressure specified and sized to ensure that system pressure cannot exceed test pressure. The pressure relieve valve shall be vented in accordance with authority requirements.

8.6 GAUGES AND INSTRUMENT FITTINGS

1 Universal Test Points:

a Binder Twin lock type or approved alternative.

b Test points to be installed a minimum of 45° above the vertical downwards plane and as required to provide access.

2 Thermometers:

a 100mm dial type mercury in steel thermometers matching pressure gauges and calibrated in Deg. C.

b Dial range twice operating temperature range.

c Accuracy ±1% of scale range.

d Bulb type 316 stainless steel.

3 Thermometer Pockets:

a Locate thermometer pockets in positions where no adverse flow conditions exist.

b Use thermometer pockets of removable screwed stainless steel type in steel lines, inserted through screwed type boss welded to the pipe.

c Use thermometer pockets of fixed copper tube type brazed into copper piping lines.

d Length of pockets and depth of insertion in pipe adequate to ensure accurate headings.

e Fill pockets with heat conducting fluid to a minimum depth of 50mm and fit caps to each pocket.

f Enlarge pipes smaller than 65mm so as to retain free area.

g Install pockets vertically or at an angle to retain heat conducting fluid.

4 Pressure Gauges:

a Oil filled 100mm dial Bourdon pipe type to AS 1349.

b Fit with ball valve.

c Manually adjustable set point needle incorporated on face of gauge.

d Chrome plated escutcheon and suitable for recessed mounting.

e Select compound type gauges for pump suctions graduated in mm of mercury on vacuum side and kPa on the pressure side.

f Bourdon pipe material stainless steel for hot water and steam, phosphor bronze for other services.

g Bosses for pressure gauges, standard internally screwed type welded or brazed to side of piping.

5 Gauge Panels:

a Folded sheet metal of adequate stiffness, painted or powder coated with gauges logically grouped and mounted to approval.

8.7 INSTALLATION

8.7.1 ARRANGEMENT

1 Layout piping with adequate provision for expansion, contraction, grading, alignment and access for maintenance with not less than 25mm clearance in addition to insulation between pipes and all other surfaces and services.

2 Co-ordinate and detail offsets and bends required for co-ordination between trades and integration with building structure and architectural finishes.

8.7.2 ACCESSIBILITY

1 Provide access and clearance at fittings which require maintenance or servicing, including control valves and joints intended to permit pipe removal. Arrange piping so that it does not interfere with the removal or servicing of associated equipment or valves or block access or ventilation openings.

2 Locate thermometers, pressure gauges and similar instruments so that they are easily read after installation.

8.7.3 PIPEWORK SUPPORTS AND ANCHORS

1 General Requirements:

- **a** Design supports for all static and dynamic load and reactions.
- **b** Install seismic bracing to all pipework as required by AS 1170.4. Refer to General Requirements for AS 1170.4 Design parameters.
- **c** Comply with all Statutory and Code requirements.
- **d** Locate valves and fittings as close as possible to points of support and separately support valves in line sizes 200mm and larger.
- **e** Supports and anchors to be in accordance with pipe manufacturers' recommendations.

2 Support Spacing:

- **a** Steel pipe to AS 4041 Table 3.28.2.
- **b** Copper pipes to AS 4809 Table 6.2.
- **c** Other non-ferrous pipe to AS 3500.1 Table 5.2.
- **d** ABS to manufacturer's recommendations.

3 Pipe Clamps, Spacers and Saddles:

- **a** Individually hung pipes - bolted, two-piece type clamps with clevis or welded yokes of 'Millstrut' PC7 or PC10 series or equivalent. One-piece type clamps with clevis similar to 'Millstrut' PC2 series may be used for pipe sizes DN65 or less. Clamps rated for the full load of pipe plus its fluid contents, insulation and fittings.
- **b** Spacers - Low temperature insulated pipes - fully vapour sealed hardwood spacers located between clamps and pipes. Spacers wedge shaped hardwood blocks arranged to form circular collars of the same thickness as the insulation and projecting a minimum of 10mm on either side of the clamps.
- **c** Spacers - Chilled Water Pipework Alternative: - fully vapour sealed spacers manufactured from cellular glass insulating material equivalent to Pittsburgh Corning Foamglas. Install using galvanised sheet metal saddles between the spacers and the pipe supports. Design of the system including lengths of spacer, shape and thickness of saddle, adhesives and vapour barriers to be in accordance with manufacturer's recommendations.
- **d** Spacers - High temperature insulated pipes operating over 60°C - sectional high density fibreglass or mineral wool spacers having a minimum density of 80kg/m³.
- **e** Spacers – ABS – to manufacturers recommendations.
- **f** Firmly attach clamps and collars to pipework and/or insulating spacers without applying undue pressure to the pipe walls.

4 Hanger Rods:

- **a** Fabricate hanger rods and associated fittings from hot dip galvanised or zinc plated mild steel bar of not less than the following diameters:

NOMINAL PIPE SIZE MM	ROD DIAMETER MM
Up to 20 (inclusive)	6
25 & 32	10
40 to 100	12
125 to 250	16
300 to 450	20
500 & above	24

5 Fixed Supports:

a Fix hanger rods direct to structure unless moving supports required to cater for expansion, contraction and vibration.

b Support two or more pipes on common channel section bracket or trapeze type support:

Pipe sizes up to 100mm	Millstrut P1000 Series.
Pipe sizes over 1000mm	Standard rolled sections.

6 Moving Supports:

a Where hanger rods used to take up movement ratio of effective length to pipe movement to be not less than 6:1.

b Provide 'V' shaped brackets with oversize holes for rods. Similarly, clevis or welded yokes on pipe clamps to have oversize holes for rods. Secure rods at each end using spherical washers and locknuts and do not use any nuts between brackets and clevis or welded yoke.

c Use spring and double deflection hangers similar to Mason PC 30N-400 and 30N-400 when movement is too great to be accommodated by the previous method and when movement is less than 25°.

d Use rigid channel section support brackets or trapeze type supports with roller or sliding supports when pipe movement extensive. Roller supports similar to Millstrut types P2119, P2474 or P2475.

e Protect insulation on sliding supports with heavy gauge galvanised steel sheet forming a sleeve and provide rigid insulation for at least four pipe diameters on either side of support.

7 Anti-Vibration Hangers:

a Supply and install spring and neoprene high deflection anti-vibration hangers to all pipework within 10m of equipment which is supported on similar high deflection mounts.

b Deflection to be selected according to the load and to comply with hanger manufacturer’s recommendations.

c Anti-vibration hangers to be Mason Industries Pty Ltd or equivalent.

8 Anchors:

a Design, supply and install anchors where shown on drawings and where required to accommodate pipework weight, thrust forces and expansion and contraction.

b Submit detailed design and installation details for the project structural engineer’s approval and confirmation that the building structure can resist the anchor forces imposed by the system design.

c Anchor connections to the pipework shall be:

Steel pipe:	Fully welded to pipe.

Copper pipe:	Anchors comprising bronze flanges fully brazed to pipe and bolted to galvanised steel anchor plates. Use non-conductive bushes and washers.
ABS pipe	To manufacturer's recommendations.

d Anchor shall comprise steel plates and/or rolled steel sections designed to transfer the weight of pipework, pipe and thrust forces exerted by the system to the structure.

8.7.4 PIPELINE GRADIENTS, AIR VENTS AND DRAINS

1 Water Services:

a Install piping with continuous upwards gradient of not less than 1:500 in the direction of flow.

b Fit air vents in any section of pipework where air may collect with outlet drained to waste via a visible tundish in a readily accessible position. Fabricate air bottles 25mm smaller than the pipework for pipes above 80mm diameter and equal to the pipe sizes for pipework below 80mm in diameter.

c Drain all low parts of pipework not less than 20mm for pipes up to 100mm diameter, 25mm for pipes up to 150mm and 32mm for pipes above 150mm.

d Fit draining facilities to all items of equipment, ancillary items and fittings such as expansion tanks, strainers, dirt legs. Run drain points to the nearest floor waste or tundish.

e Install full size dirt legs with valves and hose nipples at the bottom of risers and vertical piping. Valves not less than 32mm for pipes above 50mm and not less than 20mm for pipes less than 50mm.

f All water coil connections are to have drains and vents at coil headers.

2 Gas Services:

a The entire installation, including draining and cleaning requirements in accordance with AS 5601.

3 Compressed Air Services:

a Install piping graded in a downward direction in the direction of flow with a grade of not less than 1:500 and arrange for a minimum of low points.

b Fit automatic water eliminators (traps) at after coolers, receivers and low sections of piping.

c All branches to be taken off the top of supply lines.

4 Refrigerant Services:

a Piping systems to be installed in accordance with practices detailed in ASHRAE Handbook 'Refrigeration' or Carrier System Design Manual 'Refrigeration Piping Design'.

b Liquid line. Pressure drop not to exceed the equivalent of 1°C change in saturation temperature.

c Suction line. Pressure drop not to exceed the equivalent of 1°C change in saturated temperature. Double suction risers may be needed for oil entertainment up vertical pipes. Trap size should be as small as possible. Main vertical pipe should enter horizontal pipe from above. Horizontal runs should be level.

d Discharge line. Pressure drop not to exceed the equivalent of 1°C change in saturation temperature.

8.7.5 VIBRATION ISOLATORS

1 Rubber bellows are not to be used to absorb piping movement due to expansion in the system.

2 Rubber bellows should NOT be installed extended, compressed or offset to make up for deficiencies in pipe length or alignment.

3 Pipework must be properly anchored around the unit, to avoid the bellows bearing the weight of the piping system.

4 Units must be rated for the system operation pressure and temperature.

5 The Works Package should note the allowable bellows movement in their submission of products.

6 Construction to include flanged connections bellows to be nylon cord and wire reinforced EPDM rubber suitable for a working temperature of up to 95°C.

7 Hyflo C-Flex or equal approved.

8.7.6 PIPE EXPANSION AND CONTRACTION

1 Provide means to accommodate piping expansion and contraction in pipe runs longer than 30m from anchor points which may be a series of full radius bends and diversions, expansion loops or bellows.

2 Expansion and contraction joints using Victaulic style 150 or style 155 joints shall be designed and installed in accordance with the Manufacturer's recommendations.

3 For water systems, Victaulic flexible couplings may be used to accommodate thermal growth and contraction, and for the elimination of expansion loops. (As approved by the Consultant Engineer.) Where loops are required, use flexible couplings on the loops.

8.7.7 PIPE PENETRATIONS

1 Supply 1.6mm galvanised steel sleeves for placement and casting in penetrations. Sleeves to extend a minimum of 100mm above floors.

2 Pipe penetrations in fire rated structures to comply with NCC Clause C3.15 where applicable – refer to architectural and structural drawings for required fire ratings.

3 Pipe penetration fire rating system to comply with approved type tested installation.

4 Where required provide 100mm guard around fire rated penetrations to ensure no combustible material comes within 100mm of pipe penetration and pipe.

5 Non fire rated wall penetrations to be sealed with mineral fibre insulation to maintain acoustic and pressure differential rating.

6 Where packing material is mineral fibre material enclose in isolation.

7 Where exposed to view provide galvanised sheet metal collar.

8.8 TESTING OF PIPEWORK

1 Pressure test all sections of pipework prior to lagging or painting using calibrated pressure gauges. Provide signed test reports for each pressure test.

2 Isolate any equipment that shall not withstand test pressures prior to testing.

3 Provide detailed water treatment and pipework passivation proposal for approval prior to filling any part of the system. Water which is not chemically treated shall not enter any part of any system. Introduce corrosion inhibiting chemicals in water used for hydrostatic testing in strict accordance with the recommendations of a water treatment specialist. If chemically treated water is left in piping after testing the water must be circulated and monitored to assure protection is maintained.

4 Circulate test water to ensure continuity and effectiveness of corrosion inhibition providing temporary circulation facility if required.

5 Remake any leaking joint and retest.

8.9 ADDITIONAL GREEN STAR REQUIREMENTS

The following additional requirements are to be met if required by the Green Star Schedule in Schedules.

1 No PVC or UPVC materials shall be used.

9 DUCTWORK, SHEET METAL ITEMS, AIR OUTLETS

9.1 GENERAL

9.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, materials, components, general installation and testing of the Mechanical Services ductwork, sheet metal items, air outlets, grilles and fittings.

9.2 DESIGN

9.2.1 GENERAL

1 Complete the detail design and engineering of the ductwork installation to the specified requirements.

9.3 SUBMISSIONS

1 Duct system pressure drop calculation.

2 Fire resistant sprayed coatings

3 Air dampers.

4 Air outlets and grilles.

9.4 GENERAL REQUIREMENTS

1 Supply and install ductwork systems complete with transitions, bends, tees, supports, dampers, offsets, flexible connections, take offs, air outlets, grilles and fittings necessary for the satisfactory operation of the air handling system.

2 Drawings show routes and sizes of ducts but do not detail all offsets and bends required for co-ordination between trades and for integration with building structure and finishes.

3 Sizes are clear internal dimensions of the air passage and, in the case of rectangular ductwork, the first dimension quoted is the dimension of the side in view on the particular plan or elevation.

4 Install seismic bracing to all ductwork as required by AS 1170.

9.5 INFORMATION REQUIRED

1 Provide the following:

- **a** Shop drawings.
- **b** Evidence of Local Authority approval for method of fire rating ductwork.

c Test certificates for fire dampers.

d Evidence of Local Authority approval for fire stop collars for UPVC ductwork

e Certification of early fire hazard properties for acoustic lining.

f Records of NATA approved laboratory tests for air outlets and grilles.

9.6 DUCTWORK MATERIALS

9.6.1 SHEET METAL

1 Zinc coated steel:

a To AS 1397 galvanised steel sheet to coating.

b Class G2/Z275.

2 Stainless steel:

a To ASTM A240/A240M Type 304 or as specified.

3 Fasteners:

a Rivets: aluminium expanding solid end type.

b Self-tapping screws: bright zinc plated for galvanised duct, stainless steel for stainless steel duct.

c Bolts, nuts and washers: Zinc plated steel, service condition No. 2 for galvanised duct, stainless steel for stainless steel duct.

9.6.2 FLEXIBLE CIRCULAR DUCTING

1 Performance in accordance with NCC and AS 4254.

2 Submit test results for compliance with AS/NZS 1530.3 and UL181.

3 Mechanically locked seams.

4 Where insulated comply with AS 4508 and provide a minimum R-value as noted in Schedules.

9.6.3 FLEXIBLE CONNECTIONS

1 Neoprene coated glass fabric with density not less than 1 kg/m² for temperatures up to 90°C.

2 Non-combustible coated woven glass fabric in compliance with AS/NZS 1668.1:1998 for temperatures above 90°C and smoke spill applications.

3 Where exposed to weather, protect by galvanised steel covers.

9.6.4 FIRE RATED DUCTWORK

1 Fire resistant sprayed coating to achieve the required FRL when tested to AS 1530.4.

2 Fire resistant sprayed coating shall be installed by a professional specialist installer who is licensed to install passive fire protection system by the BSA and who has current professional indemnity insurance.

3 Alternatively, provide duct wraps or other duct enclosure system assembled from proprietary products to achieve the required FRL.

4 Provide easily removable FRL rated panels where access is required for access (fire dampers, dampers, motors, etc.). Panels to be sufficiently sized for the equipment to be accessed.

5 The professional specialist installer shall provide all materials, accessories, spray equipment, tools, inspection services and labour to satisfactorily carry out the works in best trade practice. All workmanship and installation techniques shall comply with manufacturer's instructions, relevant Building Code Statutory requirements and applicable ASTM, BS or AS.

6 Fire rated ductwork and plenums shall be certified to the required FRL when tested to AS1530.4 before the date for practical completion. Certification to be provided in Operation and Maintenance Manuals.

7 Provide fire rating to Local Authority and NCC requirements.

9.7 GREEN STAR REQUIREMENTS

The following additional requirements are to be met

1 Adhesives and sealants are to have maximum levels of 100 grams of VOC/litre.

2 Use of PVC and UPVC materials is prohibited.

9.8 DUCT CONSTRUCTION

9.8.1 RECTANGULAR SHEET METAL DUCTWORK

1 Fabrication:

- **a** Machine bent, free from waves and buckles.
- **b** Galvanising unbroken after fabrication.
- **c** Adequately stiffened to avoid drumming.
- **d** Free of sharp burrs, edges and protrusions into air stream.
- **e** Where exposed to view in occupied spaces use sheet metal two gauges heavier than required for pressure rating with no cross breaking, no beading, no exposed fasteners, free from damage, dents, blemishes and suitable for high quality finish painting.

2 Bends:

- **a** All bends and elbows with maximum air velocities exceeding 4 m/s shall be fitted with turning vanes.
- **b** All square bends shall have single skin turning vanes.
- **c** All radius bends shall have turning vanes based on their throat radius-to width (R/W) ratio:

i	R/W	>0.5 to 1.0	1 vane
ii	R/W	0.3 to 0.5	2 vanes
iii	R/W	<0.3	3 vanes

3 Joints:

- **a** In accordance with SMACNA, AS 4254.
- **b** Use a proprietary system such as Duct Mate, TDF, METU.

c Seal as per AS 4254, except that ALL transverse joints shall be sealed for all duct work, not just for Pressure Class 500 and above.

d Allow to air leak test three ductwork systems before any required external insulation is applied, and before any riser shafts are sealed. Failure of a system shall require both retesting of the system when repaired, as well as testing of a further ductwork system. Testing to be carried out with equipment calibrated in the last 12 months, and in compliance with SMACNA HVAC Air Duct Leakage Test Manual and ASHRAE Handbook – HVAC Systems and Equipment. In addition, all systems with a pressure classification of 1000Pa or above shall be air leakage tested.

9.8.2 KITCHEN EXHAUST DUCTWORK

1 Fabrication and installation to AS 4254 and AS/NZS 1668.1and AS 1668.2.

2 In addition to liquid tight cleanout to AS4254, provide liquid tight cleanouts at bottom of kitchen exhaust riser and at sprinkler locations.

3 Provide a grease gutter and DN 25 drain socket and plug at the bottom of vertical risers.

9.9 DUCTWORK INSTALLATION

9.9.1 REQUIREMENTS

1 In accordance with AS 4254 and AS/NZS 1668.1:

a Neat tidy appearance with duct runs adjacent and parallel to each other and building elements.

b Designed and arranged with all necessary anchoring and flexible connections to prevent damage to ducts and building structure due to expansion and/or contraction or building shrinkage and to prevent transmission of noise and vibration from equipment.

2 Spacing (in each case the minimum permitted):

a 25mm between ducts (and external insulation).

b 25mm between duct flanges or upper surfaces of ducts and soffit of building structure.

c 50mm between ducts and electric cables.

d 150mm between ducts and ground below suspended slabs.

3 Hangers and supports:

a To AS 4254.

b Locking washers for nuts to all hangers and supports for suspended equipment.

c UPVC ductwork to be supported at maximum 2400mm centres.

4 Ducts exposed to weather to be constructed with graded top surface or provided with a separate cover to prevent pooling of water.

5 Kitchen exhaust ducts to have 1:200 minimum rise in direction of air flow and to be 300mm clear of both any combustible material and all other services. If this clearance is not possible, insulate the kitchen exhaust duct in compliance with AS/NZS 1668.1.

6 Prior to and during installation, progressively clean interior of ducts to remove dust and building debris and maintain cover over open ends.

7 Install approved bracing to ductwork for seismic restraint, where required by AS 1170.4.

9.9.2 FLEXIBLE DUCTWORK

1 In accordance with AS 4254.

2 Maximum length 5m.

3 Minimise unnecessary bends; bend radii to be not less than the requirements of AS 4254; minimum 3 – diameters of straight duct attached to each supply diffuser/grille.

4 Fittings galvanised sheet metal.

5 Connect to ducting, cushion head boxes or other devices using a galvanised sheet metal spigot which incorporates a convex swage at least 3mm high. Air seal, inner duct onto spigot over swage with duct tape, then secure with a non-metallic mechanical fastener.

6 Where the duct is insulated, band the external insulation behind the swage then tape the whole joint at least 75mm each side of the clamping band.

7 Screws or rivets shall not be used.

9.10 DAMPERS

9.10.1 GENERAL REQUIREMENTS

1 This clause applies to dampers in rigid ductwork and at air handling and fan coil units

2 Free of rattles, fluttering and slack movement.

3 Locate where required for correct and proper air balancing and commissioning and as shown on drawings accompanying this specification.

4 Suitable for operating pressures of ductwork.

5 Capable of adjustment over normal operating range without excessive self-generated noise.

6 Volume control dampers in ducts up to 250mm deep may be single blade butterfly type. Dampers in ducts over 250mm deep shall be opposed blade dampers.

7 Dampers in UPVC and stainless ducts shall be manufactured from material matching the properties of the duct.

8 Locate dampers and actuators in readily accessible positions.

9.10.2 SPLITTER DAMPERS

1 Zinc coated steel construction comprising single blade and adjusting rod.

2 Blade thickness 0.8mm minimum and double folded.

3 Adjusting rod galvanised steel with external screw locking mechanism. Provide rod(s) at maximum 600mm spacing.

9.10.3 OPPOSED BLADE DAMPERS (MANUAL)

1 Galvanised or stainless sheet steel construction:

a Blades: Minimum 1.15mm thick with 12mm wide edge breaks; max. blade length 1200mm; maximum blade width 225mm.

b Spindles: Minimum 12mm diameter, cadmium plated steel.

c Bearings: Replaceable oil impregnated sintered bronze or ball bearings.

d Frames: Minimum 1.6mm thick folded sheet to form channels approximately 150mm wide; corners of frames spot welded, cleaned (and coated with one coat of cold galvanising paint (for galvanised damper frames).

e Linkages: Zinc coated or stainless steel fixed securely to blades so that blades rotate equally and without slip.

f Control: Dampers controlled by use of quadrants, control lever and locking device.

2 Aluminium construction:

a Blades: Extruded aluminium with edge breaks; maximum blade length 1200mm; max. blade width 175mm; or air foil type similar to Holyoake HBD, Bullock 6700 and Bradflo AVCD types.

b Spindles: Minimum 12mm diameter. zinc plated steel or cast alloy.

c Bearings: Replaceable oil impregnated sintered bronze, ball bearings, Teflon or Acetyl.

d Frames: Extruded aluminium, with corners either welded or robustly screwed.

e Linkages: Aluminium or cast alloy fixed securely so that blades rotate equally without slip.

f Control: Dampers controlled by use of quadrants, control lever and locking device.

9.10.4 MOTORISED DAMPERS

1 General requirements:

a Comply with requirements for opposed blade dampers except as noted below.

b Aluminium dampers similar to Holyoake HCD-150, Bradflo AVCDP or Unique UVAD types, and suitable for minimum 20,000 operations maintenance free.

c Side seals and blade tip seals of aluminium, vinyl, neoprene or silicon rubber to be mechanically fastened in position. Where damper may be exposed to smoke spill air, seals are to be minimum 225 ºC rated. Air leakage to be less than 25, 40 and 50 L/s m² when closed against static pressures of 250, 500 and 1000 Pa respectively.

d Drive shafts square, keyed or hexagonal and run full length of the blade and extended for motor connection.

e For motorised dampers, exceeding 1m² face area fit ball bearings throughout.

f Dampers required to control areas greater than 1.2m² to be divided into multiple sections each of 1.2m² maximum face area with an individual drive motor for each section.

g Free from distortion or flexing of frame during operation.

9.10.5 NON-RETURN DAMPERS

1 General Requirements:

a Aluminium construction with blades 0.7mm minimum thickness and frames 2.5mm extruded aluminium with corners either welded or robustly screwed.

b Damper blades parallel action type.

c Spindles type 316 stainless steel with acetyl or nylon bushes.

d Arrange counterweight of calibrated adjustable type to allow opening to air flow with minimum resistance and closure by gravity, or adjustable spring tensioner.

e Free from fluttering.

9.10.6 FIRE AND SMOKE DAMPERS

1 General Requirements:

- **a** To NCC, AS1668.1, AS1530 series and AS1682.1 and 2.
- **b** Tested and approved by Local Authority.
- **c** Any fasteners used for connection of duct to fire damper to be of material having fusion temperature below 700°C.

2 Curtain and Blade Type Fire Dampers:

- **a** Free cross section area of at least 85% of face area.
- **b** Fusible link or frangible bulb approved by Local Authority.

3 Intumescent Type Fire Dampers:

- **a** Aerodynamic aluminium foil sheathed intumescent material slats mounted in a steel frame.
- **b** Comply with AS1668.1 closure time.
- **c** Air pressure drop equal to or less than 30 Pa at 6 m/s for sizes greater than 200 x 200 or 200 nominal dia.
- **d** Similar to Kilargo IFD series.

4 Motorised Fire and Smoke Dampers:

- **a** As per blade type fire dampers and motorised dampers except for the following to comply with AS/NZS 1668.1.
- **b** Complete with motorised actuator to allow closure from a fire alarm signal, approved by the Local Authority.
- **c** High temperature damper blade tip seals.
- **d** Smoke dampers similar to Holyoake HFS, Bullock Prefco, Ruskin IB.

9.11 ACCESS PANELS AND DOORS

9.11.1 GENERAL REQUIREMENTS

1 Locate access panels where shown on drawings and where access is required for duct cleaning and maintenance and to permit resetting or inspection of dampers, duct heaters, filters and other items of equipment.

2 Access panels and doors to be rigidly constructed to avoid distortion and for suitability for operating pressure range.

3 Doors to open against air pressure and have clear opening of not less than 1.35m high by 600mm wide.

4 Construction of panels and doors to avoid cold bridging.

5 Door hardware to permit opening from both sides.

6 Panel fastenings to be quick release patented type not screw fixings.

7 Seals to suit duty; woven ceramic fibre for fire rated seals; neoprene or silicone rubber for normal duty.

9.12 PITOT TUBE OPENINGS

9.12.1 GENERAL REQUIREMENTS

1 Provide pitot opening in accordance with CIBSE Code A and BSRAI AG3/89.3for accurate balancing and commissioning purposes and in all main ducts and branches.

2 Pitot openings in low pressure ductwork to be 15mm diameter sealed with rubber grommet.

3 Pitot openings in medium and high pressure ductwork to be proprietary fittings similar to Duro-Dyne Instrument Test Port type.

9.13 INTERNAL DUCTWORK INSULATION

9.13.1 GENERAL

1 Comply with AS 4254 and NCC Section J.

9.13.2 INSULATION MATERIAL

1 Thermally bonded polyester or resin bonded mineral wool or fibreglass to AS/NZS 4859.1 and maximum thermal conductivity 0.036 W/mK at 23°C.

2 Internal insulation including facing to NFPA 90A UL181 Class 1 requirements and early fire hazard properties as follows: Ignitability 0; Spread of Flame, 0; Heat Evolved 0 and Smoke Developed 3.

9.13.3 ADHESIVES

1 Suitable for bonding facing to insulation and insulation to ductwork with early fire hazard indices as follows: Ignitability 0; Spread of Flame, 0; Heat Evolved 0 and Smoke Developed 0.

9.13.4 ALUMINIUM FOIL FACING

1 Perforated foil laminate such as Sisalation 450 having free area of 10%.

9.13.5 PERFORATED SHEET METAL FACING

1 0.55mm thick perforated zincanneal sheet having a free area of 11%.

2 Use in, areas subject to mechanical damage, trafficable/maintenance areas, smoke spill ducts and plenums to AS1668 and as otherwise specified.

9.13.6 MECHANICAL FIXING

1 Ductwork (Perforated Foil Faced Insulation).

a Fix with adhesive, weld pins and speed clips located not more than 75mm from the edges of ducts and spaced at not more than 300mm centres.

b Joints to have 50mm wide overlap of facing glued and then taped with aluminium foil top.

c Extend insulation by 5mm at ends of ducts to enable adjacent sections to butt together without a cold bridge.

9.13.7 CONDITIONER CASINGS AND PLENUMS

1 Fix with adhesive, weld pins and speed clips or mechanical type fixings such as Hilti IN or ID for masonry as appropriate located at not more than 300mm centres.

2 Fit protective PVC caps to weld pins within 2100mm of floor level and adjacent to access openings, valves and similar equipment where access above the 2100mm height is required.

3 Joints in facing to be overlapped and pop riveted.

4 For masonry ducts, conditioner casings and plenums, fit galvanised end sections fixed with Dynabolts or Loxins at 450mm centres to support the full weight of the insulation and use adhesive fixed pins in lieu of welded type.

9.13.8 ACOUSTIC PERFORMANCE

1 As per the following table:

9.13.8.1 MINIMUM ABSORPTION COEFFICIENTS TABLE

INSULATION	ABSORPTION CO-EFFICIENTS (NOMINAL) TO AS 1045–1988 AT				
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz
Perforated foil faced					
-25mm thick	0.08	0.24	0.68	0.96	1.01
-50mm thick	0.26	0.66	1.09	1.09	1.05
Perforated metal faced: -50mm thick	0.20	0.73	1.00	0.99	0.89

9.14 SITE BUILT CONDITIONER CASINGS AND PLENUMS

9.14.1 GENERAL REQUIREMENTS

1 Includes all supply, return, relief and filter air plenum chambers and enclosures for and air passages between air inlets, heating and cooling coils and fans.

2 Not applicable to factory assembled units.

3 Install on concrete plinths.

4 Provide air tight seals at all openings.

5 It is mandatory to submit construction details to demonstrate that cold tracking or sweating shall not occur.

6 Eliminate rattling, excess deflection, or flexibility.

9.14.2 SHEET METAL CONSTRUCTION

1 Zinc coated steel sheet of 1.55mm minimum thickness machine folded to form 450mm dished panels with 50mm deep stand up edges and 15mm deep returns with corners welded and cold galvanised.

2 50x50x5 thick galvanised steel bracing angles.

3 All joints airtight and bolted at 150mm centres using galvanised nuts, bolts and washers and gaskets or silicone sealant.

4 Fix casing to floor via 50x50x5 thick galvanised steel folded channel which is bolted to floor at 300mm centres with expanding masonry type anchors. Fix panels to channels at 150mm centres with bolts and nuts.

5 Alternatively construct casings from Tri-Lock not less than 1.15mm thick.

9.14.3 SANDWICH PANEL CONSTRUCTION

1 Construct casings with prefabricated cool room panels with metal skin both sides comprising polystyrene sheet to AS 1366.3 Class M of suitable thickness to suit range of operating pressures, minimum thickness 50mm with metal skin 0.55mm thick zinc coated steel sheet, colour bonded.

2 Joints - aluminium extrusions inside and out and silicone bead seal.

3 Penetrations - seal with galvanised aluminium sleeve and polyurethane sealant.

9.14.4 ACCESS DOORS

1 To allow full and easy access to all internal areas.

2 Fit hinged doors with heavy duty chrome-plated die-cast alloy hinges and lever-type door catches.

3 Use hinged door sealing gaskets of the replaceable closed cell foamed neoprene balloon type and fix them to the doors by riveted aluminium strips or approved adhesive.

4 Construct and install all doors and door hardware so that a person from inside can readily open any door.

9.14.5 CONDITIONER LIGHTING

1 Weatherproof 18W fluorescent type such as Pierlite - Vandalite or Thorn Lighting - Casalux in each compartment.

9.14.6 ANCILLARY ITEMS

1 Supply and install access ladders, platforms, handrails, gratings and similar items necessary for safe, easy access to items such as valves, modulating motors, expansion tanks and the like.

2 Comply with AS 1657 and Local Authority (including Workplace Health and Safety) requirements.

3 Hot dip galvanise all steelwork subject to exposure or moisture.

9.15 AIR OUTLETS AND GRILLES

9.15.1 GENERAL REQUIREMENTS

1 Proprietary fittings of steel or aluminium fabrication. All cool air supply grilles, and others where condensation or water contact could occur, shall be of aluminium construction.

2 Free of distortion, bends, dents, blemishes rattling and irregular or open joints.

3 Powder coat finish to Architect's colour choice.

4 Mount with secure, concealed fixings.

5 Where possible, control air flows using a butterfly damper for each grille/diffuser/register in the flexible duct spigot on the branch duct, complete with a lockable adjustment arm which also indicates the blade position. If branch duct spigot is not accessible, provide an opposed blade damper behind the grille.

6 For each duct, mounted supply grille/register, provide a ganged multi-blade stream splitter damper.

7 For each duct, mounted return and exhaust grille, provide a ganged multi-blade opposed blade damper.

8 All dampers behind grilles/diffusers/registers to be lockable and adjustable through the face of the grille/diffuser/register.

9 Select for duty and specified noise levels.

10 Tested by NATA approved laboratory.

11 Suitable for VAV operation as applicable.

12 Slot diffusers, linear outlets and light air fittings to incorporate continuous adjustment for air pattern from horizontal to vertical.

13 Paint matt black all internal surfaces visible through outlets.

14 Install outlets with trim gaskets to accommodate movement.

15 Diffusers may also be used as return and exhaust air grilles when indicated on the drawings.

9.15.2 CUSHION HEAD BOXES AND PLENUMS

1 Where a grille/diffuser/register is connected to a flexible duct, provide a matching side entry cushion head or plenum box. Supply air boxes and plenums shall incorporate perforated baffles when the grille manufacturer requires them to ensure that the required air distribution pattern is achieved.

2 Boxes and plenums may be manufactured in accordance with the requirements for metal ductwork, or from pre-faced rigid phenolic insulation sheet. Metal boxes/plenums shall be internally insulated on supply and return air systems in accordance with the requirements for Internal Duct Insulation. Thermal insulation or phenolic board thickness shall be as required to achieve the R-Value of the connecting ductwork.

3 Ensure an air-tight seal is achieved between the box/plenum and the grille/diffuser/register.

9.15.3 LOUVRE FACE DIFFUSERS

1 Lay in type for exposed grid ceilings; flanged type for surface mounting in ceilings without grids.

2 Square or rectangular multi louvre blade type. Unless specifically noted on drawings, diffusers have 4-way blow faces.

3 Provide blanking plates in the neck to achieve 1, 2 or 3-way blow.

4 Provide a reducer neck if the outlet neck is smaller than the required diffuser face neck.

9.15.4 SWIRL DIFFUSERS

1 Lay in type for exposed grid ceilings; flanged type for surface mounting in ceilings without grids.

2 Provide a reducer neck if the outlet neck is smaller than the required diffuser face neck.

9.15.5 PERFORATED FACE DIFFUSERS

1 Lay in type for exposed grid ceilings; flanged type for surface mounting in ceilings without grids.

2 Edges folded so that perimeter gaps do not exceed 0.5mm.

3 Provide air pattern controllers in the neck to achieve adjustable blow patterns.

4 Provide a reducer neck if the outlet neck is smaller than the required diffuser face neck.

9.15.6 SIDE WALL REGISTER

1 Double deflection type with front blades horizontal, rear blades vertical.

2 Blades set at approximately 20mm centres and field adjustable in the range ±45°.

3 For blades over 600mm long provide notched mid-point support bar.

9.15.7 LINEAR SLOT DIFFUSERS

1 Extruded aluminium section construction comprising the number of slots shown on the drawings.

2 Slots shall be continuous except where long lengths require jointing. Provide all required end caps, bends, etc. to provide complete architecturally acceptable diffusers.

3 Provide support and alignment devices as recommended by manufacturer.

4 All joints shall be flush and smooth.

5 Volume controllable from the face or from damper at branch duct connection to main duct.

6 Air deflection pattern adjustable from the face (up to 90° each way from vertical for each slot).

9.15.8 CURVED BLADE DIFFUSERS

1 Individually adjustable blades.

9.15.9 LINEAR BAR GRILLES

1 May be used for supply, return and exhaust as required.

2 Extruded aluminium section construction to sizes shown on the drawings.

3 Grilles shall be continuous except where long lengths require jointing. Provide all required end caps, bends, etc. to provide complete architecturally acceptable grilles.

4 Provide support and alignment devices as recommended by manufacturer.

5 All joints shall be flush and smooth.

6 Except where otherwise detailed, bars shall be approximately 3mm thick on 12mm centres, set at 0° deflection.

7 Where detailed, provide rear individually adjustable blades behind the front bars to allow supply air direction control.

9.15.10 RETURN/EXHAUST - HALF CHEVRON BLADE TYPE

1 Ceiling or wall mounted, lay in or flange type.

2 Extruded aluminium blades set at approximately 25mm centres at an angle of 30° to 45°.

9.15.11 RETURN/EXHAUST/SUPPLY - EGG CRATE TYPE

1 Extruded aluminium frame, removable core.

2 Aluminium egg crate 15mm or 25mm as noted on the drawings.

9.15.12 DOOR GRILLES

1 Anodised aluminium extrusion construction with full chevron blade inverted, sight proof, 50% free area.

2 Flanged surrounds with no fixings evident either side of the door.

3 Adjustable frame for mounting into doors of varying thickness.

9.15.13 MESH GRILLES - LIGHT DUTY

1 Galvanised steel frame 1.6mm folded steel with 1.6mm galvanised steel or bronze wire mesh 12mm centres.

2 Alternatively, extruded aluminium frame and robust aluminium diamond mesh core.

9.15.14 MESH GRILLES - HEAVY DUTY

1 Galvanised steel frame 3mm thick with 3mm galvanised steel or bronze wire mesh at 20mm centres.

10 THERMAL INSULATION

10.1 GENERAL

10.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, materials, components, general installation and testing of the Mechanical Services thermal insulation.

10.2 DESIGN

10.2.1 GENERAL

1 Complete the detail design and engineering of the thermal insulation installation to the specified requirements and in accordance with the NCC Section J requirements applicable to the project.

10.3 SUBMISSIONS

1 Product Fire rating test sheets.

10.4 GENERAL REQUIREMENTS

1 Installation by skilled tradesmen experienced and competent in this type of work.

2 Use only insulation materials clearly marked or identified as to grade, materials that are dry and free from objectionable smells and materials which are suitable for the full range of operating conditions.

3 Clean all surfaces thoroughly of rust, grease, oil and dirt prior to application of insulation.

4 Complete all pressure and leak testing prior to application of insulation.

5 Make insulation continuous with joints firmly butted together, cold tracking eliminated and vapour barrier for cold pipes sealed.

6 Allow for thermal movement.

7 Insulate equipment connections, flexible connections, valves and similar to the same level as the connecting piping.

10.5 EARLY FIRE HAZARD PROPERTIES

1 Use only insulation materials and systems tested in accordance with AS/NZS 1530.3 and complying with the NCC and relevant Statutory Authorities.

2 Thermal insulation systems including adhesives, vapour barriers, facings and coatings early fire hazard properties: Ignitability 0; Spread of Flame, 0; Heat Evolved 0 and Smoke Developed <= 3.

10.6 REFRIGERANT PIPEWORK INSULATION

1 Flexible, closed cell, elastomeric, nitrile rubber of Armacell FR/Armaflex or flexible, closed cell, polyethylene foam Thermotec 4-Zero, or equal accepted 4-zero type.

2 Thermal conductivity not greater than 0.042 W/mK at mean temperature of 23°C.

3 Cover entire surface of pipework with insulation, do not slit.

4 Fix with contact adhesive. Open joints shall be rejected.

5 Butt joint tightly together and glue all joints.

6 Paint exposed insulation with 2 coats of water based paint supplied by the insulation manufacturer and suitable for the purpose.

7 Install and tape joints to manufacturers recommendations.

8 Material R-Values not less than Section J of the NCC>

10.7 CONDENSATE PIPEWORK INSULATION

1 Minimum 25mm thick flexible, closed cell, elastomeric, nitrile rubber of Armacell FR/Armaflex or flexible, closed cell, polyethylene foam Thermotec 4-Zero, or equal accepted 4-zero type.

2 Thermal conductivity not greater than 0.042 W/mK at mean temperature of 23°C.

3 Cover entire surface of pipework with insulation, do not slit.

4 Fix with contact adhesive. Open joints shall be rejected.

5 Butt joint tightly together and glue all joints.

6 Paint exposed insulation with 2 coats of water based paint supplied by the insulation manufacturer and suitable for the purpose.

7 Install and tape joints to manufacturers recommendations.

10.8 METAL CLADDING

1 Sheath piping with metal cladding when exposed to view (including exposed ceiling locations), weather, liable to damage by oil or water, where noted on drawings and in such areas as plant rooms, service tunnels, service shafts, store rooms and areas susceptible to physical damage.

10.8.1 REQUIREMENTS

1 Powder coated/colour bond zincanneal or galvanised steel sheet or bright aluminium.

2 Minimum thickness of metal cladding shall meet the following:

TYPE OF AREA	ZINCANNEAL OR GALVANISED STEEL (mm)	ALUMINIUM (mm)
Pipework of less than 150mm outside diameter over insulation	0.5	0.5
Pipework 150mm to 450mm outside diameter over insulation	0.6	0.7
Pipework / Vessels / Evaporators over 450mm outside diameter over insulation	0.9	1.0

3 Cut and roll sheeting to the required sizes with beaded transfer joints and 40mm overlapping circumferential joints.

4 Longitudinal joints faced away from view.

5 Fixed with galvanised steel or aluminium straps for chilled water pipe work or refrigerant pipework and either straps or self-tapping screws for medium temperature piping. Do not violate vapour barrier. Protect the vapour barrier with reinforced cloth tape to prevent screws and revits penetrating it.

6 Cut sheet to form lobster back segments for curved surfaces. Seal all holes.

7 Seal joints with sealing compound for piping exposed to weather or moisture.

8 Seal up all penetrations for gauges, instruments drain and vents.

9 Readily removable at evaporator heads, strainers, and similar areas where removal for maintenance is anticipated.

10.9 EXTERNAL DUCTWORK INSULATION

10.9.1 MINERAL WOOL OR FIBREGLASS

1 Resin bonded batt, board or blanket to AS/NZS 4859.1.

2 Thermal conductivity 0.036 W/mK at 23°C maximum.

3 Factory faced with reinforced aluminium foil of 0.007mm thickness (Sisalation 450 or equal.)

4 Cover entire surface of ductwork with insulation including all flanges, stiffeners and support angles.

5 Butt joints tightly together and overlap foil facing by at least 50mm and firmly adhere with fire resistant non-flammable adhesive.

6 Tape all joints with 75mm aluminium foil tape.

7 Fix bottom and sides of insulation with pin fixings at 450mm centres.

8 Fix aluminium or polypropylene fixing bands at each joint in the insulation and between each joint at approximately 600mm centres when ductwork dimensions exceed maximum. Do not damage aluminium foil facing when placing fixing bands.

9 Provide an overlap of at least 300 mm where insulation changes from the inside of the duct to the outside.

10.9.2 POLYETHYLENE DUCTWORK INSULATION

1 Flexible, laminated closed cell polyethylene foam of Thermobreak or equal.

2 Thermal conductivity not greater than 0.032 W/mK at mean temperature of 23°C.

3 Factory faced reinforced aluminium foil such as Sisalation 450 or equal.

4 Cover entire surface of ductwork with insulation including all flanges, stiffeners and support angles.

5 Fix with contact adhesive.

6 Butt joint tightly together and overlap foil facing by at least 50mm and firmly adhere with fire resistant non-flammable adhesive.

7 Tape all joints with 75mm wide aluminium foil tape.

8 Fix aluminium or polypropylene bands at each joint and between each joint at approximately 600mm centres when ductwork dimensions exceed 600mm.

9 Provide an overlap of at least 300 mm where insulation changes from the inside of the duct to the outside.

10.10 ADDITIONAL GREEN STAR REQUIREMENTS

1 The following additional requirements are to be met if required by the Green Star Schedule in Schedules.

2 All insulation is to be free of ozone depleting gases in manufacture and composition.

11 ELECTRICAL SERVICES FOR MECHANICAL PLANT

11.1 GENERAL

11.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, supply of materials, and components, general installation and testing of the electrical services for mechanical plant.

11.2 SUBMISSIONS

1 Provisional loads.

2 Variable speed drive technical data sheets.

3 Type test certificates for components, functional units and assemblies.

4 Shop drawings of switchboards and control panels showing as a minimum:

- **a** Detailed dimensions.
- **b** General arrangement, plan view, front elevations and cross-section of each compartment.
- **c** Fault level and rated short circuit capacity characteristics.
- **d** IP rating.
- **e** Fixing details for floor or wall mounting.
- **f** Front and back equipment connections and top and bottom cable entries.
- **g** External and internal paint colours and paint systems.
- **h** Quantity, brand name, type and rating of control and protection equipment.
- **i** Construction, ventilation openings, internal arcing-fault venting and gland plate details.
- **j** Single line power and circuit diagrams.
- **k** Details of cable routes within assemblies.
- **l** Internal separation and form of separation and details of shrouding of terminals.
- **m** Labels and engraving schedules.

5 Details of:

- **a** Cable tray routes co-ordinated with other services.
- **b** Underground reticulation routes co-ordinated with other services.

11.3 GENERAL REQUIREMENTS

1 Carry out the Works Package, incorporating detailed design and construction, by a specialist mechanical electrical company using only experienced electrical mechanical trades personnel.

2 Use all new electrical equipment, wiring and fittings of best quality and of the same manufacture throughout the installation.

3 Confirm provisional loads prior to purchase of submains by Electrical Works Package.

4 Seal cable penetrations through non-fire rated building elements; maintain acoustic and pressure differential rating.

5 Provide uPVC sleeves formed from pipe sections, for circular penetrations through slabs and beams and external walls by cables not enclosed on conduit.

11.4 EXTENT OF WORKS

1 The electrical services works for the mechanical plant comprise the detailed design, supply, installation, testing, commissioning, handover and maintenance of the complete electrical installation as required for satisfactory operation, control, maintenance and safety of the mechanical services. This includes:

- **a** Mechanical switch boards and control panels as specified in the equipment schedules.
- **b** Motor starters, variable speed drives, switchgear and controls, complete with all necessary accessories for all electrically operated equipment.
- **c** All final power circuits between the switchboards and the various plant components, including connections to boards and equipment.
- **d** All power wiring to controllers including motorised valves, dampers and the like.
- **e** As installed documentation.
- **f** Testing and commissioning of the entire installation in conjunction with other Specialist Works Packages.

11.5 FIELD CABLE SYSTEMS

11.5.1 CABLE SELECTION

1 Polymeric insulated and/or sheathed and flexible cables to AS/NZS 5000.1and AS 1125, 0.6/I kV with the following temperature ratings:

- **a** PVC up to 75ºC: V75
- **b** PVC over 75ºC: V105
- **c** XLPE and EPR: 90ºC.

2 Flexible cords to AS/NZS 3191.

3 Fire resistant cables to AS/NZS 3013 with classification of WS52W or higher.

4 Use all multi-stranded high conductivity annealed copper conductors.

5 Minimum size conductors:

- **a** Power – maximum 1.5% voltage drop or 2.5mm², whichever is the greater.

b Field Control – 1.5mm² subject to control voltage drops.

c Electronic equipment wiring – as recommended by the manufacturer.

6 Utilise red insulation for A phase, white for B phase and blue for C phase.

7 Mark all terminals and each control cable end with a numbering system reflecting the schematic wiring diagrams, including any spare cores.

8 Power cables from variable speed drives to motors to also strictly comply with the requirements of the drive manufacturer (typically using screened cables).

9 Cable colours (and cable enclosures and support systems where required to be painted) shall be consistent throughout the project to uniquely identify each service and type. Cable colour and types shall be as follows:

SYSTEM	CABLE SHEATH	ENCLOSURE / SUPPORT
Mechanical Electrical – LV	Orange or Black	Light Sky Blue
Mechanical Electrical – ELV	Brown	Light Sky Blue
Mechanical Electrical – BMS/Communications	Grey	Light Sky Blue
The requirements for other services are listed below for reference		
Electrical – LV	Orange or Black	Electric Orange
Electrical – ELV	Grey	Electric Orange
Electrical – LV Fire Rated	Red	Electric Orange
Data Backbone	Grey	Harbour Blue
Data Horizontal	Harbour Blue	Harbour Blue
ACID Services	White	Red-Orange (not Electrical Orange)
MATV Services	Black	Grey
Audio Visual services	Green	Green
CCTV services	Red-Orange	Red-Orange (not Electrical Orange)
Medical Gas Systems	Yellow	Yellow

11.5.2 CABLE INSTALLATION

1 Install all cables in accordance with AS/NZS 3000, AS/NZS 3008.1.1 and specifically in accordance with manufacturer's recommendations.

2 Fix fire resistant cables with stainless steel straps.

3 Loop cables at all terminations subjected to equipment vibration.

4 Run cables without joints.

5 Cable routes to be level, straight and parallel with building lines.

6 Install DDC cabling in accordance with the manufacturer's recommendations.

7 Installation and classification (minimum WS52W) of a fire rated wiring system applies to the complete system including the cable fixings (i.e. ties and/or clamps), cable support system, mechanical damage rating and cable support system fixing points.

8 Coordinate with all other Works Packages to ensure that the correct level of segregation is provided between LV and ELV cabling, medical gases pipes, etc.

9 Use the following systems unless alternatives are accepted:

- **a** Accessible concealed spaces: Fully supported thermoplastic insulated and sheathed cables.
- **b** Inaccessible concealed spaces: Cables in conduit.
- **c** Plant rooms: Cables in heavy duty conduit, or on tray, in duct, or in trough.
- **d** Plastered or rendered surfaces: Cables in conduit.
- **e** Stud walls without bulk insulation: Thermoplastic insulated and sheathed cables.
- **f** Walls filled with bulk thermal insulation: Cables in conduit.
- **g** Underground and in concrete slabs: Cables in heavy duty conduit.
- **h** Exposed to weather: Cables in heavy duty UV resistant rigid conduit, with all fittings sealed.

10 Enclose cabling in cold and cool rooms in halogen-free plastic alloy conduit, suitable for use at low temperature. Cabling as follows:

- **a** EPR insulated and CSP sheathed.
- **b** Flexible without brittleness down to -20°C.
- **c** Use multi-core flexible cable for connection to items within the rooms requiring maintenance.

11.6 FIELD CABLE SUPPORT SYSTEMS

11.6.1 GENERAL

1 Design and provide a complete cable support system. Unless otherwise noted, a combination of the following support systems is acceptable.

2 Co-ordinate cable support systems with other services complete with all necessary brackets, off-sets, fixings, penetrations and sealing.

3 Size support system to be able to handle an additional 50% of cables above those initially installed.

4 Design support system for a maximum 10mm deflection for conduits, trays and ladders, and a maximum of 100mm for catenaries.

5 Provide brackets, rods and similar to provide a complete and rigid support system – adhesive cable supports shall not be accepted.

6 Comply with AS 1170.4 for the complete support system.

11.6.2 CONDUIT AND FITTINGS

1 Circular steel conduit, heavy gauge welded galvanised with screwed connections complying with AS/NZS 2053, minimum nominal diameter 20mm.

2 Circular non-metallic rigid and flexible conduit of the high impact, self-extinguishing type, complying with AS/NZS 2053, minimum nominal diameter 20mm.

3 Provide future use conduits with 2.5mm² galvanised steel draw wire, insulated stranded 2.5mm² earth wire, or minimum 5mm^2 polypropylene cords.

4 Use only approved bending machine.

5 Install conduit 100mm from all other pipe systems.

6 Space conduit saddles 1000mm apart or reduce to 500mm where subject to high temperatures or severe duty. Use double sided saddles for 25mm diameter conduit and above.

7 Provide draw in boxes at intervals not exceeding 25m horizontally and 7.5m in the vertical.

8 Provide flexible conduit connection to motors/appliances, minimum length 150mm, maximum length 500mm.

9 Provide flexible couplings where structural expansion joints occur.

10 Fix conduits between top and bottom reinforcing steel where run in concrete slabs, space conduits 50mm apart, avoid crossovers and co-ordinate with structural requirements.

11 Firmly fix conduits laid in plaster or wall chases to prevent movement and provide a minimum of 20mm final cover.

12 Where flexible conduit is subject to mechanical damage, use jacketed steel wound 'Anaconda' type complete with all proprietary fittings installed in accordance with the manufacturer's instruction.

13 Where conduits pass through cold chambers (e.g. low temperature side of air conditioner casings, cold and cool rooms) most conduiting should be run external to chamber and have cables silicone sealed to inside of conduit where passing through wall or ceiling. Condensation from inside the conduit must not be able to enter switches or fittings.

11.6.3 CABLE TROUGHING

1 Troughing constructed of folded 1.15mm zinc coated mild steel, 1.55mm half hard-aluminium sheet, 1.55mm thick extruded aluminium section or 2mm thick extruded rigid PVC section, complete with detachable lid.

2 Use proprietary covers, cable retainers, bends, tees, joiners, blanking ends and junctions.

3 Where troughing passes through walls or floors, provide a pop riveted section of lid extending 40mm each side of penetration.

4 Support cabling within vertical troughing at a maximum of 4 metre intervals or at every floor level with an approved method of clamping to the trough.

11.6.4 CABLE TRAYS

1 Galvanised.

2 Minimum steel thickness:

- **a** Trays < 150mm wide: 1.0mm.
- **b** Trays ≥ 150mm, < 300mm wide: 1.15mm.
- **c** Trays ≥ 300mm wide: 1.55mm.

3 Provide proprietary bends and tees.

11.6.5 CABLE LADDERS

1 Use two folded steel or extruded structural grade aluminium side rails with cable support rungs between the rails.

2 Steel ladders to be galvanised.

3 Rung spacing to be 300mm maximum.

11.6.6 CATENARIES

1 Utilise catenaries for internal final distribution only.

2 No more than 6 individual cables shall be supported by each catenary

3 Utilise separate catenaries for separate cable media.

4 Provide catenary wire comprising of galvanised, multi-stranded wire. Earth the catenaries.

5 Fix catenaries with galvanised eyebolts or approved proprietary fixings. Fix only to permanent structure elements. Use galvanised turnbuckles to tension catenary wire.

6 Utilise intermediate supports at minimum spacing of 2.0m centres.

11.6.7 INSTALLATION

1 Provide rounded support surfaces under cables where they leave trays, troughs or ladders.

2 Hot water pipes: 200mm maximum clearance.

3 Boilers or furnaces: 500mm minimum clearance.

11.7 FIELD EQUIPMENT

11.7.1 MOTOR ISOLATING SWITCHES

1 Locate adjacent to and identify with the name of the drive. External labels to be of metal and mechanically fixed.

2 Rated to interrupt 800% full load motor current and padlockable. Provide 003 keyed padlocks on fire smoke control equipment.

3 Use emergency palm operated keyed release control isolators for motor 11kW and above.

4 Provide metal clad isolators for fire equipment with an additional label ‘DO NOT SWITCH OFF EXCEPT IN EMERGENCY’.

11.7.2 ELECTRIC RESISTANCE HEATERS

1 Arrange all electric resistance heaters to be balanced across phases under all normal operating conditions.

2 Provide each electric resistance heaters with isolation switch mounted 600 minimum distance away. Use heat resistant cable to electric resistance heaters.

11.7.3 LIFT MACHINE ROOM VENTILATION PANEL

1 Comply with SAA Lift Code AS 1735.1, AS 1735.2 and the requirements of the Local Authority.

2 Provide a wall mounted control panel in the LMR with isolating switch, motor starter, Auto-Off-Test switch, red high temperature alarm light and external alarm cancel button.

3 A high temperature condition shall be alarmed either in the main floor landing or in a permanently attended location (refer to AS 1735.2). In addition, a voltage-free signal shall be provided at the control panel (for use by the lift supplier if required to shut down the lift machinery).

11.8 SWITCHBOARDS AND CONTROL PANELS (BOARDS)

11.8.1 GENERAL

1 Supply and install all mechanical services switchboards and control panels (boards) in compliance with the following:

- **a** Incorporate all necessary starting arrangements, associated controls and accessories/ switchgear as required to form a complete and functioning system.
- **b** Designed to AS/NZS 3439.1 and built by a recognised specialist board manufacturer.
- **c** Ascertain from drawings or site measurement the exact space available for the board.
- **d** Provide a minimum of 25% spare capacity and space for future requirements to all elements of the board.
- **e** Provide DIN rail mounting for BAS, kWh metering system and other interface terminal strips.

2 Withstand the short-time fault level of the incoming supply and not less than that in Schedules. Maximum current temperature rise limit 160ºC by calculation to AS 3865.

3 Provide equipment which incorporates protection of semi-conductor components against potential damage caused by switching and other external transients.

11.8.2 INTERPRETATIONS

1 Proprietary boards: Switchboards and control panels available as a catalogue item comprising manufacturer's standard layouts and equipment.

2 Custom-built boards: Switchboards and control panels custom manufactured to order utilising proprietary components.

3 Rated currents: Continuous uninterrupted ratings within the internal board environment under in-service operating conditions.

11.8.3 DESIGN

11.8.3.1 SEPARATION

1 Internal separation shall be provided by standard construction (metal barriers or metal partitions).

2 Alternative segregation means described in AS3439.1 section 7.7.2 is unacceptable – insulation (i), housing (h) or a combination (ih).

3 Control gear associated with emergency / life safety equipment to be totally separated from other equipment by means of sheet steel barriers.

4 Emergency / life safety equipment including control and switchgear to be served by separate dedicated power supplies.

Emergency / Life Safety Equipment (air handling systems designed to exhaust and control the spread of fire and smoke, e.g. smoke spill fans, stairwell pressurisation fans, etc.)	Form 3b
Rated over and including 800 amps	Form 3b with incoming circuit segregated from outgoing zones (Form 2a for control section)
Rated over 250 amps and up to 800 amps	Form 2b
Rated up to and including 250 amps	Form 1

11.8.3.2 DEGREE OF PROTECTION

1 General: Minimum IP43.

2 Assemblies for outdoor use: Minimum IP55.

11.8.3.3 MOUNTING

1 Floor mounted: Boards generally.

2 Wall mounted: Front access boards with frontal areas <2m².

11.8.3.4 CONNECTION

1 Indoor board cable entries: Top and bottom.

2 Outdoor board cable entries: Bottom.

11.8.4 PROTECTION

1 Provide a fully discriminating/cascading protection system applicable to the supply. Liaise with Electrical Works Package to ensure discrimination with upstream protective devices

2 Discrimination shall occur for all fault conditions up to and including the maximum prospective 3 phase fault current at the circuit breaker line side terminals

3 Provide isolators, contactors and switches with upstream protection to prevent damage from downstream fault currents up to the maximum three phase bolted fault current at the load side of the device.

11.8.5 ARCING-FAULT CONTAINMENT

1 Switchboards and control panels in the following conditions shall have arcing-fault containment in accordance with AS 3439.1 – Standard Tests:

- **a** Rated 1600A and above.
- **b** Supplying hospitals, emergency facilities, telecommunications and similar critical applications.

11.8.6 TYPE TESTS

1 Unless otherwise accepted, all enclosures shall be provided as partially type-tested assemblies and strictly in accordance with the manufacturer's type test certificates including:

- **a** Verification of temperature-rise limits.
- **b** Verification of the short-circuit withstand strength;
- **c** Verification of the degree of protection and internal separation;
- **d** Verification of the dielectric properties;
- **e** Verification of the effectiveness of the protective circuit;
- **f** Verification of clearances and creepage distances;
- **g** Verification of mechanical operations.

11.8.7 QUALITY

1 Give notice so that inspection may be made at the following stages:

a Fabrication and painting completed.

b Board ready for routine testing and dispatch.

c Board installed and connected.

d Acceptance.

11.8.8 PROPRIETARY SWITCHBOARDS AND CONTROL PANELS

1 Construction strictly in accordance with the manufacturer's type test certificates.

2 Provide lockable doors.

11.8.9 CUSTOM BUILT SWITCHBOARDS AND CONTROL PANELS

1 Construction strictly in accordance with the manufacturer's type test certificates.

2 Fabricate from sheet metal of rigid folded and welded construction. Obtain approval for non-welded forms of construction.

3 General: Minimum 1.6mm thick zinc-coated sheet steel, coating class Z200.

4 Outdoor assemblies: 2mm stainless steel.

5 Insect proof ventilation openings using non-combustible and non-corroding 1mm mesh.

6 Floor mounted assemblies to have a minimum 75mm high galvanised (class Z600) steel channel base frame.

7 Do not mount active equipment on the doors.

11.8.9.1 CABLE ENTRIES

1 Provide one or more removable gland plates to neatly accept incoming and outgoing cables, fitted with gaskets to maintain the required degree of protection. Use a maximum of 50% of the usable plate area to allow for future cable capability.

2 Gland plates to be metallic and non-magnetic. Minimum 3mm thick for multicore cables, and minimum 5mm thick for single core cables.

11.8.9.2 DOORS AND COVERS

1 Maximum width: 900mm.

2 At least 135° door swing.

3 Provide stays to outdoor board doors.

4 Space adjacent doors to allow both to open to 90° at the same time.

5 Doors exceeding 1000mm tall to have stiffening.

6 Provide sheet metal return from all casing sides, and fit suitable resilient sealing rubber doors to provide the degree of protection and prevent damage to paintwork. Seals to be housed in a suitable channel or housing and fixed with an approved industrial grade adhesive.

7 Hang doors on chromed brass lift-off hinges with stainless steel pins. Provide staggered pin lengths to achieve progressive engagement as doors are fitted. Provide 3 hinges for doors higher than 1m.

8 Doors to have chromed lever-type 'T' handles with key locking cylinders, operating a latching system with latching bar and guides strong enough to withstand explosive force resulting from fault conditions within the board (minimum

three points of latching for doors taller than 1000mm).

9 Key all assemblies alike throughout project, 2 keys per board.

10 Protect or shroud door mounted equipment and terminals to prevent inadvertent contact with live terminals and wiring.

11 Maintain earth continuity to door mounted indicating or control equipment using multi-stranded, flexible earth wire, or braid of equal cross-sectional area, bonded to the door.

12 Maximum cover dimensions: 900mm wide and 1.2m² surface area. Fix covers to frames using at least 4 fixings fitted with chromed acorn nuts or captive knurled thumb screws. Do not use interlocked covers. Fit chromed 'D' type handles.

13 Provide hinged escutcheon plates with neat cut-outs for circuit breaker handles and the like. Plate cut-outs are to allow inter-changeability of varying pole circuit breakers, and the unused circuit breaker toggle cut-outs are to be fitted with blanking in-fill pole covers. Provide plates with chromed handles or knobs, and fix with chromed acorn nuts or captive knurled thumb screws. Hinges are to allow opening through a minimum of 90° and then permit the removal of the escutcheon plate.

11.8.9.3 FACTORY FINISHES

1 Apply protective coatings to all internal and external metal surfaces of boards including covers, except to stainless steel, galvanised, electroplated, or anodised surfaces.

2 Finish coat full gloss thermoset powder coating, or two-pack liquid coating. Casing colour to be X15 electrical orange to AS 2700 unless otherwise nominated in this specification. Internal covers and escutcheons are to be white.

11.8.10 INTERNAL WIRING

1 Provide 0.6/1kV stranded copper cables, 2.5mm² (minimum) for power and 1.5mm² (minimum) for control.

2 Use V90HT insulation where directly connected to active and neutral busbars, and minimum V75 insulation elsewhere (but selected to suit the actual operating temperatures of equipment). Utilise red insulation for A phase, white for B phase and blue for C phase.

3 Size cables for the greater of the maximum continuous rating of the equipment mounted in the switchboard or to withstand the 'let-through' energy of the circuit protective device.

4 Run cables neatly. Provide slotted PVC wiring ducting sized for future cables, or tie at 150mm maximum intervals using ties strong enough to withstand magnetic stresses created at the specified fault current. Do not use adhesive supports.

5 Terminate control cables and motor control circuits in tunnel terminals or, if necessary, use suitable palm type lugs and correct crimp tool.

6 For equipment mounted on hinged doors run cables on the hinge side to avoid restricting the door opening. Bundle cables using spiral wrap PVC.

7 If available, use proprietary multi-pole busbar assemblies to link adjacent circuit breakers instead of cable interconnections.

8 Identify power and control cables at both ends using neat fitting ring type ferrules agreeing with work-as-executed circuit diagrams.

11.8.11 CONTROL SYSTEM INTERFACING

1 Provide separate blue colour terminal strips segregated in each switchboard for connection of Control System interface cabling.

2 Provide potential-free low contact resistance compatible for use with extra low voltage Control System monitoring for status and alarm conditions.

3 Do not mix Control System status information contacts and 240V circuit switching contacts on the same relay; provide additional slave relays as required for separation.

4 Provide the required number of looped terminals for common connections to ensure every field interface cable core receives individual terminals.

11.8.12 BUSBARS

1 Unless otherwise accepted, boards exceeding 250A shall be provided with proprietary copper bus bar systems in compliance with AS/NZS 3439, AS 3768, AS 3865 and AS 60890.

2 Busbar assemblies to be verified for short circuit capacity and temperature-rise limits by type tests.

3 Fully insulate the busbar system using heat shrinkable polyolefin or double dipped polyethylene. Joints and terminations to be insulated by tape of plastic coating (thickness equal to the busbar insulation). Utilise red insulation for A phase, white for B phase and blue for C phase.

4 Neutral busbars to be of an equivalent size to the phase busbars. Extend into each switchboard compartment containing outgoing connections with neutral connections.

5 Current carrying capacity: De-rate busbars in accordance with AS/NZS 3429.1 Appendix C.

6 For current transformers, provide removable busbar links < 450mm long.

7 Pre-drill the main circuit supply busbar for future extensions and extend busbar droppers into future functional unit locations. Pre-drill each dropper to suit connection of future equipment of the same type as initially installed.

8 Use high tensile steel bolts, washers and nuts, with lock nuts or locking tabs for jointing. Do not use tapped holes, star washers, studs or the like for jointing current carrying sections.

9 Support busbar assemblies sufficient to withstand without damage the maximum prospective fault currents. Use non-hydroscopic insulation capable of withstanding 105°C.

10 In order to minimise eddy currents in the board metalwork run phase and neutral bars in the same busbar chamber, penetrating metal barriers in the same hole.

11.8.13 NEUTRAL AND EARTH LINKS

1 Also, provide terminals for future circuits.

2 Mount neutral links on an insulated base.

3 Provide separate neutral and earth links for control circuits.

4 Provide labels for neutral and earth terminals.

5 Provide bolts or studs for cables > 10mm².

11.8.14 SWITCH-ISOLATOR AND COMBINATION FUSE-SWITCH UNITS

1 Totally enclosed construction to AS/NZS 3947.3.

2 Independent manual operation including positive *'ON/OFF'* indicator.

3 Provide for padlocking in the *'OFF'* position.

11.8.15 MOULDED CASE AND MINIATURE CIRCUIT BREAKERS

1 Unless otherwise accepted, use:

a	0A	< load	≤	100A	–	MCB (Miniature Circuit Breaker)
b	100A	< load	≤	1200A	–	MCCB (Moulded Case Circuit Breaker)

2 To AS 60947.2, AS 2184 for moulded case circuit breakers. To AS 60898.1, AS 3111 for miniature circuit breakers. Circuit breaker trip curves shall be selected to ensure disconnection times shall not exceed 0.4 seconds. Circuit breakers shall utilise type "C" trip curves where they achieve a disconnection time for 0.4 seconds of less.

3 Maintain sufficient clearance around to allow installation and termination of all incoming and outgoing connections, including to spare poles, without overcrowding.

11.8.16 AIR CIRCUIT BREAKERS

1 Unless otherwise accepted or specified, use for loads above 1200A.

2 To AS 60947.2, AS 1930.

3 Open construction type, withdrawable 3 pole, back connected, trip free. Mutually interchangeable. Fitted with operation counters.

4 Full discrimination utilisation category.

5 Provide trip free closing mechanisms for operational current of 6A at 240V, 50Hz. Provide at least one spare normally-open and one spare normally-closed contact. Provide shunt trip release coil circuits with an early-make/late-break series connected auxiliary contact.

6 Provide space for up to nine sets of auxiliary contacts of normally open or normally closed type.

7 Protection system integral to the circuit breaker, incorporating a solid-state protection relay.

8 Provide for circuit breakers to be padlocked in the open position.

9 Provide breakers which cannot be used in the following operations:

a Slow closing or opening of contacts.

b Manual independent hand closure, if springs fail.

c Release of charged springs while contacts are closed.

10 Mount circuit breaker on a withdrawable carriage with racking gear for racking in or withdrawing, and for positively fixing the unit into any of the 3 following positions:

a Connected.

b Test/isolated.

c Disconnected.

11 Alternately provide a portable trolley and lowering device to withdraw and move the circuit breaker.

12 Auxiliary contacts: Use contacts that remain connected in the test/isolated position.

13 Provide interlocking which prevents circuit breaker being racked in or withdrawn unless it is in a tripped condition and prevents the circuit breaker being closed unless located in either the connected or test/isolated position. Provide stored energy devices that are automatically discharged by any racking operation.

14 Provide automatic shutters, which can be padlocked, covering busbar and incoming/outgoing circuit connections and labelled ‘BUSBARS’ and ‘CIRCUIT’ respectively.

15 Provide earthing connection between withdrawable carriage and board earth busbar that makes before, and breaks after, other contacts on the circuit breaker carriage.

16 Submit type test certificates verifying type tests in accordance with AS 1930.

17 Provide for slow closing of the circuit breaker and for adjustment when disconnected.

11.8.17 INSTRUMENTS AND METERS

1 Hours run meters: Minimum 6 figure linear read out down to 0.1 hour increments.

2 Watthour Meters: Electronic type. If metering is connected across 3 phases, use polyphase meters suitable for balanced 3 phase, 4 wire loads. Use single phase meters for 2 or 1 phase metering only.

11.8.18 INDICATOR LIGHTS

1 To AS 60947.5.1.

2 Lights to be coloured as follows:

- a Green – Safe, may mean ‘run’ in certain conditions.
- b Red – Fault, Dangerous.
- c Amber – Change in condition, e.g. Fire Alarm.
- d Blue – Designated function, e.g. Economy Cycle Operating.
- e White – Special Designation if required.

3 Degree of protection at least that of the board.

4 Incandescent indicators shall not be accepted.

5 Neon indicators 240V, minimum 12mm diameter with in-built resistor.

6 Multiple LED cluster type with corrosion-resistant bezel minimum 16mm diameter.

7 Provide a common press-to-test lamp push-button per compartment/ subsection.

11.8.19 FUSES

1 To AS/NZS 60269.2.1 and AS/NZS 60269.4.0.

2 Fuses to be used for extra low voltage power supply protection only. Circuit breakers to be used for all other protection applications.

3 Mount fuse-holders so that fuse carriers may be withdrawn directly out of the assembly and away from all live parts. Fuse holders to include insulation which shrouds live metal when the fuse carrier is withdrawn.

11.8.20 CONTACTORS

1 To AS 60947.4.1, Type 2 coordination.

2 Block type, air break, electro-magnetic, 3 pole, rated to full load current of the controlled load + 25%, but not less than 16A.

3 Rated duty:

a Motors: Intermittent class 0.1.

b Heater banks: Intermittent class 1.

4 Utilisation category:

a Motors: AC-3 or DC-3.

b Heater banks: AC-1 or DC-1.

5 Contacts life: 1 million operations at AC-3 or DC-3.

6 Provide auxiliary contacts, utilisation category AC-1, with at least one normally-open and one normally-closed separate contacts with minimum rating of 6A at 240 V AC.

7 Mount with sufficient clearance to allow full access for maintenance, removal and replacement of coils and contacts, without the need to disconnect wiring or to remove other equipment.

11.8.21 CONTROL AND TEST SWITCHES

1 To AS 60947.1, and AS 60947.5.1, utilisation category AC-22.

2 At least equal the degree of protection for the board.

3 Push-buttons:

a Type: Oil-tight, minimum 22mm diameter, or 22 x 22mm.

b Rated operational current: At least 4A at 240V AC.

c Marking: identify functions of each push-button. For latched push-buttons, label with instructions for releasing latches.

4 Rotary Switches:

a General: Cam operated type with switch positions arranged with displacement of about 60°.

b Off position: Locate at the 12 o'clock position.

c Rated operational current: Minimum 6A 240V AC.

5 Time Switches:

a Operation: 7 day fully programmable including day omit, daylight saving and manual override facilities.

b Mains failure operation: By battery with 100-hour minimum operating capacity and guaranteed 10-year minimum life.

c Construction: Provide readily accessible means of adjustment. Provide operational settings that are clearly visible when switch cover is fitted.

d Digital type with hour and minute display visible with time switch cover closed.

11.8.22 CONTROL RELAYS

1 To AS 60947.5.1.

2 Suitable for continuous operation with minimum mechanical life of 10 million operations.

3 Latch plug-in types to DIN rail mounted bases using captive clips that can be applied and released without using tools.

4 Pneumatic relays shall not be accepted.

11.8.23 SURGE PROTECTION

1 Supply and install a surge diverter on the incoming supply of each mechanical services switchboard with a mains isolator rated at 100 amps and greater.

2 The maximum continuous operating voltage, Uc, shall be at least 275V between phase and neutral.

3 The maximum surge current, Imax, shall be at least 50kA for an 8/20µs waveform current impulse.

4 The nominal surge current, In, shall be at least 20kA for an 8/20µs waveform current impulse.

5 The voltage protection level, Up, shall be less than 850V at 3kA 8/20 µs waveform current impulse

6 It shall be provided with visual indication and voltage free contacts to indicate alarms. The voltage free-changeover contacts shall have no less than 3kV isolation from all other circuitry.

7 The surge diverter shall provide protection for all modes (L-N, L-E and N-E). A single metal oxide varistor (MOV) shall be connected between each phase and neutral, and a gas discharge tube (GDT) shall be connected between neutral and earth. A fuse shall be connected in series with each MOV.

8 The surge diverter shall comprise a thermal sensor for each phase that detects if the MOV overheats, but does not disconnect the MOV from circuit.

9 The surge diverter shall be housed in a metal enclosure.

10 Connect the surge diverter to busbars immediately downstream of the incoming isolator.

11 Use multistrand copper conductor of 10mm^2 minimum cross-sectional area.

12 Protect the surge diverter with a 32 amp 3 pole circuit breakers.

13 Provide a monitoring relay and a red panel lamp with integral lamp test facility to illuminate when the alarm contact in the surge diverter has operated.

14 Arrange mounting and cabling to minimise conductor lengths between surge diverters and busbars.

15 Locate in a readily accessible position for replacement purposes.

11.8.24 ANTI-CONDENSATION HEATERS

1 For outdoor switchboards, provide heaters rated at not less than 20W/m² of total external area.

2 Black heat type, mechanically protected and thermostatically controlled.

11.8.25 GENERAL PURPOSE SOCKET OUTLETS

1 Provide all socket outlets mounted on switchboards with RCD.

2 All GPOs to be minimum IP54.

11.9 MOTOR STARTERS

11.9.1 SELECTION

1 Motor starters to be:

- **a** Direct on Line (DOL).

b Multi-speed.

c Star-Delta closed transition.

11.9.2 MINIMUM RATED VALUES

1 Rated operational current: The full load current of the load controlled.

2 Rated duty: Intermittent class 12.

3 Utilisation category: AC-3.

11.9.3 DIRECT-ON-LINE STARTERS

1 To AS 60947.4.1.

2 Type: Direct-switching electromagnetic contactor.

3 Overload protection: Thermal overload unit giving protection in each phase of supply.

11.9.4 MULTI-SPEED STARTERS

1 Comply with **Direct-on-line starters** and the following:

a Interlocked so that only a single speed can be selected.

b Time delay relay with nominal 0-30s adjustable time delay.

c Separate thermal overload protection for each speed configuration.

11.9.5 STAR-DELTA STARTERS

1 To AS 60947.4.1.

2 Provide electromagnetically operated starter assembly incorporating the following:

a Closed transition type.

b Adjustable time delay relay (nominal 0-30sec) for the star to delta switching contactors.

11.10 VARIABLE SPEED DRIVES

11.10.1 GENERAL

1 Microprocessor controlled solid state continuously rated electronic drives to control standard 3 phase fan and pump motors by stepless variation of voltage and frequency output without any motor derating or motor temperature rise above Class B.

2 Drives to be specifically engineered for mechanical services operation with built-in subroutines for at least fans and pumps, such as Vacon 100 HVAC, ABB ACH550 and Danfoss VLT HVAC FC101. Alternatives may be offered for consideration but shall not necessarily be accepted.

ITEM	BASIC VSD	AVAILABLE WITH VACON 100 HVAC	AVAILABLE WITH ABB ACH550	AVAILABLE WITH DANFOSS VLT FC 101	AVAILABLE WITH DANFOSS VLT FC102
Digital inputs	4	6	6	4	6
Outputs	1 analog 2 relay	1 analog 3 relay Also many additional option boards	2 (programmable as analogue or digital) 3 relay (option board can expand to 6)	2 (programmable as analogue or digital) 2 relay	1 analogue and 2 digital 2 relay Also many additional option boards
Casing, protection	Mostly plastic, IP 54	Mostly plastic, IP 21, IP 54, IP 66	Mostly plastic, IP 54	Mostly plastic, IP 54	Mostly metal, IP 21,IP 55, IP 66
LED display	2 lines/ variables	Multi lines, up to 9 variables on display	4 lines	2 lines/ variables	4 lines/ 5 variables
Additional communication protocols available	N/A	LON Works Ethernet	Siemens FLN Option boards for LON Works, Profibus, Device Net, Ethernet	Siemens FLN	LON Works, Ethernet, Profibus, Device Net Siemens FLN
EMC RFI filters [Class B/Category C1 may possibly be needed for IT centres, a few hospitals, etc.]	Class A1 (Category C2) minimum 50-metres	Class A1 (Category C2) minimum 100-metres	Class A1 (Category C2) minimum 75-metres	Class A1 (Category C2) up to 50-metres Class B (Category C1) up to 10-metres	Class A1 (Category C2) up to 150-metres Class B (Category C1) up to 50-metres

3 Complete technical engineering service and spare parts facility available locally, with service and reinstatement of the drive to full working conditions within 24 hours following a failure.

Drives suitable for continuous operation at full load in an ambient temperature of not less than 47°C, and at reduced load in temperatures not less than 55°C.

1 Provide self-contained fully integrated minimum IP54 rated enclosures with forced draft ventilation (no ambient airflow across the electronics).

2 Drives installed outdoors are to be protected from direct sunlight, direct rain and over temperatures with ancillary ventilated enclosures.

3 In-built filters are to ensure the individual VSD harmonic emissions comply with AS 61000.1.1, AS 61000-3-12 and AS 61800.3.

4 In addition, the total mains borne harmonic distortion generated by all drives is to be less than the value prescribed by the electricity supply distributor (8%). The VSD supplier shall be responsible for this overall analysis, and provide additional filtering if needed to comply.

5 Drives to be C-Tick certified in accordance with the Australian Communications Authority regulations, and CE certified in accordance with the European Union EMC Directive legislation.

6 In-built Electromagnetic Compatibility (EMC) Radio Frequency Interference (RFI) filters are to limit the interferences generated by drives to not exceed that prescribed by AS 61800.3 Category C2 (equivalent to EN 55011 Class A1) with at least 50 metres of motor cable.

7 The drives must include at least the following built-in features:

a Serial communications link for RS-485.

b BACnet, Modbus and Metasys N2 high level communication protocols.

c Capability for operation with a remote-control panel (allowing relocation of 3 metres).

8 The drives shall have the following minimum specifications for the output:

a Frequency: 0 to 320Hz minimum.

b Switching Frequency: up to minimum 10kHz.

c Efficiency: Minimum 97.5% (full load, 50Hz).

9 All drives are to be located as close as possible to the motors being driven.

10 The drive supplier or a trained representative to attend site to properly set up and adjust the drives at time of commissioning to ensure optimum performance and ongoing trouble free operation, and to clearly document all internal set points for speed, ramp times, etc. following final adjustment.

11 Installation of the drives and cabling to motors from them to be strictly in accordance with the manufacturer's recommendations as a minimum. Provide a manufacturer's installation acceptance certification for all variable speed drives, including the complete VSD and motor power and control cabling systems.

11.10.2 RATING AND STABILITY

1 Select each drive on maximum motor full load 'nameplate 'amps and not on motor kW rating.

2 Output voltage and frequency levels to remain constant at any given speed setting when supply voltage varies by not more than +/- 15%.

3 The output frequency to remain constant regardless of load variations or supply frequency variation of - 5%, + 15%. Output frequency to remain stable throughout the ambient temperature range of 0°C to 50°C.

11.10.3 COMPONENTS AND FUNCTIONS

1 Protect each drive with suitably rated high speed fuses or circuit breaker on the input side.

2 Speed control to be stepless varying both voltage and frequency. Frequency control via pulse width modulation generating a clean sine wave with an operating power factor of 0.96 or better throughout the entire speed range.

3 Motor audible noise shall be no greater than that of an equivalent DOL starter.

4 Drive to include at least:

a Two programmable analogue inputs.

b Four programmable digital inputs.

c One programmable analogue outputs.

d Two relay outputs.

5 The drive to accept at least one selectable switched input to override the speed control signal and run at fixed manually set speeds.

6 At least one input programmable for fire mode operation when in-built safety systems are bypassed as per AS 1668.1, and the drive either runs at a set speed or at varying speed.

7 Include at least two on-board independent PI/PID control loops.

11.10.4 SAFETY PROTECTION DEVICES

1 Provide the following safety protection features as a minimum requirement, allowing the drive to shut down without component damage.

- **a** Adjustable torque limit.
- **b** Adjustable overcurrent limit.
- **c** Shut down drive on sustained power loss, and upon return of power automatically return the system to normal operation within a short period of time. The number of automatic fault resets and restart attempts and the time inferred between these restart attempts is to be agreed prior to commissioning.
- **d** Shut down the drive on momentary power loss, and upon return of power automatically return the system to normal operation i.e. being capable of restarting a rotating motor immediately and regain positive speed control).

2 The following safety devices are also required, but may be bypassed in Fire Mode.

- **a** On short circuit or instantaneous overcurrent shut down the drive.
- **b** Shut down the drive on phase to earth short circuit protection fault.
- **c** Under and over voltage trip.
- **d** Shut down the drive when the operating temperature exceeds safe operating limits.
- **e** Motor overloads (and thermistor protection where applicable) to be provided within the drive to protect the motor and drive at all operating speeds. The drive shall accept a PTC thermistor input directly (i.e. without any additional 'thermistor relay' or such).

11.10.5 SPEED CONTROL SIGNALS AND STATUS INDICATIONS

1 Control the output from an input signal derived from DDC or an electronic controller.

2 Provide internal manual adjustment allowing presetting of maximum and minimum speeds with the limits maintained regardless of the input signal.

3 Include an 'auto-off-manual 'function and manual speed adjustment shall be possible via the keyboard integral with the drive to allow testing and commissioning of the unit. Provide indication on the BMS for local auto/off/manual status. Lock out the automatic speed control signal in the manual mode.

4 Provide status indication light emitting diodes and an LCD display on the control panel with plain English display for the safety, protection and operating controls specified. In addition, indication for power on, speed and drive enabled shall be provided. Display to be programmable for at least two simultaneous variables including current, power, speed, power consumption and output frequency. Coded messages are not acceptable.

11.11 MOTOR PROTECTION

11.11.1 GENERAL

1 Provide over-current protection as part of the equipment assembly for each motor starter and variable speed drive.

2 Overload and thermistor protection is not required for dedicated fire or smoke control equipment, or is to be overridden in the case of dual function drives when operating under fire condition.

11.11.2 THERMAL OVERLOAD PROTECTION RELAYS

1 To be provided for all motors except for dedicated fire or smoke control equipment.

2 Standard: To AS 60947.4.1, utilisation category AC-11.

3 For 3 phase operation provide triple pole relays with differential trip bar operation for single phase protection, and ambient temperature compensation. Provide the following:

- **a** One normally-open and one normally-closed set of auxiliary contacts with minimum operational current of 4A at 240 V AC.
- **b** Thermal overloads connected directly to contactor using proprietary links, except where operated separately by current transformers.

4 Reset: Manual.

11.11.3 THERMISTOR PROTECTION RELAYS

1 To be provided for all motors equal to or greater than 11kW.

2 To AS 60947.8.

3 Provide at least one normally-open and one normally-closed set of contacts rated at the starter control circuit voltage and minimum 4A. Connect contacts to open the starter at the setting temperature.

4 Utilisation category: AC-11.

5 Automatic reset following power failure.

6 Manual reset to restore the motor circuit when tripped due to excessive winding temperature, thermistor failure, or failure of other controls system components.

7 Light emitting diode indication required on the thermistor control unit to indicate that the circuit is in normal operating mode.

11.11.4 ELECTRONIC MOTOR PROTECTION RELAYS

1 To be provided for all motors serving as chiller drives:

- **a** Standard: AS 60947.4.1.
- **b** Single phasing and phase sequence protection.
- **c** Thermal overload protection.
- **d** Loss of load protection.
- **e** Excessive motor run-up and stall protection.
- **f** Earth fault protection.
- **g** Adjustable settings of protection parameters.
- **h** LED indication of fault conditions.
- **i** Manual reset.
- **j** Minimum one normally-open and one normally-closed set of auxiliary contacts with minimum current rating of 4A at 240V AC.
- **k** Facilities for relay testing.

11.12 LABELLING

1 Provide labels including control and circuit equipment ratings, functional units, notices for operational and maintenance personnel, incoming and outgoing circuit rating, sizes and origin of supply and kW ratings of motor starters.

2 Provide labels fixed to access panels, doors, covers and escutcheon panels and internal equipment, indicating the relevant section and component.

3 Minimum Lettering Heights:

- **a** Custom board designation: 25mm.
- **b** Small proprietary boards: 10mm.
- **c** Main switches: 10mm.
- **d** Outgoing functional units: 8mm.
- **e** Identifying labels (on outside of cabinet rear covers): 4mm.
- **f** Danger, warning and caution notices: 10mm for main heading, 5mm for remainder.
- **g** Other labels including equipment labels within cabinets: 6mm.

4 Label Colours:

- **a** Generally: Black lettering on white background.
- **b** Main switch and caution labels: Red lettering on white background.
- **c** Danger, warning labels: White lettering on red background.

5 Fix labels securely using one of the following:

- **a** Screws and double-sided adhesive.
- **b** Fixed in extruded aluminium sections fixed to panels using rivets or countersunk screws.

6 Provide warning notices stating if boards may be energised from the stand-by supply at any time.

7 To prevent accidental switching off, provide caution notices for anti-condensation heaters.

8 Identify wiring with numbered ferrules at both ends.

9 Number each terminal of terminal strips – numbering system to match electrical and control shop drawings.

11.13 AS BUILT DIAGRAMS

1 Single line diagrams non-fading print, at least A3 size, showing the as-installed situation.

2 Enclose in a non-reflective glazed metal frame and wall mount close to board.

11.14 COMPLETION

11.14.1 SPARES

1 Provide one set of racking tools for circuit breakers, and special installation, operation and servicing tools.

2 For each 10 indicating lights, provide 2 spare lamps (at least one of each colour) and one lamp extractor. Locate in switchboard.

3 Provide 2 spare fuse links for each rating of fuse link on each board, mounted on clips within the board.

11.14.2 COMPLETION TESTS

1 AS 3439 routine tests, both at factory and prior to practical completion.

2 Physical inspection of finish, materials, layout and clearances of board and equipment, both at factory and prior to practical completion.

3 Physical inspection of supports and structure to ensure consistency with type-test reports, both at factory and prior to practical completion.

4 Operational test of doors, covers and escutcheons, both at factory and prior to practical completion.

5 High impedance testing, both at factory and prior to practical completion.

6 Earth system continuity, both at factory and prior to practical completion.

7 High-potential test, both at factory and prior to practical completion.

8 Functional tests of all switchgear, both at factory and prior to practical completion. Provide simulated loads and inputs as necessary. Test circuit breakers for long time, short time, instantaneous and earth fault operation.

9 Functional tests, both at factory and prior to practical completion, of all control equipment and protection devices by means of simulated inputs, secondary current injection testing or manufacturers calibrated test kits. Protection devices include, but are not limited to, protection relays, motor overloads, etc.

10 Check, both at factory and prior to practical completion, of all power and control termination for suitability and effectiveness.

11 In addition, prior to practical completion:

12 Meter and transducer accuracy test.

13 Resistance test of busbar and cable terminations.

14 Adjustment of overcurrent and earth fault protection settings.

15 Balance the load over all phases when the building is occupied at Practical Completion. Rebalance again at the end of the Defects Liability Period.

16 Provide documented evidence of tests including test reports and test instrument printouts. Locate one copy within the maintenance manuals.

17 Colour thermographic tests during the warranty period on mechanical switchboards during normal operating loads, and add copies of the report to the maintenance manuals.

11.15 REFRIGERANT PLANT POWER SUPPLY ARRANGEMENTS

11.15.1 CENTRIFUGAL COMPRESSOR

1 Provide the compressor package with two independent 3 phase supplies. One to supply the control panel and ancillaries, e.g. oil heater and oil pump starter. The second is to supply the starter switchgear for the compressor motor.

2 Provide shunt trip circuitry to detect main compressor contactor weld-in on 1 or more phases and arranged to interrupt the circuit breaker protection supply. Provide remote alarm contacts.

11.15.2 NON-CENTRIFUGAL COMPRESSORS

1 Where packaged control panel incorporates compressor motor starters, provide a power supply from the main mechanical plantroom switchboard for the compressors' motor starters and a separate supply for the controls panel.

2 Where the proprietary control panel does not incorporate motor starters, provide separate power supplies from the main plantroom switchboard for each compressor drive and purpose built starter panel, and a separate supply for the controls panel.

11.15.3 INTERLOCKING OF POWER SUPPLIES FOR CHILLERS

1 Provide electrical interlocks to all compressors to prevent starting of the compressor motor without operation of all control safeties, signals and ancillaries.

11.16 GREEN STAR REQUIREMENTS

The following additional requirements are to be met.

1 All painted surfaces to use low VOC paints (refer to Painting and Identification section for further details).

2 PVC use in the project is to be minimised. Conduits shall be polyethylene or steel. Cables shall not use PVC insulation.

12 CONTROL SYSTEMS

12.1 GENERAL

12.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, materials, components, general installation and testing of the Mechanical Services control systems.

2 Control systems shall be complete with all items necessary for their safe, reliable and efficient testing, commissioning, operation and maintenance.

12.2 DESIGN

12.2.1 GENERAL

Complete the detail design and engineering of the control systems to the specified requirements.

12.2.2 AUTHORITY STANDARDS AND CODES

Comply with applicable authority design guidelines and codes of practice and requirements:

12.3 SUBMISSIONS

1 Functional Descriptions

2 Hardware data sheets

3 Configuration schematics

4 Long term maintenance proposal

5 Owner/user/operator Training schedule

12.4 GENERAL REQUIREMENTS

1 Supply, design, installation and commissioning by specialist trades competent in this type of work with local support for ongoing maintenance and back-up for components offered.

2 This specification has been prepared to indicate ‘intent’ of systems operation and peripheral equipment deemed to be required. It is not intended to unduly restrict suppliers from offering their components.

3 Use Direct Digital Control systems.

4 Electronic controls throughout.

5 Use supplementary electric and electronic systems to fulfil operational requirements.

6 Use common brand and supplier throughout.

7 Offer deviations from specified intent only as an option.

8 System level availability shall exceed 99.8% per annum.

9 System shall facilitate periodic testing, monitoring and maintenance.

10 System shall be capable of continuous operation and self-initiation after shutdown.

11 System shall comply with the Real Utilities brief.

12.4.1 DEFINITIONS

1 Building Managmeent System (BMS). The complete facility control system comprised of mechanical system automation, security control, lighting control, automatic temperature control, etc., as defined in the contract documents. The BMS is comprised of a two-tier network structure. The first tier uses Ethernet, TCP/IP protocol in a 10 Base T wiring configuration. The second tier uses proprietary protocol for distributed control processing. The BMS also includes routers, gateways, bridges, the Central Control Unit, LAN wiring, raceways, etc. The BMS shall be utilised to control common area equipment only. The BMS shall be accessible via a web based platform and a smart device application.

2 VRF proprietary controls system: The complete facility control system comprised of mechanical system automation for the residential apartment systems only.

3 Control Unit (CU): Control product that incorporates solid state components to perform multiple control loops or functions.

4 Control Wiring: Includes conduit, wire and wiring devices to install complete control systems including motor control circuits, interlocks, thermostats, EP and IP switches and like devices. Includes all wiring from Intelligent Devices and Controllers to all sensors and points required to execute the sequence of operation.

5 Distributed Control: A system whereby control processing is decentralised and independent of a central computer.

6 Intelligent Devices (IDs): Control products that incorporate solid state components to perform a single dedicated control loop or function (ex: actuators, sensors, switches).

7 Graphic User Interface (GUI): A graphical, object oriented method by which an operator is capable of communicating with the control system. Graphic User interfacing allows the operator to manage, command, monitor, and program the system.

8 Network: A system of distributed control units that are linked together on a communication bus. A network allows sharing of point information between all control units. Additionally, a network provides central monitoring and control of the entire system from any distributed control unit location.

9 Operator Interface Terminal: A GUI device (PC, laptop or dumb display terminal) which incorporates the Network Services Interface (NSI), Application Program Interface (API) for remote network client services. The operator interface terminal plugs into any Intelligent device or controller via RJ-11 or RJ-45 connectors.

10 Supervisory Control Unit (SCU): A controller that incorporates network services host API to perform localised network management and network access services over a group of channel(s). Supervises groups of intelligent devices and Control Units to perform a global sequence of operation.

12.4.2 EXTENT OF WORK

1 The digital control and monitoring system is to include but not limited by the following extent of work:

   a Control Equipment.

   b Graphic User Interfaces.

- **c** Control System Equipment.
- **d** Installation.
- **e** Operation.
- **f** Testing.
- **g** Maintenance.
- **h** Training.
- **i** Documentation.
- **j** BMS Functions.
- **k** Mechanical Services:
- **l** Fire Mode Control System (FMC).

12.4.3 WORKS COVERED BY OTHER SECTIONS OF THIS SPECIFICATION

1. Mechanical Services electrical switchboards including items on each switchboard for each item of plant equipment:
   - **a** Auto/Off/Test switch.
   - **b** Green and red indication lights – as per AS 60947.5.1 and Section 9 of this specification.
   - **c** Lead/Lag/Remote Control switch for standby/duty equipment.
   - **d** Hours run meters.
   - **e** Green (open) and amber (close) for each smoke zone control motorised damper.
2. Other Switchboard items include:
   - **a** Amber fire alarm indication lights.
   - **b** Blue economy cycle lights.
   - **c** Ammeter.
3. kWh meters' installation for energy recording and trading.
4. Integral controls for equipment excluding thermostats and interface to the control system where applicable.
5. Local indicating devices including annubars, pressure gauge, temperature gauge etc.
6. All 240 Volt power cabling from mechanical electrical switchboards to motors, actuators, heaters etc.
7. Motor speed drives and controllers.

12.5 FUNCTIONAL DESCRIPTION

12.5.1 PROPRIETARY VRF CONTROLS SYSTEM

RESIDENTIAL AIR CONDITIONING SYSTEM

The apartment air conditioning systems shall be enabled/disabled by the manufacturer's proprietary wall mounted control panel. The FCU located in the living room shall can operate in day/night mode i.e. during day, it is designed such that the system shall cool/heat the living room and at night, it is designed such that the system shall cool/heat the bedrooms.

As such, the residential apartment fan coil units shall operate under six modes:

- 'Day time cooling' mode;
- 'Day time heating' mode;
- 'Night time cooling' mode;
- 'Night time heating' mode; or
- Off; or
- Fire mode

Activation of each mode shall be user enabled via the wall mounted control panel in the apartments.

The controls system requires to be configured such that it is able to be connected and utilised with a Google Home automation system in the future.

'Day time cooling' mode

Upon activation of 'day time cooling' mode:

- The air conditioning system shall be enabled by the proprietary wall mounted controller and its operation shall be controlled based on the living area zone temperature.
- The FCU shall only supply air into the living room. The motorised damper serving the living room shall be open. The motorised damper serving the bedroom/s shall be closed. For apartments that are achieving a day/night arrangement by means of controls, the fan coil unit serving the living room shall operate and the fan coil units serving the bedrooms shall cease operation.
- The fan speed shall remain constant.

'Day time heating' mode

Upon activation of 'day time heating' mode:

- The air conditioning system shall operate in reverse cycle, shall be enabled by the proprietary primary wall mounted controller and its operation shall be controlled based on the living area zone temperature.
- The FCU shall only supply air into the living room. The motorised damper serving the living room shall be open. The motorised damper serving the bedroom/s shall be closed. For apartments that are achieving a day/night arrangement by means of controls, the fan coil unit serving the living room shall operate and the fan coil units serving the bedrooms shall cease operation.
- The fan speed shall remain constant.

'Night time cooling' mode

Upon activation of 'night time cooling' mode:

- The air conditioning system shall be enabled by the proprietary primary wall mounted controller and its operation shall be controlled based on the bedroom/s zone temperature.
- The FCU shall only supply air into the bedroom/s. The motorised damper serving the bedroom/s shall be open. The motorised damper serving the living room shall be closed. For apartments that are achieving a day/night arrangement by means of controls, the fan coil unit serving the bedrooms shall operate and the fan coil units serving the living room shall cease operation.
- The fan speed shall remain constant.

'Night time heating' mode

Upon activation of ‘night time heating’ mode:

- The air conditioning system shall operate in reverse cycle, shall be enabled by the proprietary primary wall mounted controller and its operation shall be controlled based on the bedroom/s zone temperature.
- The FCU shall only supply air into the bedroom/s. The motorised damper serving the bedroom/s shall be open. The motorised damper serving the living room shall be closed. For apartments that are achieving a day/night arrangement by means of controls, the fan coil unit serving the bedrooms shall operate and the fan coil units serving the living room shall cease operation.
- The fan speed shall remain constant.

‘Off’ mode

Upon activation of ‘off’ mode:

- The air conditioning system shall be disabled by the proprietary primary wall mounted controller.
- The fan shall disable.

Fire mode

During fire mode, the individual air conditioning system operation in the apartments shall remain unchanged in line with the requirements of AS1668.1, i.e. the operation of any unit shall be unaffected by fire trip signal from FFCP.

RESIDENTIAL EXHAUST SYSTEM

TOILET/LAUNDRY EXHAUST

The residential apartment toilet and laundry exhaust air fan shall be enabled to run whenever:

- Any toilet or laundry light switch is in the ‘on’ position; or
- The clothes washer is in operation; or
- The clothes dryer is in operation.

Where multiple fans are utilised within a residential apartment, the above-mentioned conditions only apply to toilet / laundry areas being served by that fan.

The residential apartment toilet and laundry exhaust air fan shall run at constant speed.

The residential apartment toilet and laundry exhaust air fan shall be disabled whenever:

- Any toilet light switch is in the ‘off’ position with a run-on timer of 10 minutes (adjustable); and
- Any laundry light switch is in the ‘off’ position with a run-on timer of 10 minutes (adjustable); and
- The clothes washer has been disabled with a run-on timer of 10 minutes (adjustable); and
- The clothes dryer has been disabled with a run-on timer of 10 minutes (adjustable).

DOMESTIC KITCHEN EXHAUST

The domestic kitchen exhaust air fan shall be enabled to run when the domestic kitchen range hood is operational.

The domestic kitchen exhaust air fan shall run at constant speed.

12.5.2 BUILDING MANAGEMENT SYSTEM

12.5.2.1 MECHANICAL SERVICES

WEATHER STATION

Indicative BMS control points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- Ambient dry bulb air temperature
- Ambient air humidity
- Ambient wet bulb temperature

Monitor and alarm

- N/A

COMMON AREA AIR CONDITIONING SYSTEMS

The air conditioning system serving the common areas shall be enabled/disabled by BMS, based on a time schedule of 6am to 8pm (adjustable). The FCU operation shall be controlled by its own proprietary control system.

Fan coil unit operation shall be controlled based on the bedroom/s zone temperature.

The fan speed shall remain constant.

During fire mode operation, the air conditioning system shall be disabled upon receipt of a fire trip signal in line with AS1668.1.

Indicative BMS control points

At minimum, the following points shall be included within the BMS:

Command and control

- Enable/disable

Monitor only

- Fan coil unit status
- Zone temperature
- Supply air temperature
- Mode of operation (cooling / heating)

Monitor and alarm

- General fan coil unit alarm.
- Dirty filter alarm

VENTILATION SYSTEMS SERVING COMMON AREAS

WASTE ROOM

The residential waste room exhaust air system shall operate continuously, 24 hours per day / 7 days per week to meet design air flow rates.

Indicative BMS control points

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Command and control

- Fan enable/disable

Monitor only

- Fan status

Monitor and alarm

- General fan fault

BIKE STORAGE

The bike storage room outside air and exhaust air systems shall operate continuously, 24 hours per day / 7 days per week to meet design air flow rates.

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Indicative BMS control points

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Command and control

- Fan enable/disable

Monitor only

- Fan status

Monitor and alarm

- General fan fault

FIRE PUMP ROOM

The fire pump room exhaust air system shall only be enabled by a fire trip signal. Once enabled, it shall operate at full speed until manually disabled from FFCP.

Indicative BMS control points

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Command and control

- Fan enable/disable

Monitor only

- Fan status

Monitor and alarm

- General fan fault

MAIN SWITCH ROOM

The main switch room outside air system operation shall be enabled by the zone temperature. If the room temperature rises above 30°C (adjustable), the fan shall be enabled and shall operate at full speed until the internal temperature drops below the set point.

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Indicative BMS control points

During fire mode, the fan shall operate in line with the requirements of AS1668.1.

Command and control

- Fan enable/disable

Monitor only

- Fan status

Monitor and alarm

- General fan fault

CAR PARK VENTILATION SYSTEM

The car park exhaust and car park supply air systems shall operate continuously, 24 hours per day / 7 days per week.

Controls shall be in accordance with AS1668.2 (2012). Each car park fan speed shall be proportionally modulated by its VSD in line with the Carbon Monoxide (CO) sensor readings located throughout in that respective level.

Upon any sensor failures, the fans shall operate at 100% speed.

During fire mode, the fans shall operate in line with the requirements of AS1668.1.

Indicative BMS control points

At minimum, the following points shall be included within the BMS:

Command and control

- Fan enable/disable
- Fan speed

Monitor only

- Fan status
- Fan speed
- CO concentration levels throughout car park

Monitor and alarm

- High CO level, i.e., any one CO sensor reaches a predetermined CO limit of 100ppm (adj.)
- General fan VSD fault
- CO sensor failures

STAIR PRESSURISATION AND STAIR PRESSURISATION RELIEF AIR SYSTEMS

The stair pressurisation and stair pressurisation relief air systems shall only operate upon receipt of fire trip signal. Should this occur, all stair pressurisation and relief air fans shall be enabled until manually overridden and reset from the FFCP. The stair pressurisation relief fan shall be commissioned in conjunction with the stair pressurisation systems to meet the performance requirements of

AS1668.1 (2015), noting that multiple fans may be required to operate to achieve the velocities and door forces noted within the standard (to be determined during the commissioning process).

The motorised dampers on the fire affected floor and the floor above shall be open while all other motorised smoke dampers to the relief air shaft shall close.

Indicative BMS control points

Command and control

- Enable/disable
- Motorised smoke dampers on each floor

Monitor only

- Fan status
- Fan speed
- Differential pressure within the stair

Monitor and alarm

- General fan VSD fault

12.5.2.2 ELECTRICAL SERVICES

12.5.3 EMERGENCY LIGHTING SYSTEM

Indicative BMS points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- Status

Monitor and alarm

- N/A

12.5.4 METERING

Indicative BMS points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- Electricity metering throughout. This includes utility meters, sub-meters and equipment meters as detailed within the electrical package of works (voltage, current, phase angles, apparent power, reactive power, real power, etc).

- Power provided by the photovoltaic system and associated battery storage systems (voltage, current, phase angles, apparent power, reactive power, real power utilised and provided to the grid, etc).
- Power factor correction.

Monitor and alarm

- N/A

12.5.5 UPS

Indicative BMS points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- Status
- State of charge (%)
- Power quality
- Run time remaining
- Battery voltage
- Battery internal temperature and humidity
- Voltage, current and power values for the UPS check meter

Monitor and alarm

- General alarm

12.6 FIRE PROTECTION SERVICES

12.6.1 FIRE TANK

Indicative BMS points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- N/A

Monitor and alarm

- Low water level

12.6.2 FIRE INDICATOR PANEL

The fire indicator panel shall provide a communications link with the BMS in compliance with AS1668 and AS1670 requirements.

12.7 VERTICAL TRANSPORTATION SERVICES

12.7.1 LIFTS

Indicative BMS points

At minimum, the following points shall be included within the BMS:

Command and control

- N/A

Monitor only

- Status

Monitor and alarm

- General alarm
- Lift 'Out of Service'.
- Lift machine area over temperature alarm.
- Lift failed to start alarm.

12.7.2 TEMPERATURE SENSORS

1 Provide temperature sensors of the bulb or thermistor type with ranges selected to suit the particular application.

2 House sensors so that access to terminal strips and cabling can only be achieved by removal of a cover.

3 Supply duct sensors of the averaging type with capillary adequately supported to prevent sagging.

4 Mount sensors such that effects of radiation from heating elements are minimised.

5 Provide insertion sensors complete with stainless steel wells.

6 Supply wells to the Pipework Works Package for fitting into pipes.

7 Mount sensors to ensure a rapid response to changing temperature (of the sensed medium) is achieved.

8 Nominate the location of all sensors to the Pipework Works Package.

9 Achieve calibration of sensors (to compensate for non-linear characteristics, line resistance and similar items) in the control unit programme.

10 When used in conjunction with the control system or a separate control unit, the accuracy of the temperature sensors displayed value is ±0.1K.

12.7.3 STATIC AND DIFFERENTIAL PRESSURE SENSORS (AIR)

1 Provide static pressure sensors of the differential pressure type.

2 Sensor range (span) to be adjustable.

3 Accuracy of sensor including controller to be ±2% of span.

4 Sensors to be capable of withstanding a total pressure differential of 1000 Pa.

12.7.4 ELECTRONIC CONTROLLER MODULES

1 Accept a signal from the associated electronic sensor and provide an analogue output to controlled items.

2 Incorporate an adjustable authority setting in dual input controllers.

3 Use proportional plus integral (P & I) controllers for static pressure control, chilled and heating water flow control and supply air temperature control.

4 P & I controller to incorporate an adjustable reset time.

5 Outputs to be compatible with the controlled item.

6 Control output accuracy ±1% of output span.

12.7.5 ROOM THERMOSTATS (MECHANICAL)

1 Combine a temperature sensing element with a temperature controller.

2 Complete with concealed adjustable set point and throttling range.

3 Selectable control action (i.e. direct or reverse acting) on the thermostat.

4 Incorporate remote summer/winter set point adjustment and direct reverse action changeover where specified.

5 Complete with neat, corrosion protected casings.

6 Suitable for exposed surface mounting.

7 Install in positions shown on the drawings 1500mm above floor level unless otherwise stated.

12.7.6 VALVE AND DAMPER MOTORS

12.7.6.1 GENERAL

1 Conservatively select all motors for the duty required.

2 Select or adjust operating speeds so that the motor shall remain in step with controllers without hunting, regardless of motor variations.

3 Motors operating in sequence with other motors to have adjustable operating ranges and starting points to permit adjustment of the control sequence as required by the operating characteristics of the system.

4 Life span in excess of 50,000 open-close operations.

5 Accept an analogue or pulsed digital signal directly from the BAS control unit.

6 Time proportional feedback into the BAS is acceptable.

12.7.6.2 DAMPER MOTORS

1 Spring return type (excluding VAV motors), such that, in the event of power failure, they shall 'fail safe in either the normally open or normally closed position to suit the job condition.

2 A maximum of 40 seconds' spring return time.

3 A maximum spring tension time of 200 seconds.

4 Once tensioned the spring shall not engage the actuator mechanism unless power supply is lost.

5 Provide sufficient motors to ensure correct operation of dampers under all operating conditions.

6 1.2m² maximum size damper (CRVD) driven by a single motor.

12.7.6.3 VALVE MOTORS

1 Motors to be linear in operation fitted with a manual operator such that, in the event of a power or other failure, manual operation can be achieved.

2 Select motors for all valves to ensure correct operation and close-off, of the valves controlled, under all operating conditions.

12.7.7 FAN STATUS INDICATION

1 Air flow switches to indicate the status of selected fans.

2 Air flow switches of the differential pressure type with adjustable set point incorporating a single pole double throw switch mechanism arranged to changeover on a pressure rise and vice versa.

3 Switches complete with pitot tubes to sense the differential pressure between the suction and discharge sides of the fan.

4 Position tubes to eliminate blockage of tube openings.

12.7.8 TRANSDUCERS

1 Generally active type with an accuracy of +1% of span.

2 Accept a signal from the necessary transformers (current and/or voltage) and convert the signal(s) to a signal compatible with the BAS control unit.

3 Supply transducers to the relevant switchboard supplier for installation.

4 Use Electronic to pneumatic transducers of industrial quality.

5 Accurate to 3% of span and repeatable to 3% of span.

6 Supply and install above items as part of the control system.

7 Temperature compensated over the full span of the device.

12.7.9 ELECTRONIC CONTROLLERS

1 Controllers shall accept a signal from the associated electronic sensor and provide an analogue output to controlled items.

2 Where dual input controllers are required these shall incorporate and adjustable authority setting.

3 Proportional plus integral (P & I) controllers shall be used where specified for static pressure control, chilled and heating water flow control and supply air temperature control P & I controller shall incorporate an adjustable reset time.

4 Outputs from all controllers shall be compatible with the controlled item.

5 Where required, controllers shall incorporate provision for remote set point adjustment. Controllers shall be of the plug-in module type such that controllers can be replaced without necessitating removal and replacing or wiring.

6 Control output accuracy shall be ±2% of output span.

12.8 GRAPHIC USER INTERFACE

12.8.1 OPERATING SYSTEM

1 Schedule all programmes for execution and support a multi-tasking programme environment which provides for the concurrent execution of multiple real time programmes and programme development.

2 Incorporate a multi-user capability such that multiple operation for multiple input/output devices shall be able to concurrently issue commands to the running system programme.

3 Provide a foreground/background structure to allow the real-time control and operator interface programmes to run in the foreground while programme assembly, compiling, de-bugging and loading executes in the background.

4 Manage a scheme of storage protection that shall enable background activities to proceed without affecting the operating system or real time programmes. Such protection to prevent accidental modification of the Operating System or real time programmes resulting from execution of any background activities.

5 Shutdown in an orderly manner when a power failure occurs.

6 Automatically execute a 'bootstrap' routine to restart the system when power is restored.

7 Return the system to full operation by automatic restart.

8 Audibly annunciate a failure of any transmission data path on the system operator's terminals.

12.8.2 SYSTEM ACCESS

1 Operators to gain access to the system by 'signing on' to a operator's terminal.

2 Achieve sign on by entry of a unique (to each operator) password and/or identification code.

3 Assign each operator a system access level to enable that operator, once signed on, to access only those command and programme functions that have an equal or lower access level.

4 Provide a minimum of 3 access levels.

5 Provide point lockout capability.

6 Assignment or reading of operator passwords (and/or identification codes) to be available only at the highest access level.

7 Support a minimum of 20 separate operators.

8 Record (in mass memory and optionally on a selected printer) each sign-on activity.

9 Terminals to automatically sign-off after a pre-set time (adjustable 1 min. to 24 hours) if no keyboard activity has occurred.

10 Manual 'sign off' by operators.

12.8.3 OPERATORS' TERMINAL DISPLAYS

1 Colour graphic Visual Display as specified herein.

   a Dedicated change of state area at the top of the screen (for display of change of state information and alarm action messages).

b Display Header with the current date, time and operator (if the terminal is 'signed on')

c The operator shall be able to access displays via a pointing device and/or soft key menus with a choice of function keys, curser control keys or any key on the keyboard.

d Supported pointing devices shall include mouse, touch screen, light pen or track ball.

12.8.4 ALARM MONITORING

1 Provide monitored input alarms to the control system from any of the functional zones or remote site.

2 Assign as required or inhibit until required for each point of strategy.

3 Use time delays or filters to ensure an establishment time has elapsed prior to alarming or sequence changing.

4 Provide digital signals for monitoring high limit or high/low level fault conditions.

5 Provide time delays or filters to prevent spurious or spontaneous high or low limit faults for only short duration (i.e. non-critical).

6 Use analogue inputs for monitoring the condition of certain variables which incorporate high and low level inputs considered to be detrimental to operation comfort conditions.

7 Values of these high and low limits to be as directed during the commissioning process and automatic changes to set points in either occupied/unoccupied conditions.

8 Only use alarms of this type if the monitored equipment is scheduled to operate.

9 Apply different variable time delays once stabilisation has occurred following start up.

12.8.4.1 ALARM PRIORITIES

1 Prioritise each alarm:

a Level 1 – Critical – Urgent

b Level 2 – Important – Not Critical

c Level 3 – Maintenance

2 In each case log the alarm to a file and maintain an alarm history.

3 In each case print the alarm.

4 Include the date, type of alarm, time, current value, alarm priority, alarm limit, operator name, alarm group name and any comment.

5 User selectable for displays.

12.8.4.2 LEVEL 1 – CRITICAL – URGENT

1 Assign Level 1 alarms to critical operational aspects requiring immediate attention and rectification.

2 Sequence as follows:

12.8.4.3 DURING OCCUPIED TIMES

1 Local alarm at the control system front end computer using third party icon or multi-tasking prompt.

2 Local alarm at all personal computers connected to the control system or multi-tasking prompt.

3 Activate the pager link if not acknowledge within 5 minutes. Message - Level 1 alarm.

12.8.4.4 DURING UNOCCUPIED TIMES

1 Dial pager link. Message - Level 1 Alarm.

2 Further disseminate alarms and page to the relevant services personnel, e.g. fire, security, mechanical, electrical.

12.8.4.5 LEVEL 2 – IMPORTANT – NOT CRITICAL

1 Assign Level 2 alarms to either non-critical failure, or where failed plant has auxiliary back-up and shall continue to operate satisfactorily without immediate action.

2 Sequence as follows:

- **a** During Occupied Times
  - **i** Local alarm at the BAS front end computer using third party icon or multi-tasking prompt.
  - **ii** Activate the pager link if not acknowledge within 60 minutes to a specially assigned pager. Message - Level 2 alarm.
- **b** During Unoccupied Times - Weekdays and Weekends
  - **i** Local alarm at the control system front end computer using third party icon or multi-tasking prompt.
- **c** During Unoccupied Times - Weekends - Daytime 8.00 am to 9.00 pm
  - **i** Dial pager link and page to a specially assigned pager. Message - Level 2 Alarm.
  - **ii** Further disseminate alarms and page to the relevant services personnel, e.g. fire, security, mechanical, electrical.

12.8.4.6 LEVEL 3 – MAINTENANCE

1 Assign Level 3 alarms to non-critical processes and use to flag matters overdue for maintenance attention. These may relate to filter life exceeded where failure is not likely, but if left unchecked could fail.

2 Sequence as follows:

- **a** At All Times
  - **i** Local alarm at the control system front end computer using third party icon.

12.8.5 COLOURGRAPHIC VISUAL DISPLAY UNIT OPERATION

1 Provide 32 colour graphic capability in the graphics mode.

2 Incorporate instantaneous updating of dispersed real time data

3 Provide effective means for the operator to relate to the field.

4 Utilise full alphanumerics which spell out in plain English any condition, value, or action to be taken.

5 Incorporate in each graphic adequate freely assigned connected or calculated points (min 40).

6 Construct and store graphics in the CPU mass storage units ready to be displayed.

7 Position all dynamic data points to their respective location on the static portion of the graphic.

8 Provide keyboard programmable graphics and all related dynamic data display points without interfering with the on-line operation of the system.

9 Use an interactive, conversational mode to construct graphics data files and display them.

10 Use programmable colour graphics with dispersed dynamic data providing real time system information.

11 Provide a system diagram associated with a point in alarm indexed from the dedicated alarm section of the screen, displayed by activating a Command Function via the keyboard or (as a programmable option) automatically on receipt of an alarm.

12 Flashing symbols and point identifiers on the diagram in a pre-programmed alarm colour shall enunciate until acknowledged.

13 An acknowledged alarm shall stop flashing.

14 The point in alarm shall return to normal when the alarm is corrected in the field, only after acknowledgement.

15 Periodically update graphics (<30 seconds) to keep displayed data current with actual field conditions.

16 Use a number of interactive construction programmes and a library of standard symbols representing devices such as coils, smoke detectors, temperature sensors, thermals, contacts, speakers, pumps, fans, dampers, motors and relays to enable easy development of system colour graphics via the keyboard and mouse controller.

17 Use graphic construct programmes to place the desired line drawings or symbols in the appropriate place on the screen, assign point type, colours and text.

18 Test completed diagrams for accuracy and validity.

19 Standard symbols library shall be augmented by user defined symbols at any time.

20 Provide editing features for adding, deleting and modifying data, as well as format controls.

21 Provide software controlled access to colour graphics so that only designated operators can display or modify files.

22 Identify each manually forced point (i.e., not in automatic control) on the graphic via inverse video with a different background colour to that associated with alarm.

23 Identify each point associated with a failed communications line and/or controller on the graphic via inverse video with a different background colour to either alarms or manual forcing function.

24 Provide control loops capable of being investigated by graphic penetration, i.e. construct all graphics in levels as follows.

- **a** Level 1 – Graphics detailing building overview.
- **b** Level 2 – Graphics detailing floor plans.
- **c** Level 3 – Graphics detailing control loops on each floor/system.

25 System software to accept adequate penetration levels of graphics (min 6)

26 System software to raise and lower the level of the graphic by moving the cursor, via the mouse, to a selected window or entering a single character command via the keyboard.

27 Supply separate graphics for each sub-system and control loop within a sub-system.

28 Do not provide separate graphics for multiple identical equipment (ex. VAV boxes), re-use the graphic with specific tabular information inserted.

29 Provide facility for storage and retrieval of information pertaining to each group of equipment (ex VAV box) via a common logical group.

30 Allow for the construction of graphics for all control loops and sub systems or 60 off, whichever is greater.

12.8.5.1 LOGICAL GROUPS

1 Provide facility to assign system points into logical groups comprising related points.

2 Grouping to be independent of hardware configuration.

12.8.5.2 SYSTEM LOGS AND DISPLAYS

1 Provide facility for operator to display system logs (on either the visual display terminal or the printer) on request.

2 Logs to include:

- **a** Alarm Summary logs: Summary of all current alarms.
- **b** Status Logs: Review of the status of all system points.
- **c** Time Schedule logs: Review of all, or selected, time schedules.
- **d** Logical Group Logs: Review of all points in a particular group.
- **e** Event Programme Logs: Review of all event programmes.
- **f** Trend logs: Log of the value of selected points as recorded at predetermined intervals.
  - **i** Provide for a minimum of 10 logs each trending 10 points.
  - **ii** Provide for adjustment of sample times in one minute increments from 1 min. to 24 hrs.

Note: Destination of the log report (e.g. printer, file and/or operator's terminal) to be operator selectable.

12.8.5.3 TIME AND EVENT INITIATED PROGRAMMES

1 Provide a facility to issue commands to various points in the system from the control system central equipment.

- **a** Initiate commands as follows:
  - **i** Manually, via operation of an operator's terminal keyboard.
  - **ii** On a time, schedule basis (including holiday override).
  - **iii** On an event basis. Events to consist of changes of state (e.g. controller system alarms including analogue alarms), fire alarms, power failures, changing of a point value (e.g. a calculation result) and similar items).
- **b** Include typical commands as follows:
  - **i** Sequential starting or stopping of selected equipment (with time delays between starts)
  - **ii** Changing the value of a controller system parameter (e.g. set point).
  - **iii** Initiation of power fail modes.
  - **iv** Initiation of a system report.

12.8.5.4 HISTORICAL LOGGING

1 Store selected information on the control system mass storage unit.

2 Contain historical data in a file in two ways - as a ‘wrap around’ file and as a ‘one shot’ file.

3 Overwrite the oldest information with new incoming data when a wraparound file is full.

4 Store information in a one shot fill to the limits of the defined capacity.

5 Audibly annunciate the fact that a one-shot file is almost full and initiate a COS message.

6 Select system activity to be stored in the historical files. Include the following options:

- **a** Selected (or all) change of state information (Off/On as well as Alarm/Normal)
- **b** Selected (or all) hours run information.
- **c** Selected (or all) analogue information (trend logs).
- **d** Any combination of the above.

7 Historically record all alarms and data for subsequent retrieval.

8 Record and automatically print hours run information from each plant (in a 'plant run' report) at the end of each week.

12.8.5.5 CONTROL UNIT PROGRAMMES

1 Retain a copy of all connected control unit programmes on the Central Equipment.

2 Downline load these programmes to the control units.

3 Upline load control unit programmes to update the Central Equipment.

12.8.5.6 CLOCK SYNCHRONISATION

1 Regularly synchronise the real-time clocks in each controller to ensure that each control unit operates in synchronisation with all other controllers.

12.8.5.7 HELP FUNCTION

1 Windows type help feature to guide system operators in the selection or operation of system functions.

2 Facility to enable operator to display help pages via operation of a single help key.

12.8.5.8 DOCUMENTATION

1 Software which enables display, print out and alteration of system configuration documentation, as detailed elsewhere in this section of the specification.

12.8.5.9 OPERATOR FUNCTIONS

1 Alter existing or enter new programmes.

2 Display reports (on visual display terminals or printers).

3 Display point information.

4 Command system points (including controller parameters).

5 Perform similar functions on-line from the ‘signed-on’ visual display terminal.

6 Examples of functions to be performed by authorised operators include:

- **a** Display point status information.
- **b** Alter system control parameters.
- **c** Manually initiate time and event programmes.
- **d** Display system logs and reports.
- **e** Alter time schedules and creating new time schedules.
- **f** Alter event programmes and create new event programmes by simple mouse driven graphics.
- **g** Assign operator access levels and sign-on codes.
- **h** Downline and up line loading programmes to controllers.
- **i** Review historical data.
- **j** Create or modify historical logging files.
- **k** Alter controller control strategies and create new control strategies.
- **l** Assign new input/output points.

m Alter existing, or assign new descriptors or action messages.

n Other similar functions.

12.8.6 RESPONSE TIMES

12.8.6.1 GENERAL

1 The response times detailed below are the maximum acceptable response times for various sequences/processes in the control system. (Note operator's interface terminal shall mean VDU and/or printer as appropriate).

2 Achieve times with a fully configured and operational system (as defined herein) not affected by addition of spare hardware or software as specified.

12.8.6.2 ALARM DISPLAYS

1 Time not to exceed 1 second for activation of an alarm (at the source) to registration on the operator's interface terminal.

12.8.6.3 CHANGE OF STATE REGISTRATION ON OPERATOR'S INTERFACE TERMINAL

1 Time not to exceed 2 seconds from activation of a change of status or value of a control unit input, to the update of the input in the data base and registration on the system operator's interface terminal.

12.8.6.4 GRAPHIC DISPLAYS

1 Time not to exceed 2 seconds from activation of an alarm, or change of status or value of an input, to the registration of this new information on a displayed graphic.

2 Time not to exceed 2 seconds for entry of a request for a graphic display until complete output of such display.

12.8.6.5 SYSTEM LOGS AND REPORTS

1 Time not to exceed 20 seconds from execution of a request for a system log or report to commencement of the printout or display of that report.

12.8.6.6 HISTORICAL DATA RETRIEVAL

1 Time not to exceed 30 seconds from execution of a request for display of historical data to commencement of the display.

12.8.6.7 EVENT INITIATED PROGRAMMES

1 Not to exceed 2 seconds from occurrence of an event (at the source) to the activation of an associated event programme.

12.8.6.8 MANUALLY INITIATED COMMANDS

1 Time not to exceed 1 second from execution of a manual command (via the system operator's interface terminals) to response of the commanded item.

12.8.7 CONTROL PRIORITIES

1 Control units to respond to programme control in the following priority (highest priority is listed

SOURCE	ACTION
Control Unit	Fire Mode Control
Control Unit	Power Fail Restart

Portable Operator's Interface Terminal/Central Equipment	Power Fail Restart
Portable Operator's Interface Terminal/Central Equipment	Manual override from operator's terminal
Portable Operator's Interface Terminal/Central Equipment	Time Schedule override
Control Unit	Local control programme

2 Arrange the control system programme such that manual override of equipment (dampers, etc.) shall not prevent correct operation of plant during power fail and fire modes.

3 To ensure this priority it may be necessary to effect override control of equipment via a parameter change in the BAS programme, rather than 'forcing' control unit outputs/inputs.

12.8.8 SOFT STARTING

1 Monitor the Power Authority's incoming supply by a 3 phase, phase failure sensor.

2 Upon loss of Power Authority's supply allow all plant to shut down and auxiliary alternator to start.

3 Activate only essential equipment in a soft starting or delays schedule activation to ensure the essential supply circuit breaker does not trip.

4 Use the load information from this breaker to load shed if the current approaches a critical level.

5 Install current transformers for this purpose.

6 Before power restoration sequentially re-start all plant operating prior to Power Authority's supply failure.

12.8.9 POINT MONITORING

1 Carry out point monitoring for nominated control interactions.

2 Utilise point monitoring for maximum run times.

3 Allow to totalise run times for all equipment.

4 Utilise totalised run times for maintenance management of components to manufacturers' requirements through maintenance management software.

5 All the facility to monitor all connected equipment for both pressure failure and operation.

12.9 CONTROL SYSTEM EQUIPMENT

12.9.1 GENERAL

1 Locate control system equipment in accessible locations in plantrooms and mounted on associated equipment.

2 Equipment located in public accessible areas to be provided with lockable enclosures.

3 Provide equipment suitable for operation in ambient conditions normally encountered in non-air-conditioned plantrooms (up to 50°C) of input/output devices).

4 Provide central equipment suitable for operation in a standard, air conditioned, office environment.

5 Do not provide humidity control and special Anti-Static measures.

12.9.2 EXTENT OF CONTROL SYSTEM EQUIPMENT

1 Controllers.

2 Routers, Bridges, Repeaters and transceivers.

3 Gateways.

4 Control Panels.

5 Hand held operator's terminal (portable).

6 Power supply.

7 Notebook computer.

12.9.3 CONTROL UNITS

12.9.3.1 GENERAL

1 Provide control units complete with power supplies, real time clock, input and output modules, memory and all other items necessary for proper and correct operation of the control system.

2 Control units shall be capable of standalone operation.

3 Each control unit shall support a fully operable connection by the control system LAN, laptop/notebook computer or hand held operator's terminal via a RJ-45, RJ-11 or DB9 connection.

4 Calibrate each analogue input to compensate for non-linear characteristics of input devices, line resistance and similar items.

5 Retain calibration data in controller memory.

6 Once programmed, calibration equipment must not require adjustment.

7 Allow for high and low alarm facility to be assigned to each analogue input.

8 Allow for 'Lock out' of alarms when associated equipment is not operating.

9 Use digital inputs in the form of voltage free contacts (with 'wetting' voltage supplied by the controller) which open for the ON, or alarm condition.

10 Use digital outputs in the form of voltage free contacts (relay outputs) which close for the ON position.

11 Include relays to achieve contact outputs where control units utilise switched voltage outputs.

12 Minimum rating of contacts, 80 VA at 24 V, 50 Hz.

13 Supply each output with an AUTO-ON-OFF switch which overrides the control unit output in the ON and OFF positions.

14 Isolate control unit inputs and outputs including transmission trunk, via optical couplers or other approved means, to provide protection against voltage surges, incorrect voltages and other such disturbances.

15 Input/output hardware used (provide as spares per control unit a minimum of 10% of each input and output type. These are not detailed on any point schedules).

16 In the event of a power failure, control units to perform the following functions:

- **a** All operating programmes, data files and control algorithms to be contained in each control unit.
- **b** Retain in memory for a minimum of 24 hours all programmes, data files, control algorithms and time schedules.

c Maintain current time by the real-time clock.

d De-energise all outputs when not scheduled to function.

17 Upon restoration of power, controllers to perform the following functions:

a Check all inputs (including the real-time clock).

b Perform necessary control actions to bring all outputs to the required state at the time of power restoration.

18 The control unit to recognise open or closed circuits on sensor inputs and annunciate as alarms.

12.9.3.2 SMALL POINT CONTROL UNITS

1 Monitor and control VAV terminals or any item of plant that requires only a small input/output capacity.

2 Include all hardware and programmes required for communications with control unit or other communications device.

3 Control programmes to reside in the control unit.

4 Application programmes to be maintained in ROM.

5 Set points and configuration data to be maintained in EE PROM (or similar).

6 Communications speed and protocol to be capable of ensuring that with the maximum number of control units on a channel, response times are such that safe, correct and timely operation of all controlled items is ensured.

7 Control units shall be complete with all inputs and outputs as required to monitor and control the connected equipment (e.g. VAV box) together with an additional 2 digital inputs and 2 digital outputs.

12.9.3.3 SOFTWARE

1 Utilise standard, proven software specifically designed for HVAC control functions for the control system.

2 Include diagnostic routines that check hardware for correct operation.

3 Annunciate all hardware faults on the operator's terminal.

4 Ensure systems are capable of forcing input and output values in the software to enable programme verification and diagnostics (e.g. capable of forcing an analogue input to set value). Highlight points 'in test' so forced when displayed on any display terminal (portable or central).

5 Scan times of programmes configured so as to ensure safe and correct operation of all controlled items.

6 Ensure the rate at which data is exchanged between different controllers is sufficient to enable correct and timely operation of equipment.

7 Maximum transfer time between controllers not to exceed 1 second.

8 Maximum scan and programme execution time to be 1 second (i.e. all inputs scanned and outputs altered in accordance with control strategies within this time).

9 Total response times of equipment in alarm and fire modes (e.g. from receipt of input to final positioning of output device) to be less than 30 seconds at all times.

10 Include the following software regardless of whether specifically required to perform functions described in this Specification.

a Communications software to enable monitoring, control and programming from the central equipment.

b Communications software to enable transfer of data between controllers (including small point controllers) without the requirement for any other communications device.

c Standard Energy Management software including Optimum start and stop, Enthalpy control (economy cycle), night purge, power peak demand forecasting and load shedding, duty cycling, night setback and load reset.

d Proportional, proportional plus integral and proportional plus integral plus derivative control.

e On/off control and floating control.

f Pulse width modulating control.

g Time proportional control.

h Time schedule (time switch) control based on time of day and calendar date (including holiday override)

i 10 minutes' maximum increment for time control.

j An independently adjustable start and stop time for each time controlled item.

k Derived alarms (alarms resulting from a series of logic comparisons).

l Sequential control.

m Ability to develop control strategies using standard operations which include arithmetic operators (add, divide, multiply, subtract, square root etc.), timers, logic comparisons (less than, greater than, high select, low select etc.), logic sequences (if...then...) (or, and, nor) and other similar functions.

12.9.4 PROGRAMMING

1 Include for complete programming of the control system to achieve all functions described in this Specification (including configuration and provision of spare points as nominated earlier in this section).

2 Operating parameters and programming instructions capable of being loaded into the control units prior to the units being installed on site, such that the units are installed within the time limit capacity of the memory battery back-up system.

3 Provide facilities to print out the control programme of each control unit. This may be achieved locally (at the control unit) or via the central equipment.

4 Demonstrate satisfactory operation of control system hardware and all software programmes intended for the project, in his premises, before permission is given for loading software on site.

5 Programming to be loaded via the man-machine interface using basic English language instructions.

6 Control system programming is not to require a computer programmer.

7 Copy onto a floppy disk unit or similar approved device the entire programme and load back into the system via the unit in the event of memory loss.

8 Supply storage/recording device.

9 Include updating of programme parameters, as required during commissioning.

10 During the defects liability period carry out correction of any defective software as required.

11 Provide hard copies (printouts or other written records) of configuration data.

12 Provide the following in respect of ownership, support and general use of application software (including Central Equipment Software as described in this specification).

a Proprietor to retain ownership of application software.

b Allow unrestricted access to the Proprietor, both on and off site, to carry out modifications and adjustment to programmes as necessary.

c Tender price is deemed to include all royalties and other ownership fees payable for software.

d No agreements of any kind preventing the Proprietor's staff from modifying programmes themselves, after final completion.

12.9.5 ROUTERS, BRIDGES, REPEATERS AND TRANSCEIVERS

12.9.5.1 ROUTERS, BRIDGES AND REPEATERS

1 Equip each router and bridge with a network transceiver on each network port (inbound and outbound) as dictated by the network type.

2 The network router shall be designed to route messages from a segment, sub-net, or domain in full duplex communication mode.

3 Routers and bridges shall transparently route messages bound for a node address in another sub-net or domain.

4 Routers, bridges and repeaters shall be fully programmable and permit definition of message traffic, destination, and other network management functions.

5 The routers, bridges, and repeaters shall be capable of DIN rail or panel mounting and be equipped with status LED lights for Network traffic and power.

12.9.5.2 TRANSCEIVERS

1 Network Transceiver, Free Topology, Twisted Pair: Provide a transformer isolated, twisted pair transceiver capable of mounting directly on a printed circuit board. The Transceiver shall meet the following specifications:

a Differential Manchester encoded signalling for polarity insensitive network wiring.

b Transformer isolated for common mode rejection.

c 78kbs network bit rate up to distances of 2000m.

d Free topology supports star, home run, multidrop and loop wiring topologies.

2 Network Transceiver, Twisted Pair: Provide a transformer isolated twisted pair transceiver capable of mounting directly on a printed circuit board. The transceiver shall meet the following specifications:

a Differential Manchester encoded signalling for polarity insensitive network wiring.

b Transformer isolation for common mode rejection.

c 1.25mbs network bit rate up to distances of 1000 meters.

d Unpotted construction.

e Less than 1 mA power consumption with +5VDC input voltage.

3 Network Transceiver, Power Line:

a Provide a direct sequence, spread spectrum power line transceiver which is equipped with the following signal processing and error correction capabilities to provide robust and error free communications.

b Forward Error Correction (FEC) to enable the system to read and reconstruct corrupted packets without sacrificing throughput. The FEC shall required only six percent overhead for error correction.

c Automatic sensitivity adjustment algorithm that dynamically changes the receiver sensitivity based on noise characteristics.

d Oversampling correlation filter and adaptive data recovery algorithm to synchronise instantaneously to incoming packets.

e Tristate power amplifier/filter combination to provide a powerful output signal with a minimum number of components.

f The transceiver shall be able to operate using the controller power supply and coupling circuit. Provide the following general features as a minimum:

g Packaged in a rugged, potted module.

h Programmable clock output (1.25, 2.5, 5 or 10 MHz).

i 10kps network transmission rate.

j Packet detect output to drive a status indicator led.

k -20 to +85°C operating temperature range.

4 Network Transceiver, Link Power: Provide a twisted pair transceiver that utilises the twisted pair communication media to provide power for Controller(s). The transceiver shall meet the following specifications.

a Free single-in-line package (SIP) construction.

b Send both network data and power on a twisted wire pair.

c Differential Manchester encoded signalling for polarity insensitive network wiring.

d 78kps network bit rate up to distances of 320 meters.

e Supports star, home run, multidrop, and loop wiring.

f Supplies +5VDC @ 100 mA maximum for node power.

5 Network Transceiver, Radio Frequency: Provide a direct sequence, spread spectrum RF transceiver that meets the following specifications:

a 100-meter open field range.

b Wireless communications extends network between buildings and to vehicles and portable devices.

c Low-cost miniature circuit board, SMT components.

d Carrier detect output to drive a status indicator LED.

e +7 to +15VDC input voltage.

f -20 to +60°C operating temperature range.

12.9.6 CONTROL PANELS

1 Install Control System equipment, together with associated relays, power supplies and ancillary devices in control panels located in the Mechanical Services plantrooms and electrical risers as required.

2 Panels shall be equivalent in construction standard to those panels specified in the Electrical Section of this Specification.

3 Provide labels in accordance with the Electrical Section.

4 Mount all control items on a removable panel within the control panel.

12.9.7 HAND HELD OPERATORS TERMINAL (PORTABLE)

1 Include as a minimum a keypad and 48 character LED single line display for the control system portable operator's interface terminal.

2 From the key pad allow to:

a Read/reset device address.

b Install the device.

c Read/reset all set points and operating parameters.

d Read/reset all time of day schedules.

e Read/reset terminal unit controller time clock.

f Read all input values.

g Read all output states.

h Read all calculated values.

i Read alarm states.

j Override all inputs.

k Override all outputs.

l Bind network variables.

m Change configuration parameters.

3 Keyboard to include dedicated keys for commonly used functions (e.g., acknowledge, read input data, override output values and change parameter).

4 'Plug in' operator's terminal at any control unit (including small point control unit), router, gateway, control unit, intelligent device or repeater, to allow local control and diagnostics using modular phone type plugs.

5 Support simultaneous connection of the portable terminal and the central equipment.

6 Provide battery charger, interface cord, carry case and operator's manual.

12.9.8 POWER SUPPLY

12.9.8.1 GENERAL

1 Power the control units from the Building Essential Power supply.

2 Include all transformers, voltage regulators, power conditioning, surge suppressors and similar items required to ensure safe and correct operation of the system.

3 Power the central equipment, excluding printers, from the Essential Power Supply and a local UPS.

4 Contractor is responsible for power supplies to each controller/data gathering panel. Each data gathering panel to be provided with internal battery backup where not connected to a UPS backed power supply.

5 Fire rate power supplies.

6 Supply surge and over voltage protection to ensure correct operation of control systems to account for any power supply disturbances throughout the maintenance and warranty period.

7 Supply each control unit with isolating transformers, filters and voltage regulators as a minimum.

8 Provide equipment compatible with the site power.

12.9.8.2 UNINTERRUPTIBLE POWER SUPPLY

1 Solid state, air conditioning power supply equipped with battery back-up for continuous uninterrupted operation during a mains power failure.

2 The UPS shall have a sufficient reserve capacity to increase the connected load by 30%.

3 Batteries shall be sealed lead-acid. An automatic current limiting circuit shall permit maximum controlled charging and protect the output of the charger. Sufficient recharge capacity to replenish depleted batteries within sixteen (16 hours). A disconnect circuit to protect batteries from damage during extended mains power failures.

4 Sufficiency battery capacity for sixty (60 min) minutes operation, inclusive of the 30% reserve capacity.

5 The UPS shall be capable of being mechanically or electrically interlocked with the Controls UPS distribution board to allow for the system to be put into maintenance by-pass with no break power supply operation.

12.10 INSTALLATION

12.10.1 GENERAL

1 In accordance with relevant clauses of the 'Electrical' Section of this specification and as further detailed below.

2 The controls supplier to supply, install and connect all field mounted devices and pressure sensors and after hours' key switches.

12.10.2 WIRING

1 Install all wiring in plantrooms in heavy duty, rigid PVC conduit.

2 Make terminations for field devices (e.g. temperature sensors) in plantrooms from flexible conduit.

3 Alternatively, use metal cable duct for cabling installation (refer Electrical section).

4 Select all wiring to suit control system.

5 Use shielded cable where required to provide protection against induced noise.

6 Use stranded cable with a minimum cross section of .8mm².

7 Cables installed in concealed ceiling spaces may be installed neatly clipped to the underside of the floor in accordance with AS/NZS 3000 'Cables Likely to be Disturbed'. Cables to be PVC/PVC.

12.10.3 INTERFACE TO MECHANICAL SERVICES SWITCHBOARD/SWITCHPANEL

1 Controls supplier to wire control cabling to mechanical switchboards and terminate cables in terminal strips provided in each board.

2 Digital inputs to be voltage free contacts, opening for the on or alarm condition.

3 Digital outputs to be voltage free, closing for the on condition and suitable for switching of 24V 50Hz supplied from the mechanical services switchboard.

4 Incorporate all works not specifically mentioned in the Associated Works Section of this Specification under the BAS Scope of Works to achieve the intent of the BAS Contract Works.

12.11 OPERATION OF SYSTEMS

12.11.1 GENERAL

1 Monitor analogue and digital inputs and control analogue and digital outputs in accordance with the control system and programme.

2 All input sensors and devices and all output devices to be directly compatible with control system.

3 Control strategies: provide functional description of the manner in which the control system is programmed to control various items and systems. (Strategies are typical for typical units).

4 Nominated set points, time delays, deadbands, high and low limit values, proportional bands and similar items are indicative only. Adjustable parameters in the control system programme are required for these items. Provide facility for on line alteration of parameters.

5 Set adjustable parameters during commissioning.

6 Provide manual keyboard override facility for all control strategies.

7 Assign separate, independently adjustable parameters to each controlled item's (e.g., fan speed control, cooling valve) associated control strategy.

12.12 TESTING

12.12.1 GENERAL

1 Test and verify all equipment and strategies.

2 Supply all test equipment and communication devices (e.g., 2-way radio, mobile telephone).

3 Maintain a log book of all tests showing dates, time, personnel, observers initials, etc.

4 Provide valid calibration certificates for all test equipment.

12.13 MAINTENANCE

12.13.1 WARRANTY AND MAINTENANCE

1 Warrant and maintain the entire installation (including valves and other control components) throughout the defects liability period.

2 Warranty to include correction of all faults and defects (hardware and software) which occur during the above period.

3 Maintenance to include regular visits to site during the warranty period. As a minimum requirement visit the site for 1 full day (8 hours) per month.

4 Check operation of system and perform any maintenance required during these visits.

5 Allow in tender for more frequent visits to maintain particular items, if required.

6 Following each site visit submit a report detailing maintenance carried out and problems encountered to the Consultant Engineer.

12.13.2 LONG TERM MAINTENANCE

1 The successful Controls system supplier may be required to enter into a long-term maintenance agreement with the Proprietor.

2 Submit a quotation for long term maintenance with tender as follows:

- **a** Comprehensive maintenance on a five-year term.
- **b** Comprehensive maintenance on an annual basis (price per year for three years).

12.14 TRAINING

1 Provide personnel skilled in all aspects of the operation of the control system for 3 weeks from date of practical completion to competently and thoroughly instruct the facility's personnel in all aspects of operation, maintenance and troubleshooting techniques associated with the installation.

2 Training personnel shall be required to work a total of 40 hours per week or alternatively, meet the proprietor's requirements.

12.15 DOCUMENTATION

1 Supply the following documentation as a minimum:

- **a** Operator's Manual.
- **b** Programmer's Manual.
- **c** Functional description of the System Application programme, in English (submitted for approval prior to commencement of programming).
- **d** Full programme listings and flow charts (as installed) including a printout of each supplier's programme.
- **e** List of all inputs and outputs in the system including device type, location, point number, controller connected to, function and details of programmes using or controlling the point.
- **f** Block diagram of system layout.
- **g** Schematic diagram of each system and air conditioning unit.
- **h** Panel layouts.
- **i** Maintenance instructions for all system components submitted.
- **j** Specifications, drawings and descriptions of operation of all system components.

2 Submit all system information for approval prior to commencement of work.

3 At completion provide all information listed above on CD, suitable for loading onto and modification via the Central Processing Unit.

4 Include all items listed above in the system operation and maintenance manual and submit as part of the overall maintenance manuals. (Refer to 'Testing and Commissioning Section').

13 NOISE AND VIBRATION

13.1 GENERAL

13.1.1 SCOPE

1 This section sets out the engineering and quality assurance requirements for the completion of the installation design, materials, components, general installation and testing of the Mechanical Services noise and vibration.

2 Refer to Schedule of Vibration Isolation and Schedule of Sound Levels for design criteria.

13.2 DESIGN

13.2.1 GENERAL

Complete the detail design and engineering of the noise and vibration to the specified requirements.

13.3 SUBMISSIONS

1 Details of each type of vibration isolation.

13.4 GENERAL REQUIREMENTS

1 Acoustically seal pipe, duct and cable penetrations through plantrooms and noise rated walls and acoustic enclosures. Ensure, where applicable, that service penetration details comply with those detailed in Acoustic Engineers / Architects issued details

2 Statically and dynamically balance rotating machinery.

3 Support rotating and reciprocating equipment on anti-vibration/vibration absorbing mounts or hangers as specified in schedules and shown on drawings.

4 Inertia bases/floating slabs as specified herein and shown on the drawings.

5 All static equipment in plantrooms with suspended floors to be separated from the structure with double thickness neoprene pads or equal.

6 All connections to rotating equipment or assemblies containing rotating equipment shall be rendered flexible by anti-vibration hangers supporting ductwork and pipework and/or by flexible connections as specified.

7 Plinths for all floor mounted equipment.

13.5 INFORMATION REQUIRED

1 Provide the following to demonstrate compliance with established criteria:

a Noise measurements (room side and atmospheric as specified). Results to be expressed as per established criteria (dBA, NR, etc.)

b Vibration measurements.

c Vibration signatures.

d Evidence of calibration of testing equipment.

e Qualifications of person/organisation conducting testing/measurements.

13.6 NOISE CONTROL

13.6.1 ABSORPTIVE SILENCERS

1 Aerodynamic and Acoustic Performance Verification

a Silencers shall maintain octave band centre frequency insertion losses under design operating conditions of not less than those specified on the applicable acoustic hardware schedules or specifications. Product manufacturers shall specify insertion losses from their selected silencers under the operational design conditions. This information shall be derived from measurements undertaken in accordance with International Standard ISO 7235:2003 "*Acoustics - Laboratory measurement procedures for ducted silencers and air terminal units - Insertion loss, flow noise and total pressure loss."*

b Silencers shall exhibit pressure losses at design flows and temperatures no greater than those specified on the applicable acoustic hardware schedules or specifications. Product manufacturer's published pressure losses shall be derived from measurements undertaken in accordance with ISO 7235. Where the intended position of a silencer is known, suppliers shall confirm the likely pressure losses due to turbulence effects from adjoining duct elements.

c In addition to certified insertion loss data, silencer suppliers shall confirm the 125 Hz to 8 kHz octave band sound power levels generated by their proposed silencers at the quoted operating conditions.

2 Silencer Constructional Requirements

a The outer casing of all duct or duct mounted silencers shall be constructed in accordance with the current relevant ductwork specifications in terms of material thicknesses and seam constructions.

b Silencer connections shall be drilled angle flanges, unless alternative connections are specified in the schedule. Flanges shall also conform to the relevant construction code or its equivalent.

c Acoustic (splitter) elements in rectangular silencers 900 mm or more in length shall include faired leading and trailing edges (square ends shall not be acceptable). Silencers less than 900mm in length shall have a faired leading edge only, unless specified otherwise.

d The acoustic medium within the splitters shall comprise inert, non-hygroscopic, rot and vermin proof and non-combustible mineral wool or glass fibre. The medium shall be packed to a minimum density 48kg/m3. Splitters shall incorporate a glass fibre tissue facing, which shall be retained by a perforated galvanised sheet steel facing or other approved protection membrane. Splitters shall be constructed so that no egress of acoustic medium shall occur into the gas stream under operational design conditions.

e The silencer construction shall include, as a minimum, a half-width splitter fixed to each side wall of the silencer casing. Splitters shall preferably be in a vertical orientation and the configuration shall have a regular splitter/airway dimension across the full width of the unit. It is, however, the responsibility of the supplier to ensure that the parallel splitter elements in the silencer are correctly oriented for the adjoining duct geometry, particularly where silencers are located close to bends, bifurcations, etc. Horizontal splitters shall normally be limited to silencers having a module width less than or equal to 900mm and should be stiffened to prevent flexing or airway restriction.

f For circular silencers, internal acoustic elements shall comprise an acoustic medium of mineral wool or glass fibre, as specified above for rectangular silencers. The medium shall be retained by perforated galvanised metal facing, or other approved infill protection membrane. Splitters shall be constructed so that no egress of acoustic medium shall occur into the gas stream under operational design conditions.

g For silencers manufactured in modules, the complete unit shall be shop assembled This specification, together with the manufacturer's confirmed guarantee and acoustic and aerodynamic performance ratings, shall apply to the unit as a fully assembled product.

h Silencers shall be delivered to site with ends sealed to prevent contamination or damage by dust, rubble, etc. whilst on site. The direction of airflow through the silencer shall be clearly marked on the external duct casing (unless otherwise specified).

i High temperature silencers (e.g. for diesel exhausts, boiler flues, etc.) shall have casings manufactured from suitable gauge steel. Precautions shall be taken to cater for expansion and thermal shock. The internal elements shall be packed with an inert, non-hygroscopic, rot and vermin proof non-combustible mineral or glass fibre acoustic medium of at least 96kg/m3 density, and faced with a layer of glass fibre cloth behind a perforated metal facing. For very high temperatures, steel wool or equivalent materials may be used for the acoustic medium. Such requirements shall be noted on the relevant acoustic hardware schedules as necessary.

j The cross-sectional dimensions detailed in the schedules are to be followed exactly. However, the supplier may propose alternative dimensions in line with his own standard sizes, provided the minimum acoustic and aerodynamic performance requirements are achieved

k Melinex or other thin films between the perforated facing and the infill medium may be required for some applications. Such materials may reduce the acoustic performance of the silencer significantly, and this must be taken into account when interpreting the relevant acoustic hardware schedules. Film thicknesses of greater than 0.05mm shall not be permitted, and the use of very thin films (0.008-0.010mm) is preferred.

l Special constructions and materials may be specified where corrosive, toxic gases or similar substances are present. Such constructions shall be detailed as an addendum to this specification.

m Silencers shall not comprise materials which are generally composed of mineral fibres, either man made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented.

13.6.2 ACOUSTIC WEATHER LOUVRES

1 Performance Requirements

a Acoustic weather louvres shall provide insertion losses under operating conditions of not less than those indicated in the relevant acoustic hardware schedules. In addition, static pressure losses, under maximum operating duties, shall not exceed those shown in the schedules.

b The louvre shall be designed to prevent the penetration of rain, snow, hail etc. under normally encountered meteorological conditions.

2 Constructional Requirements

a Louvre framework shall be formed from suitable gauge galvanised mild steel or aluminium, supporting louvre blades of like material. The acoustic medium within each blade shall have a density of 60 - 100kg/m3 and comprise inert, rot and vermin proof, non-hygroscopic and incombustible mineral fibre, faced with glass fibre tissue and retained on the lower blade face by perforated, galvanised mild steel or aluminium.

b Louvres manufactured in sections shall be shop assembled and this specification, together with the manufacturer's own guarantee and performance ratings, shall apply to the unit as a fully assembled product.

c Acoustic louvres shall be supplied with integral bird screens of galvanised mild steel or aluminium mesh, fixed to the internal face. The mesh pitch shall be a maximum of 25mm.

d The louvres shall be supplied complete with all necessary flanges and fixings, etc., for fitting into the opening

e All gaps between the outside of the louvre frame and the opening or duct shall be made good and sealed to full depth with dense grout and/or non-hardening mastic sealant.

f The acoustic media shall not comprise materials which are generally composed of mineral fibres, either man made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented.

13.7 VIBRATION CONTROL

13.7.1 ACCEPTANCE CRITERIA

1 Complete systems including individual components not to exceed satisfactory levels as set out in AS 1359.114, AS 2625.1 and project specific Acoustic Engineer's requirements where established

2 Select anti-vibration mounts/hangers for life cycle of building and install in accordance relevant Earthquake criteria / standards.

3 Select and install anti-vibration mounts and hangers in locations to prevent transmission of vibration to adjoining areas and to prevent undue vibration, distortion or fatigue of equipment and connecting piping and cabling.

4 Select vibration isolation mounts/hangers to allow for deflections of building structures and finishes and for minimum static deflection as specified.

13.7.2 GENERAL

1 Where indicated on the relevant schedules by the code /R, the vibration isolation mountings or hangers shall be provided with a restraining or positioning device. These shall be designed to prevent the equipment position changing if its load alters; for example, during system draining or other maintenance.

2 Restraining devices shall comprise of a stud passing through an oversized hole with a nut/locknut combination providing restraint. A neoprene or fibre washer should be fitted between the nut and the restraining member, leaving an overall minimum clearance of 1mm.

3 Anti-vibration mountings/hangers shall provide static deflections as specified in the relevant vibration isolator schedules, under the design loaded equipment weight. Mounting selection shall allow for uneven load distribution or torque reaction, such that the required design static defection is achieved on all equipment mountings under operational conditions.

4 The supplier shall take responsibility to ensure that all mountings are appropriate for the design loads, operating and environmental conditions that shall prevail. Particular attention should be paid to mountings exposed to atmospheric conditions, to prevent corrosion.

5 Mountings shall be clearly marked and preferably colour coded, to indicate their load capacity to enable easy identification during installation.

6 Where the use of resilient supports allows omission of pipe flexible connections for vibration/noise isolation, it shall be the Contractor's responsibility to decide whether such devices are required to compensate for misalignment or thermal strain.

13.7.3 TYPE A MOUNTINGS (CAGED SPRING TYPE)

1 Each mounting shall comprise cast or fabricated telescopic top and bottom housings enclosing one or more helical springs as the principle isolation elements, and shall incorporate a built-in levelling device. The housing should be designed to permit clear visual inspection of the springs after installation, i.e. the springs must not be totally enclosed.

2 The springs shall have an outside diameter of not less than 75% of the operating height, and be selected to have at least 50% overload capacity before becoming coil bound.

3 The bottom plate of each mounting shall have a rubber/neoprene pad bonded to it, designed to attenuate any high frequency energy transmitted to the springs.

4 Mountings incorporating snubbers or restraining devices shall be designed so that the snubbing, dampening or restraining mechanism is capable of being adjusted to have no significant effect during the normal operation of the isolated machine.

5 All nuts, bolts or other elements used for adjustment of a mounting shall incorporate locking mechanisms to prevent the isolator going out of adjustment as a result of vibration or accidental or unauthorised tampering.

13.7.4 TYPE B MOUNTINGS (OPEN SPRING TYPE)

1 Each mounting shall consist of one or more helical steel springs as the principal isolation elements, and shall incorporate a built-in levelling device.

2 The springs shall be fixed or otherwise securely located to cast or fabricated top and bottom plates, shall have an outside diameter of not less than 75% of the operating height, and shall be selected to have at least 50% overload capacity before becoming coil bound.

3 The bottom plate shall have bonded to it a rubber/neoprene pad designed to attenuate any high frequency energy transmitted by the springs.

13.7.5 TYPE C MOUNTINGS (RUBBER/NEOPRENE TYPE)

1 Each mounting shall consist of a steel top plate and base plate completely embedded in oil resistant neoprene/rubber. Each mounting shall be capable of being fitted with a levelling device, and should have bolt holes in the base plate and a threaded metal insert in the top plate so that they can be bolted to the floor and equipment when required.

13.7.6 TYPE D MOUNTINGS (STEEL SPRING HANGERS)

1 The hanger shall incorporate a helical steel spring securely located in a steel cage.

2 The clearance hole in the bottom of the cage should allow a lateral movement of the lower hanger rod of at least 15° included angle.

3 Where hangers incorporate a positioning device, the adjustment system should incorporate a locking mechanism to prevent the hanger going out of adjustment as a result of vibration, or accidental or unauthorised tampering.

13.7.7 TYPE E MOUNTINGS (NEOPRENE ELEMENT HANGERS)

1 The hanger shall be essentially as described in 11.7.6 above except it shall incorporate a neoprene in shear element as described in section 11.7.5

13.7.8 TYPE F MOUNTINGS (COMBINED STEEL AND NEOPRENE ELEMENT HANGERS)

1 The clearance hole in the bottom of the cage should allow a lateral movement of the lower hanger rod of at least 15° included angle.

2 Where hangers incorporate a positioning device, the adjustment system should incorporate a locking mechanism to prevent the hanger going out of adjustment as a result of vibration, or accidental or unauthorised tampering.

13.7.9 TYPE A PLANT BASES (A.V. RAILS)

1 An A.V. Rail shall comprise a steel beam with two or more height saving brackets. The steel sections must be sufficiently rigid to prevent undue strain on the equipment and if necessary should be checked by the Structural Engineer.

13.7.10 TYPE B PLANT BASES (STEEL PLANT BASES)

1 Steel plant bases shall comprise an all-welded steel framework of sufficient rigidity to provide adequate support for the equipment, and fitted with isolator height saving brackets. The frame depth shall be approximately 1/10 of the longest dimension of the supported equipment, with a minimum of 150mm. This form of base may be used as a composite A.V. Rail system.

13.7.11 TYPE C PLANT BASES (CONCRETE INERTIA BASE, WITH STEEL SPRINGS)

1 These shall consist of an all-welded steel pouring framework with height saving brackets, and a frame depth of approximately 1/12 of the longest dimension of the supported equipment, with a minimum of 100mm. The bottom of the pouring frame should be blanked off, and concrete (2300kg/m^3) poured in over steel reinforcing rods positioned 35mm above the bottom. The inertia base should be sufficiently large to provide support for all parts of the equipment, including any components which overhang the equipment base, such as suction and discharge elbows on centrifugal pumps.

13.7.12 TYPE D PLANT BASES (CONCRETE INERTIA BASE, WITH NEOPRENE PADS/MOUNTS)

1 These should comprise a concrete inertia base of sufficient size to permit support for all parts of the equipment, including any components which overhang the equipment base, such as suction and discharge elbows on centrifugal pumps. The inertia base should be cast onto a permanent bottom shuttering, and supported on the specified neoprene mounts or pads, the whole resting on a plinth as required. It should be noted that the construction of concrete bases on cork, expanded polystyrene or mineral wool slabs is not normally permitted. Where neoprene pads are used, small areas of pad must be equally spaced to provide the required static deflection. The number, dimensions and locations of such pads should be advised by the supplier

13.8 ACOUSTIC DOORS

13.8.1 PERFORMANCE

1 All acoustic doors shall provide a sound reduction index (SRI) (as tested in accordance with ISO 140-3: 1995 "*Laboratory measurement of airborne sound insulation of building elements*") of not less than that shown in the

relevant schedule. Where the schedule refers to a mean SRI, the equivalent SRI spectrum should not be less than that indicated below:

MEAN SRI (100-3150Hz)	SRI (dB) AT OCTAVE BAND CENTRE FREQUENCIES (Hz)					
	125	250	500	1k	2k	4k
30	21	26	30	33	35	36
35	24	30	35	38	39	40
40	27	35	40	42	46	47
45	33	36	44	48	52	54
50	35	40	50	54	60	60

2 The manufacturer or supplier of acoustic doors shall guarantee the specified SRI, and ensure that the method of installation does not detract from the guaranteed performance. Any failure to meet the specification because of faulty design, manufacture or installation, shall result in the manufacturer or supplier being held liable for remedial or replacement costs including consequential liability.

13.8.2 CONSTRUCTION

1 The acoustic doors shall be of hardwood or steel, and be complete with all seals and frames, and with furniture as specified by the Architect.

2 It is recommended that where a mean SRI equal to or greater than 35dB is required, the door should be of steel construction with double neoprene/rubber compression, or knife-edge, seals to head, jambs and threshold. Double doors should incorporate a central jamb or overlapping leaves to ensure an acceptable seal a the middle joint. Lower performance doors (35dB or less) may be fitted with magnetic seals.

3 The door fastener or lock should be designed to ensure the seal operates evenly over the whole periphery of the door.

4 Wiper seals shall not be permitted at thresholds; doors must be fitted with a raised threshold and a compression seal, or with a mechanical drop-down seal for doors with ratings up to 35dB

13.9 ACOUSTIC ENCLOSURES

13.9.1 PERFORMANCE

1 The acoustic enclosure shall provide in its as-installed condition an overall sound reduction index (SRI) of not less than that shown in the relevant schedule. Full allowance shall be taken of any loss of insulation due to doors, windows, ventilation openings and panel joints. The manufacturer or supplier shall guarantee the specified SRI, and ensure that the method of installation does not detract from the guaranteed performance.

2 The internal surfaces of the enclosure panels shall be designed to give the following minimum average sound absorption coefficients when tested in accordance with AS ISO 354:2006 "*Acoustics: Measurements of sound absorption in a reverberation room*": -

FREQUENCY (Hz)	125	250	500	1K	2K	4K
Minimum average absorption coefficient (α)	0.2	0.5	0.7	0.8	0.8	0.7

13.9.2 CONSTRUCTION

1 The enclosure panels shall be constructed from galvanised mild steel sheet at least 1.6mm thick (16swg) or as otherwise specified. The absorbent internal lining shall be faced with glass fibre cloth or other infill protection membrane and be retained by perforated galvanised mild steel sheet having an open area preferably not less than 23%, and the whole panel should not be less than 50mm thick. Provision shall be made inside the panel to prevent settling of the acoustic medium.

2 Doors, access panels, windows and ventilation ducts or electrical cable penetrations shall be treated so as to maintain the specified acoustic insulation of the assembled enclosure.

3 Demountable sections shall be designed to allow easy disassembly and re-assembly by unskilled personnel without affecting the acoustic performance.

4 The supplier shall ensure that the assembled enclosure is designed and constructed to withstand site operating conditions such as wind and snow loads, roof mounted plant, etc., as appropriate, and if outside, to be suitably weatherproofed.

5 The acoustic media shall not comprise materials which are generally composed of mineral fibres, either man made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented.

13.10 ACOUSTIC LINING PANELS

13.10.1 CONSTRUCTION AND PERFORMANCE

1 The acoustic lining panels shall comprise acoustically absorptive material (such as Class ‘0’ fire rated open cell foam, mineral fibre or glass fibre) fixed in place with a non-obstructing fixing system. The total surface area of the acoustic lining panels shall be not less than the minimum specified area of treatment. As a minimum the panels should be 50mm thick (except where otherwise specified) and be faced with an abrasion and fibre erosion protection layer such as glass fibre scrim or glass fibre cloth and, where specified, be retained by galvanised mild steel sheet with a hexagonal perforation pattern giving an open area of not less than 23%. Where mineral fibre or glass fibre acoustic media are used, these should have a surface density of not less than 50kg/m2.

2 The acoustic lining panels should provide not less than the following sound absorption coefficients:

ACOUSTIC ABSORPTIVE SECTIONS:	OCTAVE BAND CENTRE FREQUENCY (Hz)					
	125	250	500	1000	2000	4000
Min Absorption Coefficient	0.30	0.60	0.70	0.70	0.70	0.70

13.11 NOISE MEASUREMENTS

1 Measure and submit noise measurements in areas nominated above using sound level meter complying with AS IEC 61672.1 and .2 during the noisiest operating condition.

2 Where noise measurements exceed specified criteria, take additional noise readings in each octave band (125Hz to 4000Hz inclusive) in selected locations with reference to ISO 1996 (all relevant parts).

13.12 VIBRATION MEASUREMENTS

1 Take vibration levels at positions to be agreed in the event that vibration levels exceed acceptance criteria and are clearly perceptible.

2 Take and record vibration signatures in both radial and axial directions for major equipment as scheduled hereunder.

3 Vibration signatures to be measured with equipment/system completely assembled and in full working order.

4 Scheduled equipment to be equipped with permanent mounting points for accelerometers and all measurements for such machines to be taken for octave bands 10Hz to 10,000Hz.

13.13 NOISE SURVEYS

1 Noise surveys as required by the Health and Safety Regulations shall be provided for each plant enclosure and at each isolated plant item.

2 A registered 'Noise Officer' shall carry out surveys and the results of such shall be submitted to the Contractor.

3 Where a noise hazard exists and all practicable noise attenuation has been carried out, hazardous areas shall be defined by the erection of signs reading:

NOTICE

HEARING PROTECTION MUST BE WORN

IN THIS AREA

or

NOTICE

HEARING PROTECTION MUST BE WORN

WHEN THIS MACHINE IS RUNNING

4 Signs shall be 'Brady' Indoor/Outdoor, Personal Hazard Warnings or approved equivalent.

14 SCHEDULES

14.1 GENERAL

The following schedules have been prepared for tendering purposes and to convey design intent. They form a summary of the preceding Clauses in the Specification and must be read in conjunction with these Clauses and the Project Drawings.

Where reference Clauses are referred to, they shall be taken as the major Clause, but equipment shall also comply with all other relevant Clauses in the Specification.

Air and water quantities and temperatures may be changed slightly to suit the particular manufacturer's equipment, however full details shall be submitted for review. Changes shall not be in conflict with any By-Laws, Statutory Requirements (including NCC Section J where applicable), Public Health Requirements or the overall design in general including achievement of any energy compliance and Green Star criteria.

Pump and fan duties have been calculated from typical equipment and have been given as a guide only. Air system external system pressure drops include an allowance for filters. The Mechanical Works Package must carry out pump and fan duty calculations using pressure drops though the equipment offered, and through the ductwork and pipework layouts prepared as part of the construction and workshop drawings – Mechanical Works Package to allow for half loaded filters.

The schedules shall not be used directly for ordering of equipment.

The following schedules show details of mechanical equipment only.

THE EQUIPMENT PAGES OF THIS SCHEDULE MUST BE SUBMITTED WITH THE TENDER OFFER IN THE CURRENT TABULISED FORM WITH 'TENDER' COLUMNS AND ROWS COMPLETED. ANY DEVIATIONS ARE TO BE CLEARLY HIGHLIGHTED.

Schedule of equipment submitted on alternate forms, manufacturers' data sheets, Contractor work sheets, etc. shall not be accepted.

Completion of the technical schedule for tender review does not constitute approval of proposed equipment nor does it absolve the requirement to satisfy the requirements of the specification.

14.2 SCHEDULE OF PIPING MATERIALS

SYSTEM	MATERIAL	PIPE SIZE RANGE mm dia	DESIGN PRESSURE kPa	DESIGN TEMP RANGE °C	PIPING STANDARD
Vent and Drains	Copper	All	500	6-100	AS 1432 Type B Hard Drawn
Vent and Drains	UPVC	All	500	6-40	AS/NZS 1477

14.3 SCHEDULE OF PIPING SYSTEMS TEST CRITERIA AND PROCEDURES

SERVICE	TEST FLUID	PROCEDURE	TEST PRESSURE	TEST PERIOD
Refrigeration	Dry Nitrogen	Initial test with rubber mallet, soap, glycerine and water		
		After rectification of any obvious leaks pressure test	Not less than sat vapour pressure at 660C high side, 450C low side	24 Hours
		When no loss in pressure achieved, undertake dehydration and evacuation	Less than 0.22mm Hg with pump in operation	6 Hours
		Stop Vacuum pump when pressure remains constant, isolate system and allow to stand		6 hours
		Break Vacuum install dryer cartridges and re-evacuate as above		
		Break vacuum with correct quantity of refrigerant and oil		
Open Vents and drains	Fluid being drained	Fill and visually check for leaks		

14.4 SCHEDULE OF DUCTWORK CLASSIFICATION

DUCTWORK	PRESSURE CLASSIFICATION	DESCRIPTION SEAL CLASS
Ventilation and Exhaust		
Supply and Return		
Kitchen Exhaust		

Pressure classifications have been calculated from typical equipment and have been given as a guide only. The Contractor must carry out system static pressure calculations using pressure drops though the equipment offered and through the ductwork prepared as part of the construction and workshop drawings. Contractor shall submit for Consultant Engineers review any proposed reduction from the pressure classification listed above.

14.5 SCHEDULE OF THERMAL INSULATION – DUCTWORK

NOTES:

1 Alternative insulations must satisfy the stricter of the NCC Section J requirements applicable to the project and the below Consultant Engineer requirements. Any alternative offer subject to review by Consultant Engineer.

2 The Climate Zone appropriate to this Project is Climate Zone 6

DUCTWORK SYSTEM	DESCRIPTION
Rigid Supply and Return Air Ductwork (including pre-conditioned outside air and ductwork to / from heat exchangers/heat recovery wheels)	Internal ductwork insulation where shown on Drawings. External ductwork insulation otherwise. Internal ductwork insulation material shall be mineral wool or fibreglass insulation in accordance with Section 7. External ductwork insulation material shall be mineral wool or fibreglass insulation in accordance with Section 8. Internal and external ductwork insulation material R-Values shall not be less than Section J of NCC.
Flexible Circular Supply Air , Return Air and Evaporative Cooling Ductwork (including pre-conditioned outside air and ductwork to / from heat exchangers/heat recovery wheels)	Flexible circular ductwork of no more than 3m in length. — Achieve a minimum material R-Value of 1.0. Flexible circular ductwork of more than 3m in length: — Comply with minimum material R-Values in the ductwork insulation table above.
Flexible Circular Ductwork not forming part of a supply or return air system or an evaporative cooling system (i.e. ductwork drawing/transferring conditioned air / tempered air through an unconditioned / untempered space OR drawing / transferring un-conditioned / un-tempered air through a conditioned / tempered space)	Achieve a minimum Total R-Value of 0.6.
Rigid Ventilation / Exhaust Ductwork not forming part of a supply or return air system or an evaporative cooling systems (i.e. ductwork drawing / transferring conditioned air/ tempered air through an unconditioned / untempered space OR drawing/transferring un-conditioned / un-tempered air through a conditioned/tempered space)	Internal ductwork insulation where shown on Drawings. External ductwork insulation otherwise. Internal ductwork insulation material shall be mineral wool or fibreglass insulation in accordance with Section 7 with thickness as noted on Drawings. External ductwork insulation material shall be mineral wool or fibreglass insulation in accordance with Section 8 and shall have minimum insulation thickness of 25mm.

DUCTWORK SYSTEM	DESCRIPTION
Rigid Ventilation / Exhaust Ductwork (unless noted above)	Internal ductwork insulation where shown on Drawings. Un-insulated otherwise. Internal ductwork insulation material shall be mineral wool or fibreglass insulation in accordance with Section 7 with thickness as noted on Drawings.

14.6 SCHEDULE OF SOUND LEVELS

Sound levels scheduled hereunder form the basis of design and are required to be maintained for all conditions of operation of plant, air distribution, flow rates and temperature fluctuations. Any spaces not listed should comply with the criteria shown in AS/NZS 2107 “Acoustics—Recommended design sound levels and reverberation times for building interiors”

Rectify any plant or systems which do not perform to specified levels or which contribute to noise levels which exceed the specified requirements.

Note that these are intended as criteria for all spaces which do not have project specific criteria specified which would supersede the targets shown below. The Contractor is to confirm with the Project Manager as to any Acoustic Engineer / Green Star criteria which would take precedence over the target shown below.

BUILDING AREA	MAXIMUM PERMISSIBLE SOUND LEVEL L_{AEQ}, DB(A)
Private Offices	35
General Offices	40
Board Rooms	35
Foyer	45
Lobby/Reception	40
Toilets	50
Computer Rooms	45
Loading Docks	65
Fire Control Rooms	65
Car Park	55
Stairwells	45
Plant Rooms	75
Property boundaries	Not to exceed the requirements of the Local Authority
Outdoor public and private areas	Not to exceed the L_{90} background noise level, as per AS 1055.2 for R4 noise area category, by more than 5dB(A) – or to Local Authority guidance

14.7 SCHEDULE OF VIBRATION ISOLATION

EQUIPMENT	TYPE OF MOUNTING OR HANGER	MINIMUM REQUIRED ANTI VIBRATION STATIC DEFLECTION	MINIMUM TOTAL ISOLATING EFFICIENCY
Chiller Sets	Type B Plant Base (Concrete Inertia base and neoprene pads)	75mm	98
Pumps	Type A Plant Base Concrete Inertia base and spring mountings with neoprene pads	25mm	95
Axial Flow Fans	Spring hangers with neoprene inserts	25mm	98
Centrifugal Fans	Free standing spring mountings and neoprene pads	40mm	98
Pipework (Chilled Water)	Spring hangers with neoprene inserts. First three hangers from equipment to have static deflection equal to the machine mounting.	25mm	95
Axial Flow Fans (500-1000 L/s)	Spring hangers with neoprene inserts	4mm	80
Axial Flow Fans (1000-4000 L/s)	Spring hangers with neoprene inserts	15mm	95
Axial Flow Fans (>4000 /s)	Spring hangers with neoprene inserts	30mm	97
Centrifugal Fans (500-1000 L/s)	Free standing spring mountings and neoprene pads	15mm	90
Centrifugal Fans (1000-4000 L/s)	Free standing spring mountings and neoprene pads	30mm	97
Centrifugal Fans (>4000 L/s)	Free standing spring mountings and neoprene pads	40mm	98
Air Handling Unit Fans (500-1000 L/s)	Spring hangers with neoprene inserts	5mm	80
Air Handling Unit Fans (1000-4000 L/s)	Spring hangers with neoprene inserts	25mm	95
Air Handling Units (>4000 L/s)	Spring hangers with neoprene inserts	35mm	97
AHU's and FCU's	Type B Plant Base (Concrete Inertia base and neoprene pads)		

14.8 SCHEDULE OF SAMPLES

ITEM OF EQUIPMENT
Each supply, return and exhaust diffuser and grille
Flexible duct
Duct Joining method
Pipe insulation (each type)
Duct insulation (each type)

14.9 SCHEDULE OF PAINTING

Paint the complete systems listed below, except normally bright and polished metal components, bearing surfaces, adjusting screws, foil faced insulation and similar items.

ITEM OF EQUIPMENT	NOTES
Switchboards and control panels	
Equipment such as chillers, boilers, pumps, heat exchangers	Manufacturers' Standard
Internal surfaces of air outlets and openings exposed to view	Matt Black
Ductwork, piping and related fittings and supports exposed to public view	
Ductwork, piping and related fittings and supports within plant rooms	
Bases and plinths	
Conduits exposed to view	
Cable-trays and electrical ducts exposed to view	

TENDER FORM

FOR

_____

MECHANICAL SERVICES

_____

AT

_____

IVANHOE ESTATE BUILDING A1

I/We, the undersigned, hereby tender to carry out the complete works in accordance with the Specification, Drawings, General Conditions of the proposed contract and addenda, for the sum set out hereunder:

Fixed Lump Sum Tender excluding Goods and Services Tax (GST) for the complete Mechanical Service Works Package as specified:		$
Provisional Sums:		$
GST:		$
TOTAL INCLUDING GST:		$

ADDENDUM

We, the undersigned, acknowledge having received the following addenda and have incorporated them in our tender proposal:

NUMBER	DESCRIPTION	DATE RECEIVED

DATED THIS ..... DAY OF 2020

SIGNATURE OF TENDERER .....

COMPANY .....

ADDRESS .....

.....

T.1 Sections of Tender Price

The amounts indicated in the total tender sum for the supply, installation and connection of all items including administration costs and profit for sections of the work are as follows:

SECTION COSTS	ITEM COST
1 General Requirements	$
2 Refrigeration Plant	$
3 Ventilation/Exhaust Plant	$
4 Miscellaneous Plant and Equipment	$
5 Pipework, Valves and Fittings	$
6 Ductwork, Sheet Metal items, Air Outlets	$
7 Thermal Insulation	$
8 Electrical Services for Mechanical Plant	$
9 Control Systems	$
10 Testing and Commissioning	$
11 Maintenance and Servicing	$
12 As Built Documentation	$
Sub-Total (excluding GST)	**$**
GST	**$**
Total INCLUDING GST	**$**

T.2 Schedule of Alternative Offers

We herein advise the following individual adjustments to the Base Tender Sum for each alternative listed below. Provide complete details, technical data and Tender sum cost impact for all alternatives to the compliant offer to enable full evaluation and individual selection.

ALTERNATIVES OFFERED	COST ADJUSTMENT

T.3 Schedule of Personnel

The following persons shall be assigned to the contract. Persons nominated shall be employed by or be responsible to the Mechanical Services Works Package.

IN OVERALL CHARGE FOR THE CONTRACTOR

NAME		**YEARS WITH COMPANY**	
EXPERIENCE			

CHIEF SUPERVISOR

NAME		**YEARS WITH COMPANY**	
EXPERIENCE			

FOREMAN IN CONTINUOUS ATTENDANCE – ON SITE

NAME		**YEARS WITH COMPANY**	
EXPERIENCE			

DRAFTING PERSONNEL FOR THE PRODUCTION OF CONSTRUCTION AND AS INSTALLED DRAWINGS

NAME		**YEARS WITH COMPANY**	
EXPERIENCE			

T.4 Schedule of specialist installers

We advise that our Tender includes work as described below to be carried out in each case by the specialist installer stated.

ITEM		COMPANY
1	Pipework	
2	Ductwork	
3	Insulation	
4	Electrical	
5	Automatic Controls	
6	Water Treatment	
7	Painting	
8	Commissioning	
9	Service and Maintenance	
10		
11		
12		
13		

T.5 Schedule of major equipment manufacturers

We advise that our Tender includes equipment of manufacturers listed below. Any modifications to equipment shall fully meet the requirements of the Specification.

ITEM	MANUFACTURER AND TYPE
VRF Systems	
Fans	

T.6 Schedule of unit rates

The unit rates may be used as a guide for assessment of variation additions to the contract works.

All unit rates shall include all costs including but not limited to costs for supervision, administration, mark-up, travel and profit. Exclude GST.

Labour rates and profit margins are used for works not covered by the unit schedule rates.

1 Ductwork

For supply and installation of ductwork in false ceiling spaces, before ceiling is erected.

SHEET METAL DUCT SIZE MM	RATE PER METRE RUN - STRAIGHT LENGTHS 250 PA AS4254 PRESSURE CLASS – INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER METRE RUN - STRAIGHT LENGTHS 250 PA AS4254 PRESSURE CLASS – EXTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER METRE RUN - STRAIGHT LENGTHS *** PA AS4254 PRESSURE CLASS - INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER METRE RUN - STRAIGHT LENGTHS KITCHEN EXHAUST DUCTWORK
200 Ø	$ .....
300 Ø	$ .....
400 Ø	$ .....
500 Ø	$ .....
600 Ø	$ .....
200 x 400	$ .....
300 x 400	$ .....
400 x 700	$ .....
500 x 800	$ .....
600 x 900	$ .....

SHEET METAL DUCT SIZE MM	RATE PER RADIUS BEND 250 PA AS4254 PRESSURE CLASS - INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER RADIUS BEND 250 PA AS4254 PRESSURE CLASS - EXTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER RADIUS BEND *** PA AS4254 PRESSURE CLASS - INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
150 x 350	$	$	$	$	$ .....
200 x 350	$	$	$	$	$ .....
500 x 350	$	$	$	$	$ .....
600 x 350	$	$	$	$	$ .....
700 x 400	$	$	$	$	$ .....
800 x 800	$	$	$	$	$ .....
1000 x 1000	$	$	$	$	$ .....
2000 x 2000	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER TRANSITION 250 PA AS4254 PRESSURE CLASS - INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
2000 x 2000 to 1500 x 1500	$	$	$	$	$ .....
1500 x 1500 to 1000 x 1000	$	$	$	$	$ .....
1000 x 1000 to 1000 x 400	$	$	$	$	$ .....
800 x 400 to 600 x 300	$	$	$	$	$ .....
600 x 300 to 400 x 200	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER TRANSITION 250 PA AS4254 PRESSURE CLASS - EXTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
2000 x 2000 to 1500 x 1500	$	$	$	$	$ .....
1500 x 1500 to 1000 x 1000	$	$	$	$	$ .....
1000 x 1000 to 1000 x 400	$	$	$	$	$ .....
800 x 400 to 600 x 300	$	$	$	$	$ .....
600 x 300 to 400 x 200	$	$	$	$	$ .....

SHEET METAL DUCT SIZE MM	RATE PER TRANSITION *** PA AS4254 PRESSURE CLASS - INTERNALLY INSULATED				
	R1.2	R1.6	R2.0	R2.4	R3.0
2000 x 2000 to 1500 x 1500	$ ……	$ ……	$ ……	$ ……	$ ……
1500 x 1500 to 1000 x 1000	$ ……	$ ……	$ ……	$ ……	$ ……
1000 x 1000 to 1000 x 400	$ ……	$ ……	$ ……	$ ……	$ ……
800 x 400 to 600 x 300	$ ……	$ ……	$ ……	$ ……	$ ……
600 x 300 to 400 x 200	$ ……	$ ……	$ ……	$ ……	$ ……

FLEXIBLE DUCT SIZE MM	LOW PRESSURE INSULATED
200 dia.	$ ……
250 dia.	$ ……
300 dia.	$ ……

1 Supply Air Outlets

Unit rates for the following shall allow for work to be carried out after erection of the ceiling, but shall exclude costs for removal and replacement of ceiling tiles.

a	Installation of an additional perimeter zone supply air outlet including connection of 3m of flexible duct and spigot with butterfly damper fitted to main duct.	$ ……
b	Installation of an additional centre zone supply air outlet including connection of 3m of flexible duct and spigot with butterfly damper fitted to main duct.	$ ……
c	Relocation of a supply air outlet including reconnection of flexible duct but excluding costs of flexible duct.	$ ……

1 Labour Rates

Labour rate applicable for work time on site and in factory and shall include all loadings and allowances apart from overhead and profit covered by Item 7 below.

	RATE PER HOUR		
	Normal Time	**Time x 1½**	**Time x 2**
Ductwork - Factory Manufacture	$ ……	$ ……	$ ……
Ductwork - Site Installation	$ ……	$ ……	$ ……
Pipework - Factory Manufacture	$ ……	$ ……	$ ……
Pipework - Site Installation	$ ……	$ ……	$ ……
Supervision - Site Installation	$ ……	$ ……	$ ……
Commissioning	$ ……	$ ……	$ ……
Drawing Office	$ ……	$ ……	$ ……
Maintenance	$ ……	$ ……	$ ……
	$ ……	$ ……	$ ……

1 Equipment and Materials

Mark up to be applied on cost to purchase materials and equipment	$ ……

2 Specialist Installers

Mark up to be applied on specialist installer works (e.g. Thermal Insulation, Controls, Painting)	$ ……

3 Overheads and Profit

Overheads and profit on total Contract value.	$ ……

4 Variation Deductions

Percentage of addition rates to be applied for deductions.	……%
Add notes as applicable to describe how variation deductions shall be costed.	……%

T.7 Schedule of deviations

Provide complete details of those instances where the tender submission does not fully comply with the specified requirements.

DO NOT SCALE

BUILDING C1 IVANHOE ESTATE MACQUARIE PARK

MECHANICAL SERVICES

PREPARED BY

wsp

MECHANICAL DRAWING INDEX

C1-ME-0-000-00	COVER SHEET AND DRAWING INDEX
C1-ME-0-100-00	LEGEND
C1-ME-1-000-01	DETAILS SHEET
C1-ME-1-100-01	TYPICAL STUDIO DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-02	TYPICAL 1BD DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-03	TYPICAL 2BD DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-04	TYPICAL STUDIO DWELLING (MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-05	TYPICAL 1BD DWELLING (MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-06	TYPICAL 2BD DWELLING (MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-1-100-07	TYPICAL TOWNHOUSE - AIR CONDITIONING AND VENTILATION LAYOUT
C1-ME-3-100-01	VENTILATION SCHEMATIC
C1-ME-3-100-02	VENTILATION SCHEMATIC
C1-ME-3-100-03	VENTILATION SCHEMATIC
C1-ME-3-100-04	HHW SCHEMATIC
C1-ME-4-000-01	TYPICAL FLOOR - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-000-03	TYPICAL FLOOR - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-B01-01	BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-B01-02	BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE
C1-ME-4-B01-03	BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-B02-01	BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-B02-02	BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE
C1-ME-4-B02-03	BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-B03-01	BASEMENT 3 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-B03-02	BASEMENT 3 - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE
C1-ME-4-B03-03	BASEMENT 3 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-G01-01	LOWER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-G01-02	LOWER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE
C1-ME-4-G01-03	LOWER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-G02-01	UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-G02-02	UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE
C1-ME-4-G02-03	UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-L12-01	LEVEL 12 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-L12-03	LEVEL 12 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-L13-01	LEVEL 13 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST
C1-ME-4-L13-03	LEVEL 13 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-R19-03	ROOF - AIR CONDITIONING AND VENTILATION LAYOUT-EAST
C1-ME-4-R20-01	ROOF - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
COVER SHEET AND DRAWING INDEX

SCALE @ A1:	CHECKED:	APPROVED:
N.T.S	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-0-000-00 REV: P1

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DRAWING CREATED IN REVIT.

LEGEND OF SYMBOLS

DO NOT SCALE

DUCTWORK

AxB — RECTANGULAR DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOT VIEWED

Ø — CIRCULAR SPIRAL DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)

A/B — OVAL DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOTE VIEWED

NOMINAL 25mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 38mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 50mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 75mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

NOMINAL 100mm INTERNALLY LINED ACOUSTIC DUCTWORK
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FRL A/B/C — FIRE RATED DUCTWORK
A DENOTES STRUCTURAL
B DENOTES INTEGRITY
C DENOTES INSULATION

AxB — EXTERNALLY INSULATED RECTANGULAR DUCTWORK
DUCT AIRWAY DIMENSIONS (mm)
A DENOTES SIDE VIEWED
B DENOTES SIDE NOT VIEWED
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FLEXIBLE DUCTWORK C/W SPIGOTS & DAMPER
REFER TO SCHEDULE FOR SIZING
REFER TO SPECIFICATION, SECTION "SCHEDULES", "SCHEDULE OF THERMAL INSULATION" FOR MINIMUM R-VALUE REQUIRED.

FLEXIBLE CONNECTION

FD / FSD — FIRE DAMPER/MOTORISED SMOKE DAMPER
COMPLETE WITH ACCESS PANEL

CC / HC — COIL - CC COOLING COIL
HC HEATING COIL

ELECTRIC DUCT HEATER

PITOT TUBE TEST POINT

METERING PLATE IN DUCT

AP — DUCT ACCESS PANEL
(PANEL ON TOP OR BOTTOM/PANEL ON SIDE)

DUCTWORK ATTENUATOR

SPIGOT C/W DAMPER

B — BLANK OFF DUCT

SU/SD — DUCT RISE AND FALL IN DIRECTION OF AIRFLOW
SD - SET DOWN SU - SET UP

SUPPLY AIR DUCT CROSS SECTION (DROP/RISE)

RETURN AIR DUCT CROSS SECTION (DROP/RISE)

CIRCULAR DUCT CROSS SECTION (DROP/RISE)

SQUARE/RADIUS BEND WITH TURNING VANES
(ACOUSTIC VANES WHERE SPECIFIED)

AIR DISTRIBUTION

A/B-C — SUPPLY AIR REGISTER

A/B-C — SUPPLY AIR DIFFUSER C/W CUSHION HEAD.
A DENOTES FACE SIZE
B DENOTES NECK SIZE
C DENOTES AIR QUANTITY IN LITRES PER SECOND
SHADED QUADRANTS DENOTE BLANKED SECTIONS

A/B-C — THERMAFUSER

A/B-C — CIRCULAR SUPPLY AIR DIFFUSER

A/B-C — CIRCULAR SWIRL SUPPLY AIR DIFFUSER

A — DOUBLE SIDED LIGHT AIR BOOT
A L/s UNLESS NOTED OTHERWISE

A — SINGLE SIDED LIGHT AIR BOOT
A L/s UNLESS NOTED OTHERWISE

A — LINEAR SLOT DIFFUSER/T-BAR C/W SUPPLY AIR PLENUM.
REFER SPECIFICATION

A-C — RETURN / RELIEF / EXHAUST AIR GRILLE

DEEP BED FILTER

V-FORM FILTER

PANEL FILTER

DOOR GRILLE
REFER TO SCHEDULE

ELECTRICAL/CONTROLS

MECHANICAL DISTRIBUTION BOARD (MDB) OR LOCAL CONTROL PANEL (AS NOTED)

VSD — VARIABLE SPEED DRIVE

WORKS-IN-CONNECTION (BY OTHERS)

A / P — CEILING MOUNTED ACCESS PANEL

TD — TUNDISH

FW — FLOOR WASTE

FLEXIBLE DUCT SCHEDULE

SIZE (mm)	AIR QUANTITY RANGE (L/s)
Ø 150	0 - 40
Ø 200	41 - 85
Ø 250	86 - 140
Ø 300	141 - 230
Ø 350	231 - 320
Ø 400	321 - 440
Ø 450	441 - 560
Ø 500	561 - 700

DOOR GRILLE SCHEDULE

TYPE	DIMENSION (NOM)	L/s
A	600x150	0 - 90
B	600x200	91 - 110
C	600x250	111 - 130
D	600x300	131 - 170
E	600x450	171 - 250
F	600x600	251 - 325
G	300x150	0 - 40
U	25mm UNDERCUT	-

SYSTEM SCHEMATIC/OSCI

AIR FLOW

CONTROL

FAN

OPPOSED BLADE DAMPER

T — ROOM TEMPERATURE SENSOR

CO — CARBON MONOXIDE SENSOR

C — ROOM CONTROLLER COMPLETE WITH TEMPERATURE SENSOR

PIPEWORK

HHW PIPE

REFRIGERANT PIPE

CONDENSATE DRAIN PIPE

NATURAL GAS PIPE

ISOLATING VALVE

GATE VALVE

CHECK VALVE

DOUBLE REGULATING CONTROL VALVE

D — DRAIN VALVE

FLANGE

UNION

UNIVERSAL TEST POINT

AUTOMATIC AIR VENT

STRAINER

PUMP

FLEXIBLE CONNECTION

SYPHON TO WASTE

LSV — LOCKSHIELD VALVE WITH DRAINDOWN FACILITY

TRV — THERMOSTATIC RADIATOR VALVE

NOMENCLATURE (GENERAL)

F/R	FLOW/RETURN (SUFFIX)
T/A	TO ABOVE
T/B	TO BELOW
F/A	FROM ABOVE
F/B	FROM BELOW
C/W	COMPLETE WITH
VSD	VARIABLE SPEED DRIVE

NOMENCLATURE

ACC	AIR COOLED CONDENSER
CEF	CARPARK EXHAUST FAN
EAG	EXHAUST AIR GRILLE
EA	EXHAUST AIR
FCU	FAN COIL UNIT
GE	GENERAL EXHAUST
GEF	GENERAL EXHAUST FAN
HHW	HEATING HOT WATER
KEF	KITCHEN EXHAUST FAN
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OAL	OUTSIDE AIR LOUVRE
RA	RETURN AIR
RAD	RADIATOR
RAF	RETURN AIR FAN
RAG	RETURN AIR GRILLE
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SPF	STAIRWELL PRESSURISATION FAN
TE	TOILET EXHAUST
TEF	TOILET EXHAUST FAN
TD	TUNDISH

FCU-G-02
- EQUIPMENT TYPE
- EQUIPMENT NUMBERING
- IDENTIFICATION NO.
- LEVEL ON WHICH EQUIPMENT IS LOCATED

DRAWING CREATED IN REVIT.

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P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

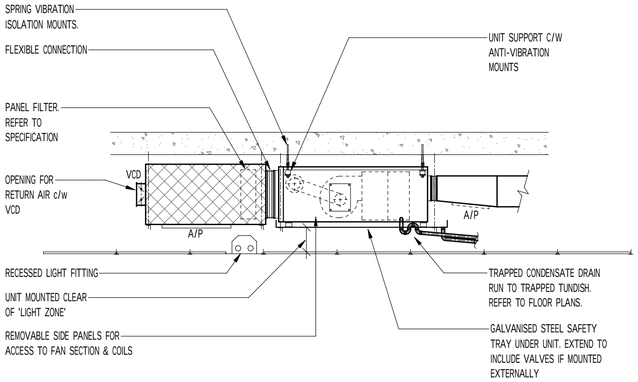
TITLE: MECHANICAL SERVICES LEGEND

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PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

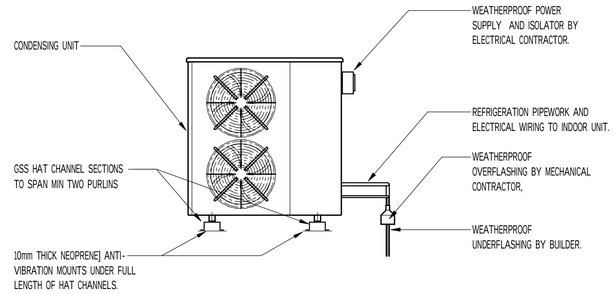
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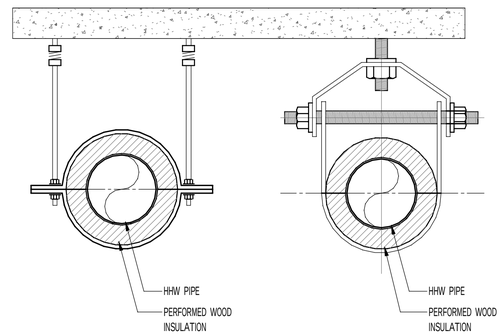
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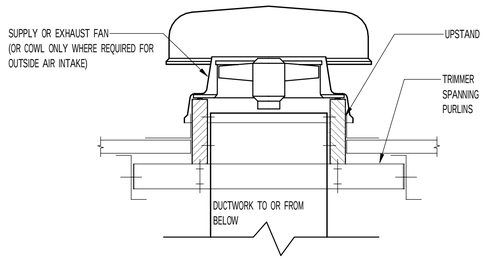


FCU Mounting Detail
N.T.S.

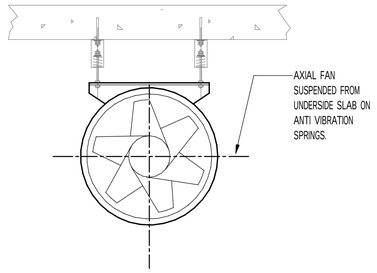


VRF Outdoor Unit Detail
N.T.S.

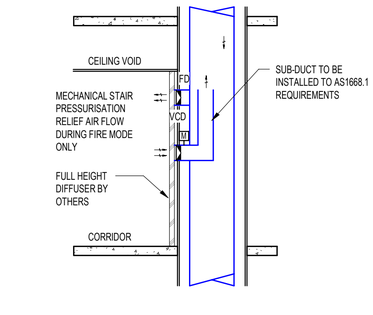




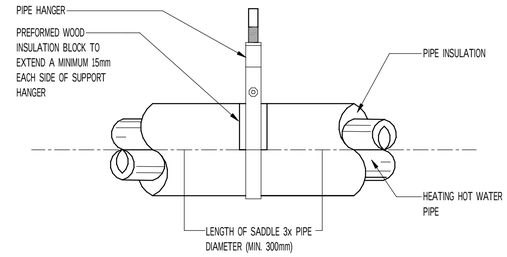
Roof Mounted Supply or Exhaust Fan Installation Detail
N.T.S.



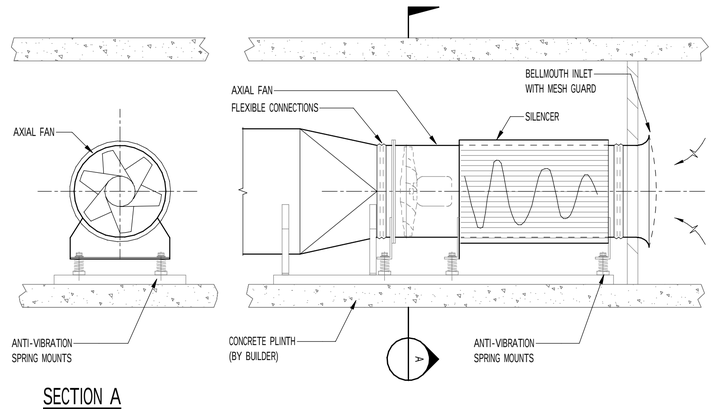
Axial Fan Support Detail
N.T.S.



Stair Pressurisation Relief Air Riser Detail
N.T.S.

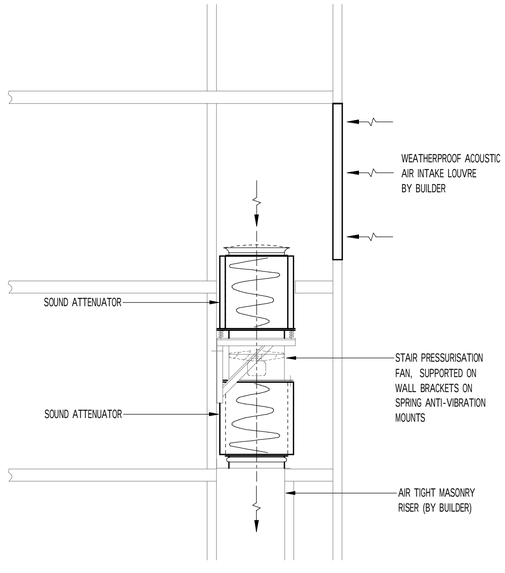


Typical Pipe Installation Details
N.T.S.

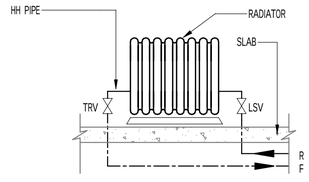


SECTION A
NTS

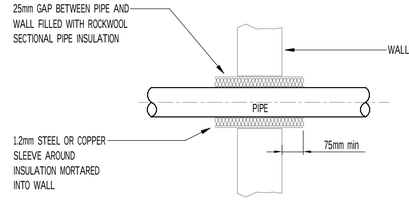
Floor Mounted Axial Flow Fan With Silencer
N.T.S.



Section Detail of Vertical Supported Axial Fan and Attenuators
N.T.S.



Typical Detail of Radiator Pipe Connection
N.T.S.



Pipe Seal for Sound Rated Wall
N.T.S.

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ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

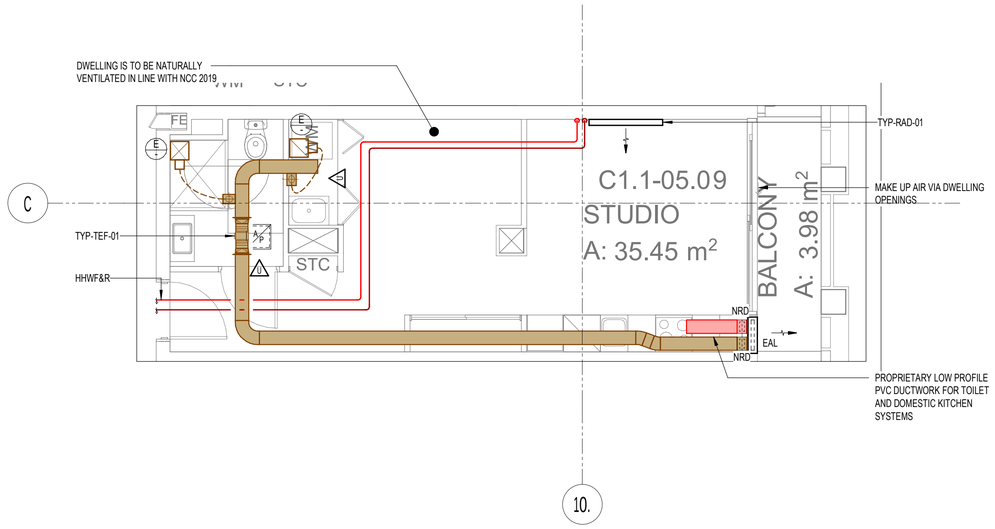
TITLE: MECHANICAL SERVICES DETAILS SHEET

SCALE @ A1:	CHECKED:	APPROVED:
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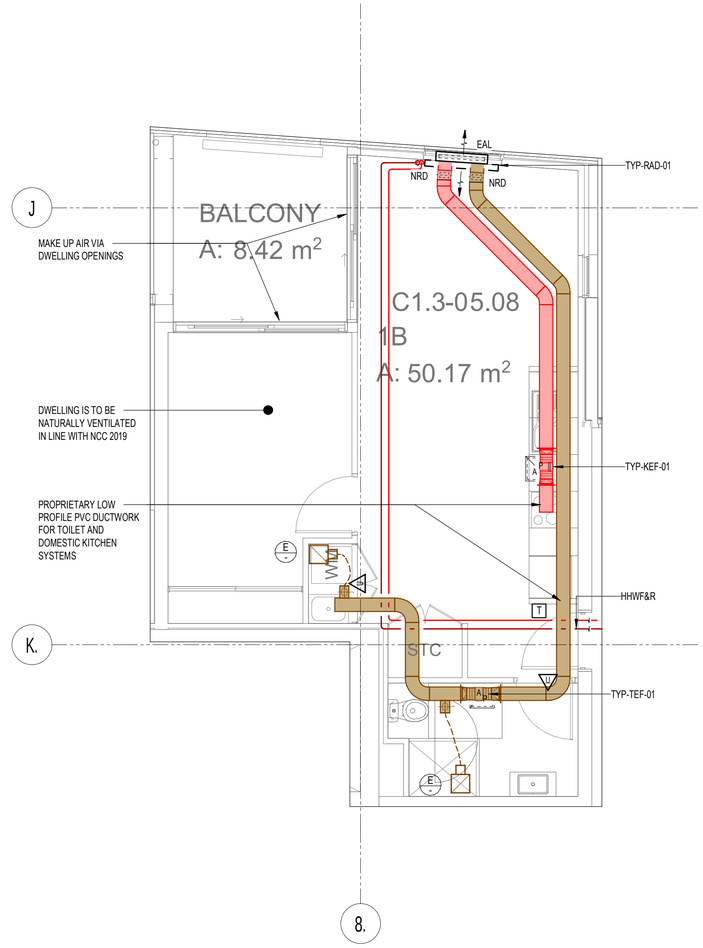
TITLE: MECHANICAL SERVICES
TYPICAL STUDIO DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT

SCALE @ A1:	CHECKED:	APPROVED:
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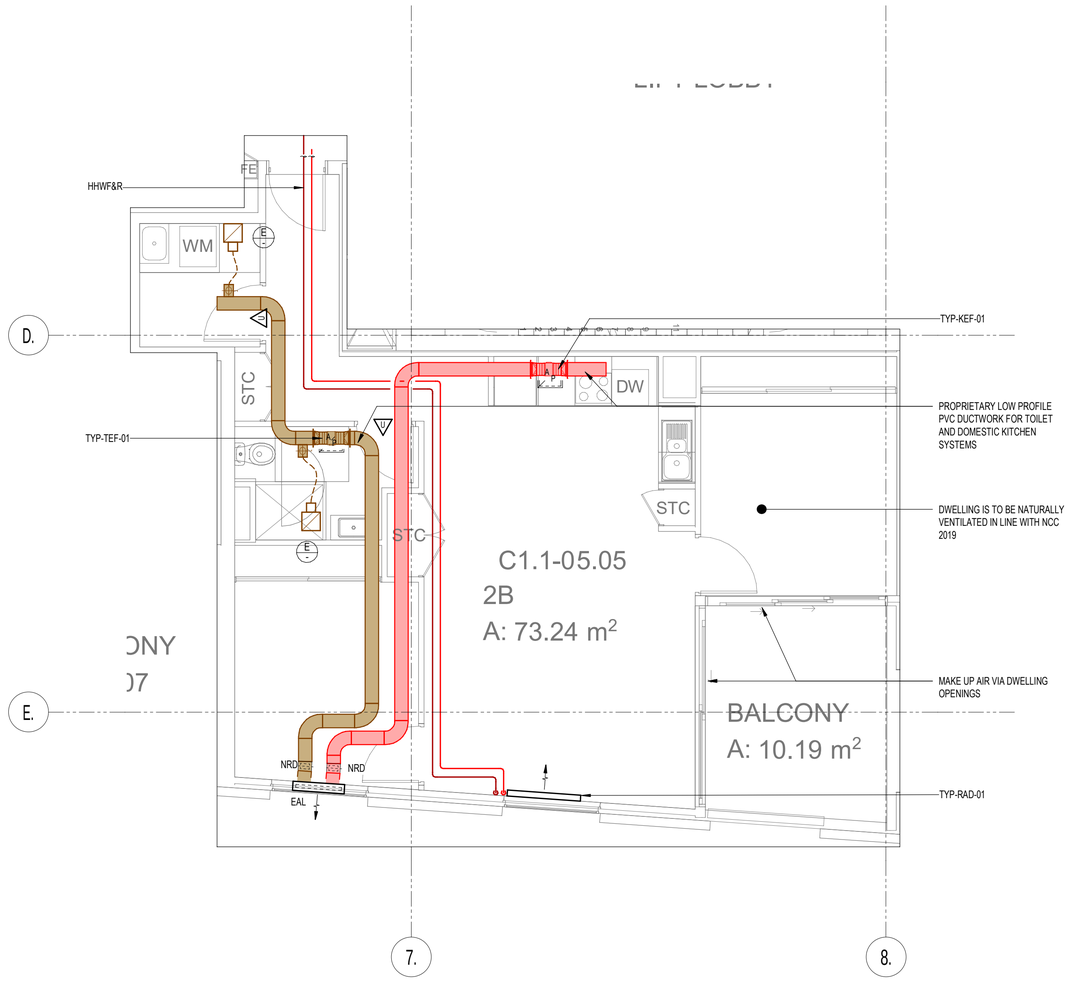
TITLE: MECHANICAL SERVICES
TYPICAL 1BD DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT

SCALE @ A1:	CHECKED:	APPROVED:
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MACQUARIE PARK

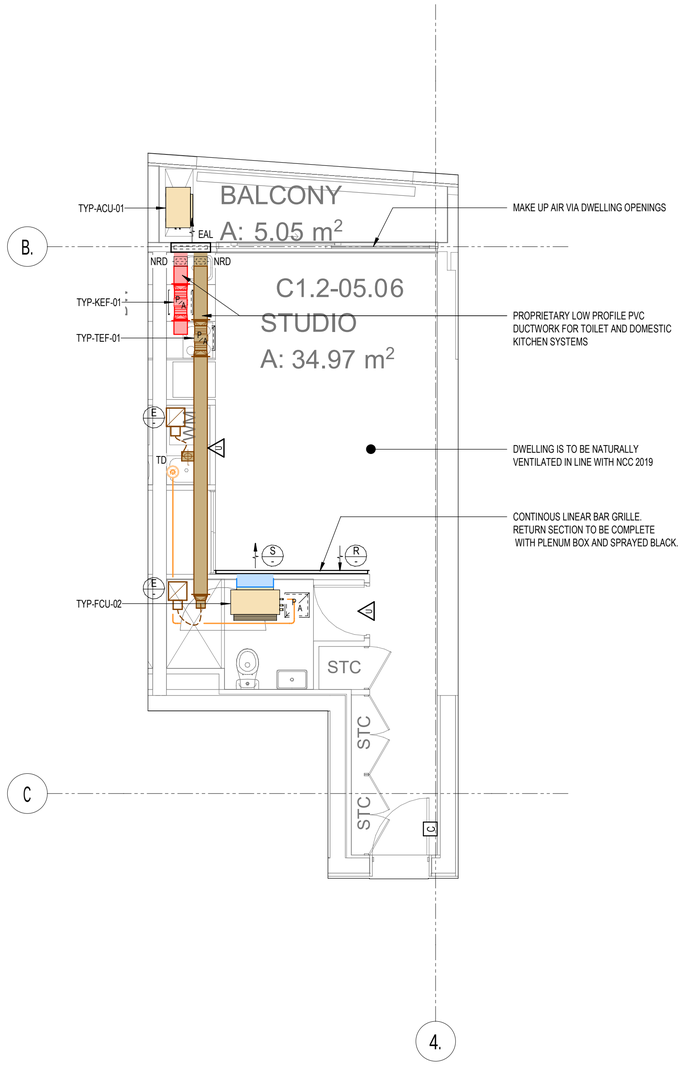
TITLE: MECHANICAL SERVICES
TYPICAL 2BD DWELLING (SOCIAL) - AIR CONDITIONING AND VENTILATION LAYOUT

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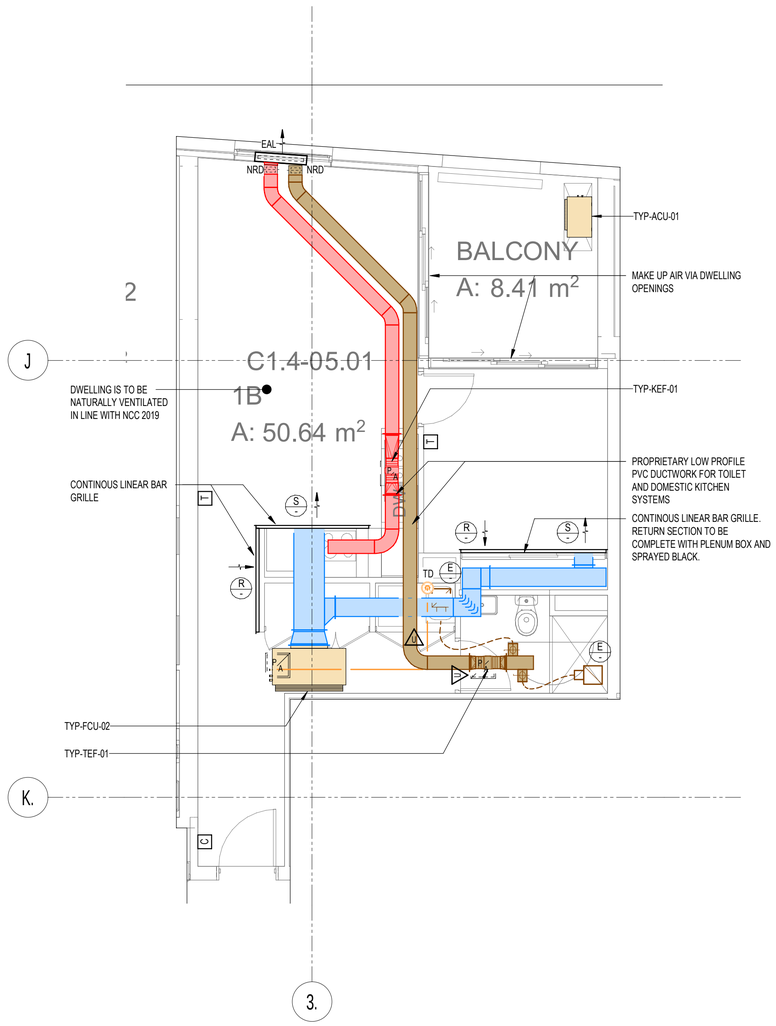
TITLE: MECHANICAL SERVICES
TYPICAL STUDIO DWELLING
(MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT

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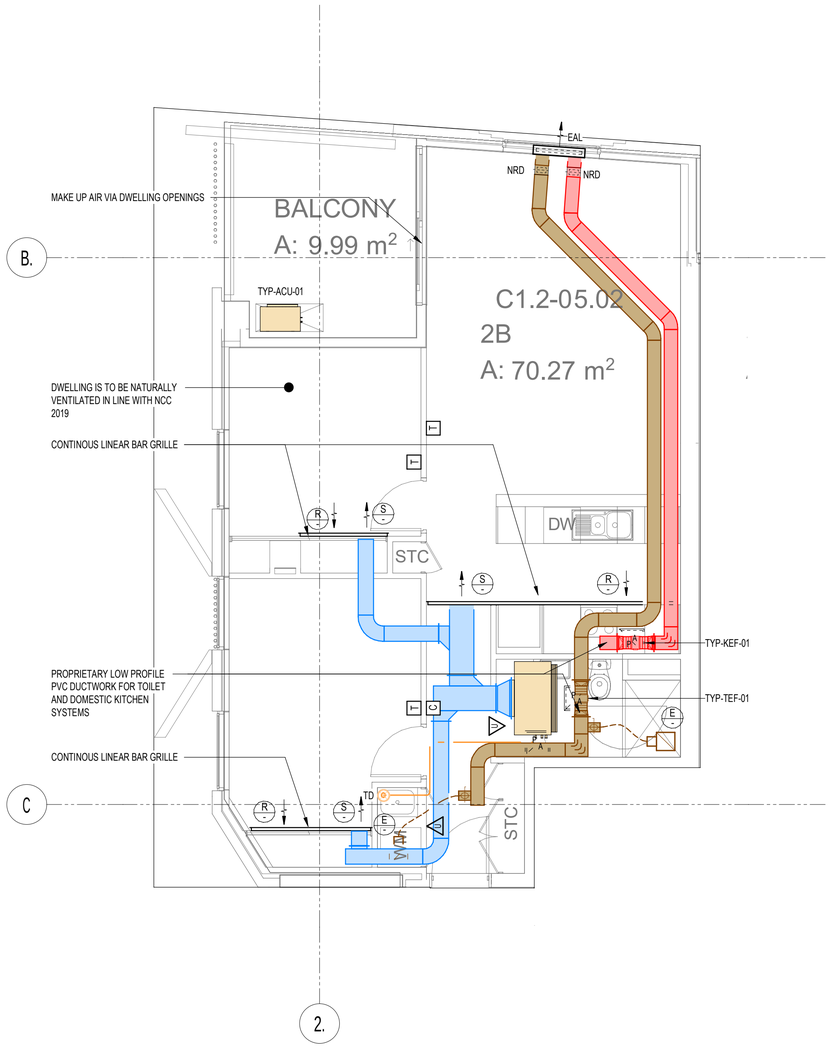
TITLE: MECHANICAL SERVICES
TYPICAL 1BD DWELLING (MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT

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5. THE PURPOSE OF THIS TYPICAL DWELLING DRAWINGS IS TO CONVEY THE INTENT OF OUR DESIGN. THE CONTRACTOR TO ALLOW FOR ADDITIONAL EQUIPMENT, AS NECESSARY TO SUIT ALL DWELLING TYPES.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
TYPICAL 2BD DWELLING (MARKET/AFFORDABLE) - AIR CONDITIONING AND VENTILATION LAYOUT

SCALE @ A1:	CHECKED:	APPROVED:
1:50	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-1-100-06

REV: P1

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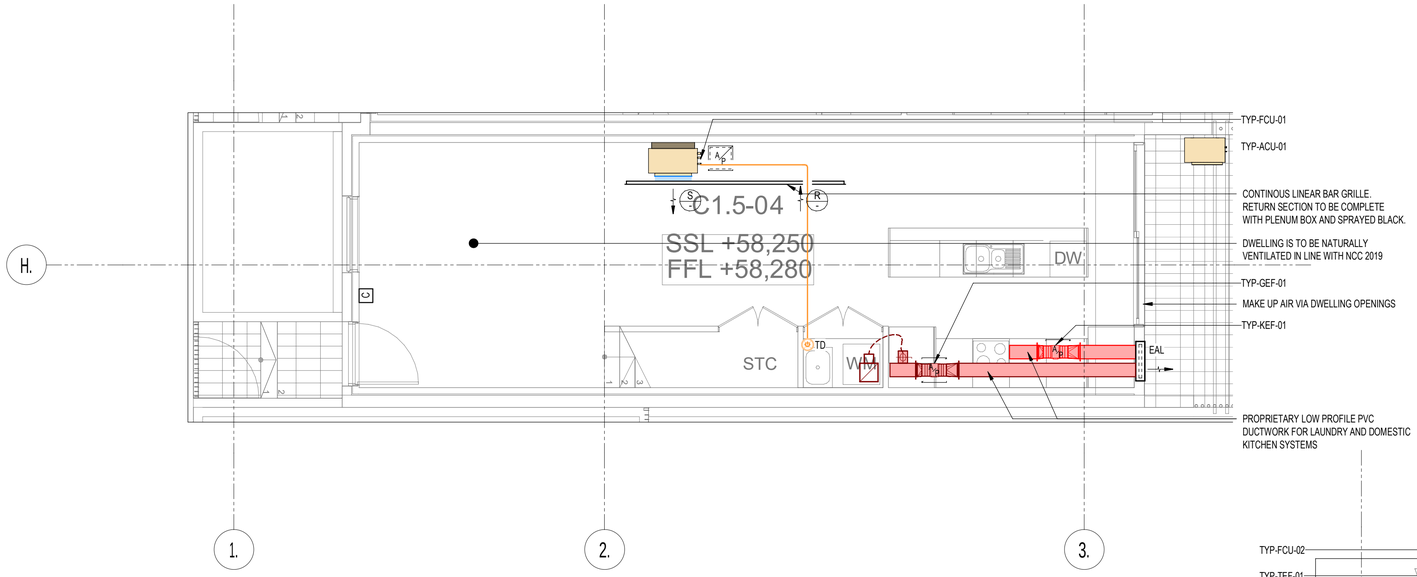
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GENERAL NOTES :

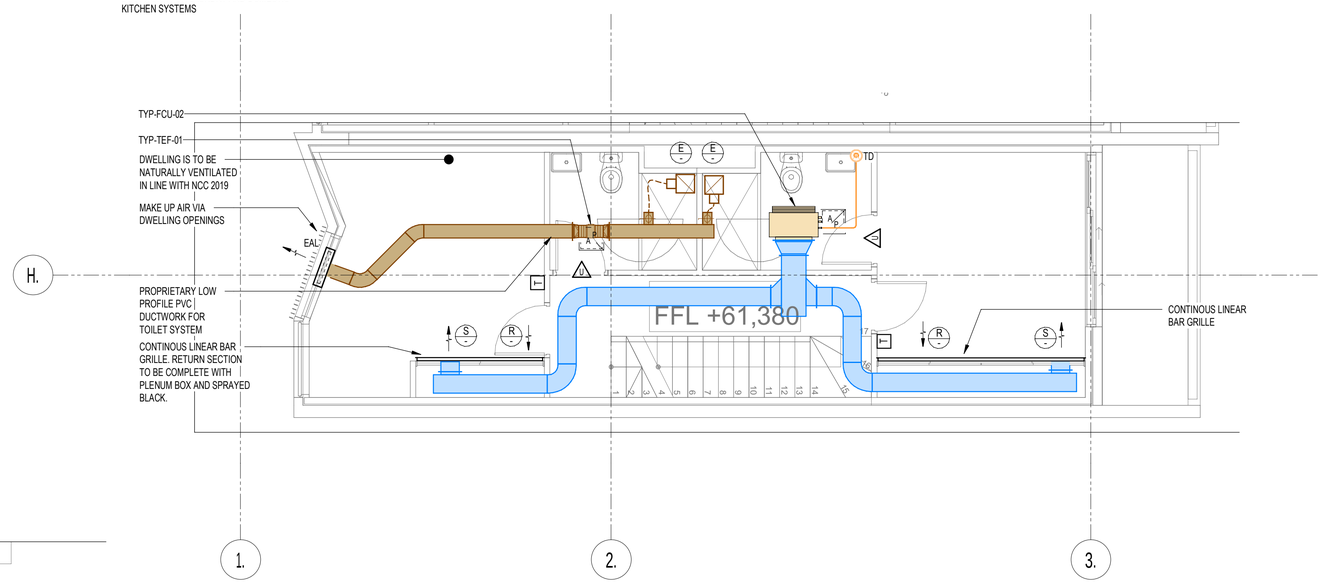
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SPECIFIC NOTES :

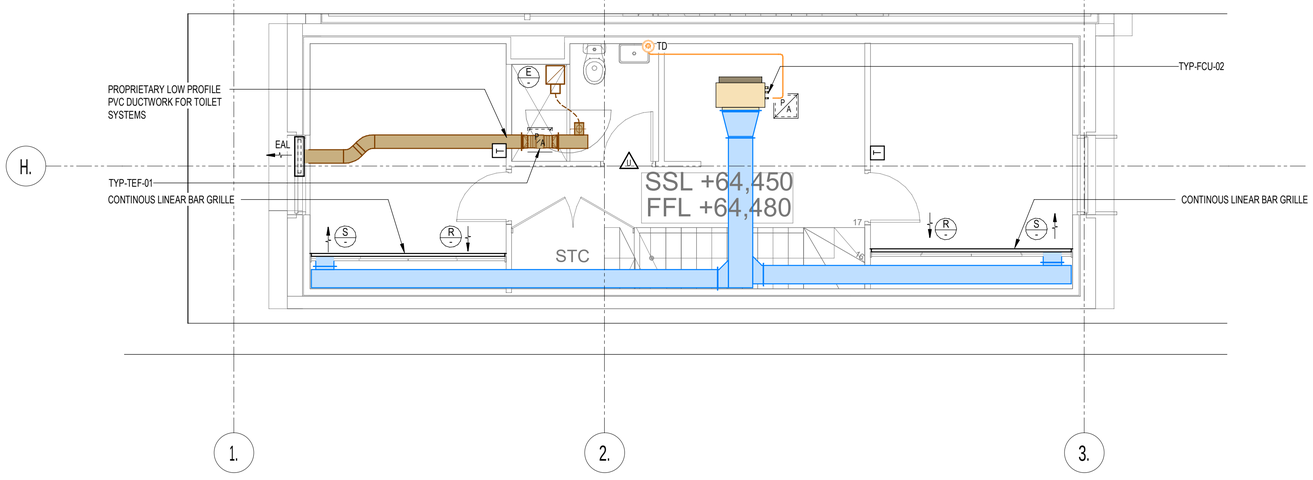
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1 LOWER GROUND PLAN
1 : 50



2 UPPER GROUND PLAN
1 : 50



3 LEVEL 1 PLAN
1 : 50

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

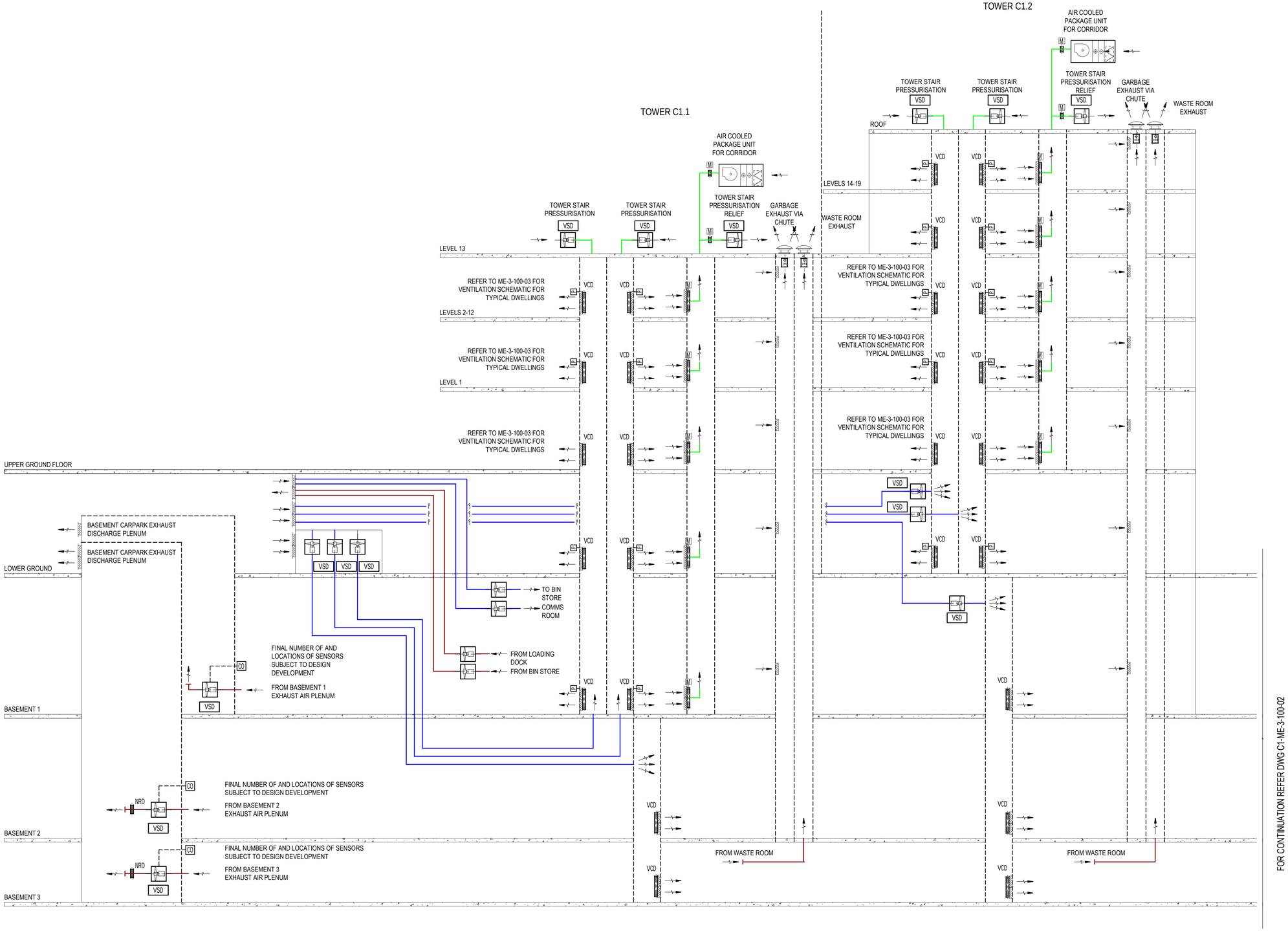
TITLE: MECHANICAL SERVICES
TYPICAL TOWNHOUSE - AIR CONDITIONING AND VENTILATION LAYOUT

SCALE @ A1:	CHECKED:	APPROVED:
1:50	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-1-100-07 REV: P1

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DO NOT SCALE

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P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

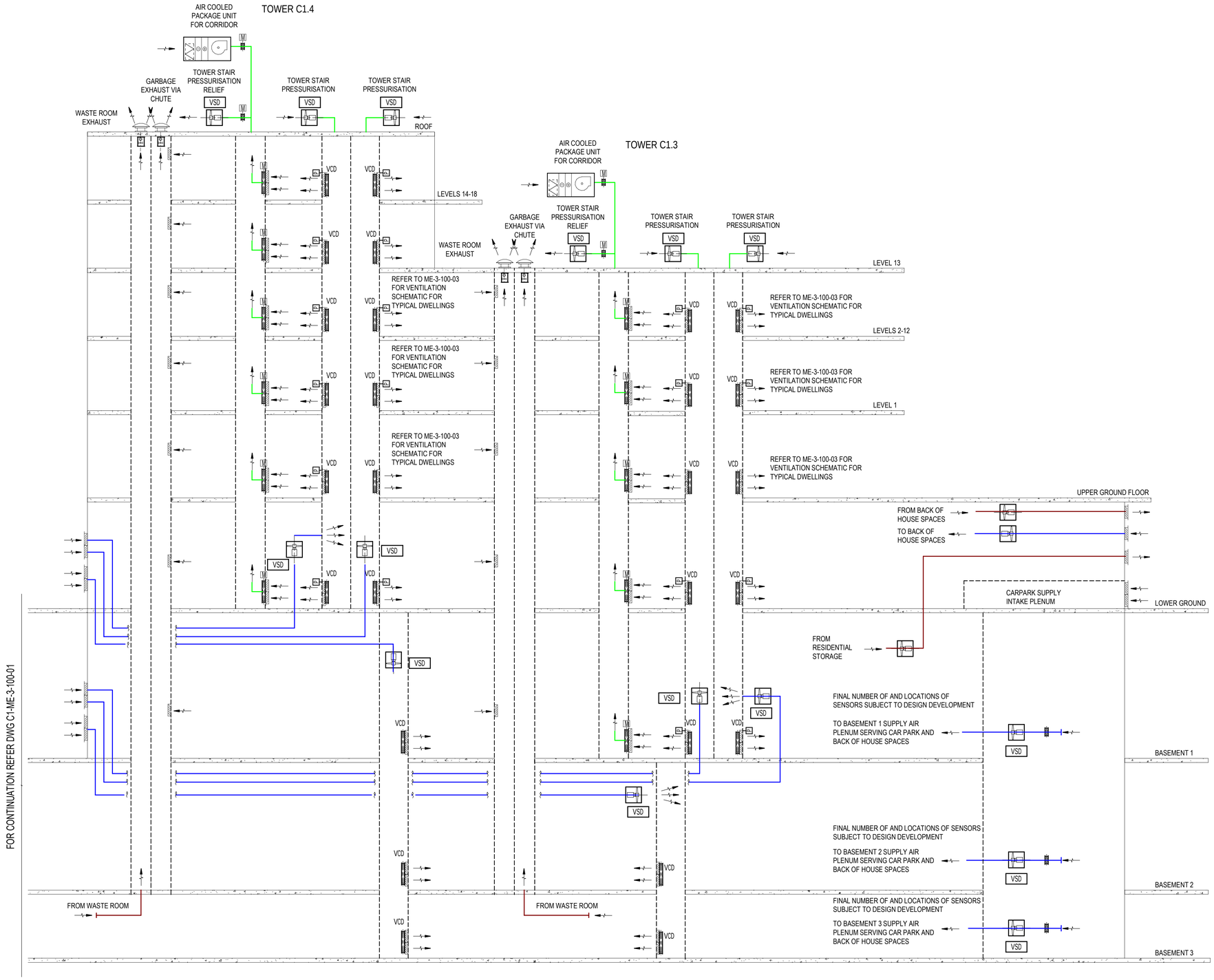
TITLE: MECHANICAL SERVICES
VENTILATION SCHEMATIC

SCALE @ A1:	CHECKED:	APPROVED:
N.T.S	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-3-100-01 REV: P1

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P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
VENTILATION SCHEMATIC

SCALE @ A1:	CHECKED:	APPROVED:
N.T.S	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-3-100-02

REV: P1

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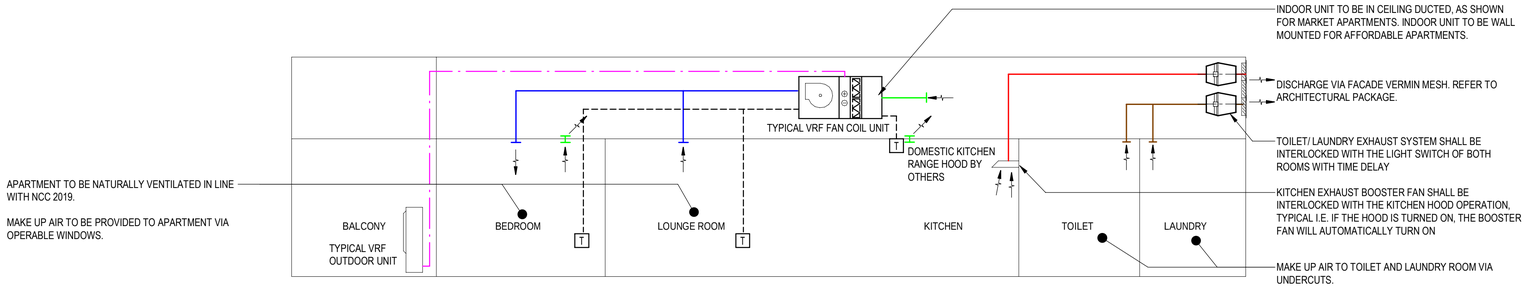
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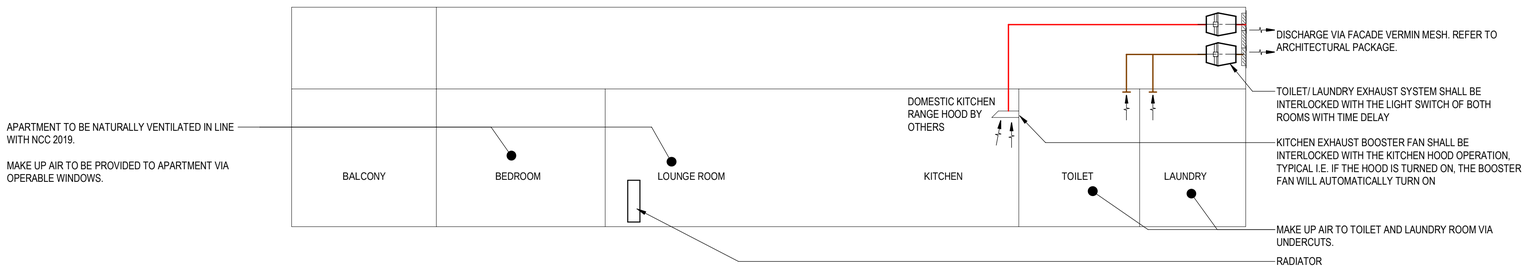
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TYPICAL APARTMENT (MARKET AND AFFORDABLE) SCHEMATIC



TYPICAL APARTMENT (SOCIAL) SCHEMATIC

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
VENTILATION SCHEMATIC

SCALE @ A1:	CHECKED:	APPROVED:
N.T.S	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-3-100-03 REV: P1

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DO NOT SCALE

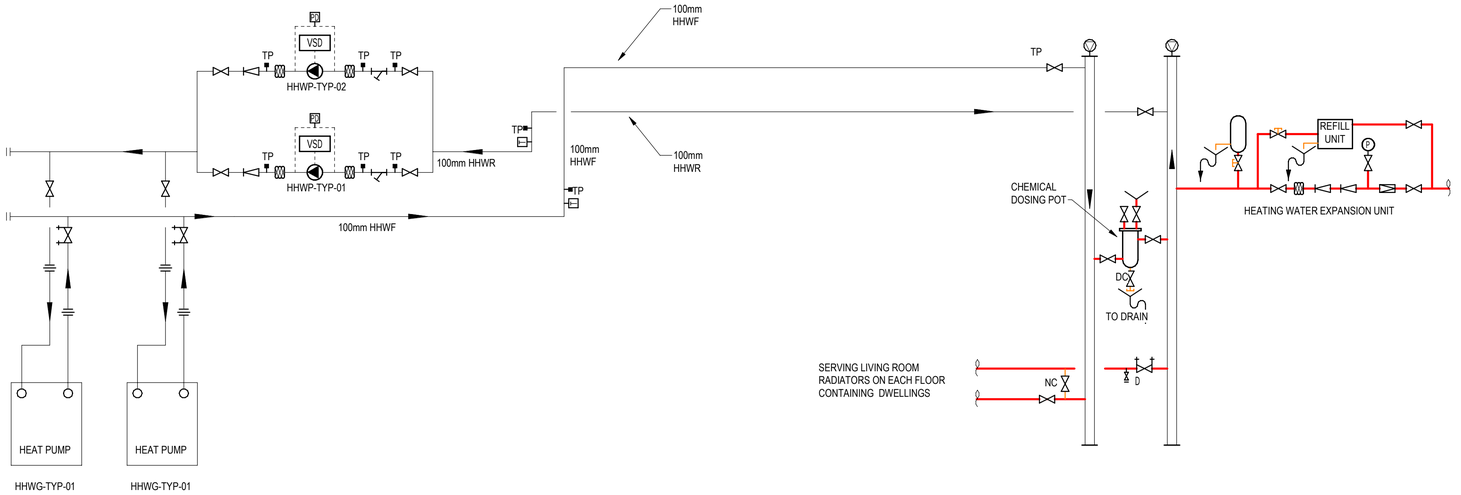
GENERAL NOTES :

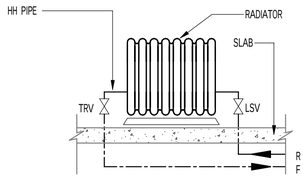
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TOWER C1.1
AND TOWER C1.3





TYPICAL RADIATOR DETAIL

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
HHW SCHEMATIC

SCALE @ A1:	CHECKED:	APPROVED:
N.T.S	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-3-100-04 REV: P1

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DO NOT SCALE

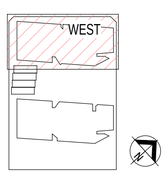
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Key Plan
NOT TO SCALE

DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
TYPICAL FLOOR - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-000-01 REV: P1

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J

K.

L.

M.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

WASTE ROOM EXHAUST FROM BASEMENT 03 ROOM TO ROOF

TYPICAL ON FLOOR WASTE ROOM. MECHANICALLY VENTILATED VIA THE GARBAGE CHUTE, DISCHARGING AT ROOF LEVEL.

TYPICAL STAIR PRESSURISATION SYSTEM SERVING SCISSOR STAIRS.

TYPICAL SHARED SYSTEM.

MECHANICAL VENTILATION SYSTEM TO COMMON CORRIDORS DURING NORMAL MODE.

STAIR PRESSURISATION RELIEF AIR SYSTEM DURING FIRE MODE.

REFER TO MECHANICAL DETAILS SHEET.

REFER TO TYPICAL DWELLINGS ON HATCHED AREAS

FOR HATCHED AREA REFER TO TYPICAL DWELLINGS

TYPICAL ON FLOOR WASTE ROOM. MECHANICALLY VENTILATED VIA THE GARBAGE CHUTE, DISCHARGING AT ROOF LEVEL.

WASTE ROOM EXHAUST FROM BASEMENT 03 ROOM TO ROOF

HEATING HOT WATER PIPEWORK FLOW AND RETURN TO DWELLINGS

TYPICAL STAIR PRESSURISATION SYSTEM SERVING SCISSOR STAIRS.

TYPICAL SHARED SYSTEM.

MECHANICAL VENTILATION SYSTEM TO COMMON CORRIDORS DURING NORMAL MODE.

STAIR PRESSURISATION RELIEF AIR SYSTEM DURING FIRE MODE.

REFER TO MECHANICAL DETAILS SHEET.

EAST

Key Plan
NOT TO SCALE

DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
TYPICAL FLOOR - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-000-03 REV: P1

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INDICATIVE NUMBER AND LOCATIONS OF EXHAUST AIR GRILLES

SUPPLY AIR TO BASEMENT FLOORS BELOW

CSF-B1-01

MSSB-E-B1-02

ARCHITECT TO PROVIDE ACCESS TO PLENUM FOR CLEANING

BSPF-B2-01

GRILLE OPENING TO THE FIRE STAIRS FROM THE STAIR PRESSURIZATION SHAFT

INDICATIVE NUMBER AND LOCATION OF SUPPLY AIR GRILLES

C1.1 STAIR PRESSURISSATION DUCT FOR BASEMENT

C1.1 STAIR PRESSURISSATION DUCT FOR TOWER

C1.1 STAIR PRESSURISSATION DUCT FOR TOWER

CEF-B1-01

TYPICAL CAR PARK EXHAUST AIR FAN AND CAR PARK SUPPLY AIR FAN.

EXTERNAL KEYED ISOLATOR LOCATED LOCAL TO FAN.

MSSB-E-B1-01

PLENUM TO BE OPEN TO THE EXHAUST PLANT

ARCHITECT TO PROVIDE ACCESS TO PLENUM FOR CLEANING

REFER TO TYPICAL DWELLINGS ON HATCHED AREAS

BASEMENT CARPARK EXHAUST AIR LOUVRE BY BUILDER

OAF-B1-01

WE UNDERSTAND THAT THE FIRE ISOLATED STAIR AND DOOR ARRANGEMENT IS SUBJECT TO ARCHITECTURAL CHANGE. WE WILL REVIEW THE CHANGES AND UPDATE FOR TENDER DOCUMENTATION ISSUE.

FOR CONTINUATION REFER DWG C1-ME-4-B01-02

WEST

Key Plan
NOT TO SCALE

DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-B01-01 REV: P1

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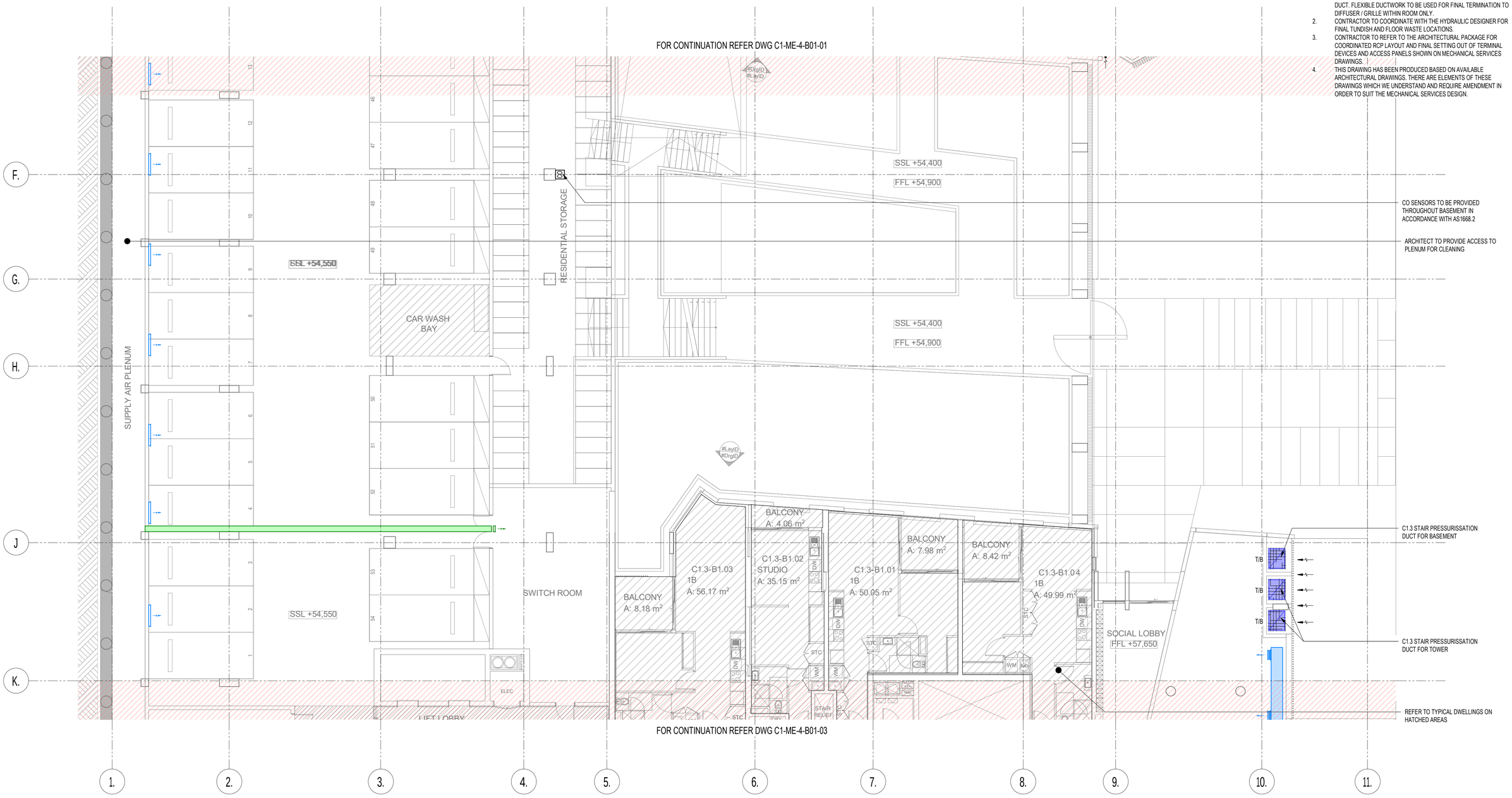
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CENTRE

Key Plan
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DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-B01-02 REV: P1

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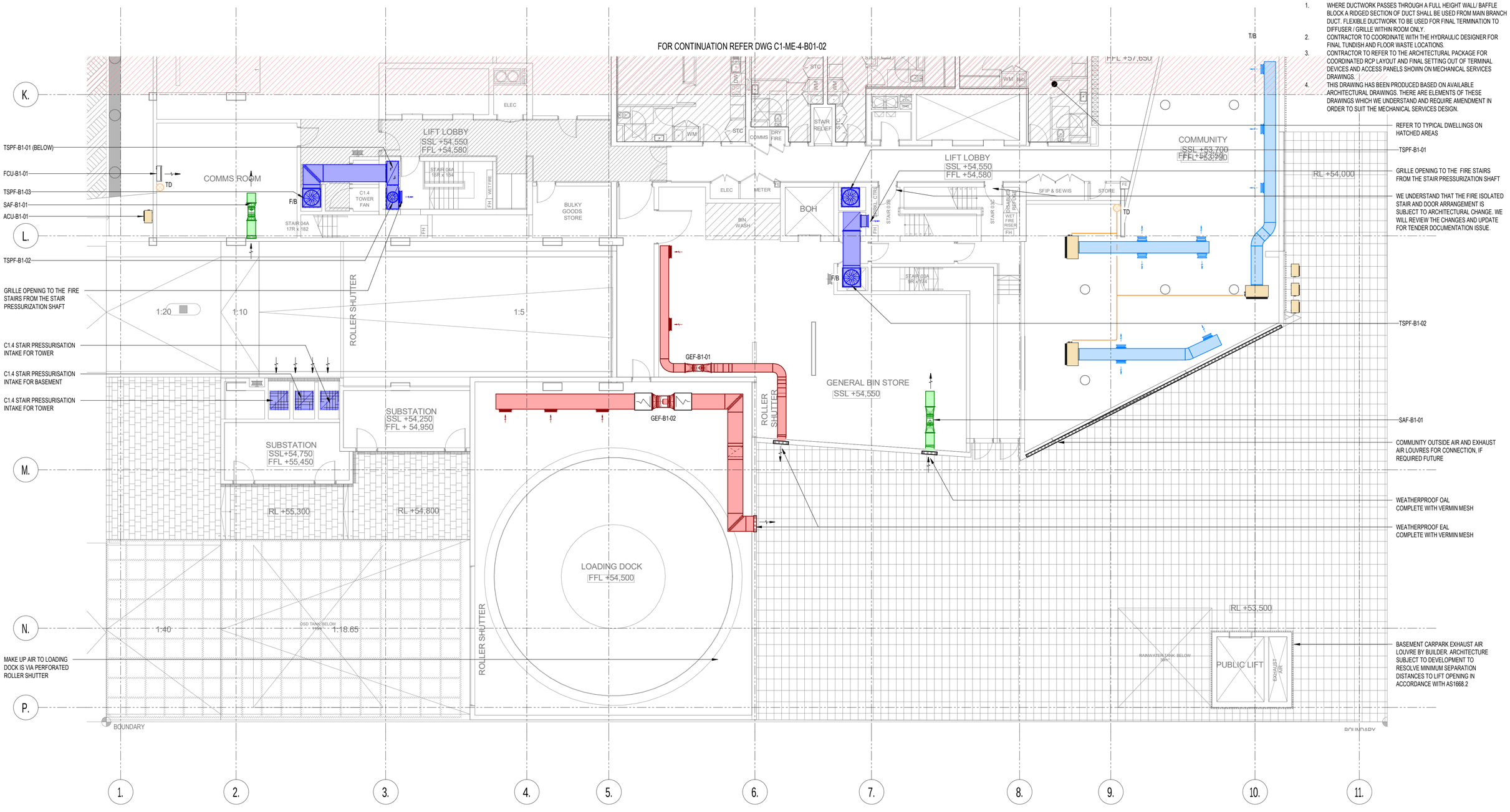
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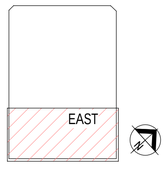
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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 1 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
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PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-B01-03 REV: P1

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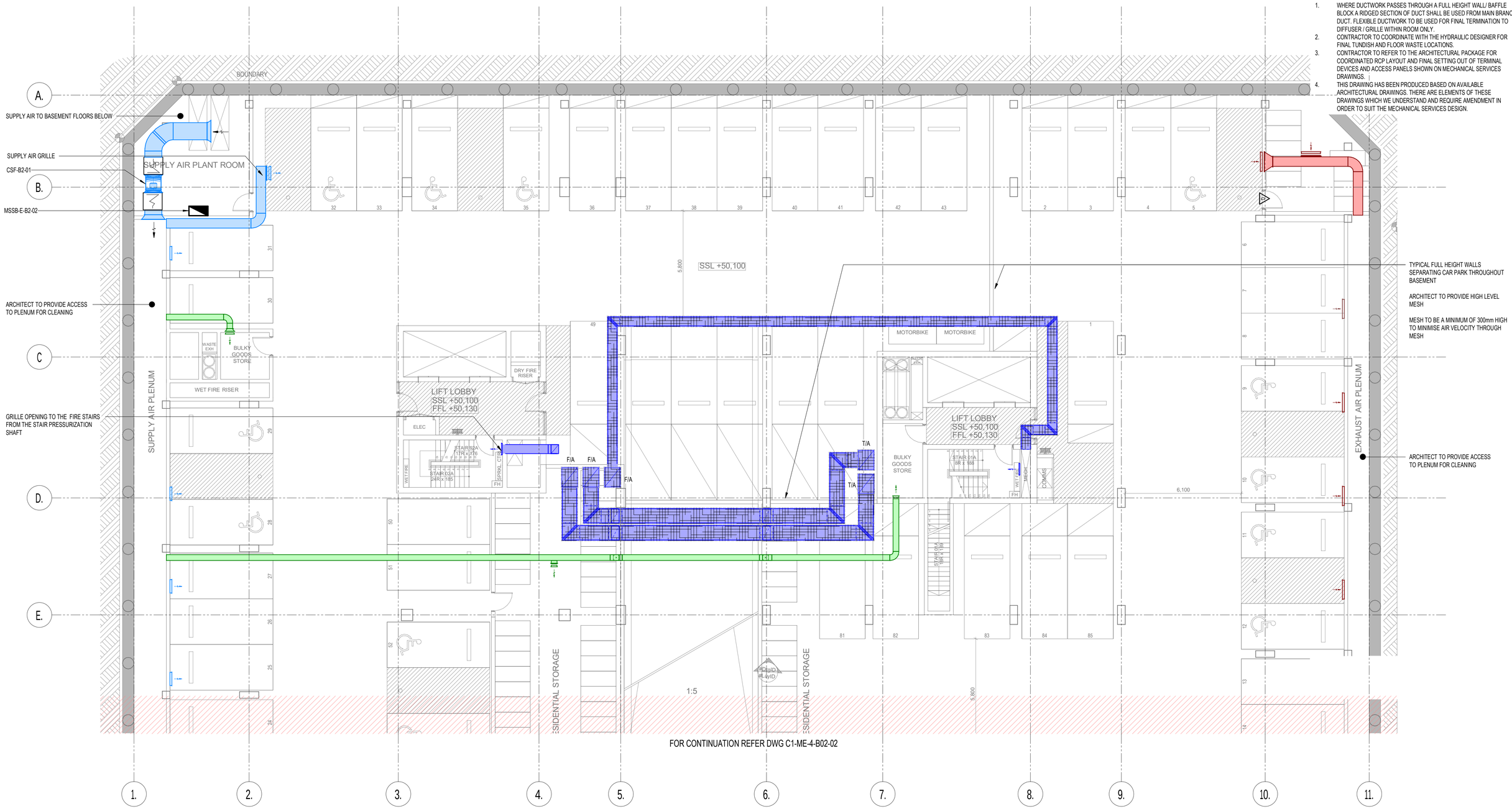
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WEST

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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

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PS107250	JD	JAN 2021

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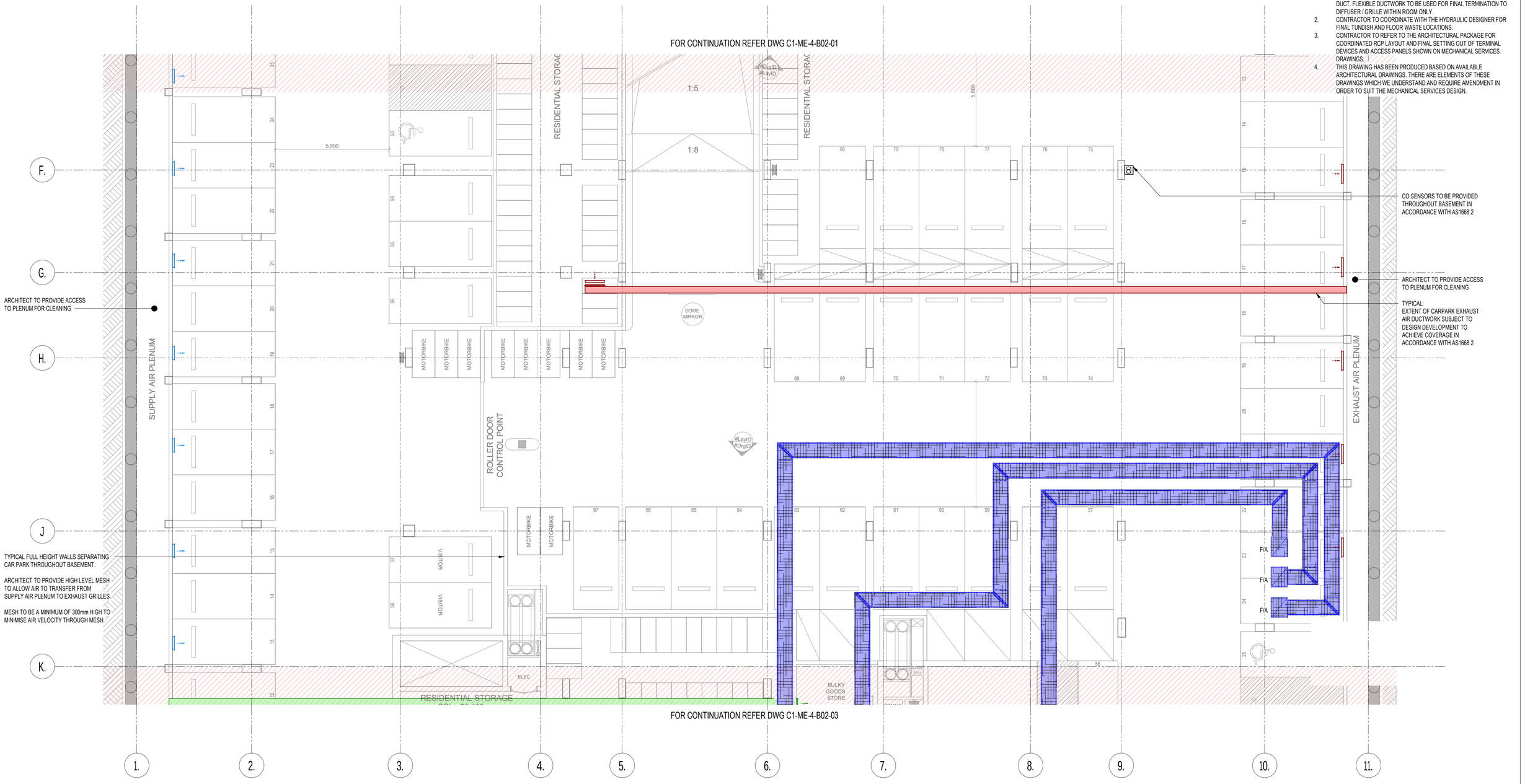
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IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE

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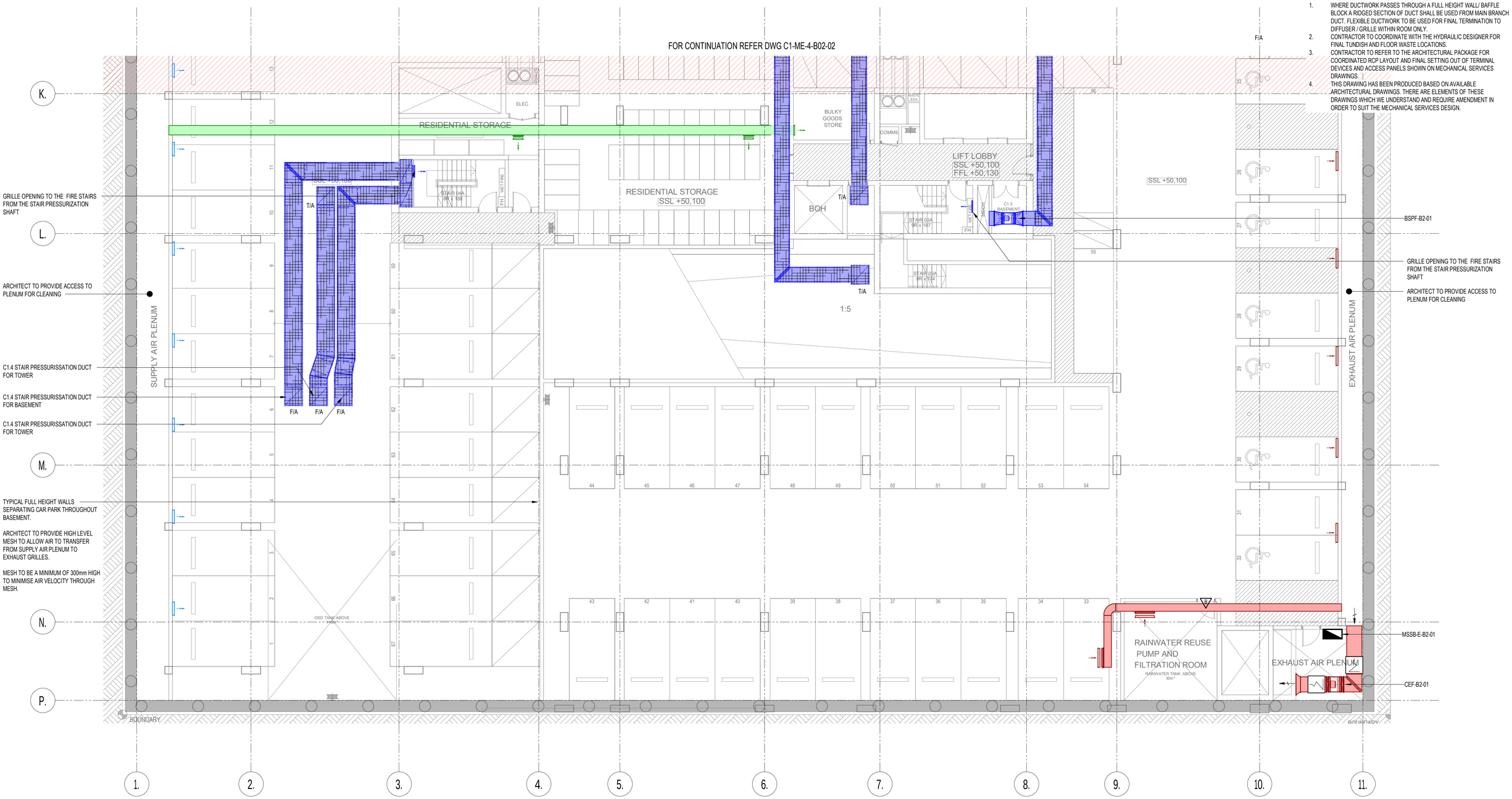
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EAST

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ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 2 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
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PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 3 - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
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PS107250	JD	JAN 2021

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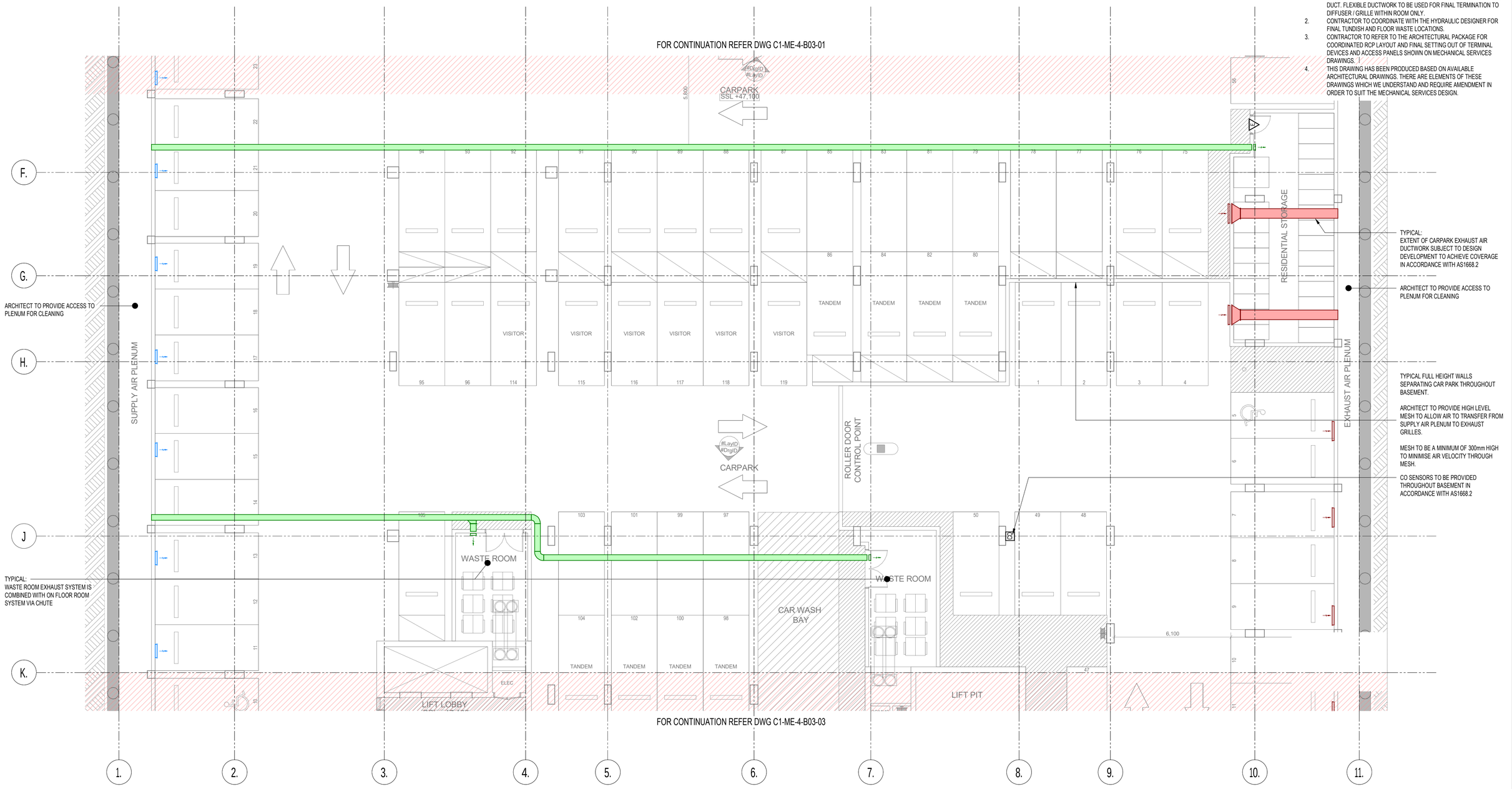
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IVANHOE ESTATE
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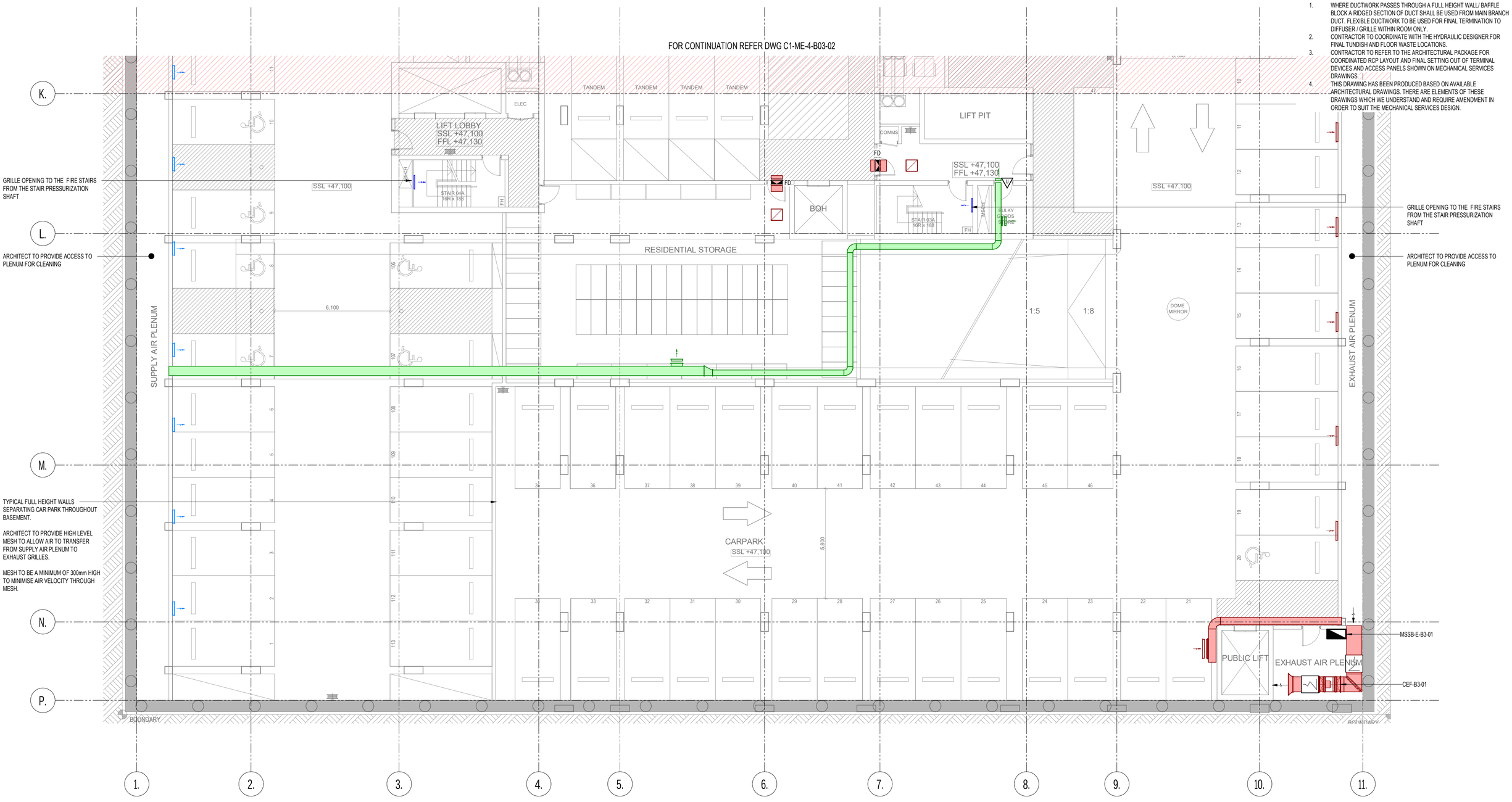
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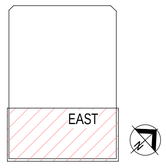
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PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
BASEMENT 3 - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
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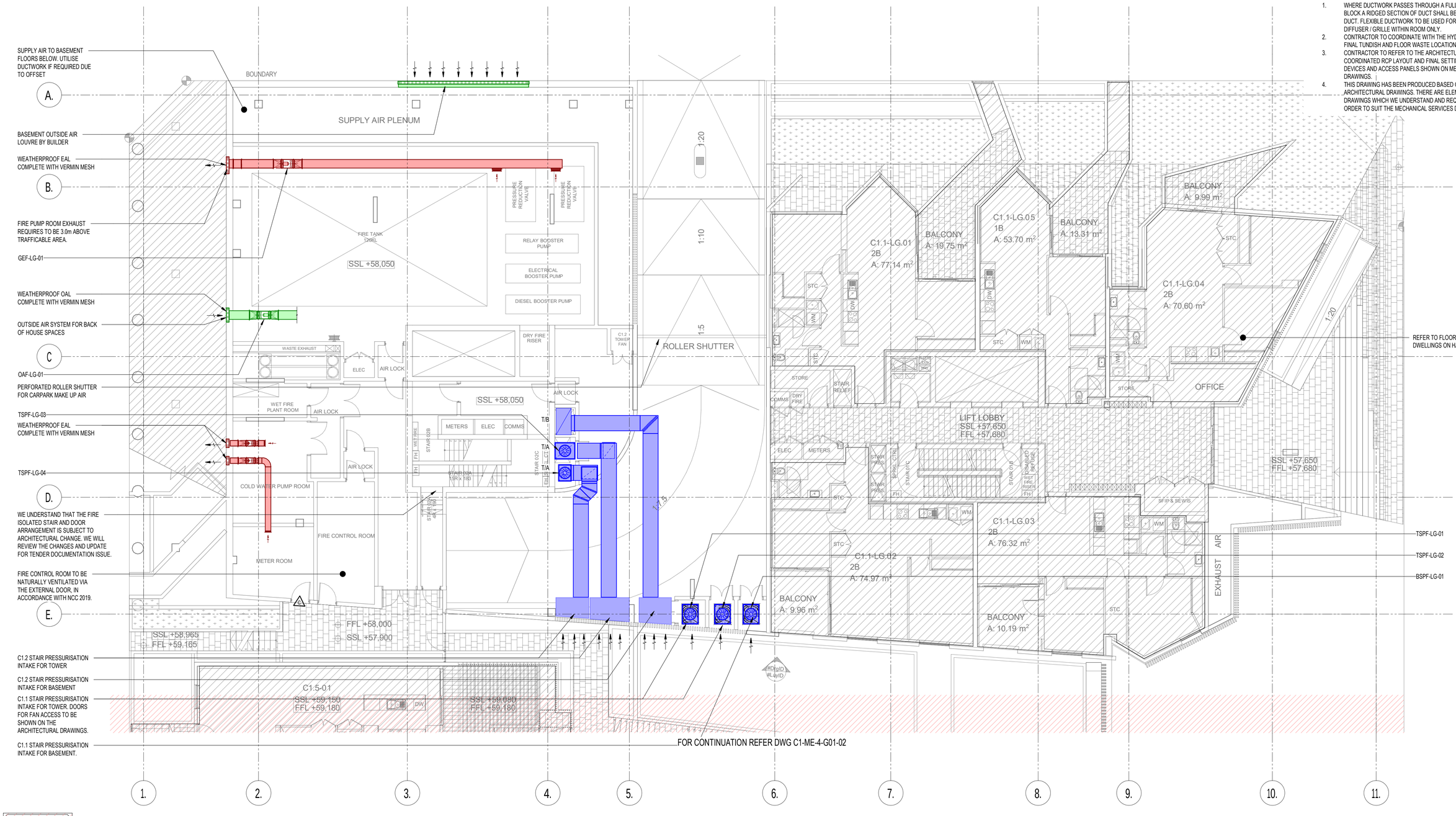
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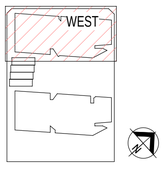
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PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LOWER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
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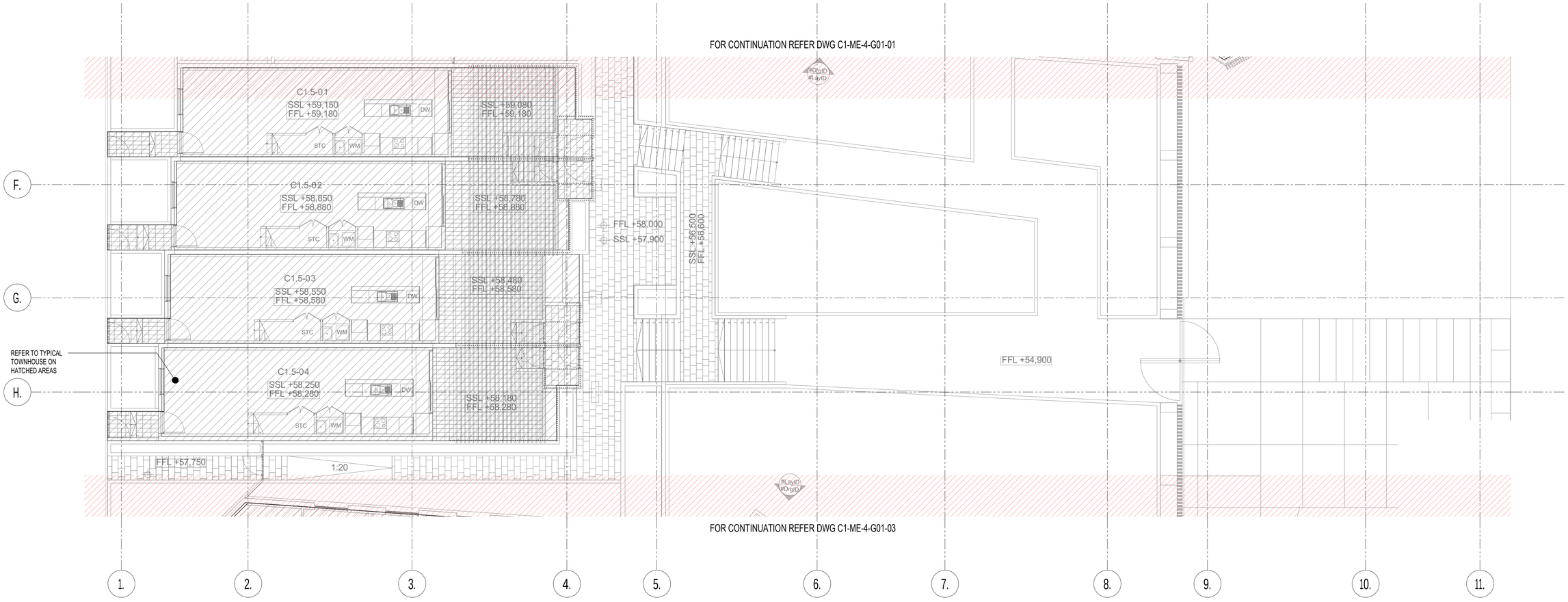
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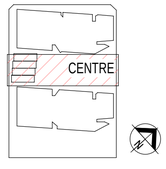
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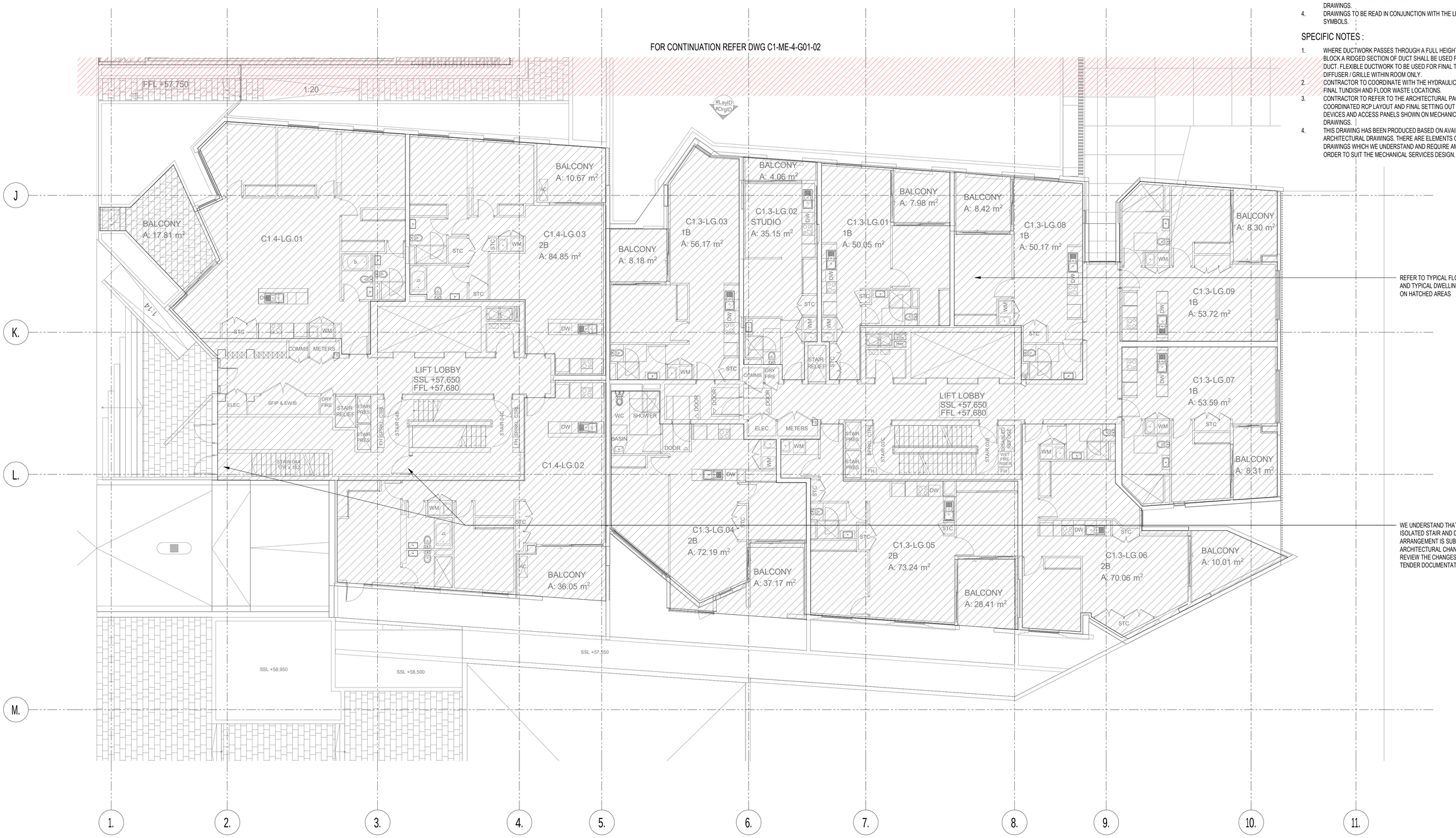
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FOR CONTINUATION REFER DWG C1-ME-4-G01-02



REFER TO TYPICAL FLOOR AND TYPICAL DWELLINGS ON HATCHED AREAS

WE UNDERSTAND THAT THE FIRE ISOLATED STAIR AND DOOR ARRANGEMENT IS SUBJECT TO ARCHITECTURAL CHANGE. WE WILL REVIEW THE CHANGES AND UPDATE FOR TENDER DOCUMENTATION ISSUE.



Key Plan
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DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

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http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LOWER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-G01-03 REV: P1

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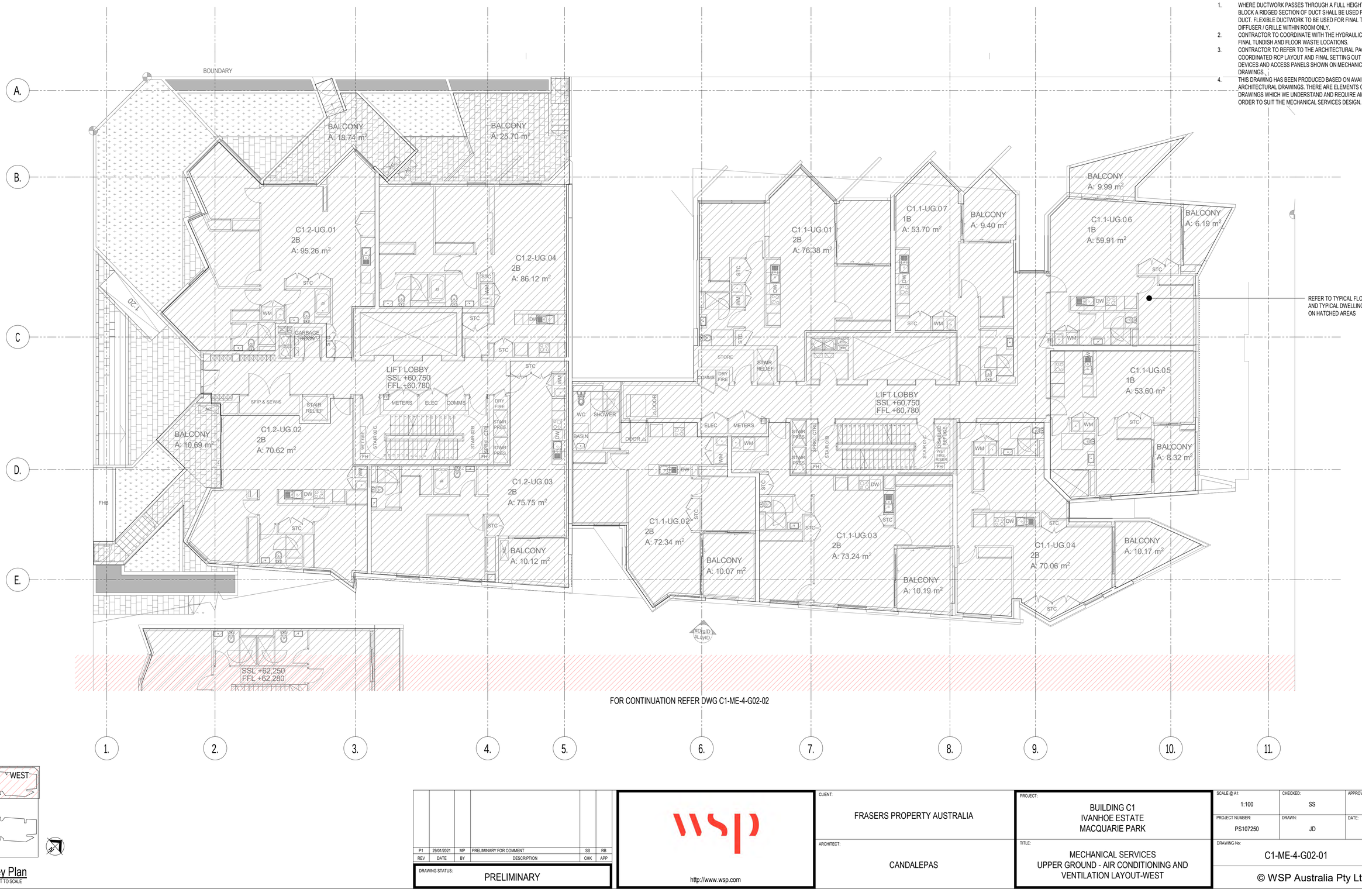
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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
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PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-G02-01 REV: P1

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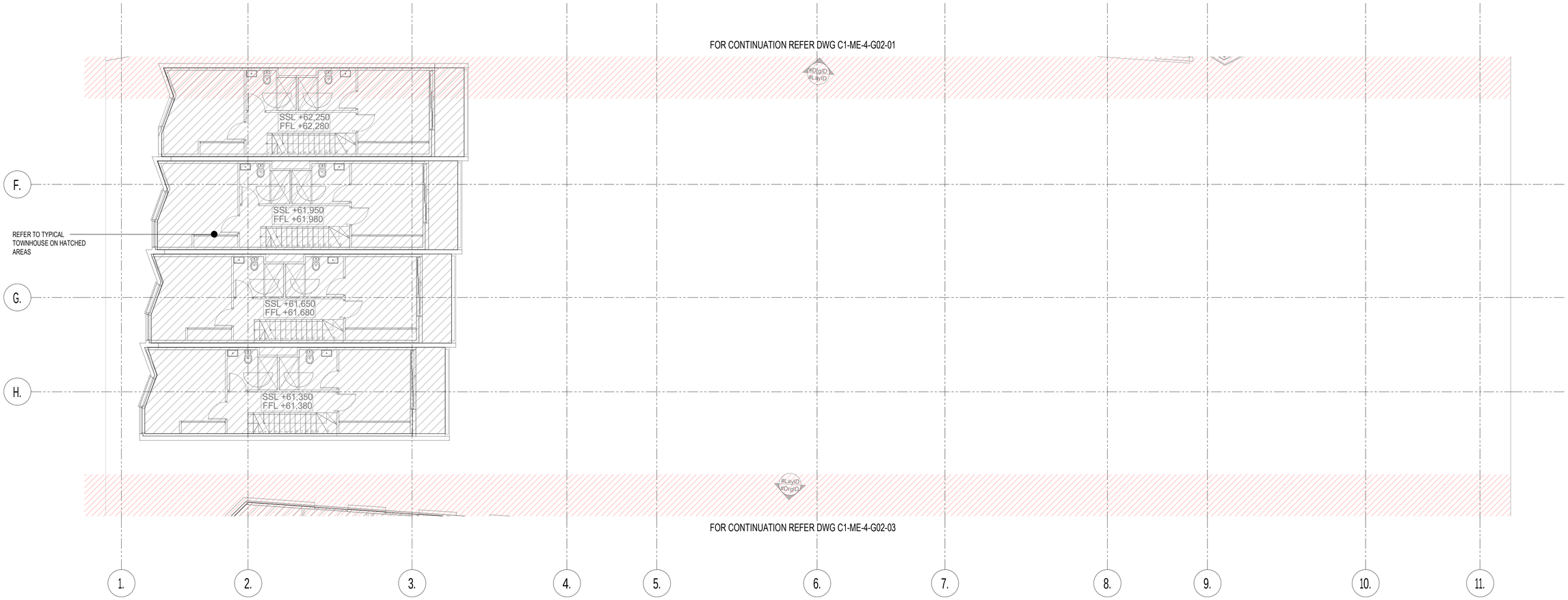
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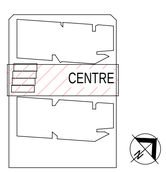
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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-CENTRE

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-G02-02 REV: P1

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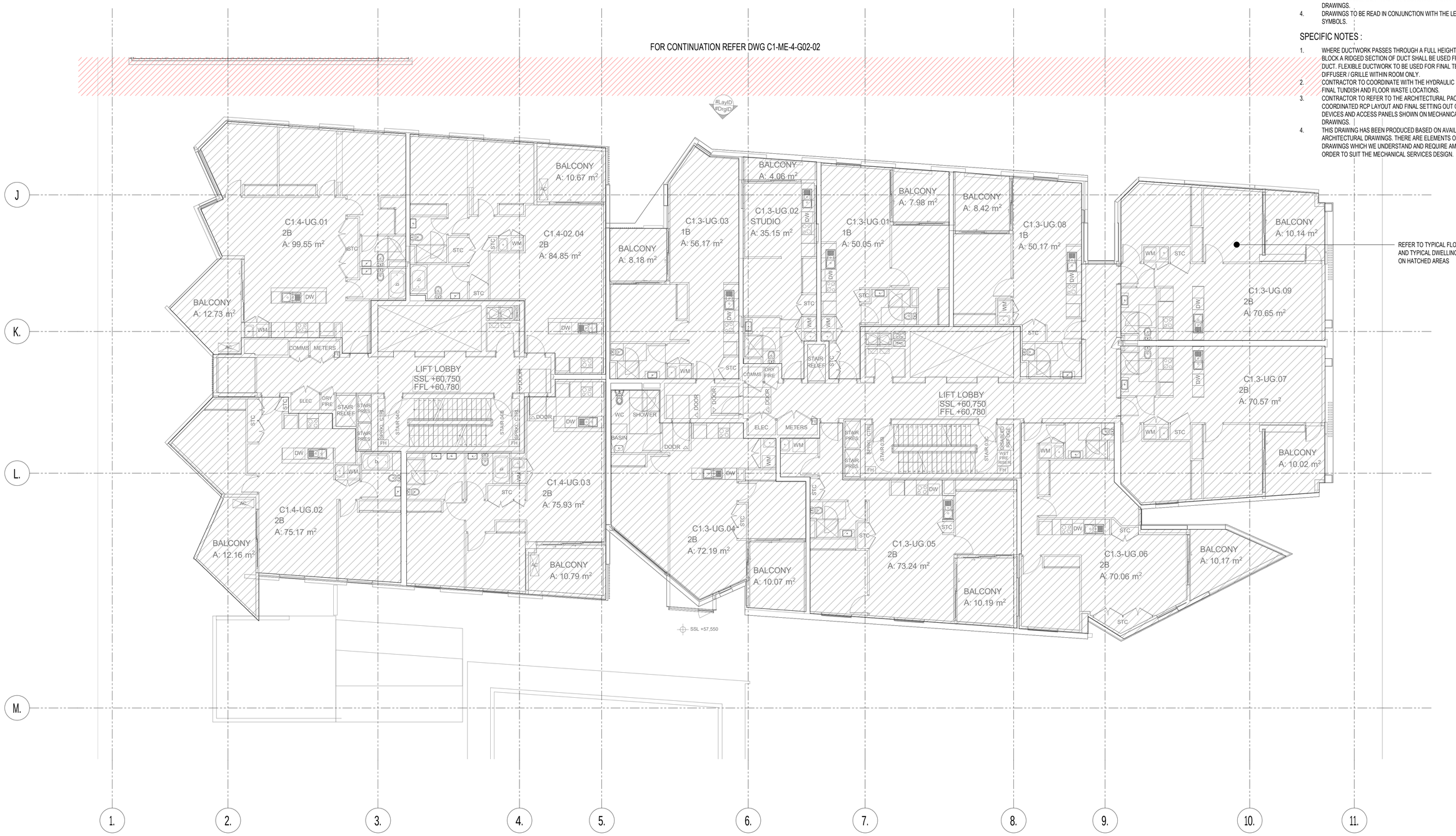
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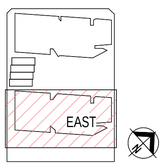
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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
UPPER GROUND - AIR CONDITIONING AND VENTILATION LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-G02-03 REV: P1

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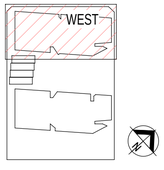
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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LEVEL 12 - AIR CONDITIONING AND VENTILATION
LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
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DRAWING No: C1-ME-4-L12-01 REV: P1

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REFER TO TYPICAL FLOOR AND TYPICAL DWELLINGS ON HATCHED AREAS

REFER TO TYPICAL FLOOR AND TYPICAL DWELLINGS ON HATCHED AREAS

BALCONY A: 10.60 m²
C1.4-12.02 2B A: 70.55 m²
BALCONY A: 8.41 m²
C1.4-12.01 1B
C1.4-12.05 3B A: 100.03 m²
BALCONY A: 37.55 m²
LIFT LOBBY SSL +98,200 FFL +98,230
COMMS METERS
C1.4-12.04 3B A: 99.98 m²
BALCONY A: 39.85 m²
C1.4-12.03 3B A: 95.15 m²
BALCONY A: 12.96 m²

HEAT PUMP PLANT
LIFT OVERRUN
HOT WATER PLANT
STAIR RELIEF
LOBBY ACU
ELEC
SSL +98,010
ROOF ACCESS

HEATING HOT WATER PIPEWORK FLOW AND RETURN TO CENTRAL HEATING HOT WATER PLANT

HEATING HOT WATER CENTRAL PLANT PROVIDING HEATING HOT WATER TO THE SOCIAL DWELLINGS

ROOF MOUNTED FAN AND COWL

TSEF-L12-01

MSSB-E-L12-01

TSPF-L12-01

TSPF-L12-02

AIR PACKAGED COOLED UNIT

J. K. L. M.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

EAST

Key Plan
NOT TO SCALE

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REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

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CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LEVEL 12 - AIR CONDITIONING AND VENTILATION
LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
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PS107250	JD	JAN 2021

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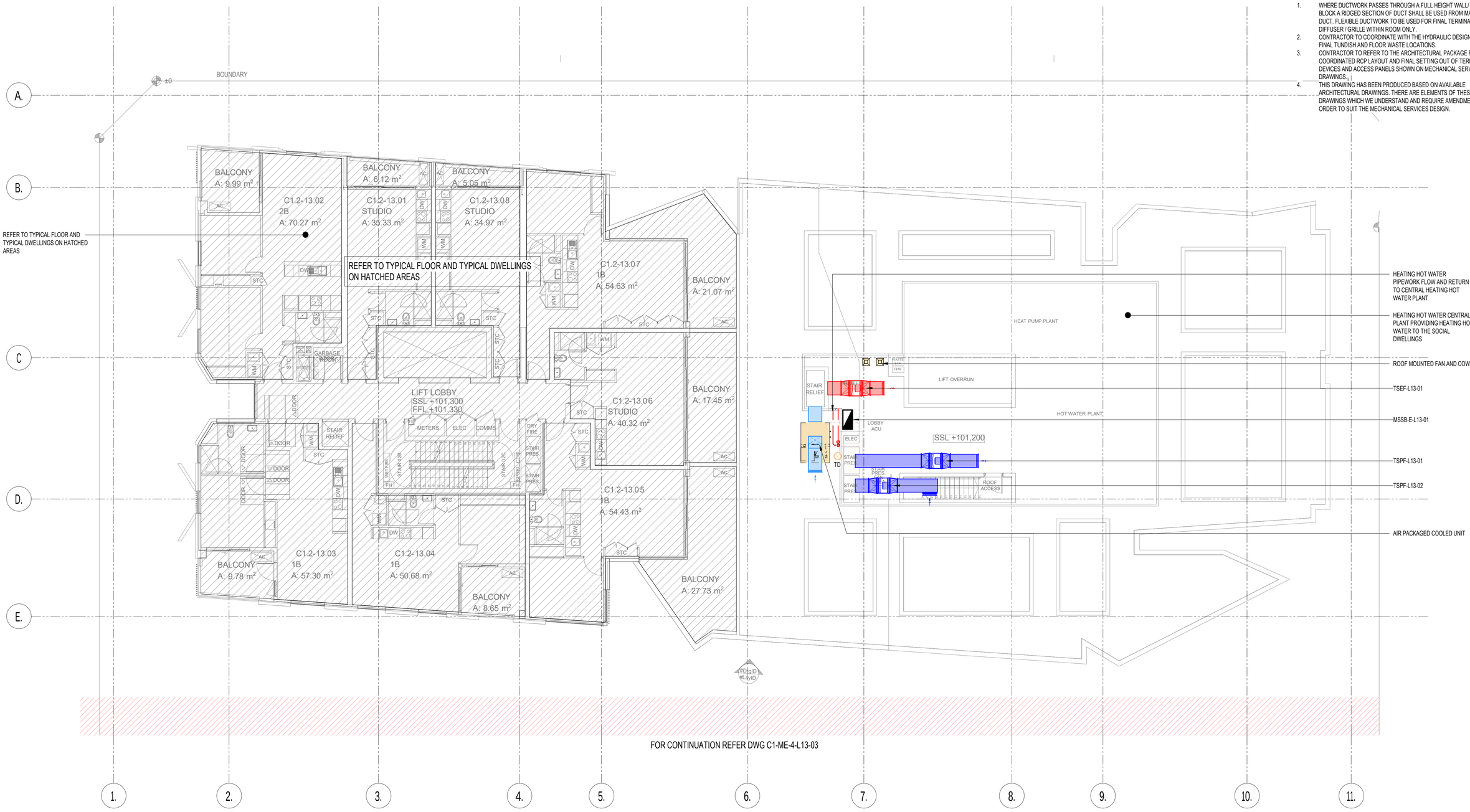
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PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LEVEL 13 - AIR CONDITIONING AND VENTILATION
LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
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PS107250	JD	JAN 2021

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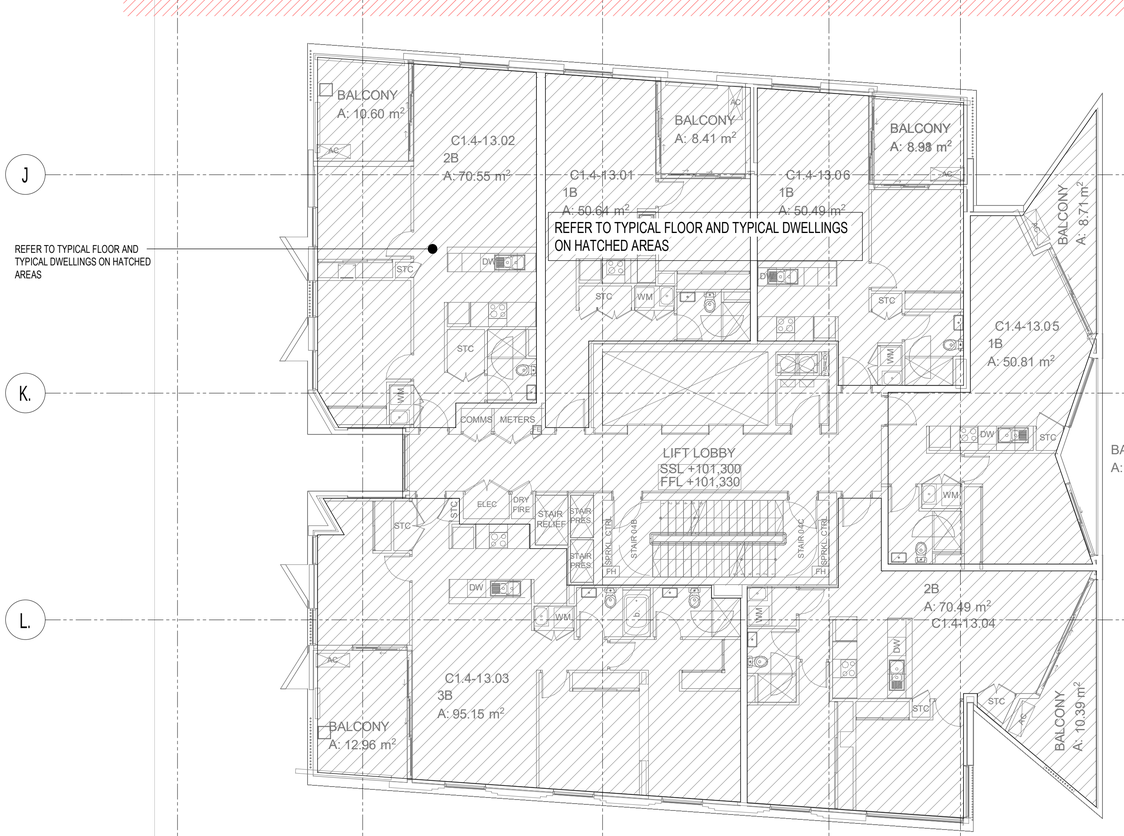
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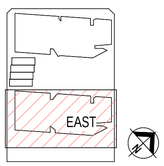
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ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
LEVEL 13 - AIR CONDITIONING AND VENTILATION
LAYOUT-EAST

SCALE @ A1:	CHECKED:	APPROVED:
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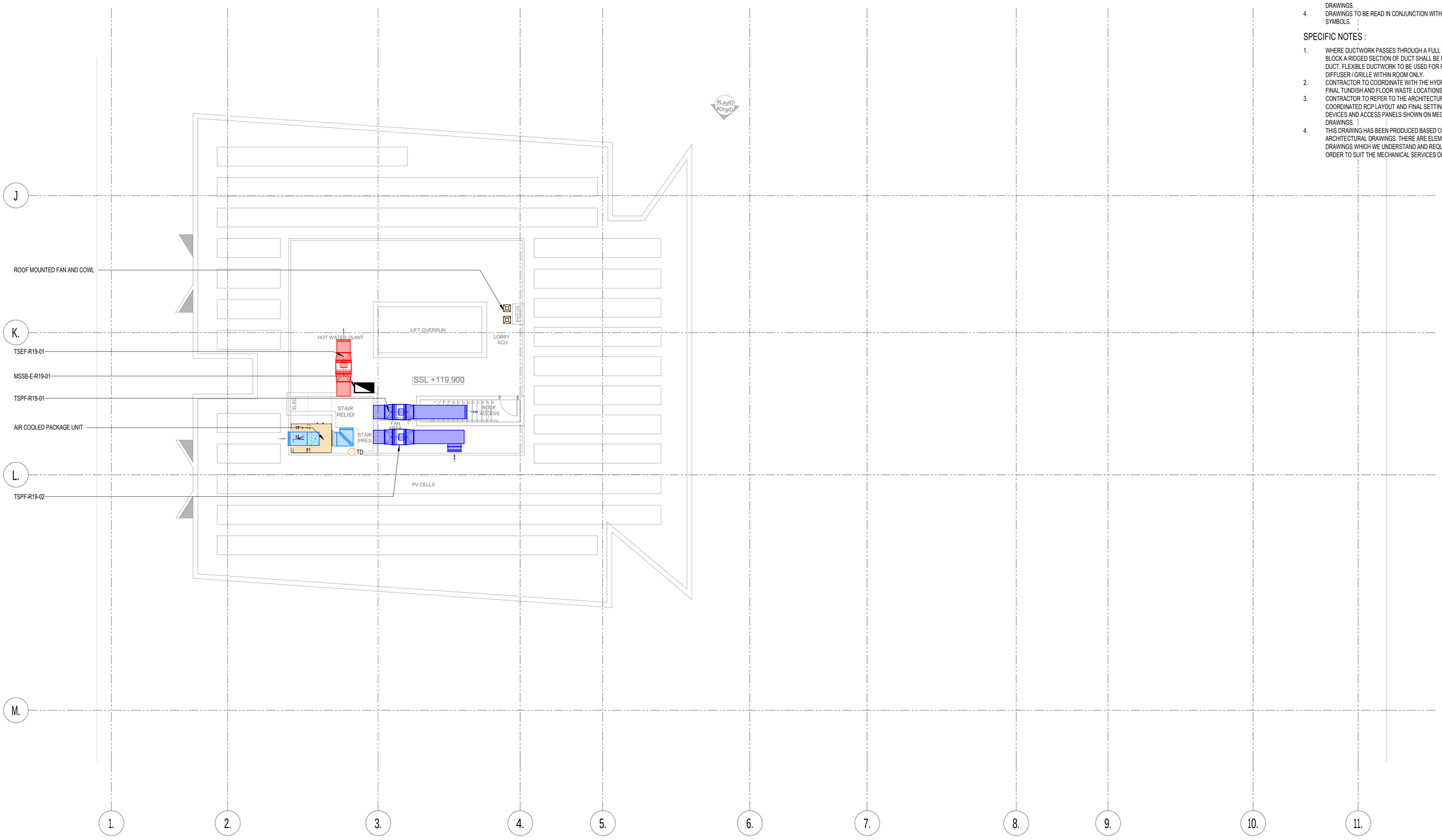
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MACQUARIE PARK

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ROOF - AIR CONDITIONING AND VENTILATION
LAYOUT-EAST

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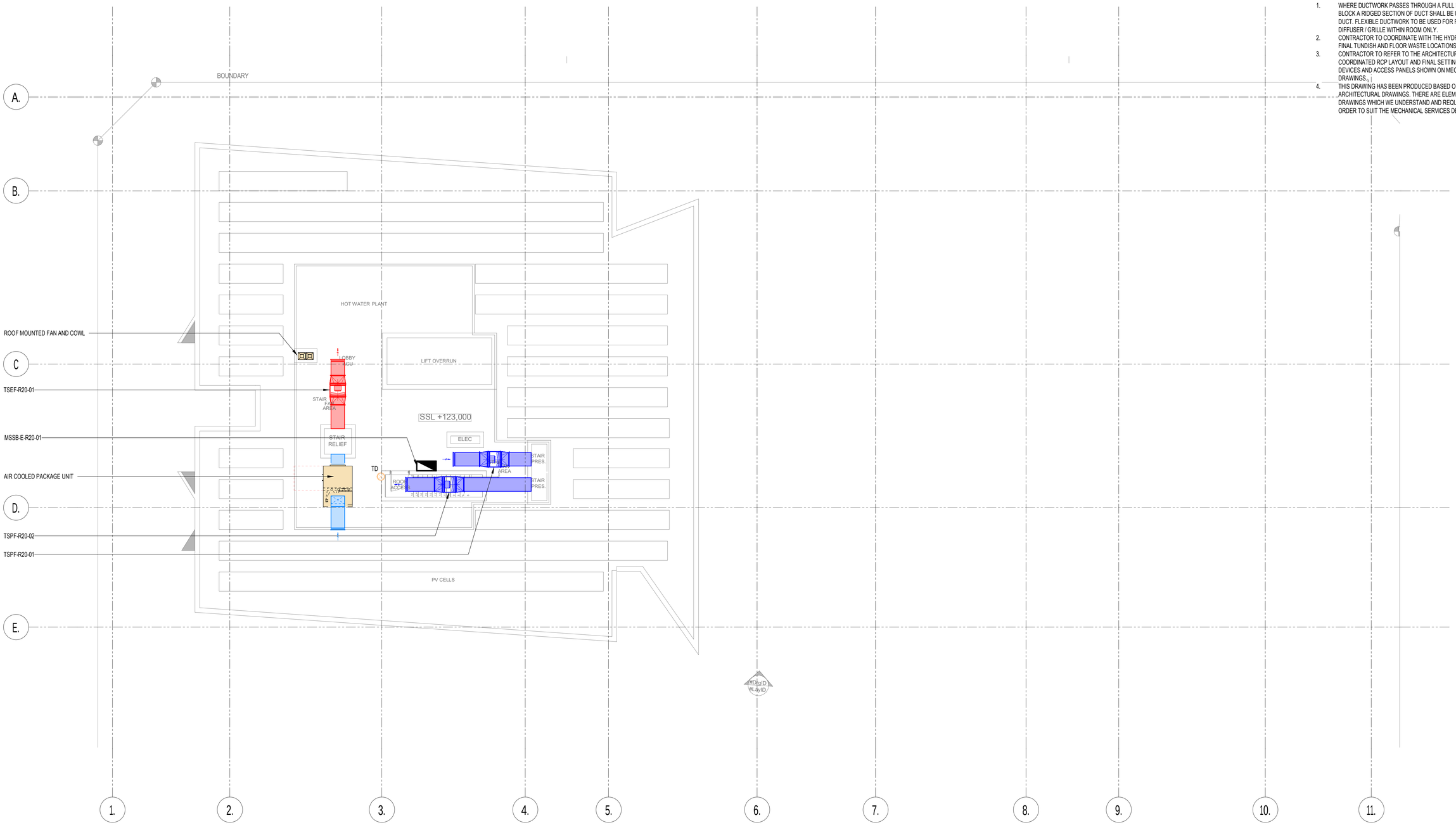
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3. THIS DRAWINGS SHOWS THE DESIGN INTENT FOR CONTRACTOR DESIGN DEVELOPMENT AND PRODUCTION OF WORKSHOP DRAWINGS.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH THE LEGEND OF SYMBOLS.

SPECIFIC NOTES :

1. WHERE DUCTWORK PASSES THROUGH A FULL HEIGHT WALL/ BAFFLE BLOCK A RIDGED SECTION OF DUCT SHALL BE USED FROM MAIN BRANCH DUCT. FLEXIBLE DUCTWORK TO BE USED FOR FINAL TERMINATION TO DIFFUSER / GRILLE WITHIN ROOM ONLY.
2. CONTRACTOR TO COORDINATE WITH THE HYDRAULIC DESIGNER FOR FINAL TUNDISH AND FLOOR WASTE LOCATIONS.
3. CONTRACTOR TO REFER TO THE ARCHITECTURAL PACKAGE FOR COORDINATED RCP LAYOUT AND FINAL SETTING OUT OF TERMINAL DEVICES AND ACCESS PANELS SHOWN ON MECHANICAL SERVICES DRAWINGS.
4. THIS DRAWING HAS BEEN PRODUCED BASED ON AVAILABLE ARCHITECTURAL DRAWINGS. THERE ARE ELEMENTS OF THESE DRAWINGS WHICH WE UNDERSTAND AND REQUIRE AMENDMENT IN ORDER TO SUIT THE MECHANICAL SERVICES DESIGN.





Key Plan
NOT TO SCALE

DRAWING CREATED IN REVIT.

REV	DATE	BY	DESCRIPTION	CHK	APP
P1	29/01/2021	MP	PRELIMINARY FOR COMMENT	SS	RB

DRAWING STATUS: PRELIMINARY

wsp
http://www.wsp.com

CLIENT: FRASERS PROPERTY AUSTRALIA

ARCHITECT: CANDALEPAS

PROJECT: BUILDING C1
IVANHOE ESTATE
MACQUARIE PARK

TITLE: MECHANICAL SERVICES
ROOF - AIR CONDITIONING AND VENTILATION
LAYOUT-WEST

SCALE @ A1:	CHECKED:	APPROVED:
1:100	SS	RB
PROJECT NUMBER:	DRAWN:	DATE:
PS107250	JD	JAN 2021

DRAWING No: C1-ME-4-R20-01
REV: P1

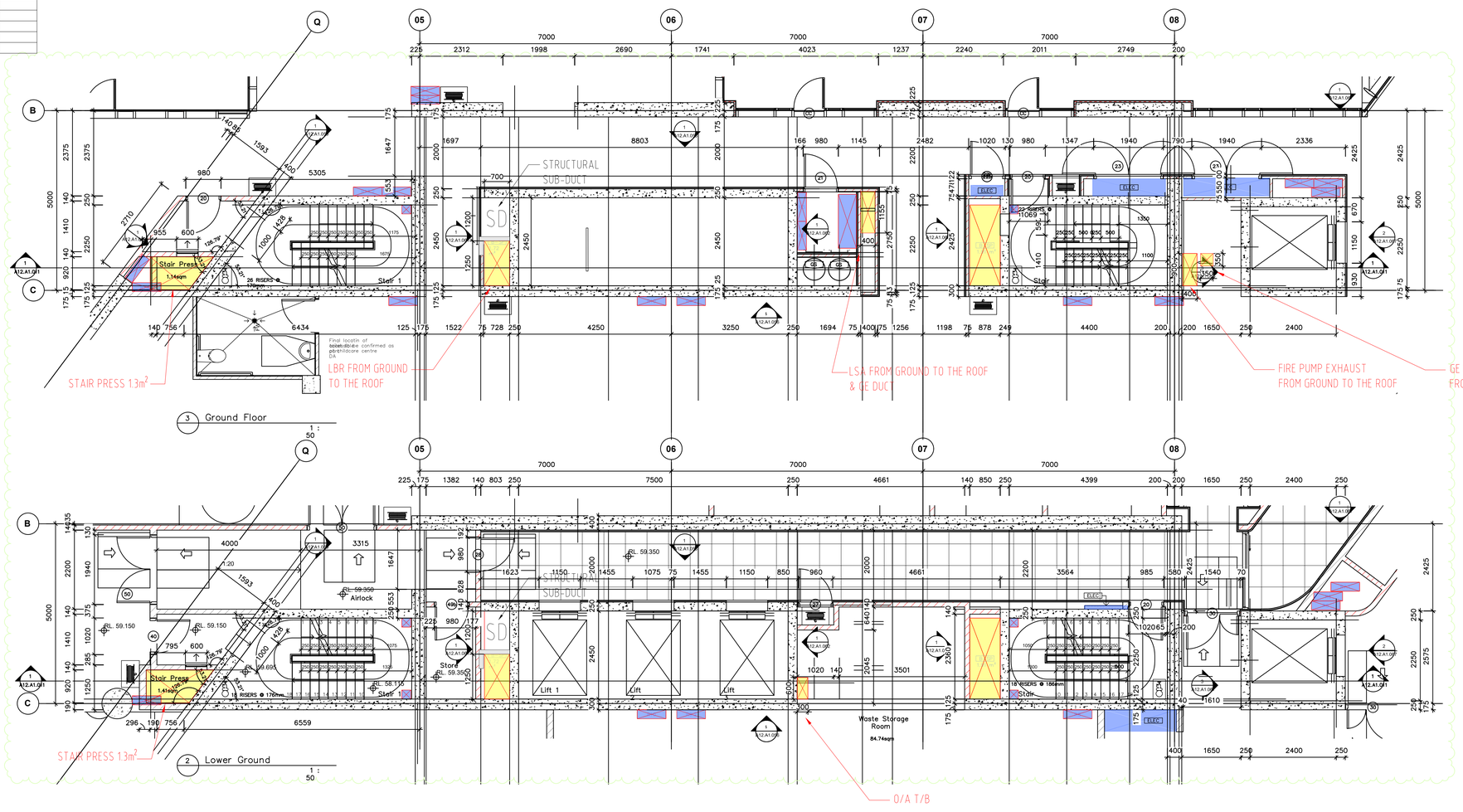
© WSP Australia Pty Ltd

Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	CORE PLANS PENETRATION - BLG, G00
Drawing No:	SK-001

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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= MECH PENETRATION (SLAB)

FOR CONSTRUCTION

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
CORE PLANS PENETRATION - BLG, G00

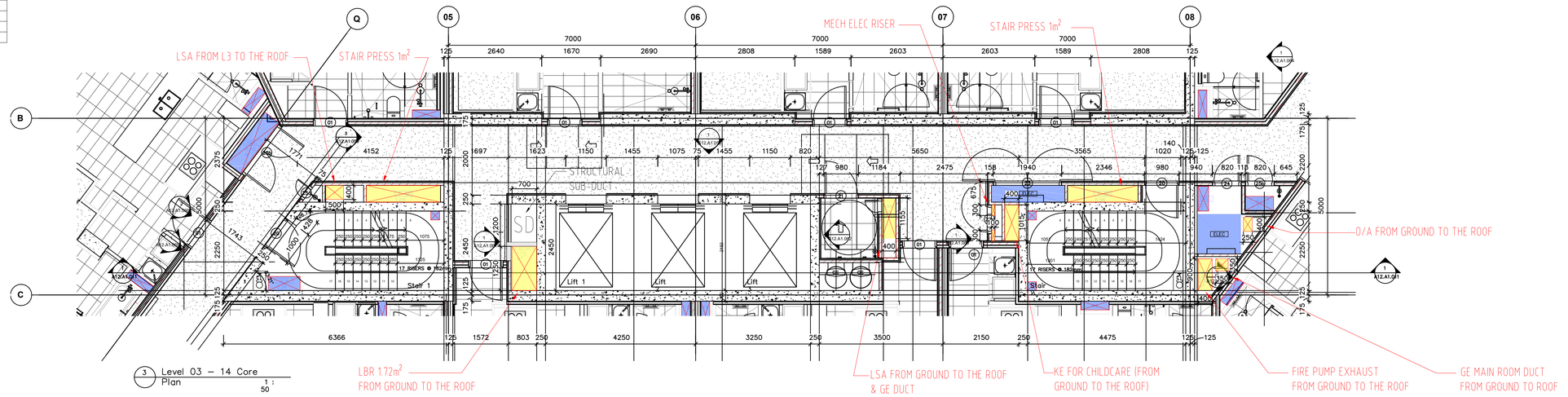
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Drawn	BP	SK-001	01
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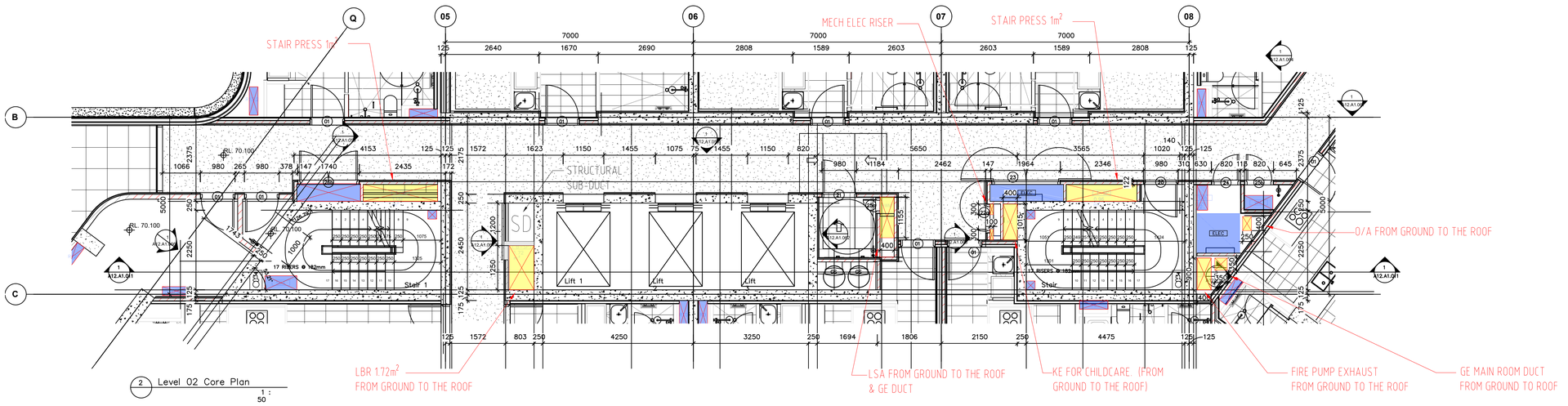
Regulated Design Record

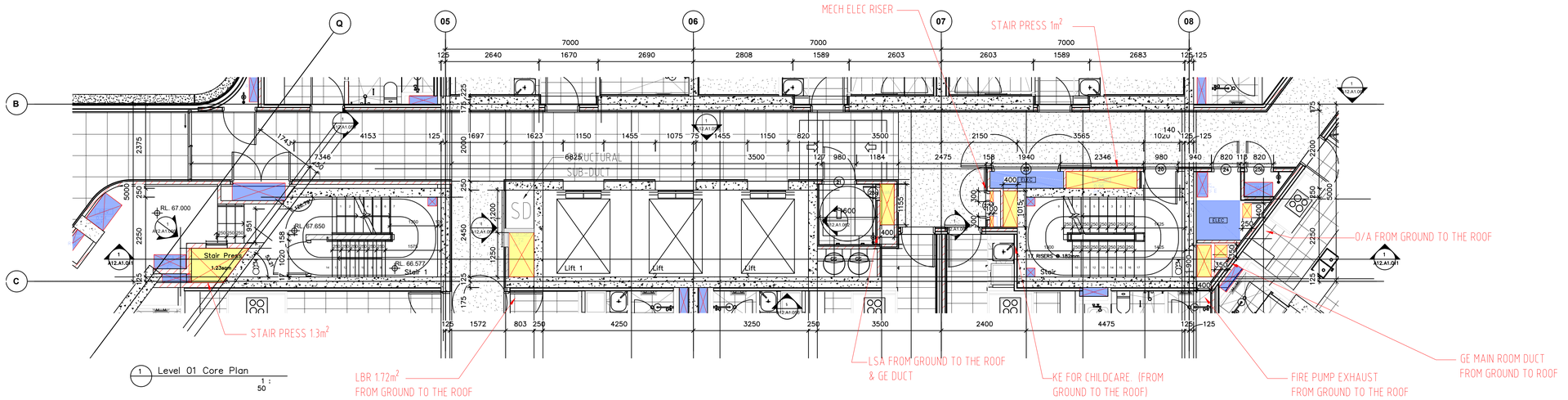
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	Body Corporate Reg No:	DEP0001256
Drawing Title:	CORE PLANS PENETRATION - L01-14	Drawing No:	SK-002

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
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Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
CORE PLANS PENETRATION - L01, L02, L03-14

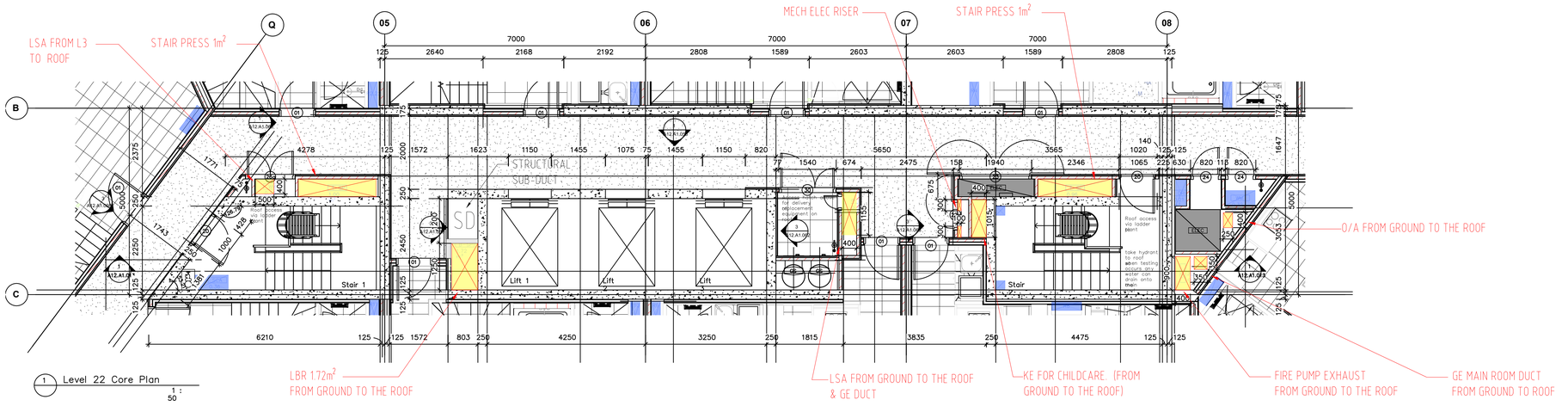
Date	Jun '21	Drawing No.	Amendment
Drawn	BP	SK-002	01
Scale	1:100 @A0		

Regulated Design Record

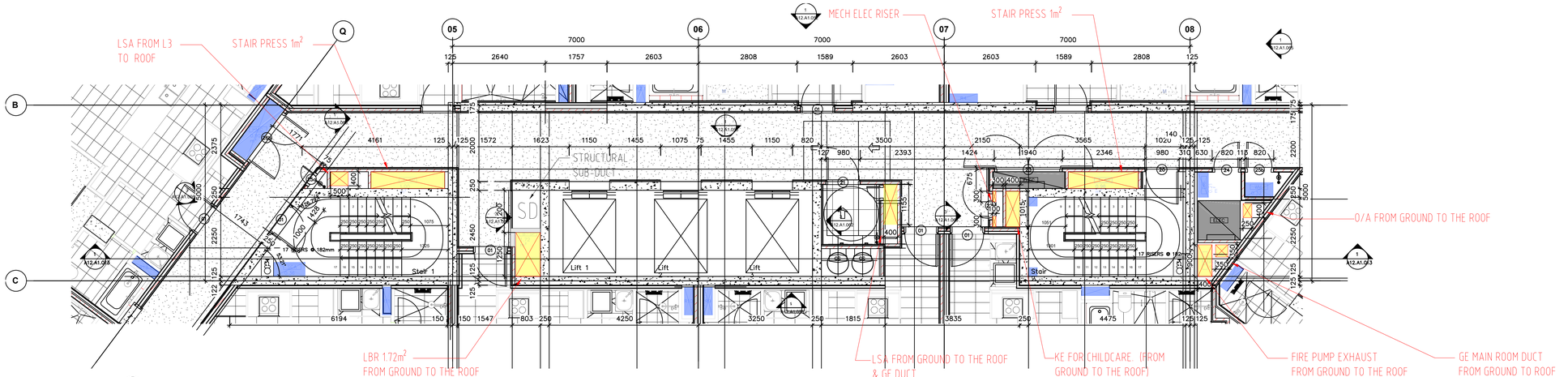
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	CORE PLANS PENETRATION - L15-L22
Drawing No:	SK-003

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

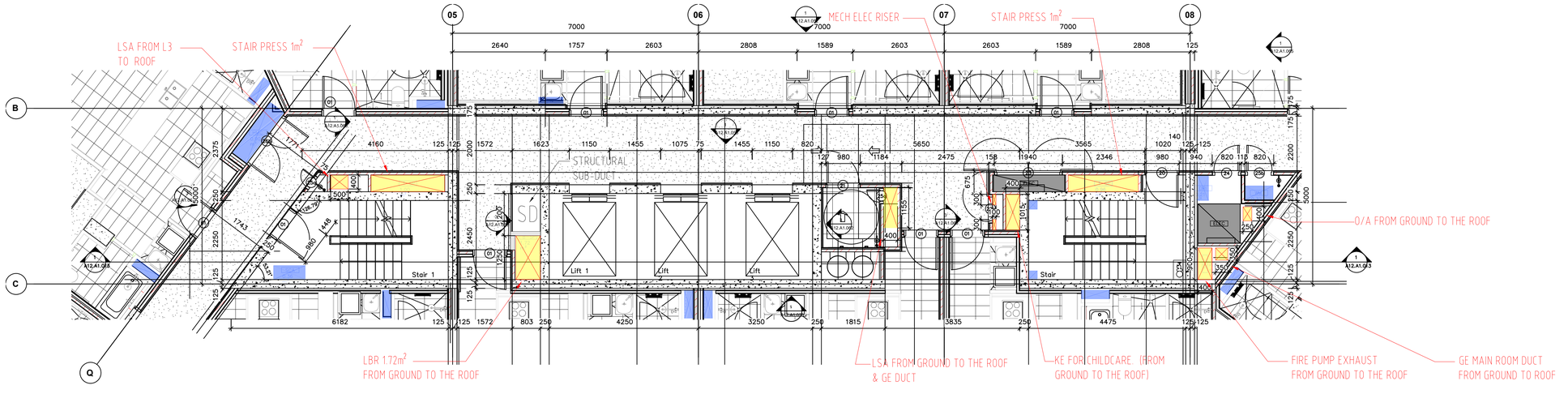
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1 Level 22 Core Plan 1 : 50



2 Level 16-21 Core Plan 1 : 50



3 Level 15 Core Plan 1 : 50

= MECH PENETRATION (SLAB)

FOR CONSTRUCTION

Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
CORE PLANS PENETRATION - L15-L22

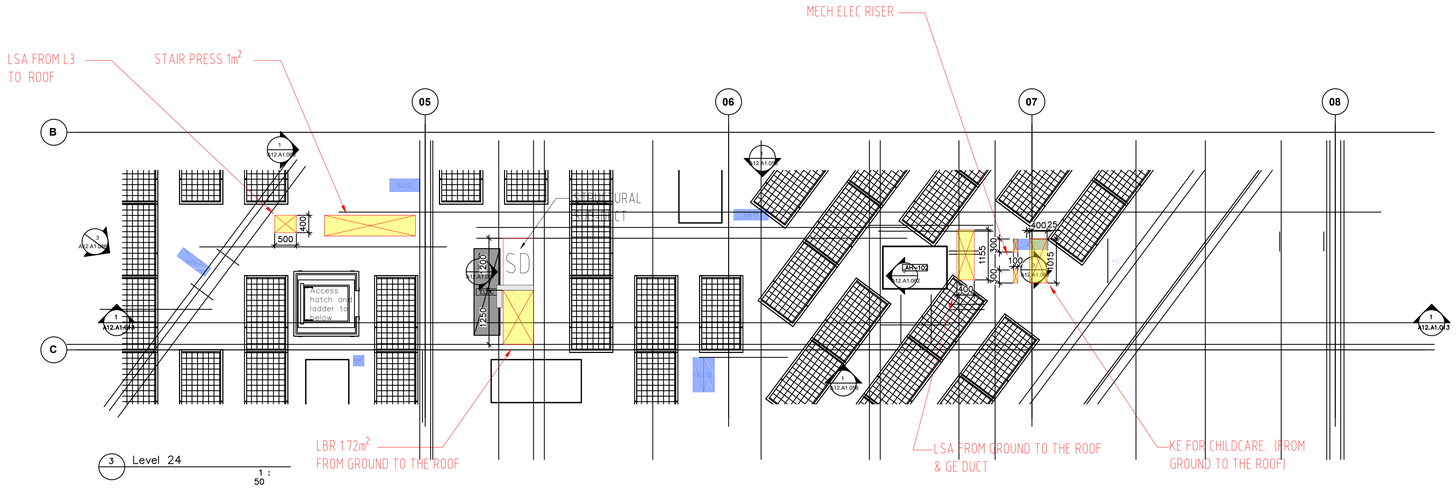
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Drawn	BP	SK-003	01
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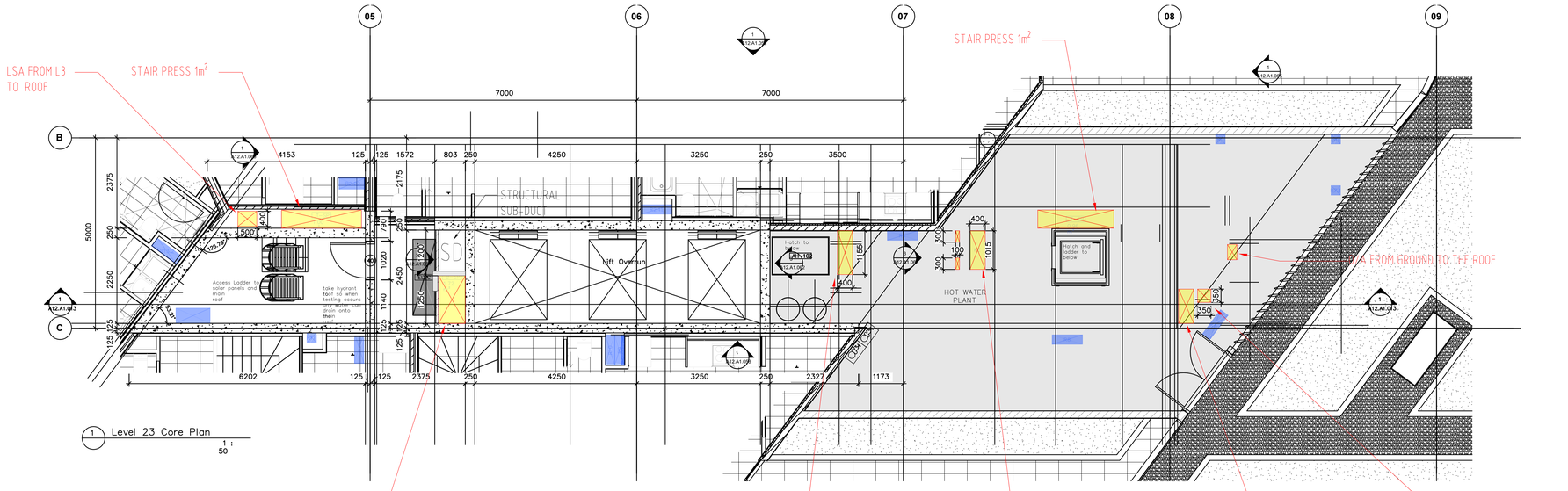
Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	CORE PLANS PENETRATION - L23-L24
Drawing No:	SK-004

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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FOR CONSTRUCTION

No	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZY	16.12.21

DRAWING AMENDMENTS

Client

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T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
CORE PLANS PENETRATION - L23-L24

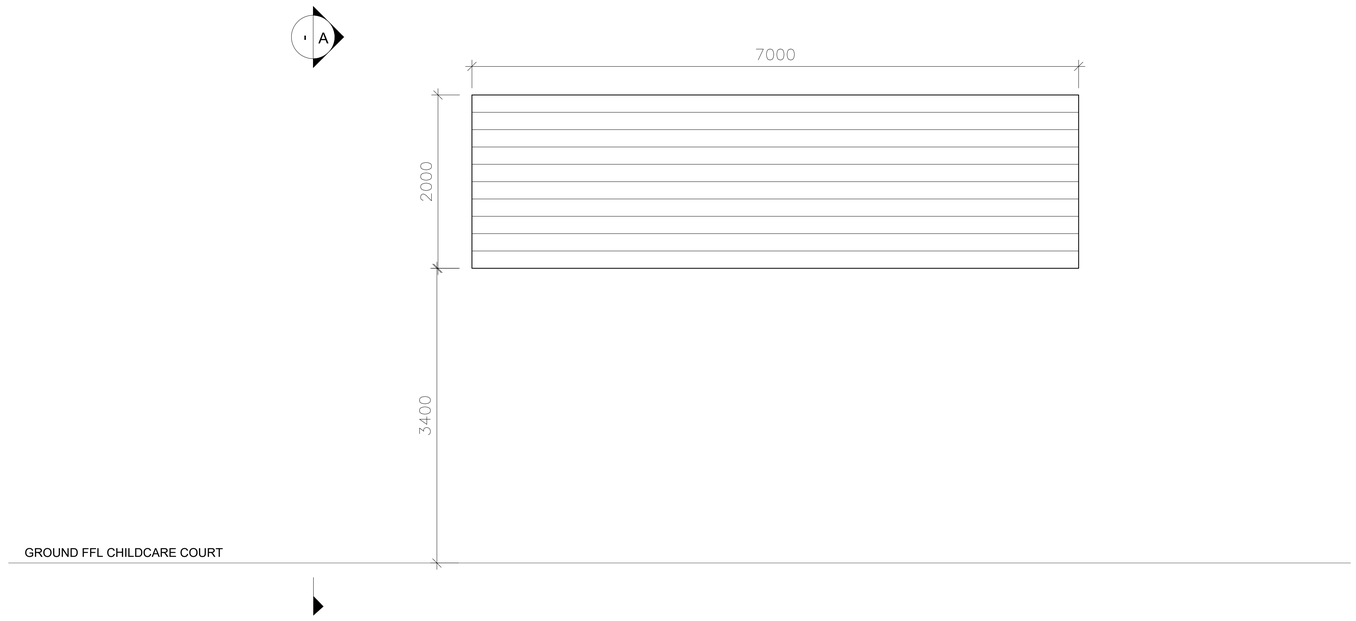
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Drawn	BP	SK-003	01
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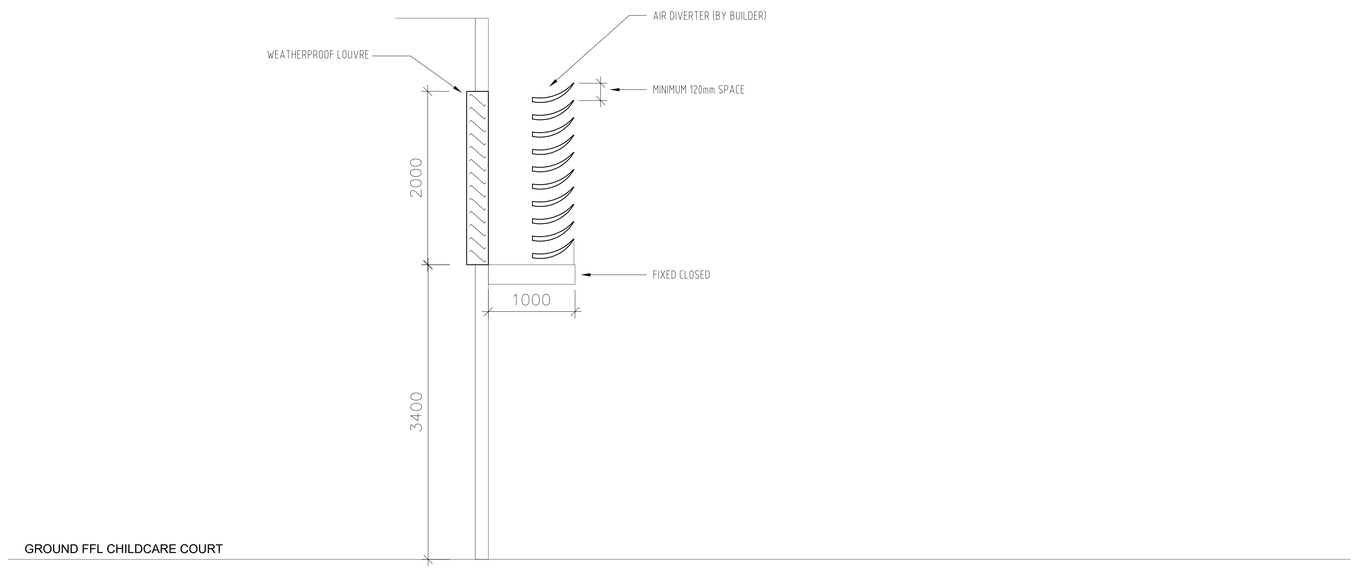
Regulated Design Record

Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA
Project Title:	BUILDING A1 - IVANHOE ESTATE
Consent No:	SSD8903
Body Corporate Reg No:	DEP0001256
Drawing Title:	CARPARK EXHAUST LOUVRE DETAILS
Drawing No:	SK-005

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275

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Section A

SCALE 1 : 25

FOR CONSTRUCTION

01	FOR CONSTRUCTION	BP	ZI	16.12.21
Iss	Issued to/Amendment	By	Chd	Date

DRAWING AMENDMENTS

Client

PARKVIEW

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SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

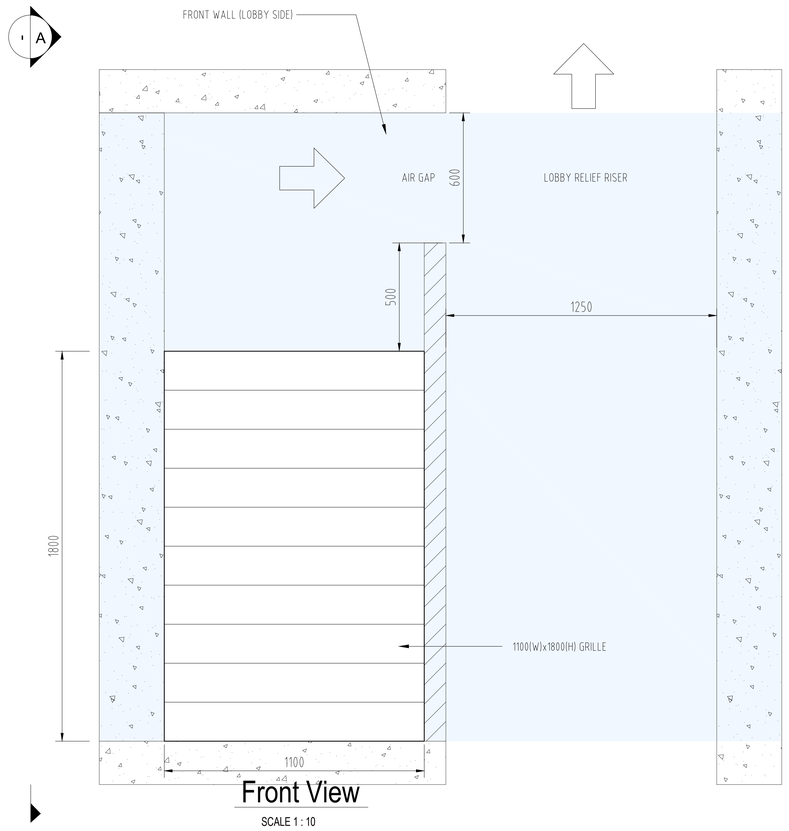
MECHANICAL SERVICES
CARPARK EXHAUST LOUVRE DETAILS

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	SK-005	01
Scale	1:25 @A0		

Regulated Design Record

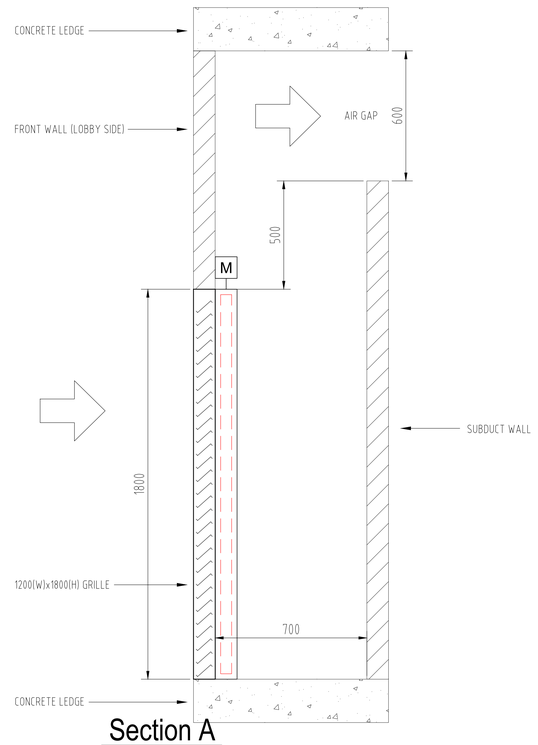
Project Address:	IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA		
Project Title:	BUILDING A1 - IVANHOE ESTATE		
Consent No:	SSD8903	**Body Corporate Reg No:**	DEP0001256
Drawing Title:	LOBBY RELIEF SUBDUCT SECTION	**Drawing No:**	SK-006

Rev:	Date dd.mm.yy	Description	DP Full Name	Reg No
01	16.12.21	ISSUE FOR CONSTRUCTION	QING YE	DEP0000275



Front View

SCALE 1 : 10



Section A

SCALE 1 : 10

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Iss	Issued to/Amendment	By	Chd	Date
01	FOR CONSTRUCTION	BP	ZI	16.12.21

DRAWING AMENDMENTS

Client

PARKVIEW

Mechanical Contractor

SUPERIOR AIR CONDITIONING (NSW) PTY LTD

Unit 1, 13 York Rd, Ingleburn NSW 2565
T (02) 9618 6611 F (02) 9618 6644
E zlatko@superiorair.com.au richard@superiorair.com.au

Project

BUILDING A1 IVANHOE ESTATE
MACQUARIE PARK

Title

MECHANICAL SERVICES
LOBBY RELIEF SUBDUCT SECTION

Date	Jun '21	Drawing No.	Amendment
Drawn	BP	SK-006	01
Scale	1:10 @A0		

PARKVIEW

4th November 2021

Mckenzie Group Consulting (NSW) Pty Ltd
197/189 Kent St,
Sydney NSW 2000

Attention: Alex Ciecko
Phone: +61 427 102 666
Email: aciecko@mckenzie-group.com.au

RE: DA Condition B46 (b) – Geotechnical Design, Certification and Monitoring Plan
Consent: SSD 8903
Project Address: 1 Ivanhoe Place, Macquarie Park

Dear Alex,

We confirm that Parkview will comply with the requirements in the abovementioned DA condition listed by NSW Department of Planning, Industry and Environment (DPIE):

Please privde a certification from a geotech engg that items a to b are complied with

GEOTECHNICAL DESIGN, CERTIFICATION AND MONITORING PLAN
The development of Building A1 and Building C1 involves the construction of subsurface structures and excavation that has potential to adversely impact neighbouring property if undertaken in an inappropriate manner. To ensure there are no adverse impacts arising from such works, the Applicant must engage a suitably qualified and practicing Engineer having experience in the geotechnical and hydrogeological fields, to design, certify and oversee the construction of all subsurface structures associated with the development.

This engineer is to prepare the following documentation:

B46 (b) A Geotechnical Monitoring Plan (GMP) to be implemented during construction that:
- is based on a geotechnical investigation of the site and subsurface conditions, including groundwater;
- details the location and type of monitoring systems to be utilised, including those that will detect the deflection of all shoring structures, settlement and excavation induced ground vibrations to the relevant Australian Standard;
- details recommended hold points and trigger levels of any monitoring systems, to allow+F95 for the inspection and certification of geotechnical and hydro-geological measures by the professional engineer; and
- details an action plan and contingency for the principal building contractor in the event these trigger levels are exceeded.

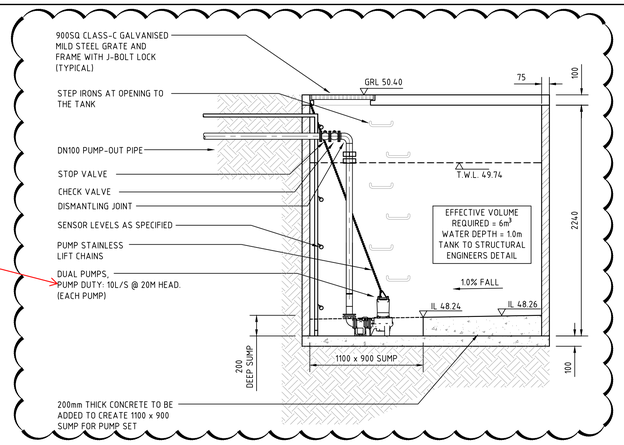
The certification and the GMP demonstrating compliance with the above is to be submitted to the Certifier prior to the issue of any Crown Building Works Certificate for each building.

Sincerely,

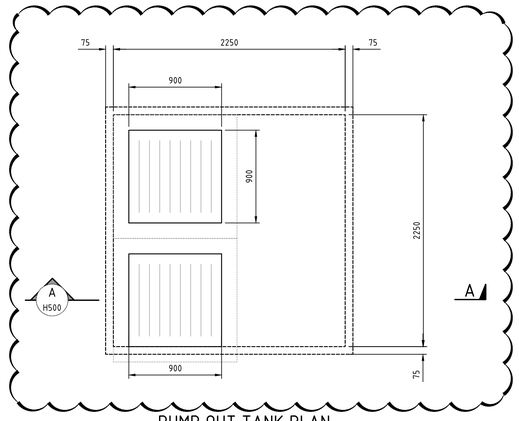
Mohamed Yaccoub
Site Engineer
m: 0427 520 238
e: Mohamed.yaccoub@parkview.com.au

Regulated Design Record				
Project Address: IVANHOE PL, MACQUARIE PARK NSW 2113 AUSTRALIA				
Project Title: BUILDING A1 - IVANHOE ESTATE				
Consent No: SSDA8903		Body Corporate Reg No: -		
Drawing Title: GENERAL DETAILS 1		Drawing No: 02507-A1-HY-500		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.08.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137
2	17.11.21	ISSUE FOR CONSTRUCTION	KA KI CHAN	DEP0000137

IS THIS PUMP DUTY CORRECT?



2



PUMP OUT TANK PLAN
SCALE 1:25

2

SECTION A H500
SCALE 1:25

STORMWATER PUMP-OUT SYSTEM SPECIFICATION:

ALL COMPONENTS OF THE PUMP-OUT SYSTEM SHALL BE INSTALLED TO THE MANUFACTURER'S SPECIFICATION CONSISTING OF THE FOLLOWING MINIMUM COMPONENTS:

- PUMPS: DUAL PUMPS (CLASS 1 ZONE 2) INSTALLED TO OPERATE WITH AN ALTERNATING DUTY AND STANDBY ARRANGEMENT
- PUMP DUTIES AND STORAGE

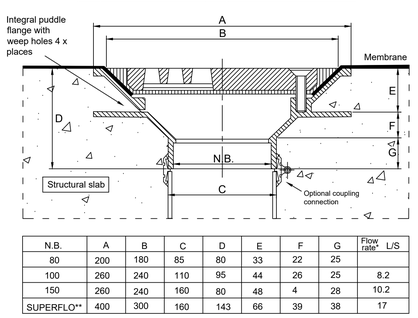
PUMP DUTY (EACH)	TANK STORAGE	ABOVE GROUND
2 PUMPS	10YR-2HR	N/A
10L/s @ 20m HEAD	6m3	N/A

- SENSORS: LEVEL SENSORS FOR PUMP ON, PUMP OFF, HIGH LEVEL ALARM AND LOW LEVEL ALARM
- SWITCHGEAR HOUSING: VANDALPROOF CABINET LOCATED ADJACENT TO THE PUMPING STATION IN A LOCATION TO BE APPROVED BY THE ARCHITECT
- CONTROLS: FPC SERIES DUAL PUMP CONTROLLERS WITH BMS
- INDICATORS: POWER ON LIGHT, PUMP RUN LIGHT, FLASHING LIGHT AND AUDIBLE ALARMS, VOLTMETER, AMMETER, HOURS RUN METER
- POWER SUPPLY: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY POWER SUPPLY AND METERING TO THE PUMP-OUT SYSTEM AND SHALL BE RESPONSIBLE FOR MAKING ALL APPLICATIONS AND PAYING ALL FEES AND CHARGES TO THE ELECTRICITY SUPPLY AUTHORITY

SPS Truflo (2-Piece

Specification codes:
TIA * F2 (CI body, gal
TIB * F2 (CI body, bro
TBA * F2 (all-bronze a
where * = 80, 100 or 1
SIA150F2 (Superflo all

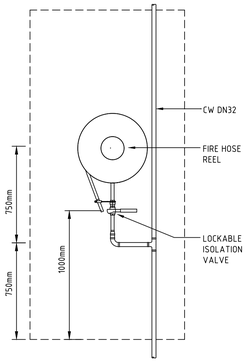
Membrane ring fastens to
independently of grate to a
to sump without breaking
seal (100 & 150 Truflo only



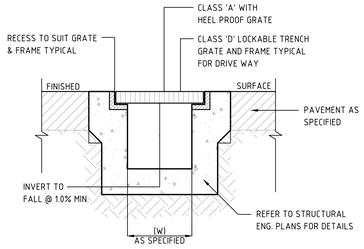
N.B.	A	B	C	D	E	F	G	Flow rate* L/S
80	200	180	85	80	33	22	25	
100	260	240	110	95	44	26	25	8.2
150	260	240	160	80	48	4	28	10.2
SUPERFLO**	400	300	160	143	66	39	38	17

STORMWATER PUMP STATION OPERATION LEVEL
SABRE AL7500 RISING LEVEL CYCLE

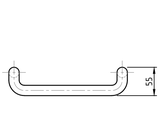
WATER LEVEL ELEVATION	ACTION	PUMPS IN OPERATION
-	LEAD PUMP TURNS "ON", FS-2	LEAD PUMP "ON"
-	LAG PUMP TURNS "ON", FS-3	LEAD & LAG PUMPS "ON"
-	PUMPS "OFF" LEVEL, FS-4	PUMPS "OFF" GRAVITY FLOW
-	HIGH WATER IN DITCH, FS-4	ALL PUMPS "OFF"
FALLING LEVEL CYCLE		
-	PUMPS "ON" LEVEL, FS-4	PUMPS "ON" PUMPED DISCHARGE
-	DITCH FLOAT HIGH WATER. FS-5	ALL PUMPS "ON"
-	PUMPS "OFF" LEVEL, FS-1	ALL PUMPS "OFF" LAG PUMP SWITCHES TO LEAD PUMP



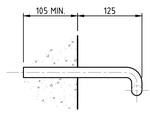
FIRE HOSE REEL - WITH LOCKABLE ISOLATION VALVE
SCALE: N.T.S.



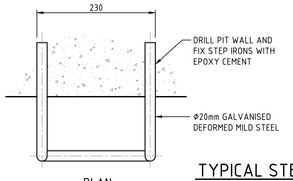
GRATED DRAIN DETAIL
SCALE 1:10



FRONT ELEVATION
SCALE 1:5



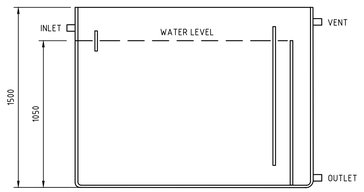
SIDE ELEVATION
SCALE 1:5



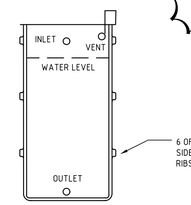
PLAN
SCALE 1:5

TYPICAL STEP IRON DETAIL
SCALE 1:5

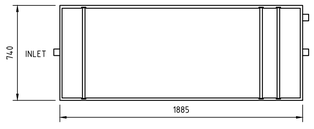
2



GENERAL PURPOSED PIT - SIDE VIEW
SCALE: N.T.S.



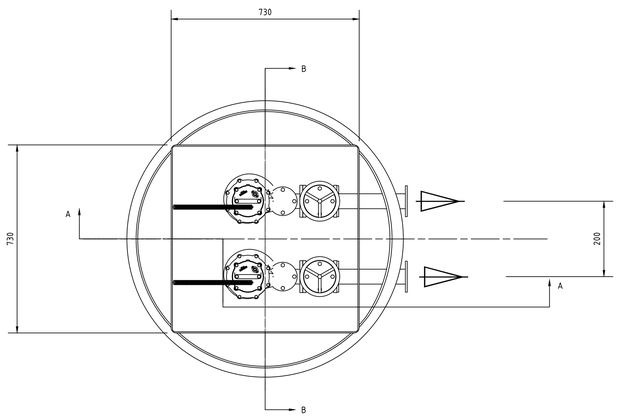
GENERAL PURPOSED PIT - BACK VIEW
SCALE: N.T.S.



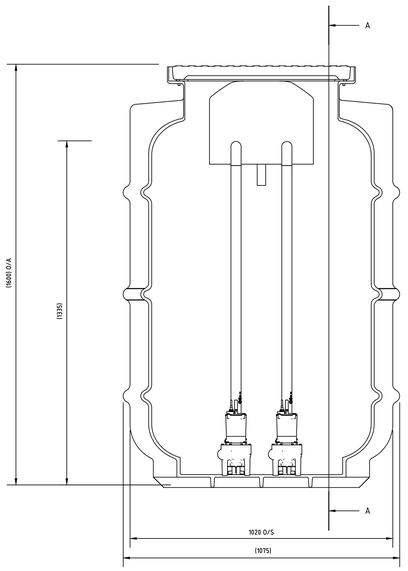
GENERAL PURPOSED PIT - TOP VIEW
SCALE: N.T.S.

RAIN WATER OUTLET DETAIL
SCALE: N.T.S.

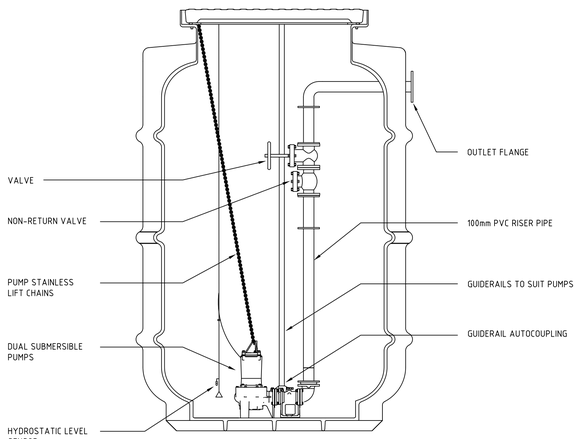
KPPS1200 SPECIFICATIONS	
DEPTH	1600mm
OUTER DIAMETER	1075mm
INNER DIAMETER	1000mm
NOMINAL LITRES	1200L
APPROXIMATE WEIGHT	62kg
ACCESS COVER	600mm x 600m



SEWER PUMP OUT DETAIL - TOP VIEW
SCALE: N.T.S.



SEWER PUMP OUT DETAIL - SECTION B-B
SCALE: N.T.S.



SEWER PUMP OUT DETAIL - SECTION A-A
SCALE: N.T.S.

SEWER PUMP-OUT SYSTEM SPECIFICATION:

ALL COMPONENTS OF THE PUMP-OUT SYSTEM SHALL BE INSTALLED TO THE MANUFACTURER'S SPECIFICATION CONSISTING OF THE FOLLOWING MINIMUM COMPONENTS:

- PUMPS: DUAL GRINDER PUMPS TO BE INSTALL TO OPERATE WITH AN ALTERNATING DUTY AND STANDBY ARRANGEMENT
- PUMP DUTIES AND STORAGE

PUMP DUTY (EACH)	TANK STORAGE	ABOVE GROUND
2 PUMPS	-	N/A
1L/s @ 20m HEAD	1000 LITRES	N/A

- SENSORS: LEVEL SENSORS FOR PUMP ON, PUMP OFF, HIGH LEVEL ALARM AND LOW LEVEL ALARM
- SWITCHGEAR HOUSING: VANDALPROOF CABINET LOCATED ADJACENT TO THE PUMPING STATION IN A LOCATION TO BE APPROVED BY THE ARCHITECT
- CONTROLS: FPC SERIES DUAL PUMP CONTROLLERS WITH BMS
- INDICATORS: POWER ON LIGHT, PUMP RUN LIGHT, FLASHING LIGHT AND AUDIBLE ALARMS, VOLTMETER, AMMETER, HOURS RUN METER
- POWER SUPPLY: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY POWER SUPPLY AND METERING TO THE PUMP-OUT SYSTEM AND SHALL BE RESPONSIBLE FOR MAKING ALL APPLICATIONS AND PAYING ALL FEES AND CHARGES TO THE ELECTRICITY SUPPLY AUTHORITY

SEWER STATION OPERATION LEVEL
SABRE ALG1500-3 RISING LEVEL CYCLE

WATER LEVEL ELEVATION	ACTION	PUMPS IN OPERATION
-	LEAD PUMP TURNS "ON", FS-2	LEAD PUMP "ON"
-	LAG PUMP TURNS "ON", FS-3	LEAD & LAG PUMPS "ON"
-	PUMPS "OFF" LEVEL, FS-4	PUMPS "OFF" GRAVITY FLOW
-	HIGH WATER IN DITCH, FS-4	ALL PUMPS "OFF"
FALLING LEVEL CYCLE		
-	PUMPS "ON" LEVEL, FS-4	PUMPS "ON" PUMPED DISCHARGE
-	DITCH FLOAT HIGH WATER. FS-5	ALL PUMPS "ON"
-	PUMPS "OFF" LEVEL, FS-1	ALL PUMPS "OFF" LAG PUMP SWITCHES TO LEAD PUMP

CONTRACTORS SHOP DRAWING REVIEW

Subject to notes below this review indicates that the document is:

- ☐ Reviewed
- ☑ Reviewed with comments to be incorporated
- ☐ Reviewed - amend and resubmit

This review is carried out by the Engineer based on a desktop review of the shop drawing for general conformance with the WSP Design Documentation, Design Intent and the project technical performance criteria. This submission has been reviewed within the limits of WSP's commission for this project. WSP assumes the author of the shop drawing has carried out appropriate analysis, calculations and/or modelling to ensure compliance with NCC/BCA and relevant Australian Standards. WSP expressly relies upon the specialist expertise and qualifications of the author of the shop drawing. This review does not release the Contractor of their responsibility to determine and control construction means, methods, techniques, sequences, procedures, quantities of materials and dimensions of work to ensure it meets WSP Design Documentation and Design Intent, is accurate and complete.

BY AUEJ503760 **DATE** 12/9/2021

WSP Australia Pty Ltd

REV.	DES.	DATE	VER.	DESCRIPTION
2	E.W.	17.11.21	G.C.	DETAILS AMENDED
1	E.W.	20.08.21	G.C.	ISSUE FOR CONSTRUCTION

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW OR A DESIGN CERTIFICATE HAS BEEN ISSUED BY C&M CONSULTING ENGINEERS PTY LTD REFERENCING THIS DRAWING

PROJECT VERIFIER'S SIGNATURE: DATE:

ARCHITECT

CLIENT

C&M CONSULTING ENGINEERS

CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
BAULKHAM HILLS NSW 2153

PHONE: (02) 9680 3100
FAX: (02) 9634 6989

ABN 21 118 134 240

DESIGNED	G. CHAN
VERIFIED	G. CHAN
DRAWN	E. WU
DATE 1st ISSUED	20.08.21
LGA	CITY OF RYDE
SCALE @ B1	AS SHOWN

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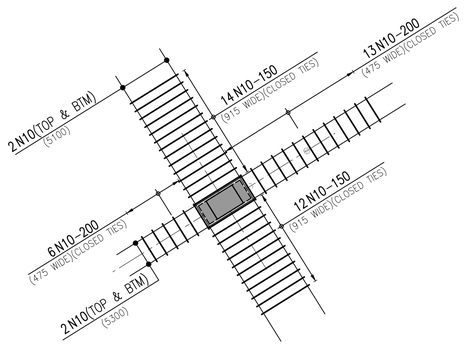
BUILDING A1, MIDTOWN MACPACK IVANHOE ESTATE, MACQUARIE PARK

HYDRAULIC SERVICES
GENERAL DETAILS 1

STATUS	DRAWING No.	REV.
FOR CONSTRUCTION	02507-A1-HY-500	2

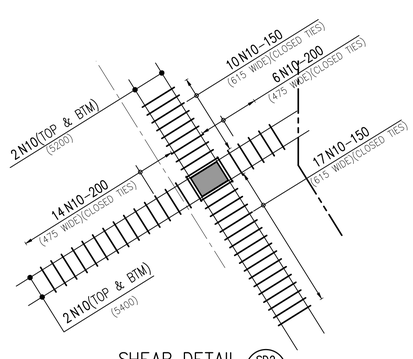
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER GF. - POUR 1,2,3 - SHEAR DETAILS		Drawing No: INT-PT-015		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



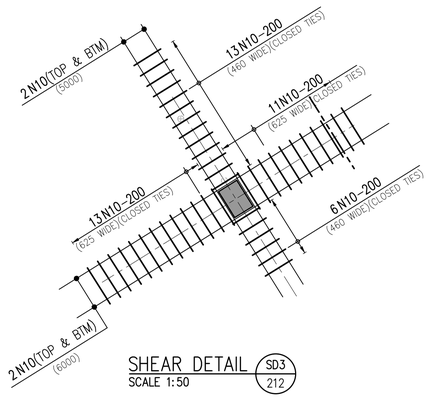
SHEAR DETAIL SD1 / 212
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



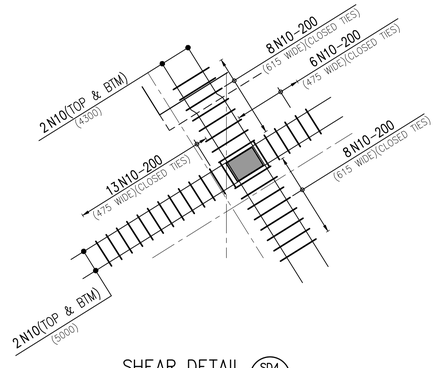
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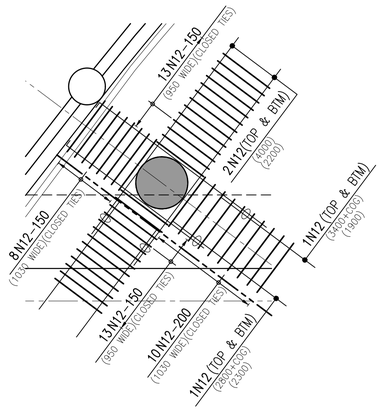
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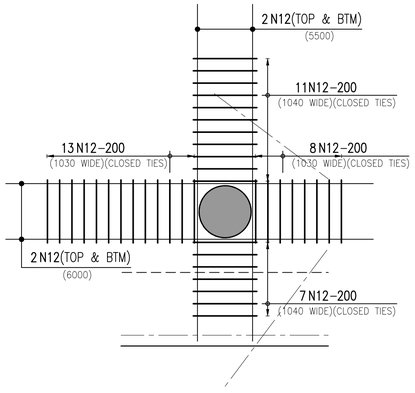
SHEAR DETAIL SD4 / 212
SCALE 1:50

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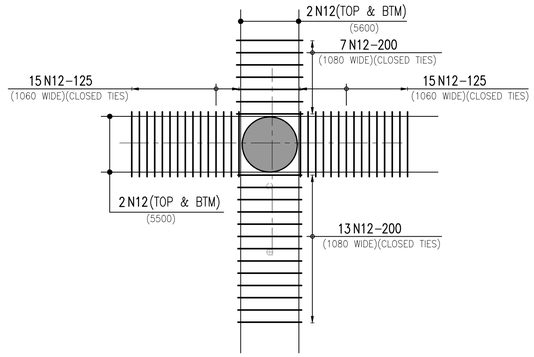
SHEAR DETAIL SD5 / 222
SCALE 1:50

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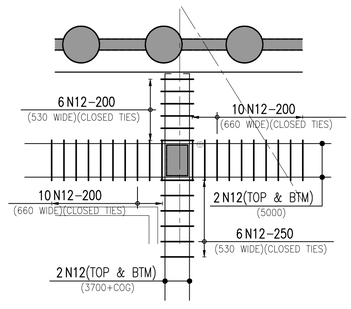
SHEAR DETAIL SD6 / 222
SCALE 1:50

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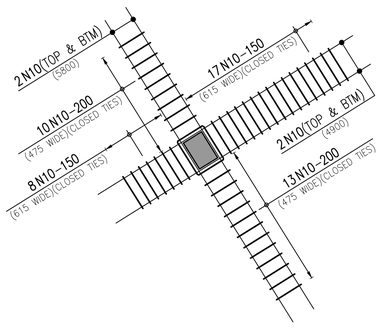
SHEAR DETAIL SD7 / 222
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



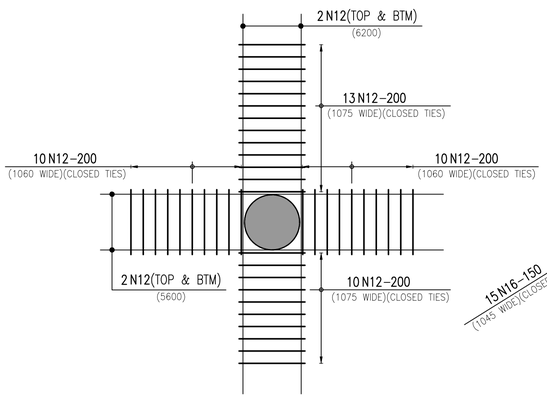
SHEAR DETAIL SD8 / 222
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



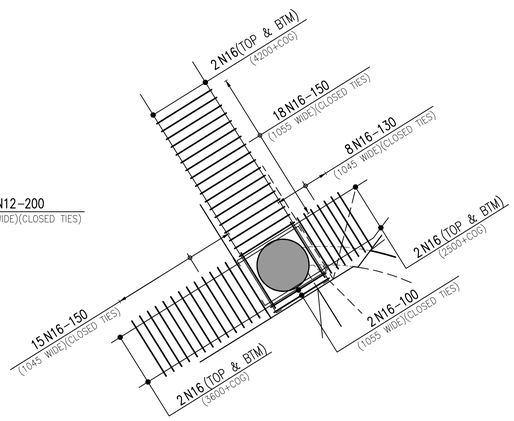
SHEAR DETAIL SD15 / 232
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



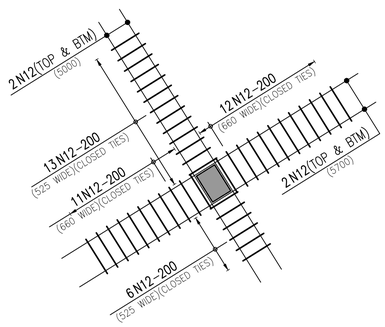
SHEAR DETAIL SD16 / 232
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



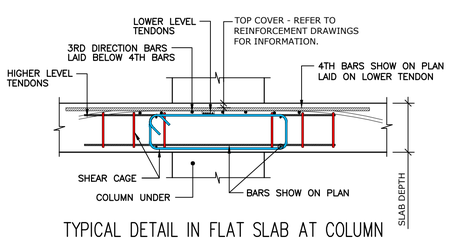
SHEAR DETAIL SD17 / 232
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD18 / 232
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL DETAIL IN FLAT SLAB AT COLUMN

REINFORCEMENT WEIGHT ON PLAN : 1.44 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

SYDNEY
5.04/77 Dunning Avenue
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6/20 - 26 Sabre Drive
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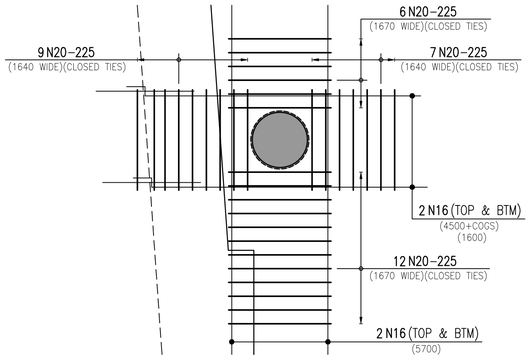
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 1,2,3 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-015	Revision: 1

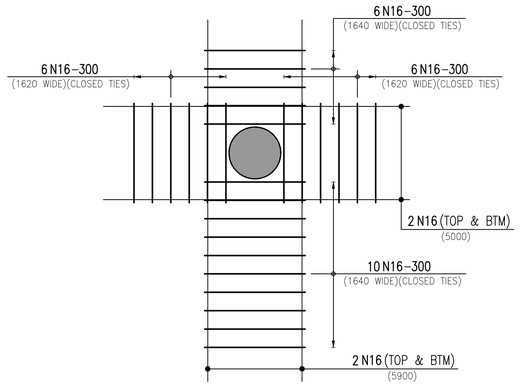
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LOWER GF. - POUR 4 - SHEAR DETAILS		Drawing No: INT-PT-016	

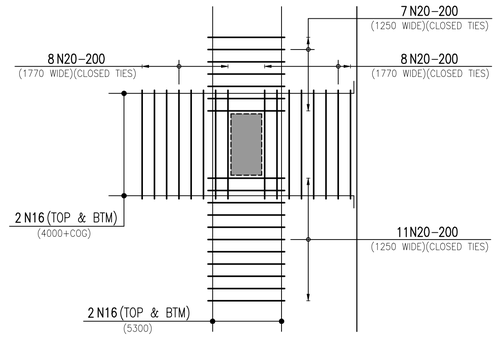
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



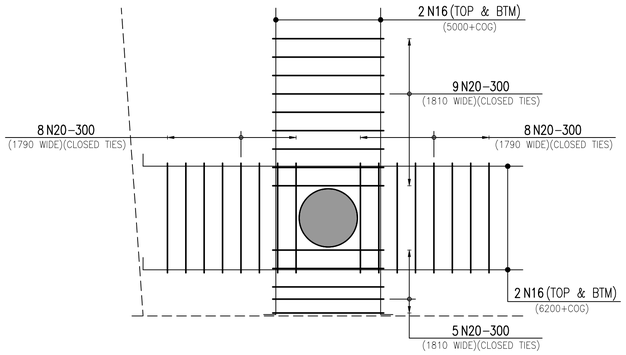
SHEAR DETAIL SD9 242
SCALE 1:50
FIRST TIE TO BE 50MM FROM COLUMN FACE



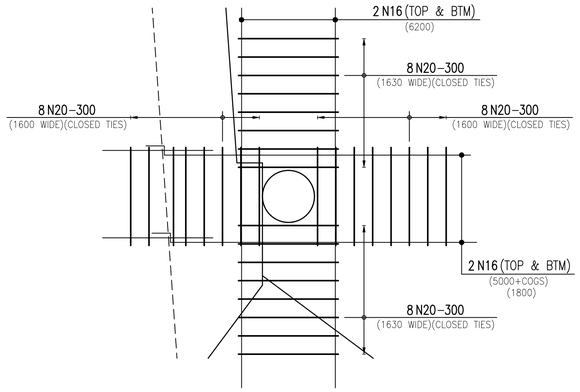
SHEAR DETAIL SD10 242
SCALE 1:50
FIRST TIE TO BE 50MM FROM COLUMN FACE



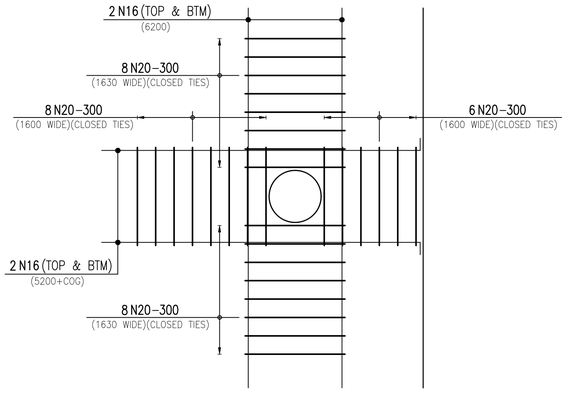
SHEAR DETAIL SD11 242
SCALE 1:50
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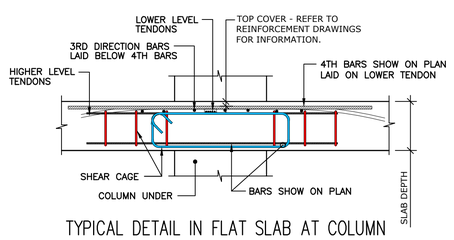
SHEAR DETAIL SD12 242
SCALE 1:50
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD13 242
SCALE 1:50
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD14 242
SCALE 1:50
FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL DETAIL IN FLAT SLAB AT COLUMN

REINFORCEMENT WEIGHT ON PLAN : 2.89 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
5.04/77 Dunning Avenue
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P: +61 2 9313 1700
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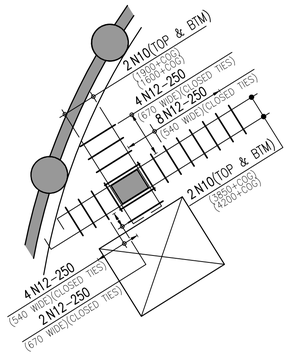
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
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F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR- POUR 4 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-016	Revision: 1

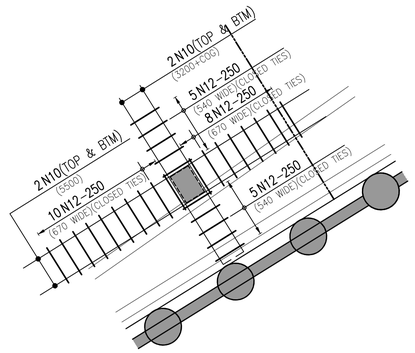
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-017		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



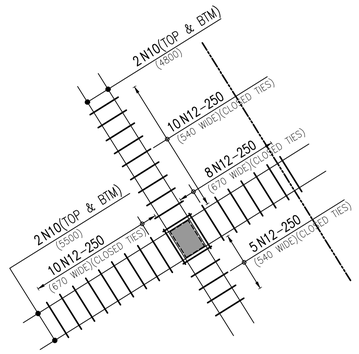
SHEAR DETAIL SD2 / 312
SCALE 1:50

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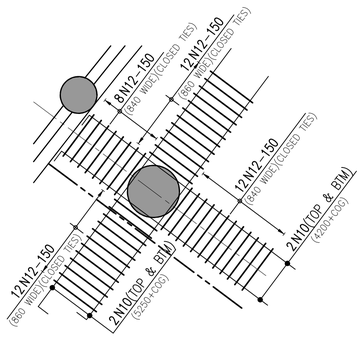
SHEAR DETAIL SD11 / 312
SCALE 1:50

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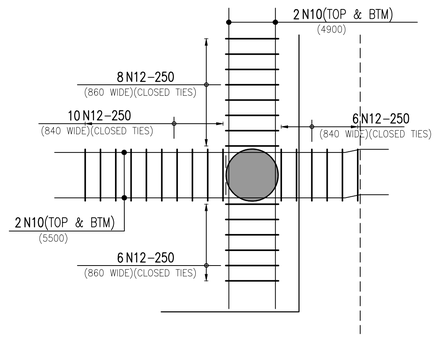
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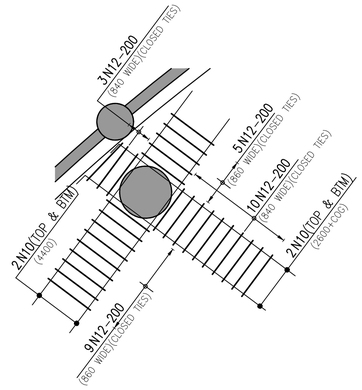
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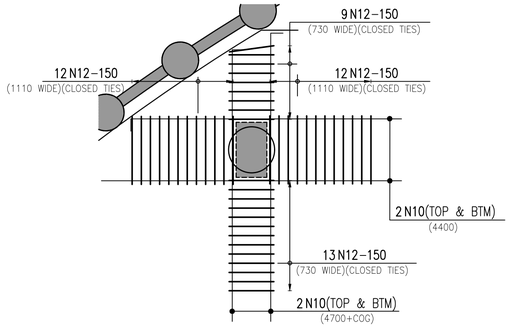
SHEAR DETAIL SD14 / 322
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



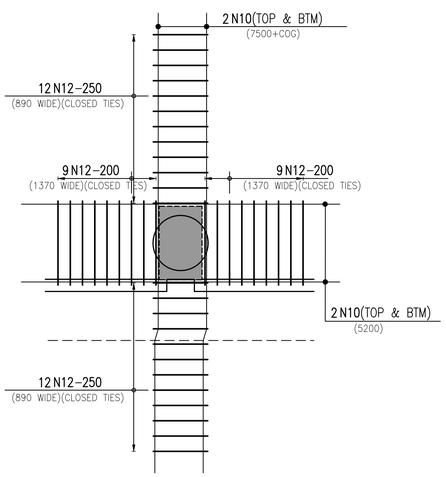
SHEAR DETAIL SD15 / 322
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



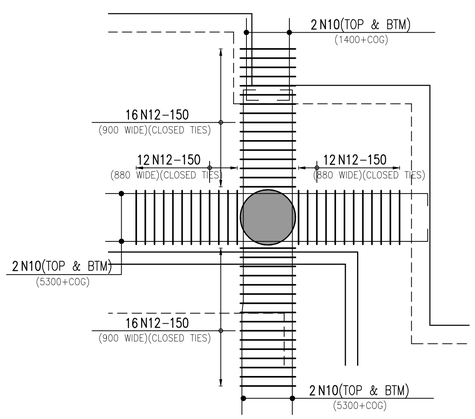
SHEAR DETAIL SD16 / 322
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



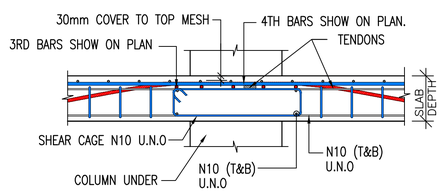
SHEAR DETAIL SD17 / 322
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD18 / 322
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.881 T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

SYDNEY
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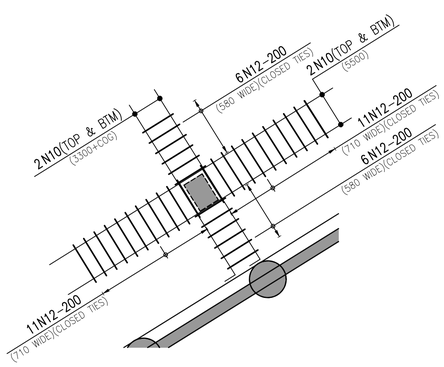
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: MK
Drawing Title: GROUND FLOOR - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-017	Revision: 1

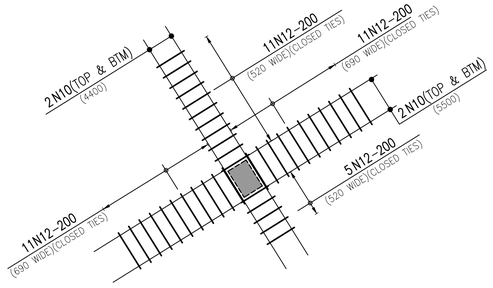
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 3,4 - SHEAR DETAILS		Drawing No: INT-PT-018		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



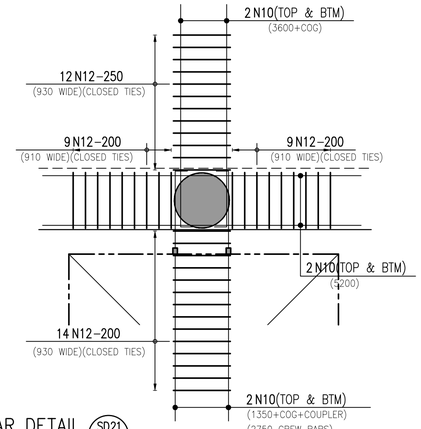
SHEAR DETAIL SD19 (332)
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



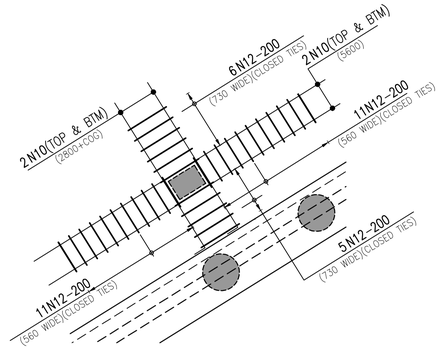
SHEAR DETAIL SD20 (332)
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



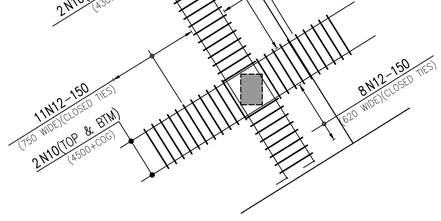
SHEAR DETAIL SD21 (332)

FIRST TIE TO BE 50MM FROM COLUMN FACE



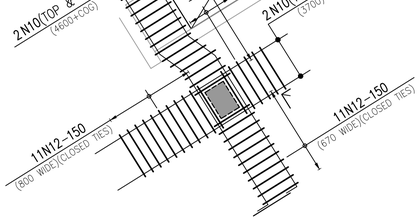
SHEAR DETAIL SD22 (332)

FIRST TIE TO BE 50MM FROM COLUMN FACE



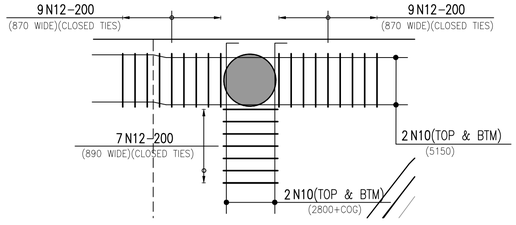
SHEAR DETAIL SD23 (342)

FIRST TIE TO BE 50MM FROM COLUMN FACE



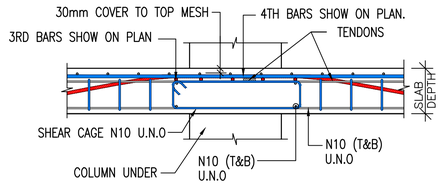
SHEAR DETAIL SD24 (342)

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD25 (342)

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.664 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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MELBOURNE
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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

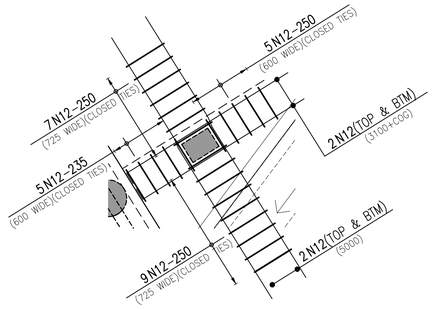
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: CP
Drawing Title: GROUND FLOOR - POUR 3,4 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-018	Revision: 1

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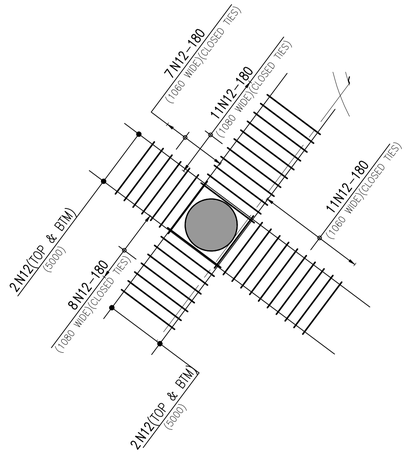
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 1,2 - SHEAR DETAILS	Drawing No: INT-PT-019		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



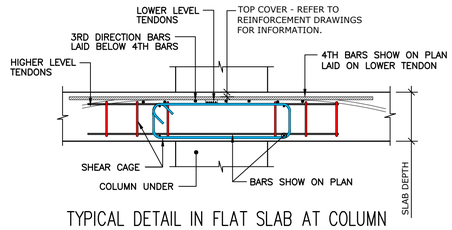
SHEAR DETAIL SD01
SCALE 1:50
412

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD02
SCALE 1:50
412

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL DETAIL IN FLAT SLAB AT COLUMN

REINFORCEMENT WEIGHT ON PLAN : 0.21 T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

SYDNEY
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MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

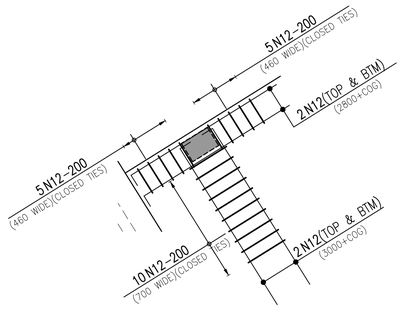
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: CP
Drawing Title: LEVEL 1 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 27-10-21
Drawing No.: INT-PT-019	Revision: 1

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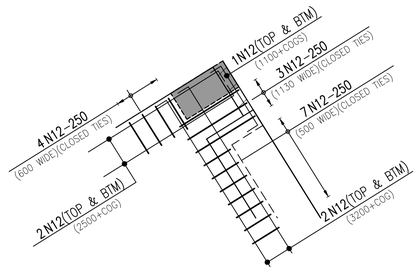
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 2 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-020	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



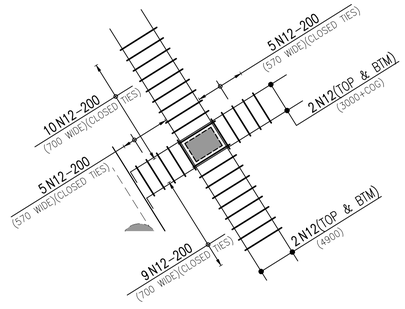
SHEAR DETAIL SD1 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



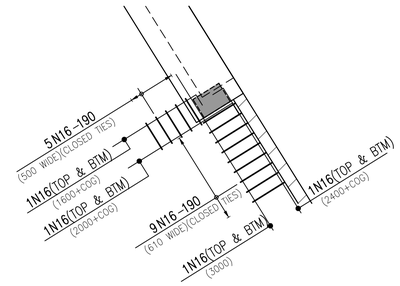
SHEAR DETAIL SD2 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



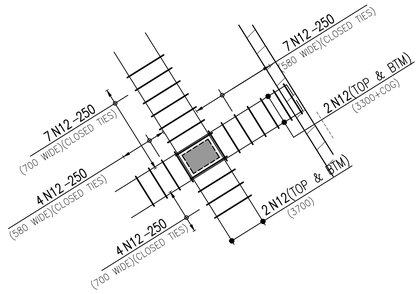
SHEAR DETAIL SD3 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



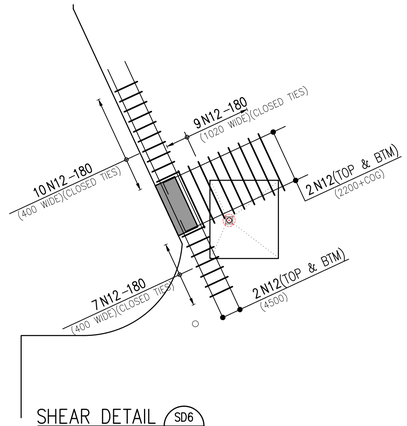
SHEAR DETAIL SD4 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



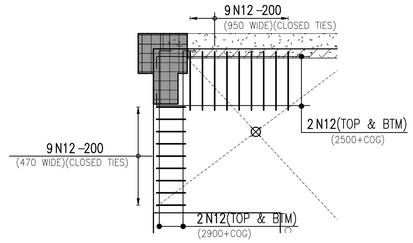
SHEAR DETAIL SD5 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



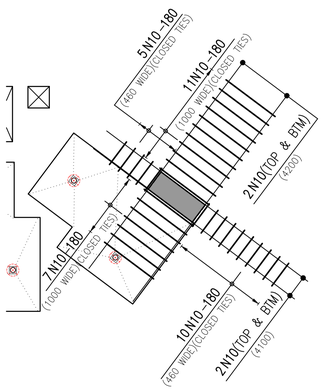
SHEAR DETAIL SD6 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



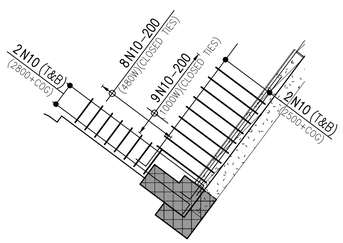
SHEAR DETAIL SD7 512

FIRST TIE TO BE 50MM FROM COLUMN FACE



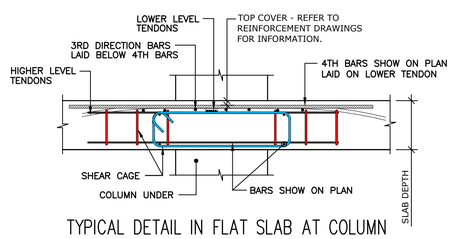
SHEAR DETAIL SD8 522

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD9 522

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL DETAIL IN FLAT SLAB AT COLUMN

REINFORCEMENT WEIGHT ON PLAN : 0.54 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

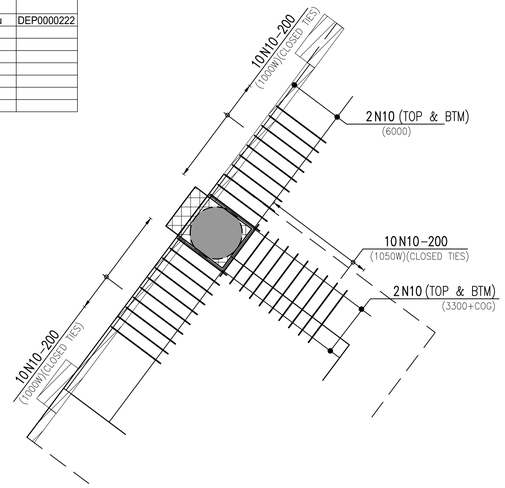
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 2 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-020	Revision: 1

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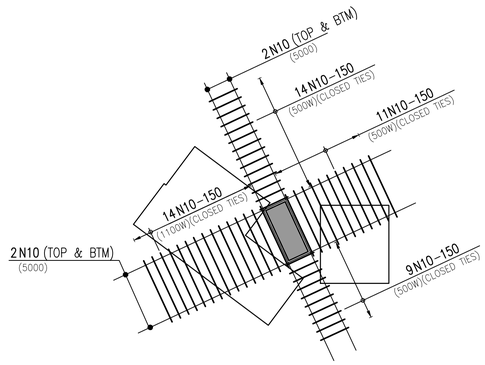
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-021		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



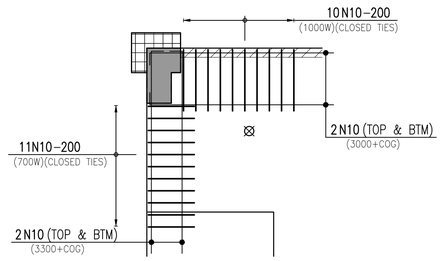
SHEAR DETAIL SD1 612
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH



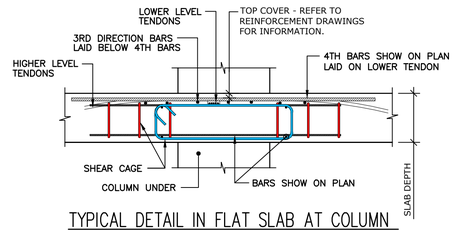
SHEAR DETAIL SD2 612
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH

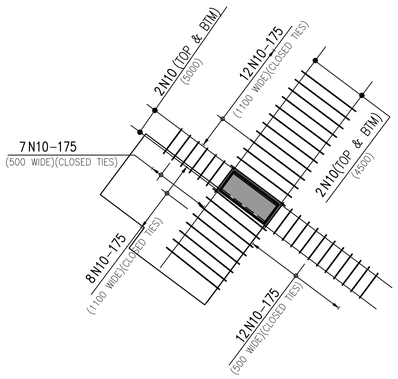


SHEAR DETAIL SD3 612
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH

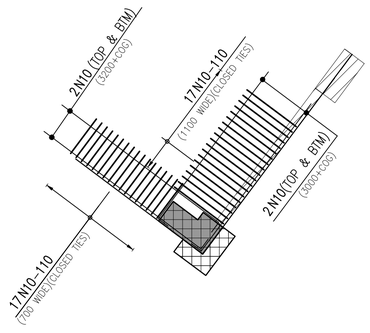


TYPICAL DETAIL IN FLAT SLAB AT COLUMN



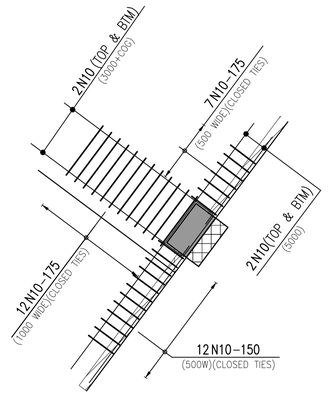
SHEAR DETAIL SD4 622
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH



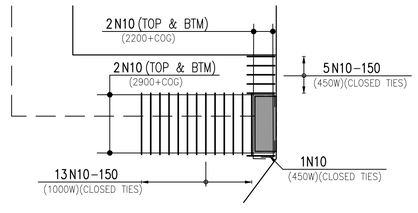
SHEAR DETAIL SD5 622
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH



SHEAR DETAIL SD6 622
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH



SHEAR DETAIL SD7 622
SCALE 1:50

FIRST TIES TO BE 50mm OFF COLUMN FACE
TIES HEIGHT TO SUIT SLAB DEPTH

REINFORCEMENT WEIGHT ON PLAN : 0.424 T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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MELBOURNE
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F: +61 3 8396 9640

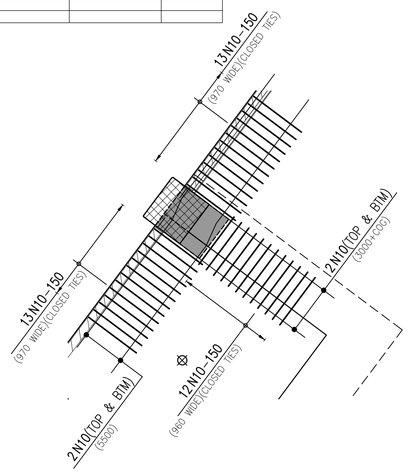
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: VH
	Drawn: CP
Drawing Title: LEVEL 3 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-021	Revision: 1

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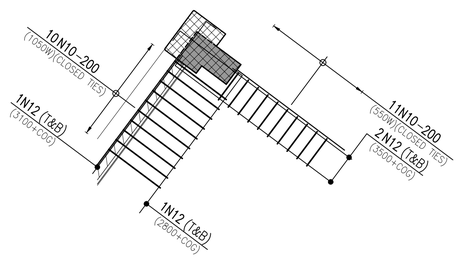
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4 - POUR 1,2 - SHEAR DETAILS	Drawing No: INT-PT-022		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



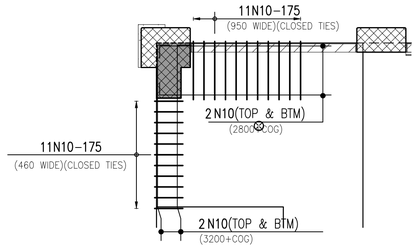
SHEAR DETAIL SD1 / 712
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



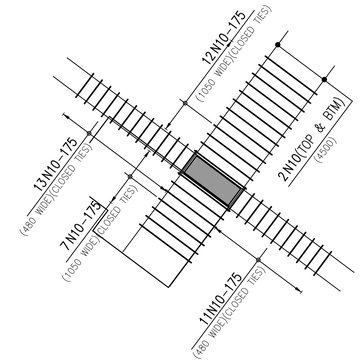
SHEAR DETAIL SD2 / 712
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



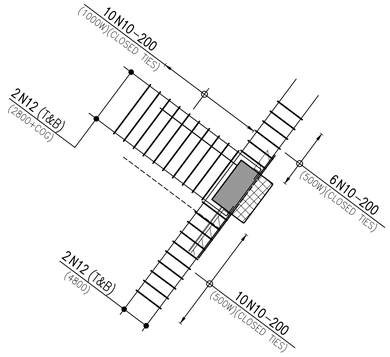
SHEAR DETAIL SD3 / 712
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



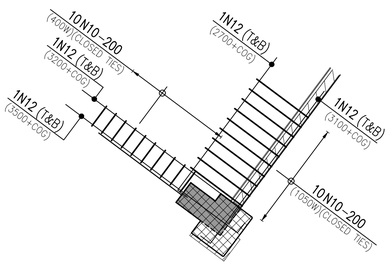
SHEAR DETAIL SD4 / 722
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



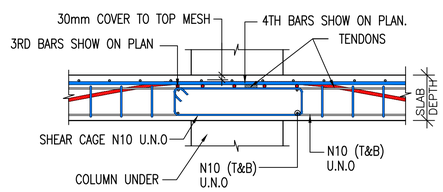
SHEAR DETAIL SD5 / 722
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD6 / 722
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.33 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
F: +61 2 8307 0297

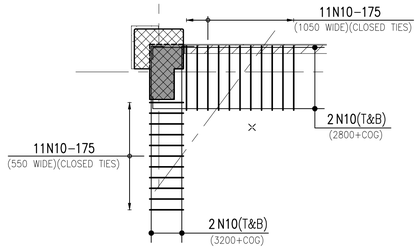
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: CP
Drawing Title: LEVEL 4 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 26-10-21
Drawing No.: INT-PT-022	Revision: 1

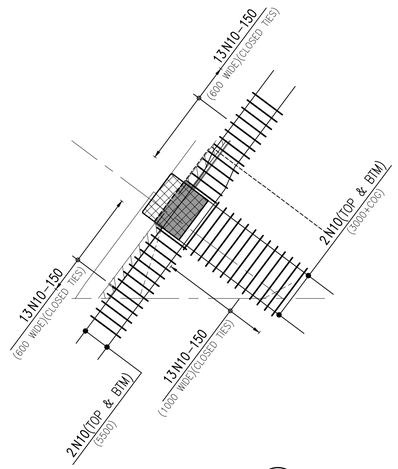
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5 - POUR 1,2 - SHEAR DETAILS			Drawing No: INT-PT-023	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



SHEAR DETAIL SD5 812

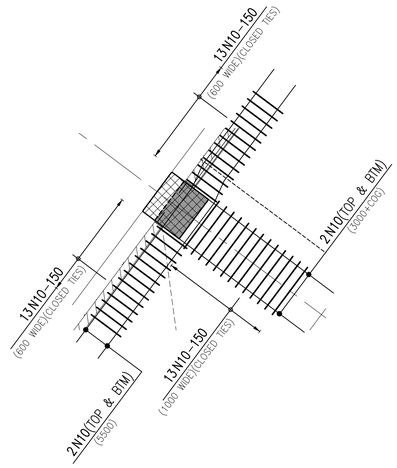
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD2 812

SCALE 1:50

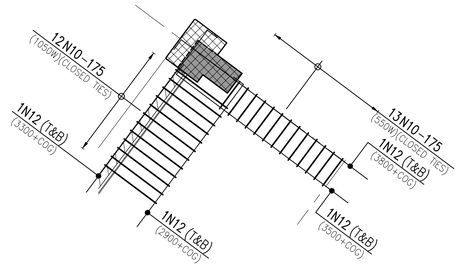
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD3 812

SCALE 1:50

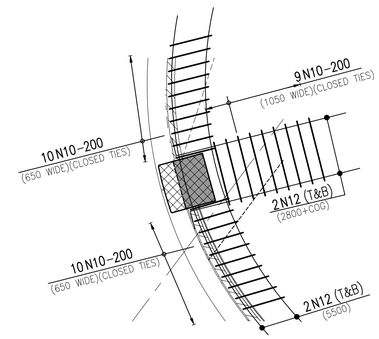
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD4 812

SCALE 1:50

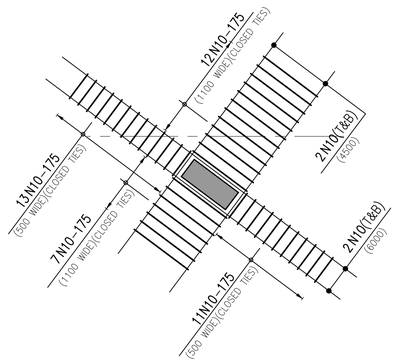
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD1 812

SCALE 1:50

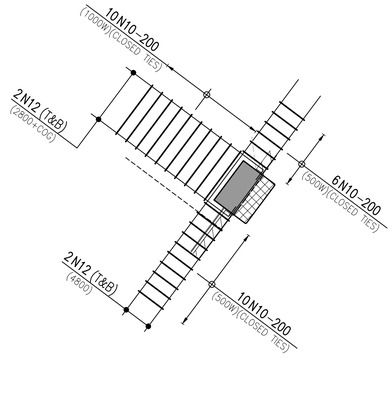
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD6 822

SCALE 1:50

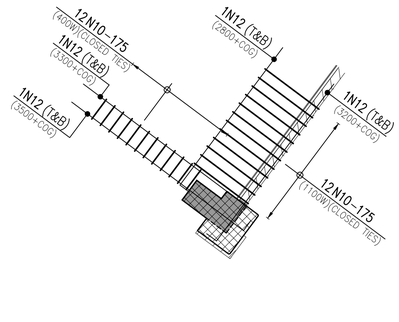
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD7 822

SCALE 1:50

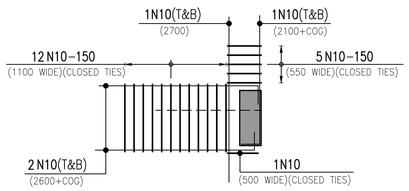
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD8 822

SCALE 1:50

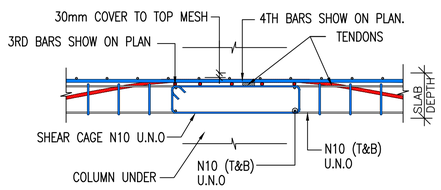
FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD9 822

SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.51 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
F: +61 2 8307 0297

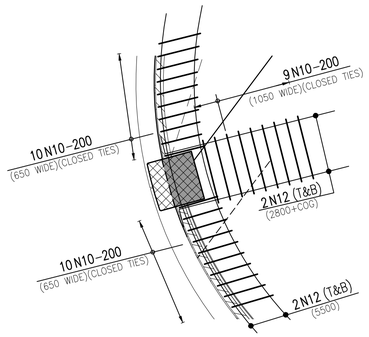
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 5 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-023	Revision: 1

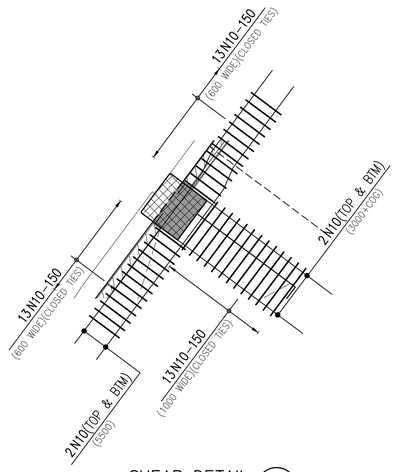
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - POUR 1,2 - SHEAR DETAILS			Drawing No: INT-PT-024	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



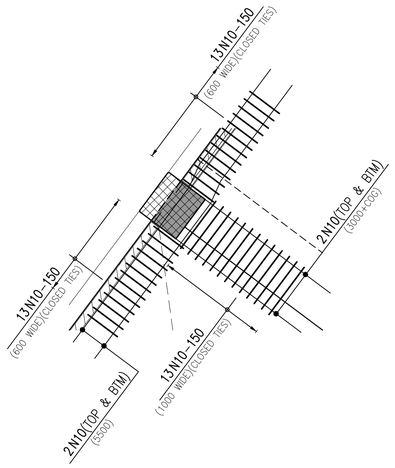
SHEAR DETAIL SD1 / 912
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



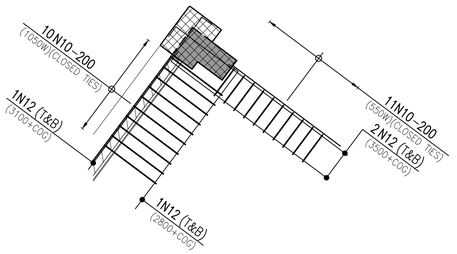
SHEAR DETAIL SD2 / 912
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



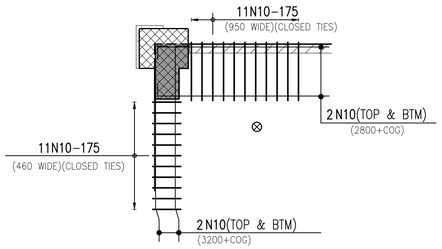
SHEAR DETAIL SD3 / 912
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



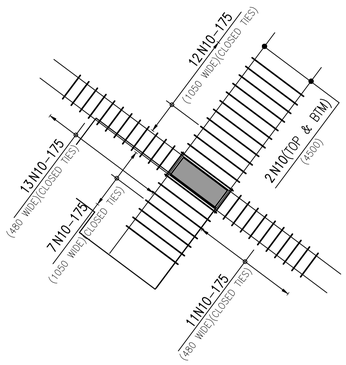
SHEAR DETAIL SD4 / 912
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



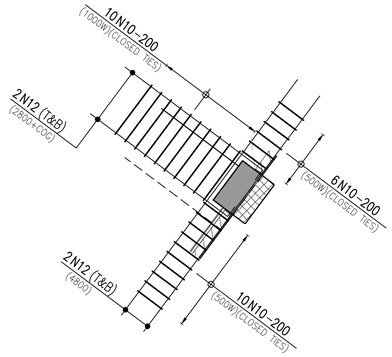
SHEAR DETAIL SD5 / 912

FIRST TIE TO BE 50MM FROM COLUMN FACE



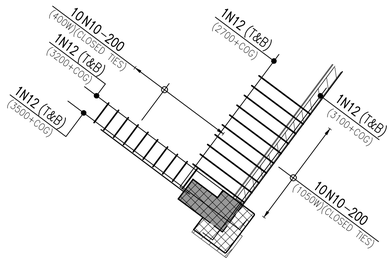
SHEAR DETAIL SD6 / 922
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



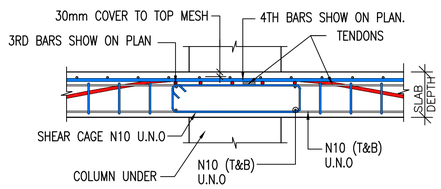
SHEAR DETAIL SD7 / 922
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD8 / 922
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.45 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
F: +61 2 8307 0297

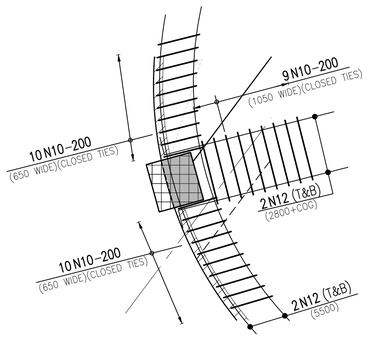
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-024	Revision: 1

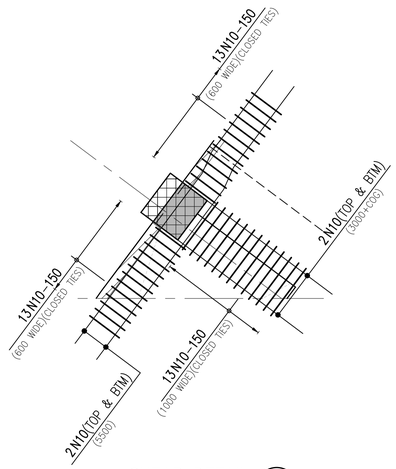
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-025		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



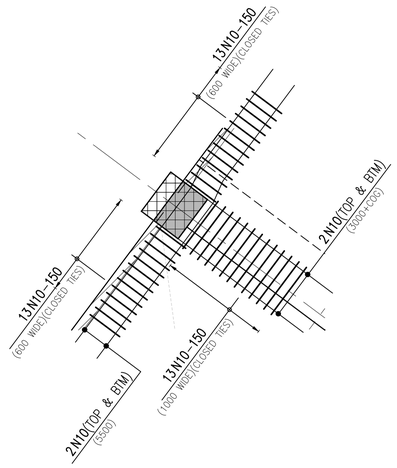
SHEAR DETAIL SD1 1012
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



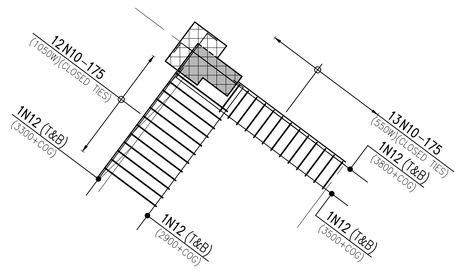
SHEAR DETAIL SD2 1012
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



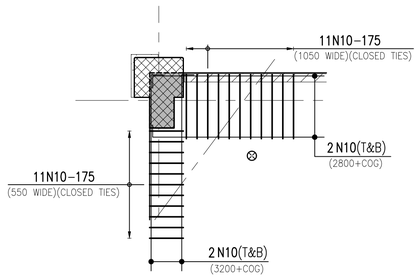
SHEAR DETAIL SD3 1012
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



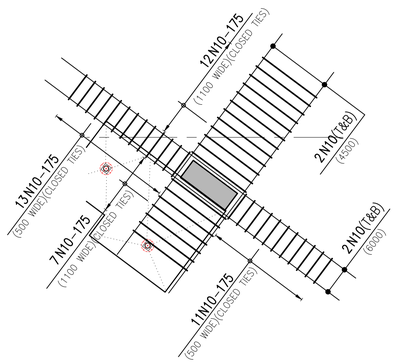
SHEAR DETAIL SD4 1012
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



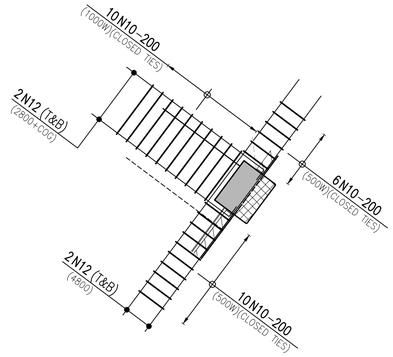
SHEAR DETAIL SD5 1012

FIRST TIE TO BE 50MM FROM COLUMN FACE



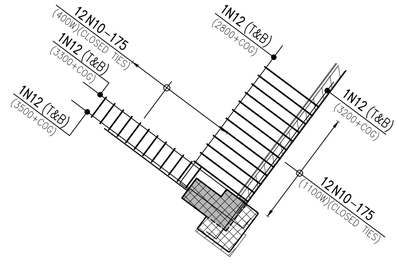
SHEAR DETAIL SD6 1022
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



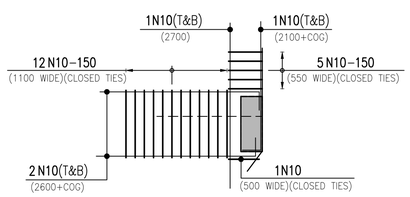
SHEAR DETAIL SD7 1022
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



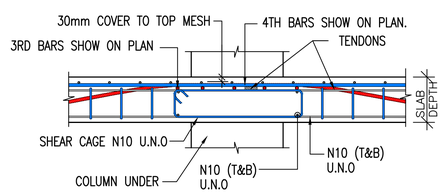
SHEAR DETAIL SD8 1022
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD9 1022
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.51 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

SYDNEY
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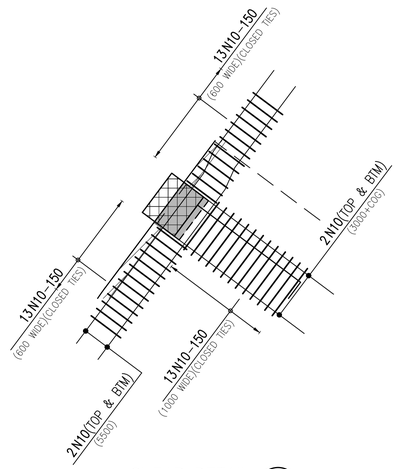
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6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TH
Drawing Title: LEVEL 7 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-025	Revision: 1

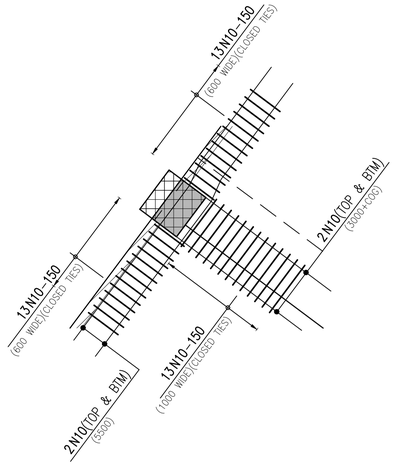
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-026		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



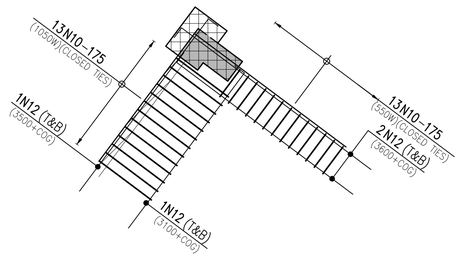
SHEAR DETAIL SD2 / 1112
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



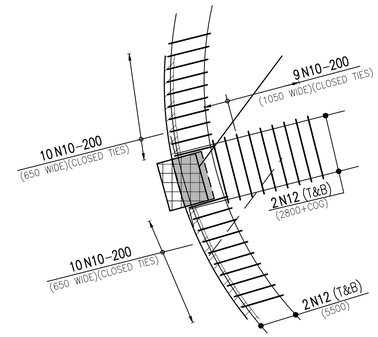
SHEAR DETAIL SD3 / 1112
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



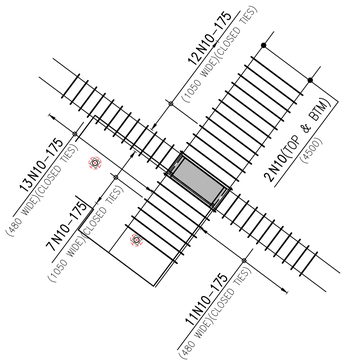
SHEAR DETAIL SD4 / 1112
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



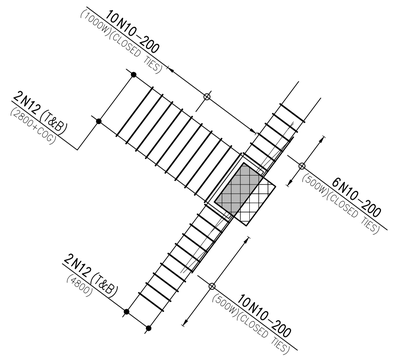
SHEAR DETAIL SD1 / 1112
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



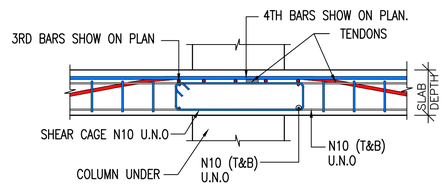
SHEAR DETAIL SD6 / 1122
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD7 / 1122
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.43 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

SYDNEY
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MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

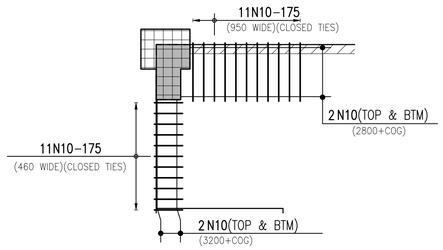
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 8 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-026	Revision: 1

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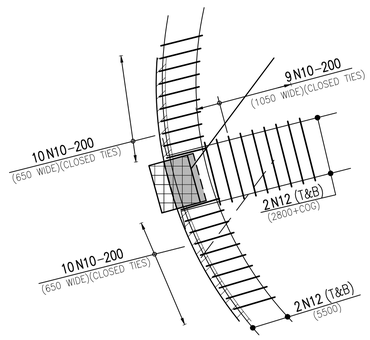
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 1,2 - SHEAR DETAILS	Drawing No: INT-PT-027		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



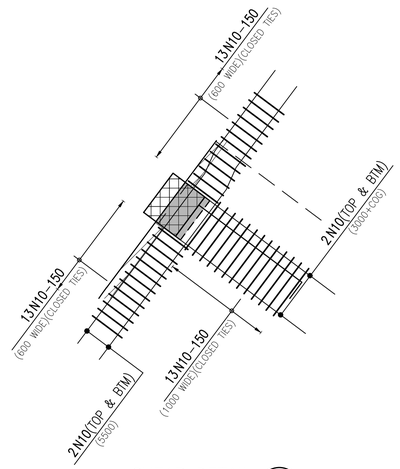
SHEAR DETAIL SD5 1212

FIRST TIE TO BE 50MM FROM COLUMN FACE



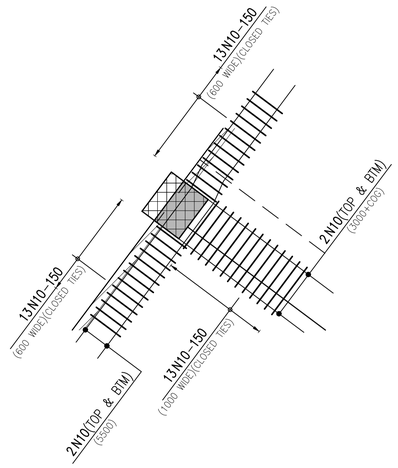
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SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



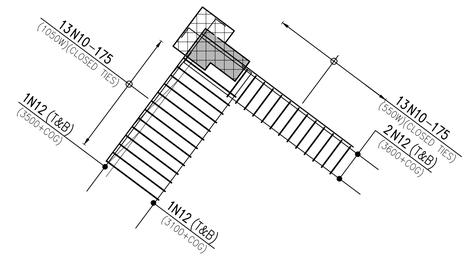
SHEAR DETAIL SD2 1212
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



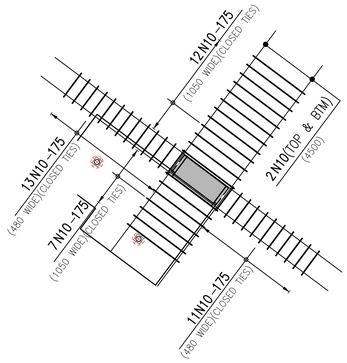
SHEAR DETAIL SD3 1212
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



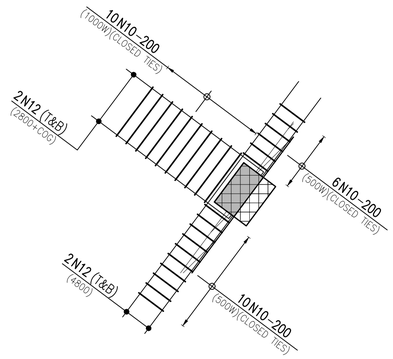
SHEAR DETAIL SD4 1212
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



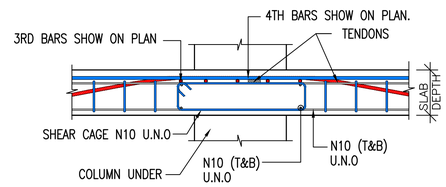
SHEAR DETAIL SD6 1222
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD7 1222
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.43 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
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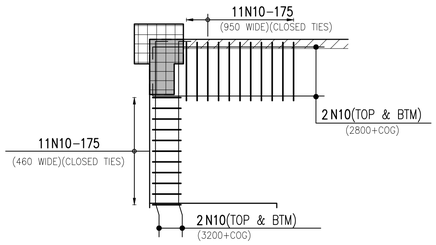
MELBOURNE
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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 9 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-027	Revision: 1

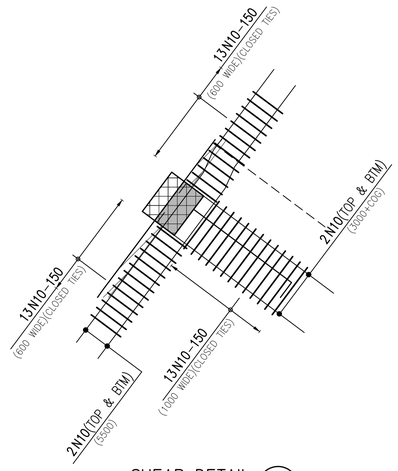
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-028		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



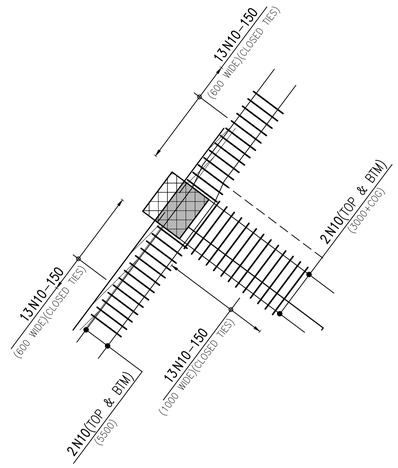
SHEAR DETAIL SD5 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



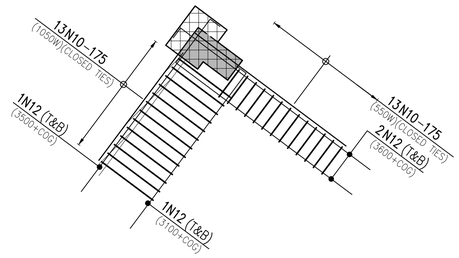
SHEAR DETAIL SD2 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



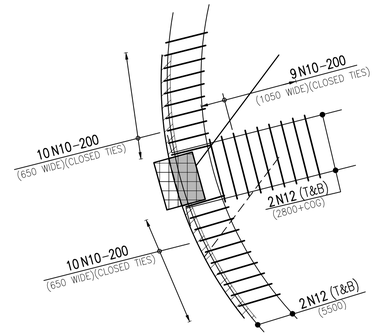
SHEAR DETAIL SD3 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



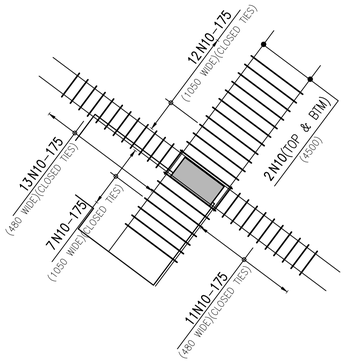
SHEAR DETAIL SD4 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



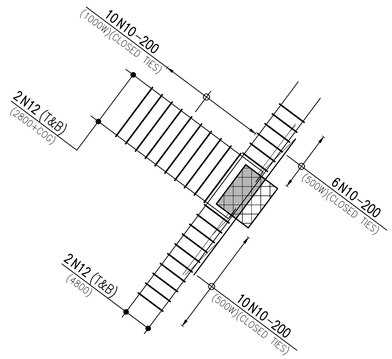
SHEAR DETAIL SD1 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



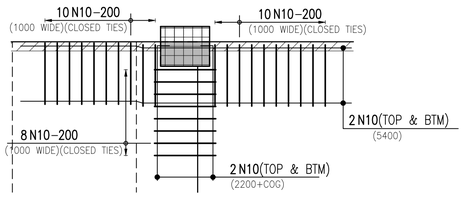
SHEAR DETAIL SD6 1322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



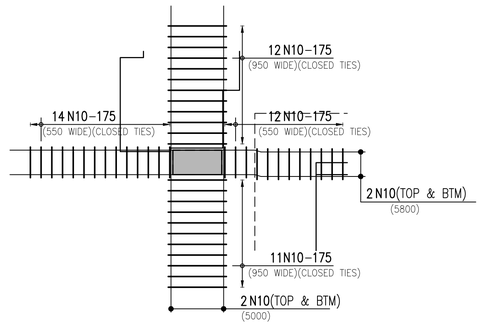
SHEAR DETAIL SD7 1322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



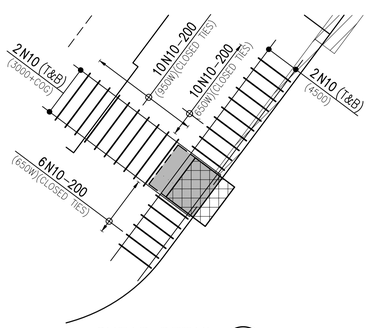
SHEAR DETAIL SD8 1312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



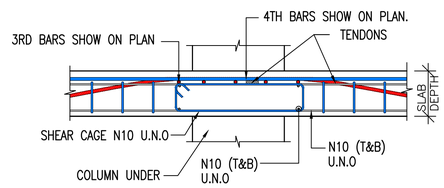
SHEAR DETAIL SD9 1322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD10 1322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.62 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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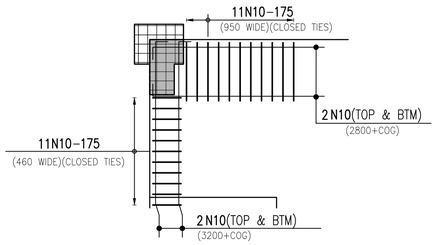
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Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 10 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-028	Revision: 1

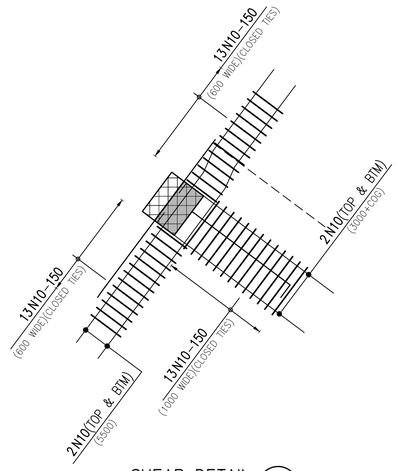
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-029		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



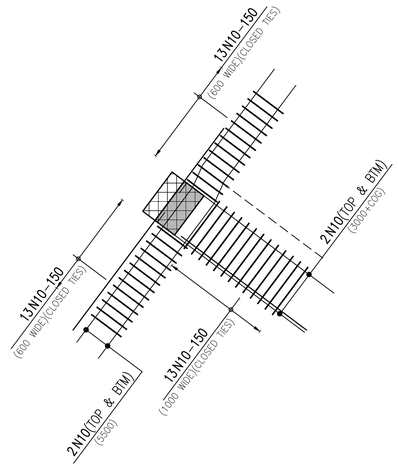
SHEAR DETAIL SD5 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



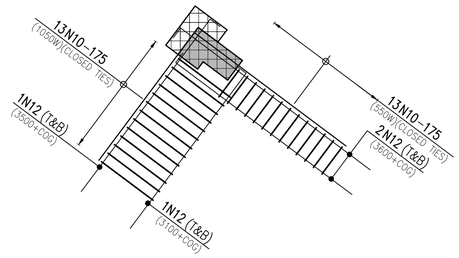
SHEAR DETAIL SD2 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



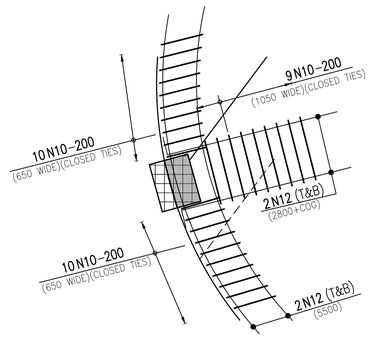
SHEAR DETAIL SD3 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



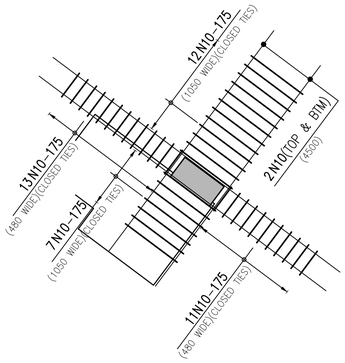
SHEAR DETAIL SD4 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



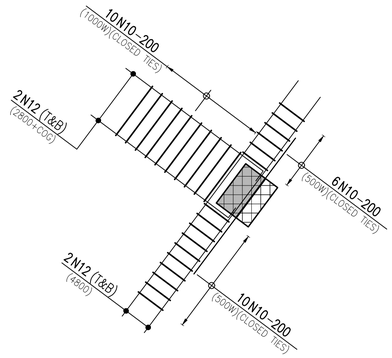
SHEAR DETAIL SD1 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



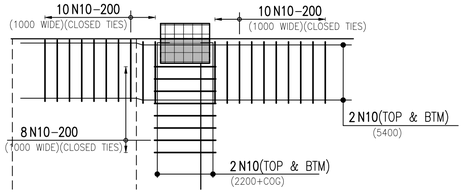
SHEAR DETAIL SD6 1422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



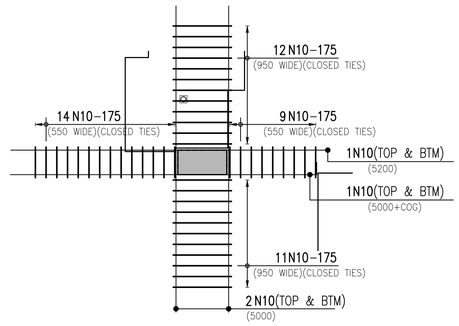
SHEAR DETAIL SD7 1422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



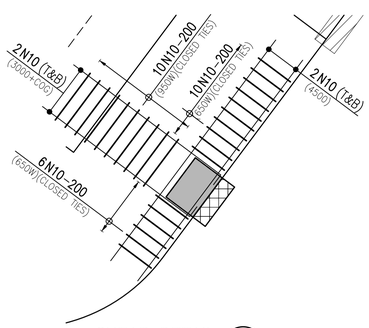
SHEAR DETAIL SD8 1412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



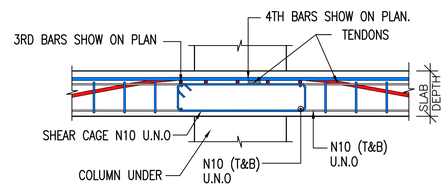
SHEAR DETAIL SD9 1422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD10 1422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.62 T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

SYDNEY
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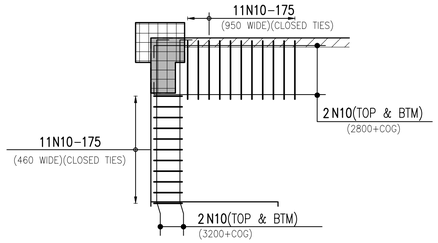
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 11 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-029	Revision: 1

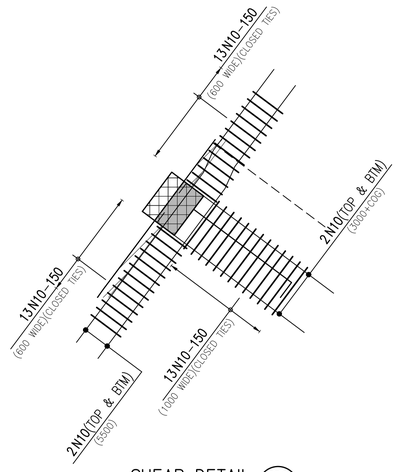
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-030		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



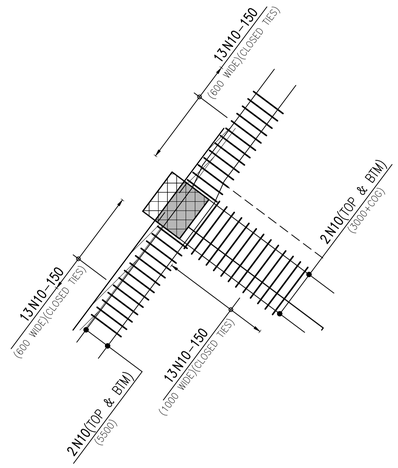
SHEAR DETAIL SD5 1512
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



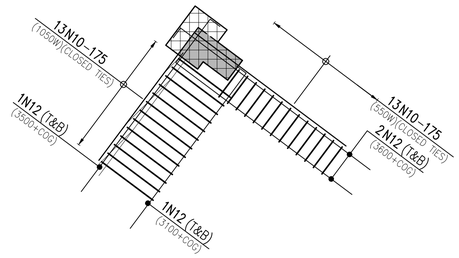
SHEAR DETAIL SD2 1512
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



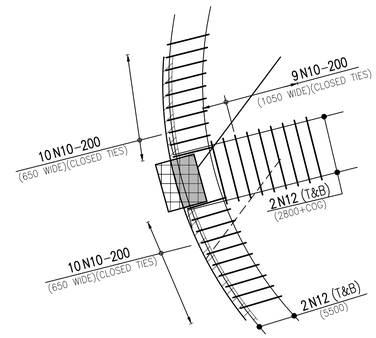
SHEAR DETAIL SD3 1512
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



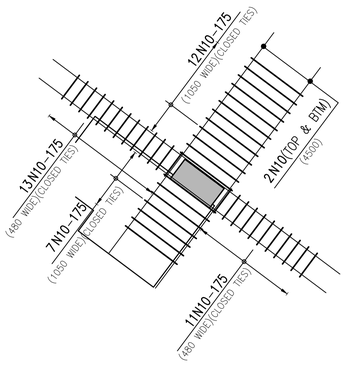
SHEAR DETAIL SD4 1512
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



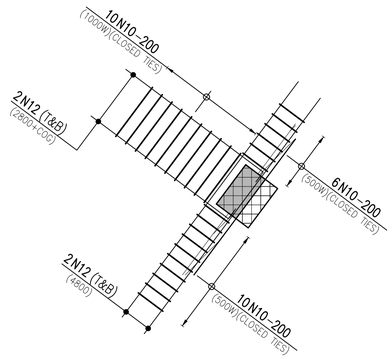
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



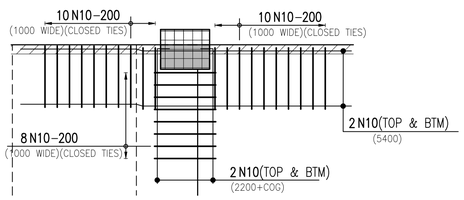
SHEAR DETAIL SD6 1522
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



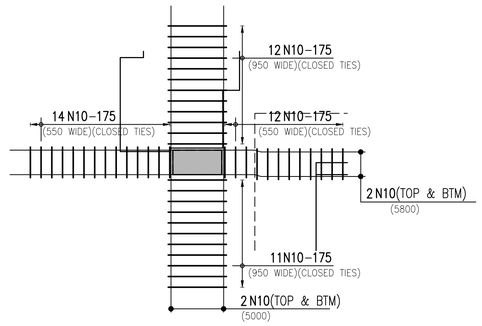
SHEAR DETAIL SD7 1522
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



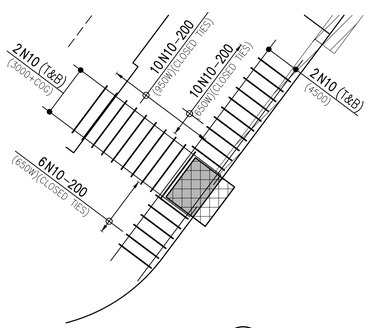
SHEAR DETAIL SD8 1512
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



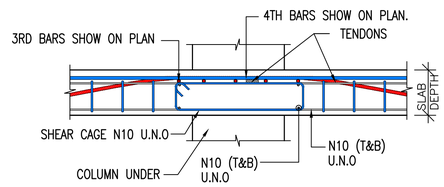
SHEAR DETAIL SD9 1522
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD10 1522
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.62 T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
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F: +61 2 8307 0297

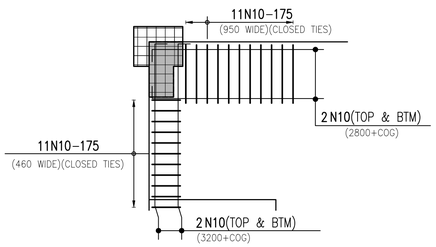
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 12 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-030	Revision: 1

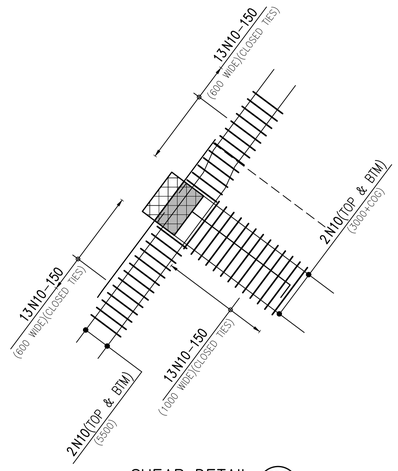
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-031		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



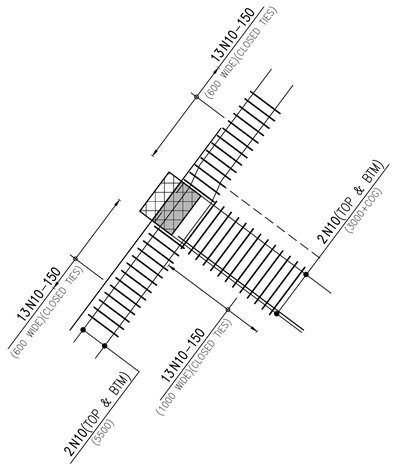
SHEAR DETAIL SD5 1612
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



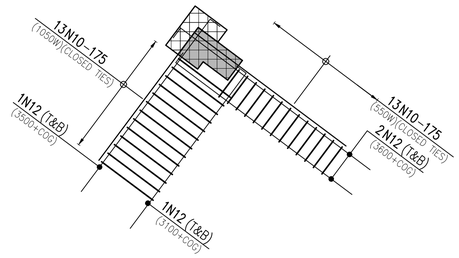
SHEAR DETAIL SD2 1612
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



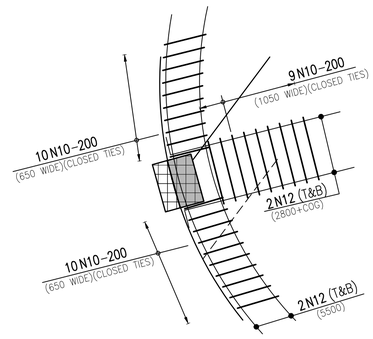
SHEAR DETAIL SD3 1612
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



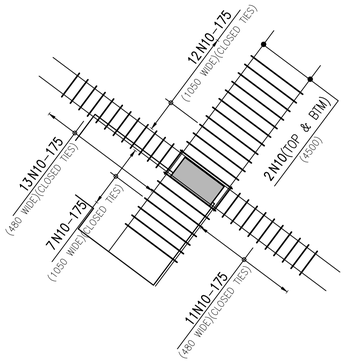
SHEAR DETAIL SD4 1612
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



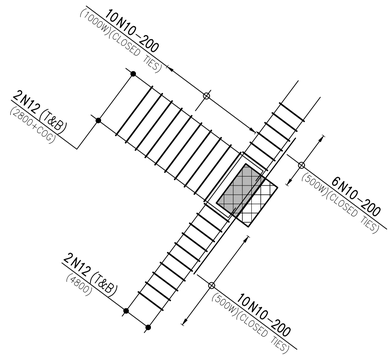
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



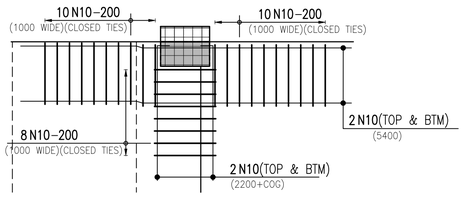
SHEAR DETAIL SD6 1622
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



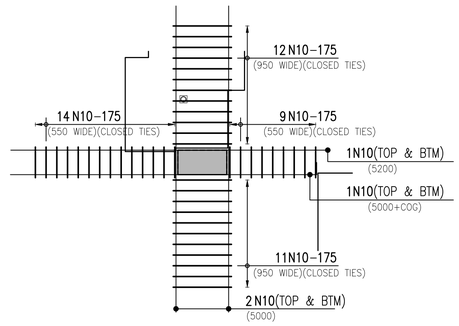
SHEAR DETAIL SD7 1622
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



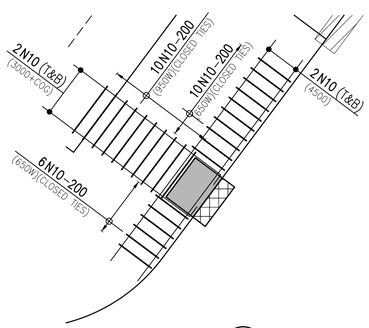
SHEAR DETAIL SD8 1612
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



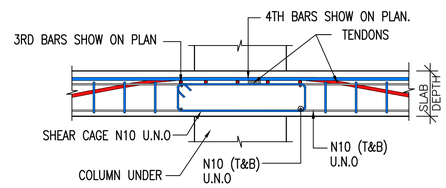
SHEAR DETAIL SD9 1622
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD10 1622
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.62 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

SYDNEY
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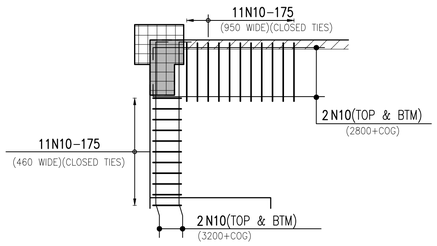
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 13 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-031	Revision: 1

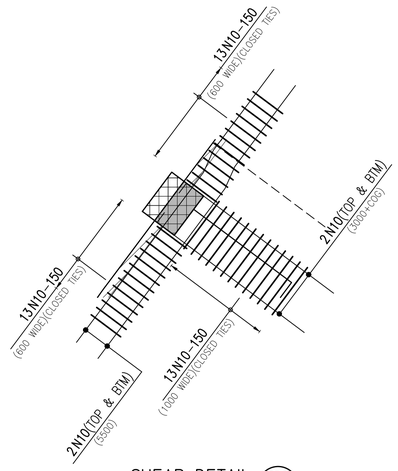
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 14 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-032		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



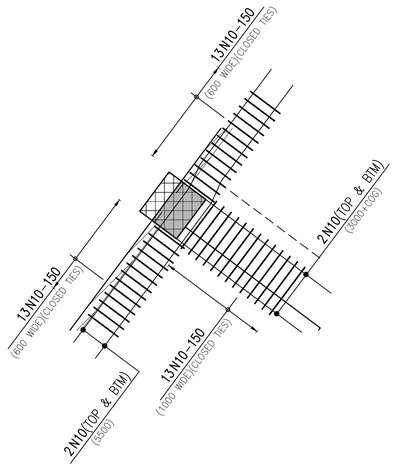
SHEAR DETAIL SD5 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



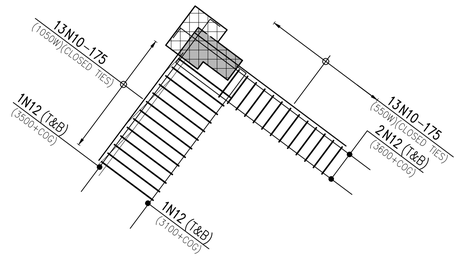
SHEAR DETAIL SD2 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



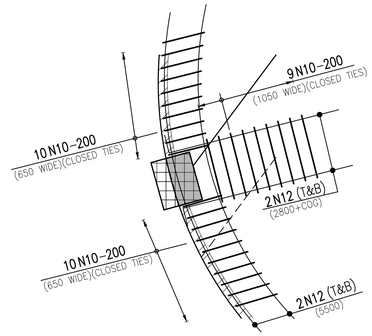
SHEAR DETAIL SD3 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



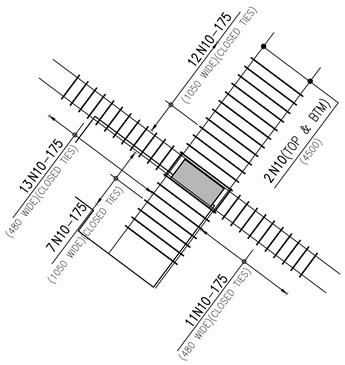
SHEAR DETAIL SD4 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



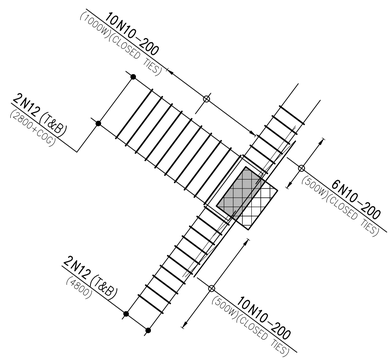
SHEAR DETAIL SD1 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



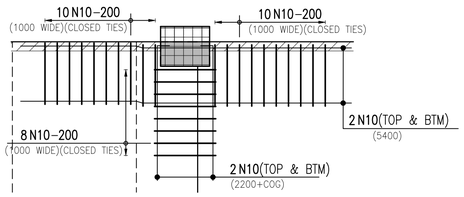
SHEAR DETAIL SD6 1722
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



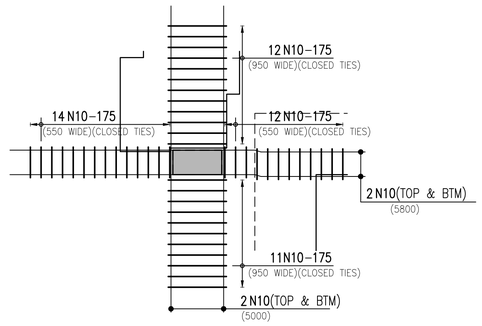
SHEAR DETAIL SD7 1722
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



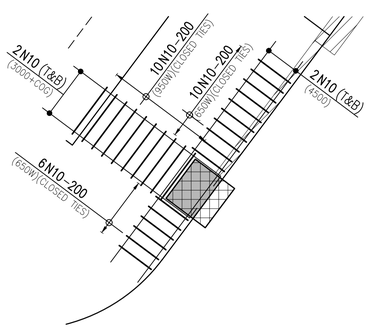
SHEAR DETAIL SD8 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



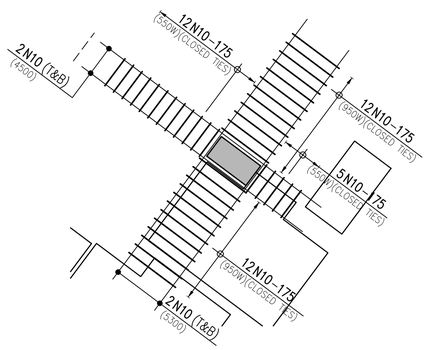
SHEAR DETAIL SD9 1722
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



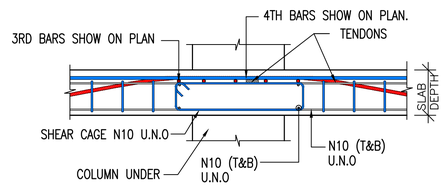
SHEAR DETAIL SD10 1722
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD11 1712
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

SYDNEY
5.04/77 Dunning Avenue
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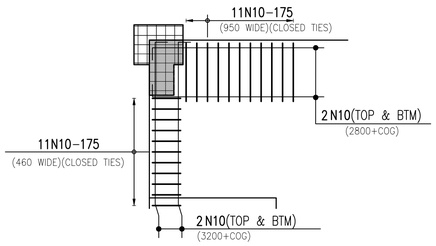
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 14 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-032	Revision: 1

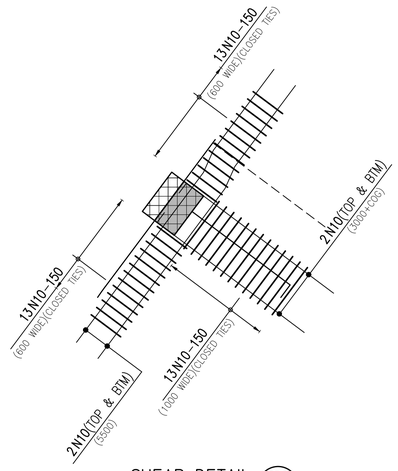
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 15 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-033		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



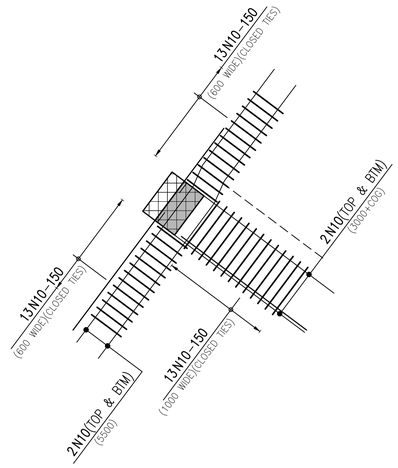
SHEAR DETAIL SD5 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



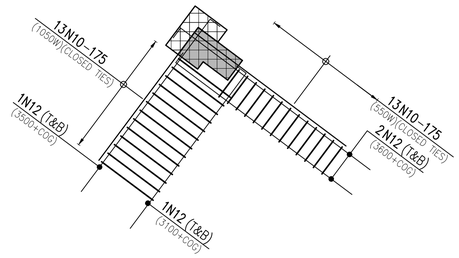
SHEAR DETAIL SD2 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



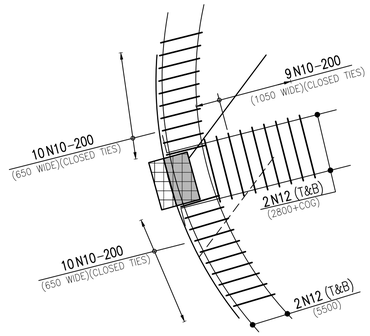
SHEAR DETAIL SD3 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



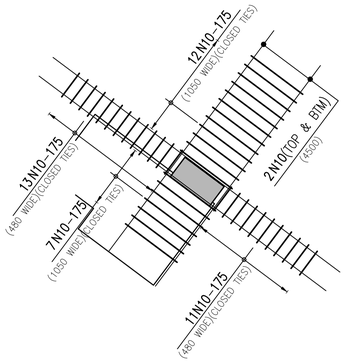
SHEAR DETAIL SD4 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



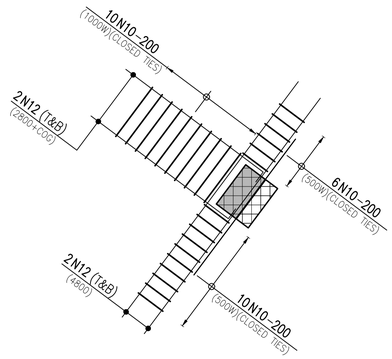
SHEAR DETAIL SD1 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



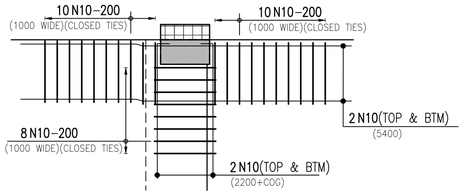
SHEAR DETAIL SD6 1822
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



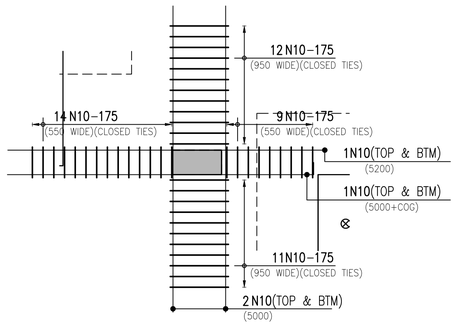
SHEAR DETAIL SD7 1822
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



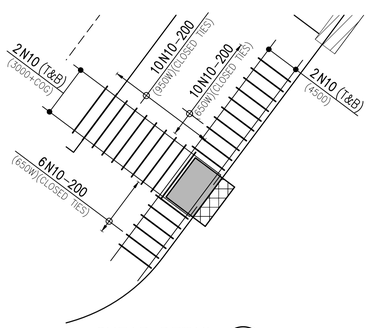
SHEAR DETAIL SD8 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



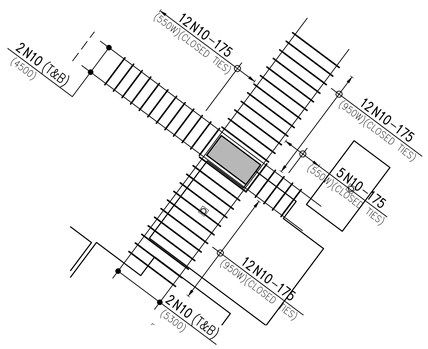
SHEAR DETAIL SD9 1822
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



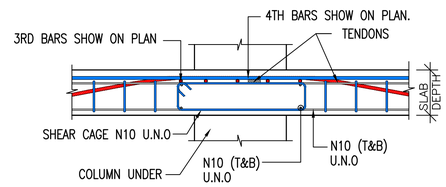
SHEAR DETAIL SD10 1822
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD11 1812
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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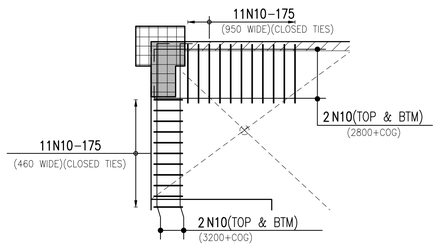
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 15 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-033	Revision: 1

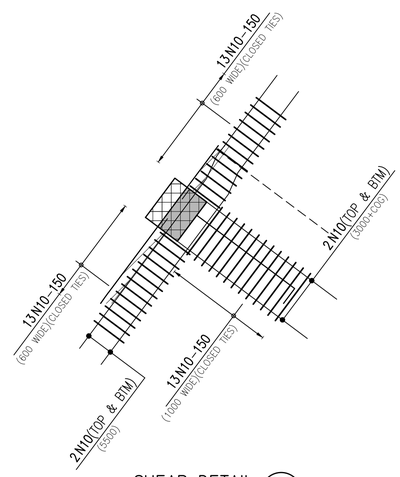
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-034		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



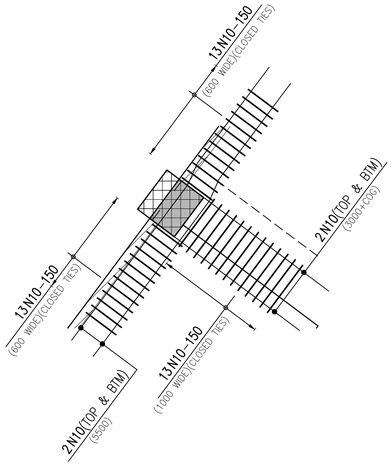
SHEAR DETAIL SD5 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



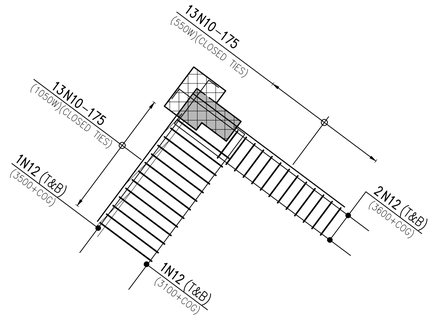
SHEAR DETAIL SD2 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



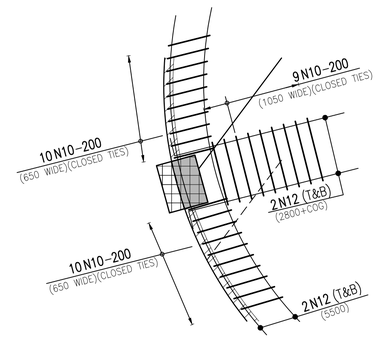
SHEAR DETAIL SD3 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



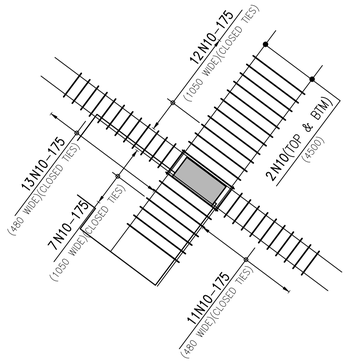
SHEAR DETAIL SD4 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



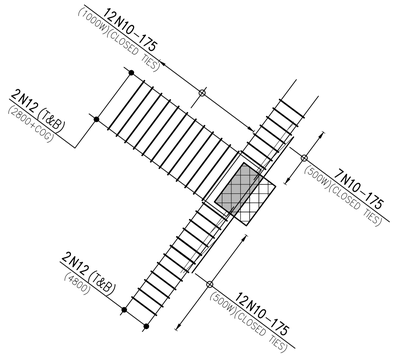
SHEAR DETAIL SD1 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



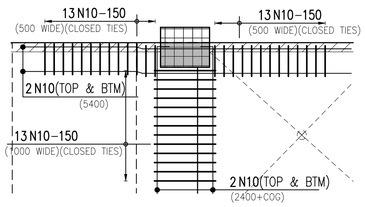
SHEAR DETAIL SD6 1922
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



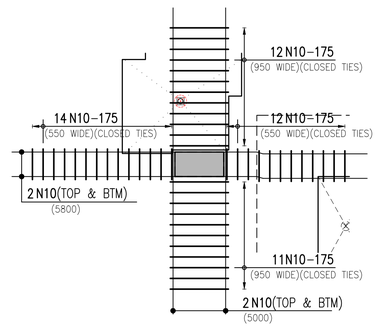
SHEAR DETAIL SD7 1922
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD8 1912
SCALE 1:50

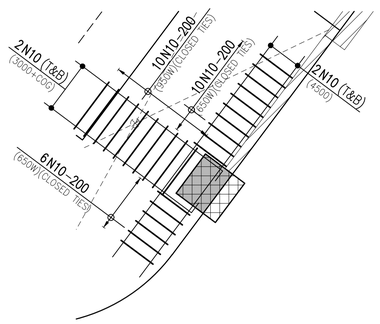
FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD9 1922
SCALE 1:50

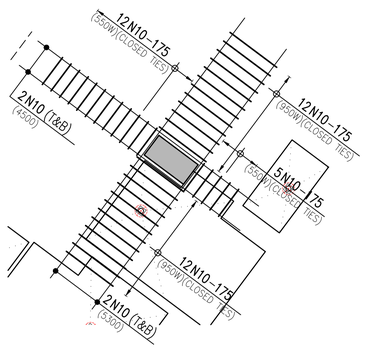
FIRST TIE TO BE 50mm FROM COLUMN FACE

REINFORCEMENT WEIGHT ON PLAN : 0.70 T



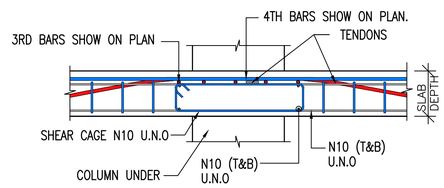
SHEAR DETAIL SD10 1922
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD11 1912
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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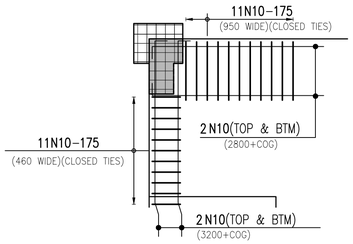
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: NA
Drawing Title: LEVEL 16 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-034	Revision: 1

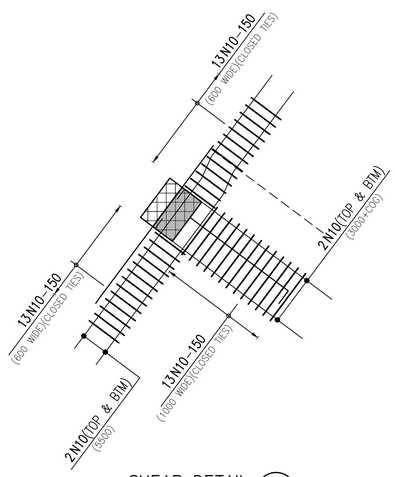
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-035		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



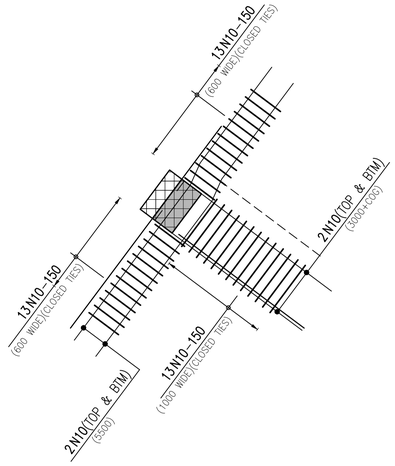
SHEAR DETAIL SD5 2012
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



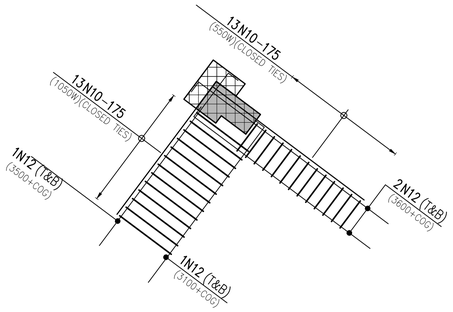
SHEAR DETAIL SD2 2012
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FIRST TIE TO BE 50mm FROM COLUMN FACE



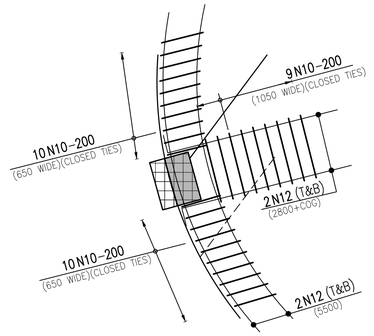
SHEAR DETAIL SD3 2012
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



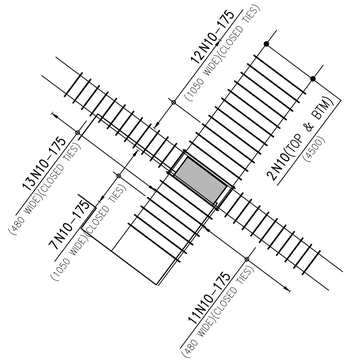
SHEAR DETAIL SD4 2012
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



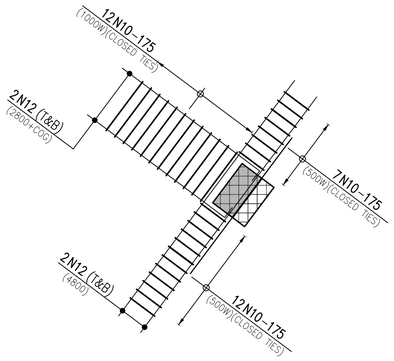
SHEAR DETAIL SD1 2012
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FIRST TIE TO BE 50mm FROM COLUMN FACE



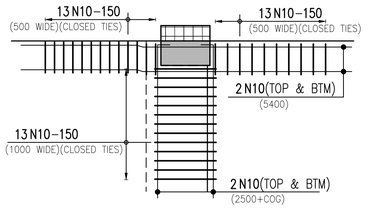
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FIRST TIE TO BE 50mm FROM COLUMN FACE



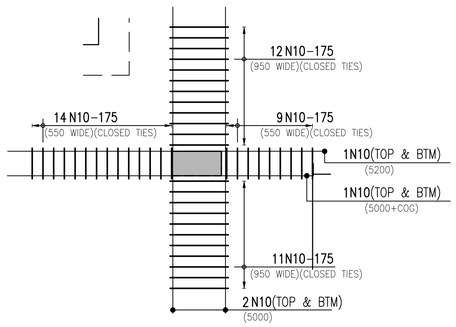
SHEAR DETAIL SD7 2022
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FIRST TIE TO BE 50mm FROM COLUMN FACE



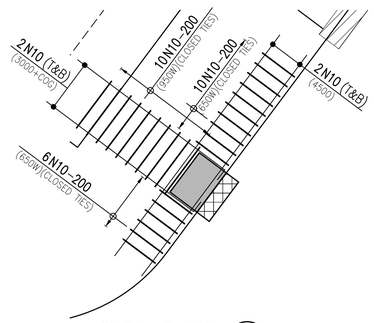
SHEAR DETAIL SD8 2012
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FIRST TIE TO BE 50mm FROM COLUMN FACE



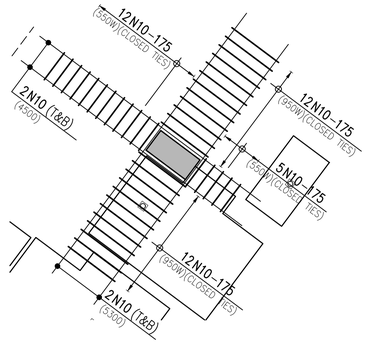
SHEAR DETAIL SD9 2022
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



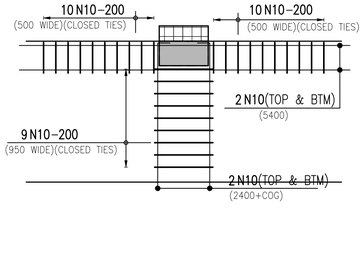
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



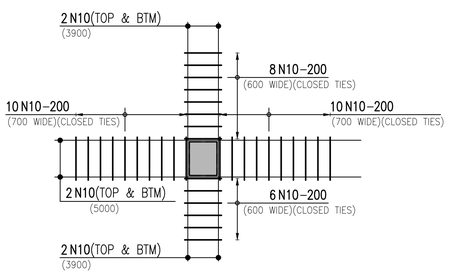
SHEAR DETAIL SD11 2012
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



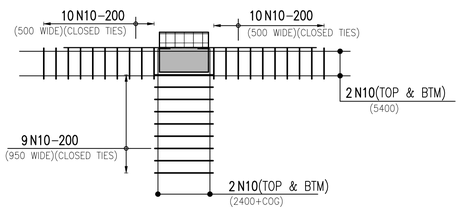
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FIRST TIE TO BE 50mm FROM COLUMN FACE



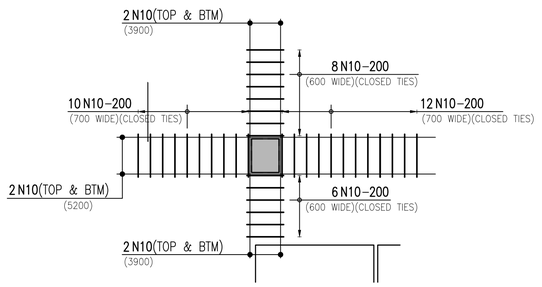
SHEAR DETAIL SD13 2022
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



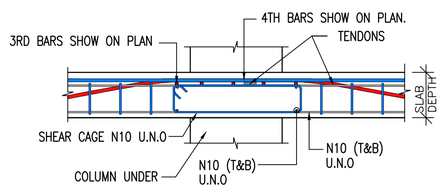
SHEAR DETAIL SD14 2022
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD15 2022
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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F: +61 2 8307 0297

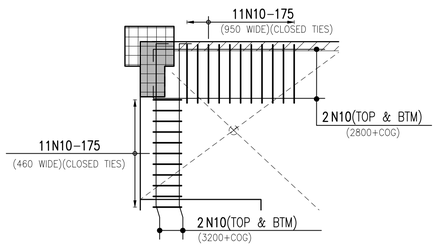
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 17 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-035	Revision: 1

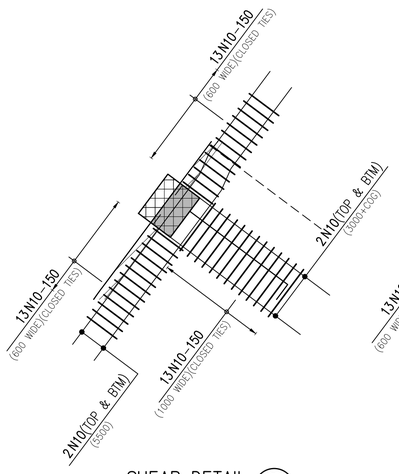
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-036		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



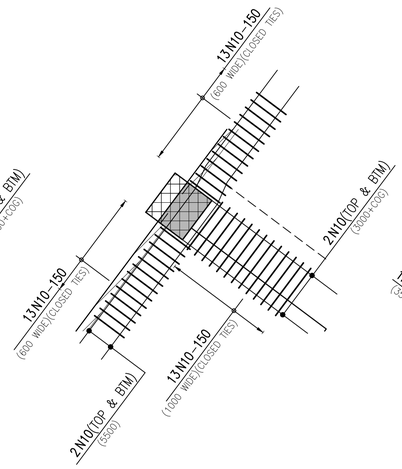
SHEAR DETAIL SD5
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



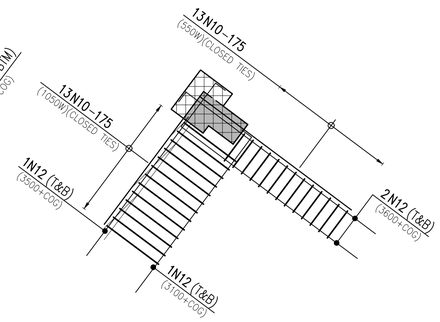
SHEAR DETAIL SD2
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



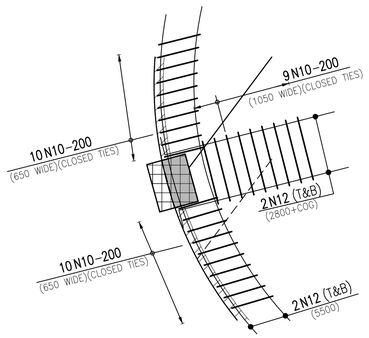
SHEAR DETAIL SD3
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



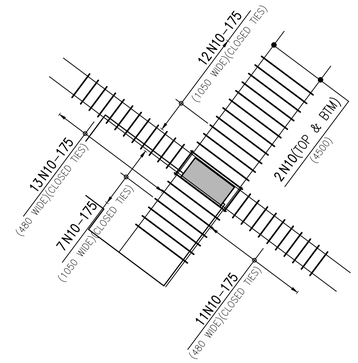
SHEAR DETAIL SD4
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



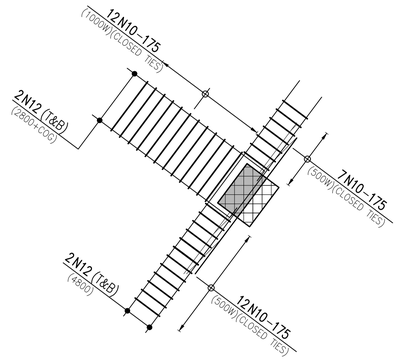
SHEAR DETAIL SD1
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



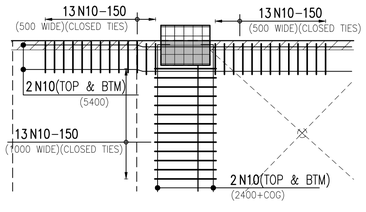
SHEAR DETAIL SD6
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



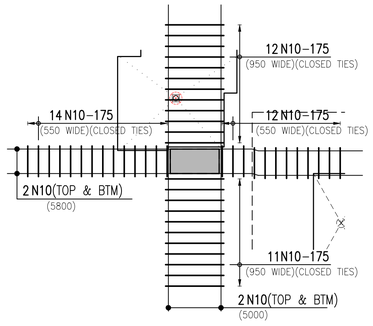
SHEAR DETAIL SD7
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



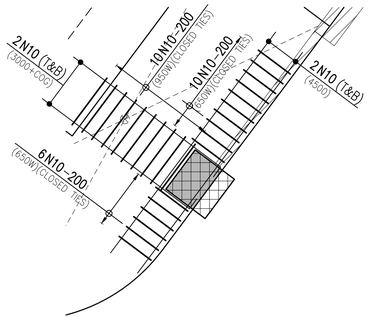
SHEAR DETAIL SD8
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



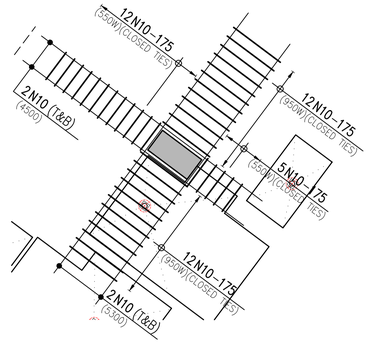
SHEAR DETAIL SD9
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



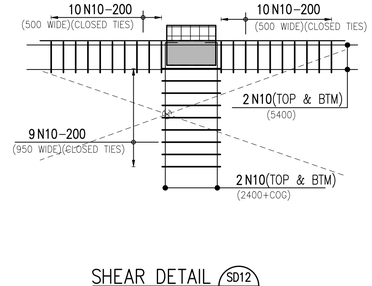
SHEAR DETAIL SD10
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



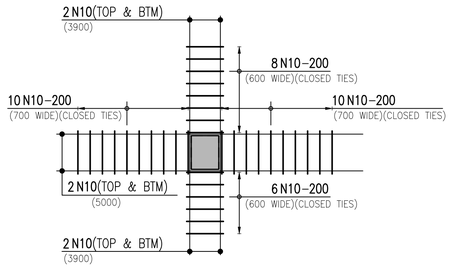
SHEAR DETAIL SD11
SCALE 1:50 2112

FIRST TIE TO BE 50mm FROM COLUMN FACE



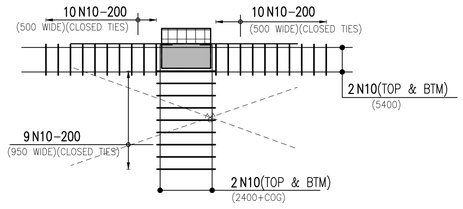
SHEAR DETAIL SD12
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



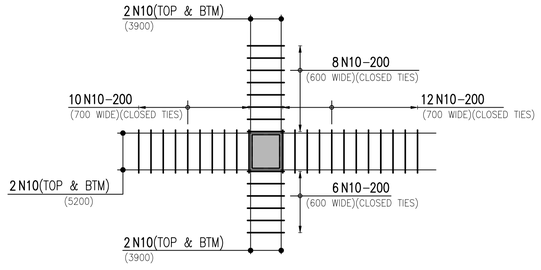
SHEAR DETAIL SD13
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



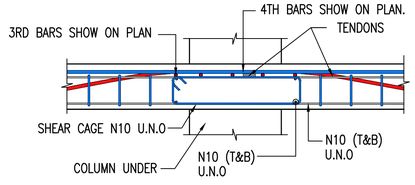
SHEAR DETAIL SD14
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD15
SCALE 1:50 2122

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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SYDNEY
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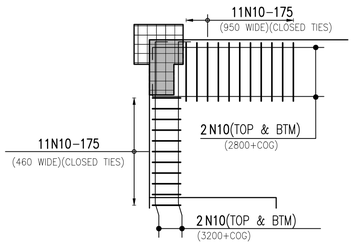
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Port Melbourne, VIC 3207
P: +61 3 8396 9600
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: NA
Drawing Title: LEVEL 18 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-036	Revision: 1

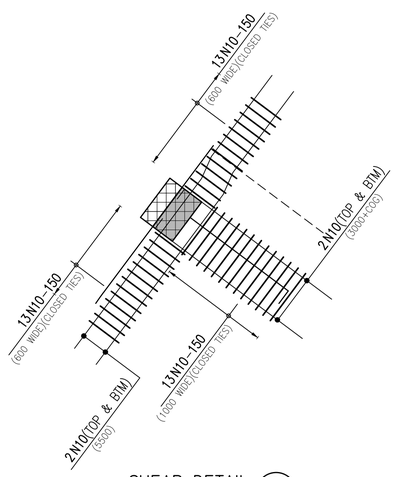
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-037		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



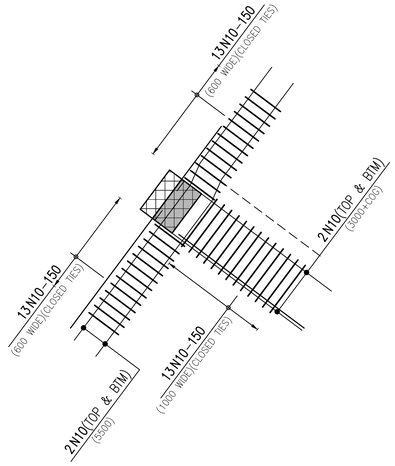
SHEAR DETAIL SD5
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



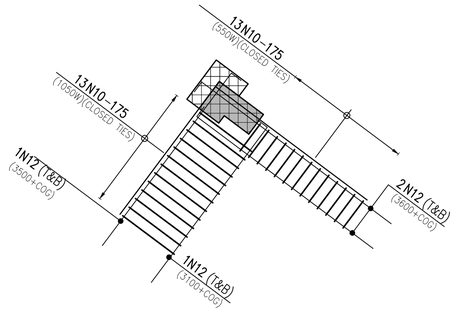
SHEAR DETAIL SD2
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



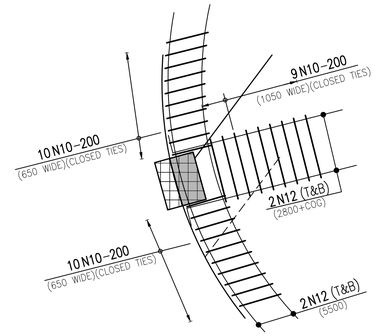
SHEAR DETAIL SD3
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



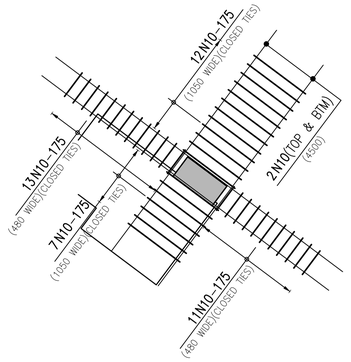
SHEAR DETAIL SD4
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



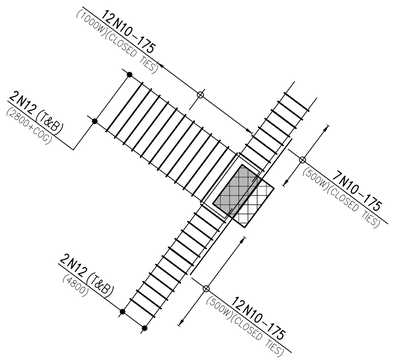
SHEAR DETAIL SD1
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



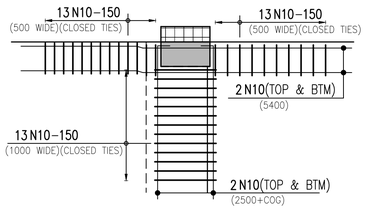
SHEAR DETAIL SD6
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



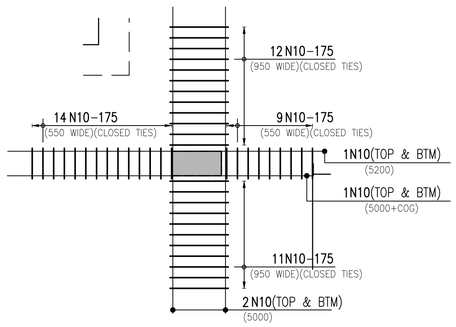
SHEAR DETAIL SD7
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



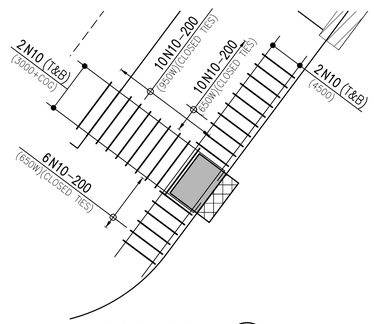
SHEAR DETAIL SD8
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



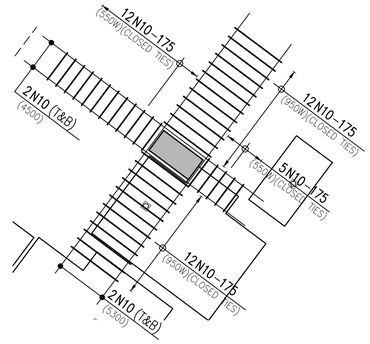
SHEAR DETAIL SD9
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



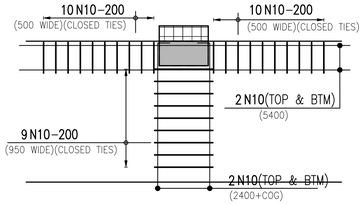
SHEAR DETAIL SD10
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



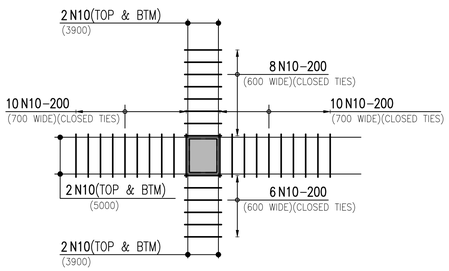
SHEAR DETAIL SD11
SCALE 1:50 2212

FIRST TIE TO BE 50mm FROM COLUMN FACE



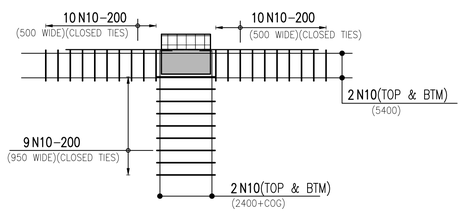
SHEAR DETAIL SD12
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FIRST TIE TO BE 50mm FROM COLUMN FACE



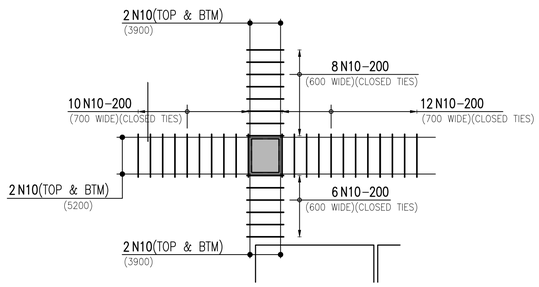
SHEAR DETAIL SD13
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



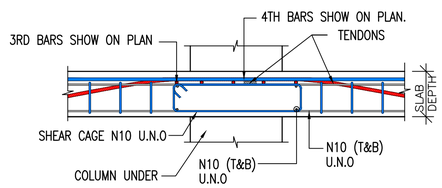
SHEAR DETAIL SD14
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD15
SCALE 1:50 2222

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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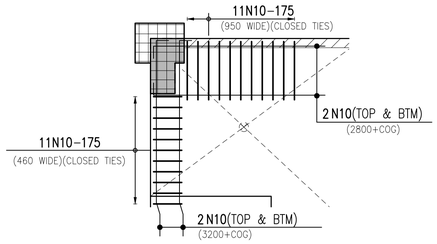
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 19 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-037	Revision: 1

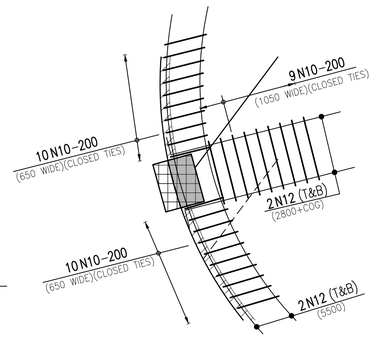
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-038		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



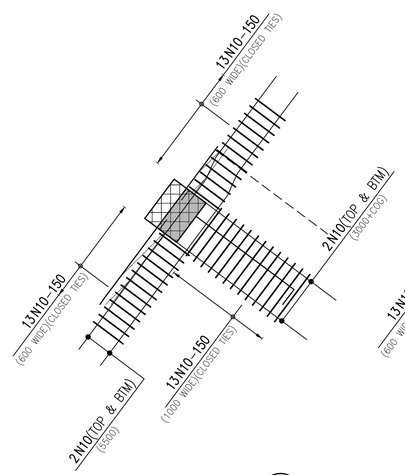
SHEAR DETAIL SD5 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



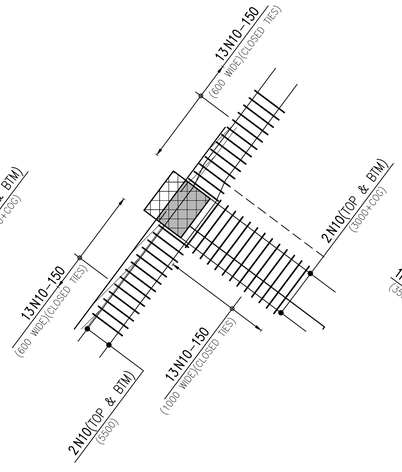
SHEAR DETAIL SD1 2312
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FIRST TIE TO BE 50mm FROM COLUMN FACE



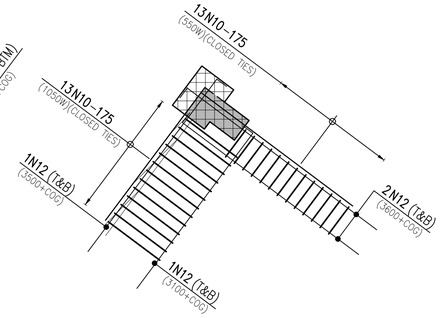
SHEAR DETAIL SD2 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



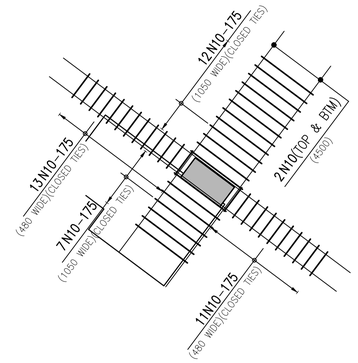
SHEAR DETAIL SD3 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



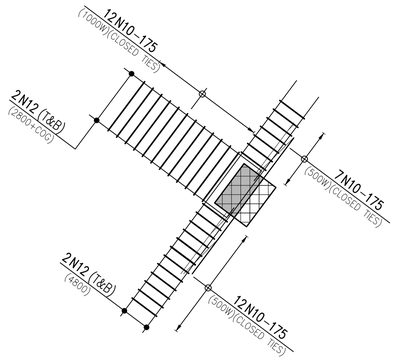
SHEAR DETAIL SD4 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



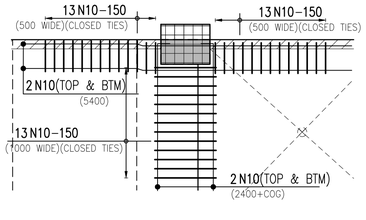
SHEAR DETAIL SD6 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



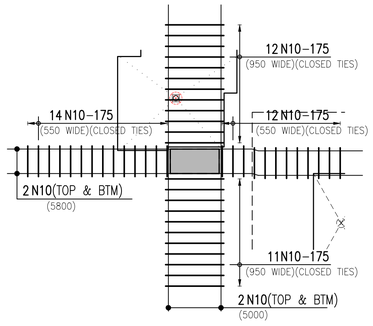
SHEAR DETAIL SD7 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



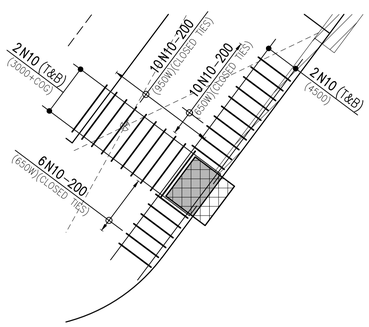
SHEAR DETAIL SD8 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



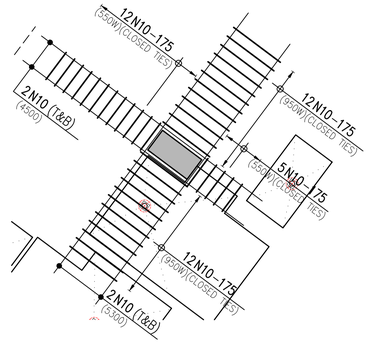
SHEAR DETAIL SD9 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



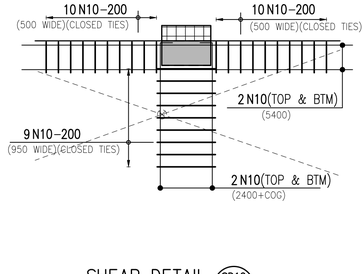
SHEAR DETAIL SD10 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



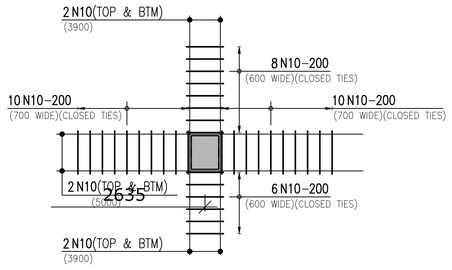
SHEAR DETAIL SD11 2312
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



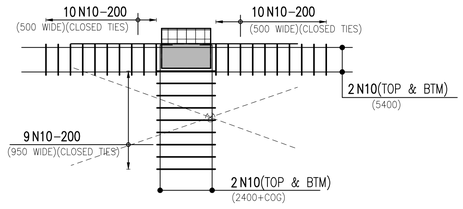
SHEAR DETAIL SD12 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



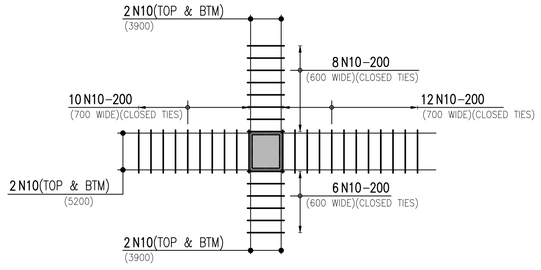
SHEAR DETAIL SD13 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



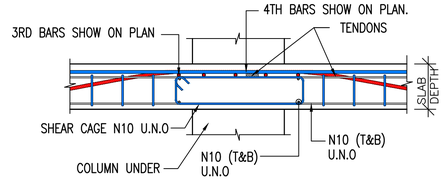
SHEAR DETAIL SD14 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD15 2322
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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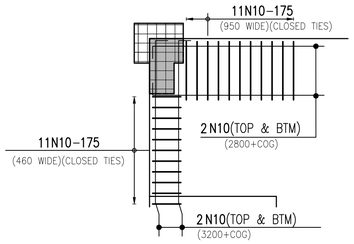
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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

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Project Title BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed LT
	Drawn NA
Drawing Title LEVEL 20 - POUR 1,2 SHEAR DETAILS	Checked CC
	Scale 1:50 @ A1
Project No. INPT20373	Date 20-12-21
Drawing No. INT-PT-038	Revision 1

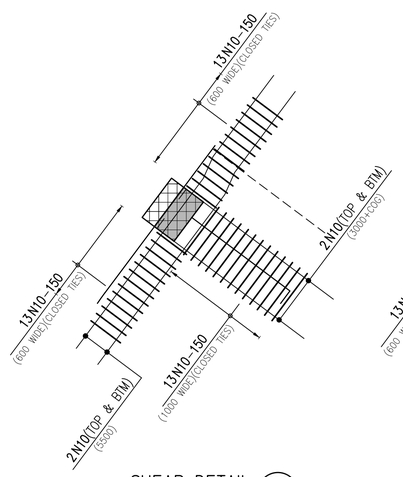
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21 - POUR 1,2 - SHEAR DETAILS		Drawing No: INT-PT-039		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



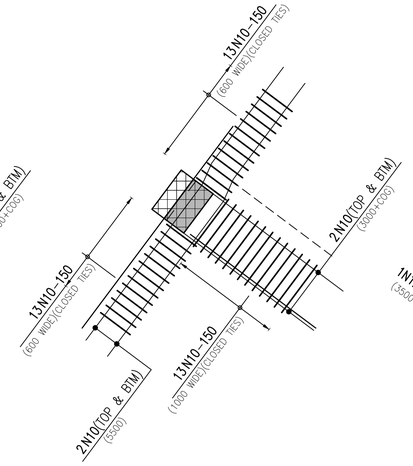
SHEAR DETAIL SD5 2412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



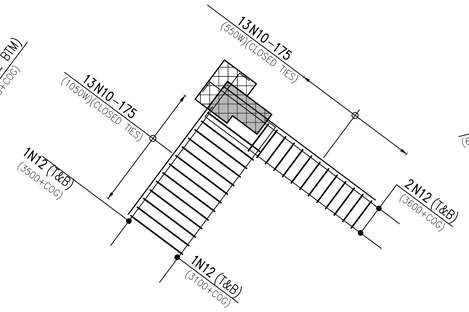
SHEAR DETAIL SD2 2412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



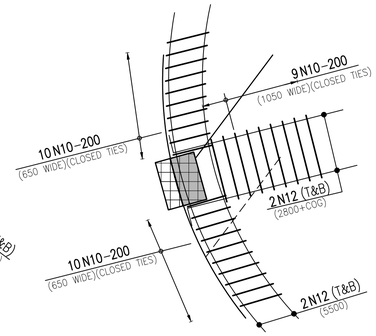
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



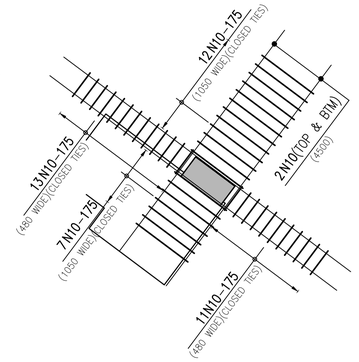
SHEAR DETAIL SD4 2412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



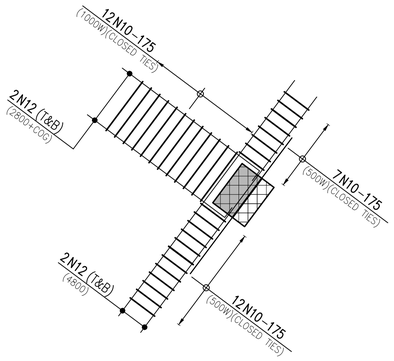
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FIRST TIE TO BE 50mm FROM COLUMN FACE



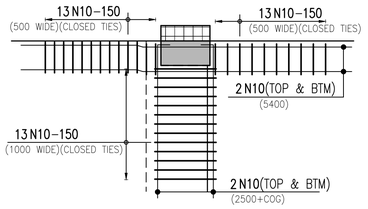
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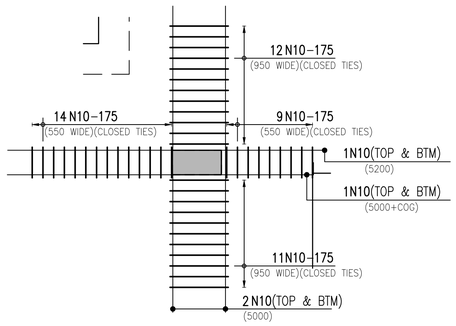
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



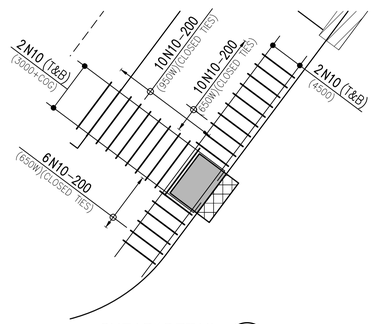
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FIRST TIE TO BE 50mm FROM COLUMN FACE



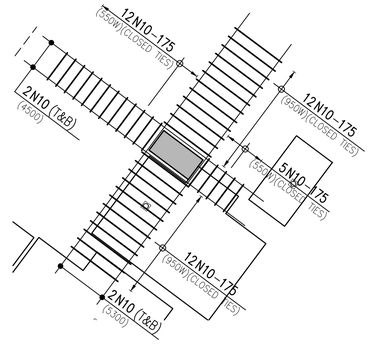
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SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



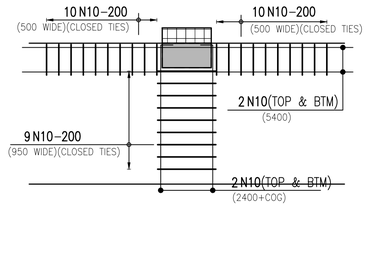
SHEAR DETAIL SD10 2422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



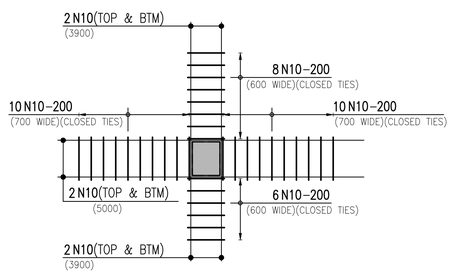
SHEAR DETAIL SD11 2412
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



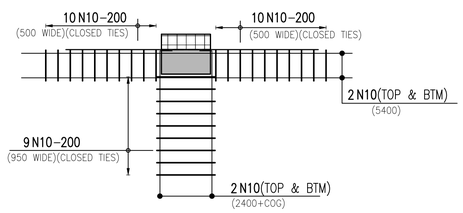
SHEAR DETAIL SD12 2422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



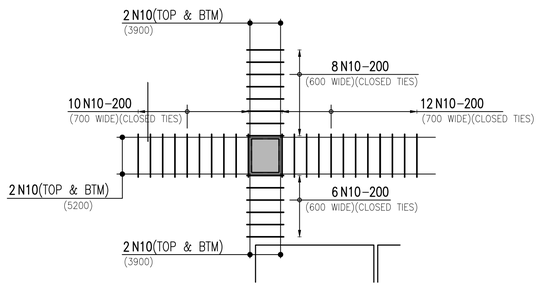
SHEAR DETAIL SD13 2422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



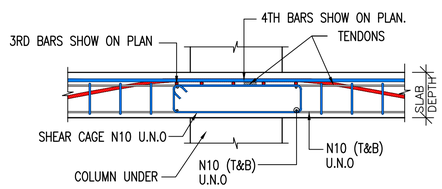
SHEAR DETAIL SD14 2422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



SHEAR DETAIL SD15 2422
SCALE 1:50

FIRST TIE TO BE 50mm FROM COLUMN FACE



TYPICAL REINFORCEMENTS AND TENDON LAYING SEQUENCE AT INTERNAL COLUMN UNLESS NOTE OTHERWISE. REFER TO TENDON PROFILE FOR DETAILS.

REINFORCEMENT WEIGHT ON PLAN : 0.70 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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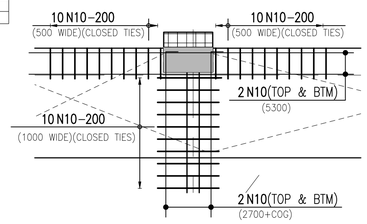
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 21 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-039	Revision: 1

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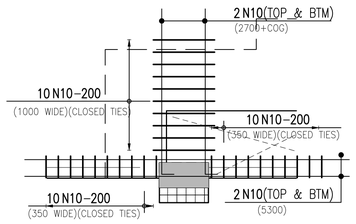
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Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22 - POUR 1,2 - SHEAR DETAILS	Drawing No: INT-PT-040		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



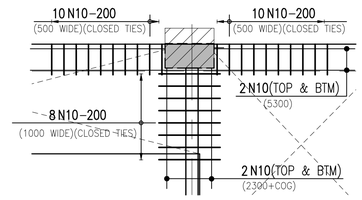
SHEAR DETAIL SD1 2512

FIRST TIE TO BE 50MM FROM COLUMN FACE



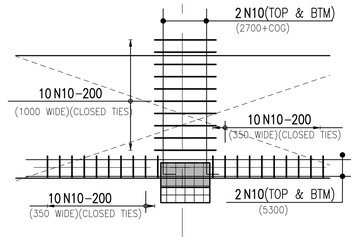
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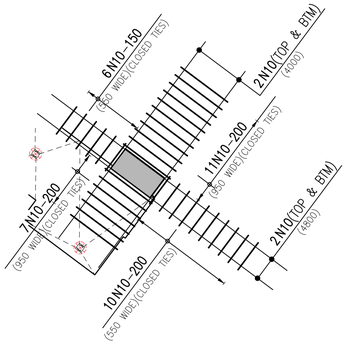
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FIRST TIE TO BE 50MM FROM COLUMN FACE



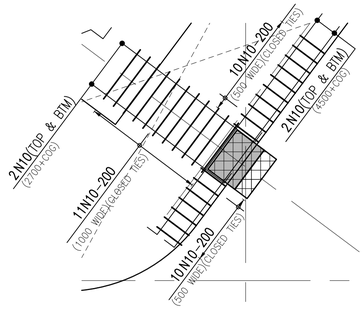
SHEAR DETAIL SD4 2522

FIRST TIE TO BE 50MM FROM COLUMN FACE



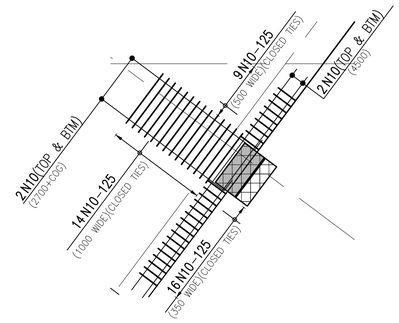
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FIRST TIE TO BE 50MM FROM COLUMN FACE



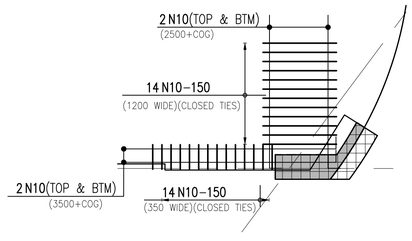
SHEAR DETAIL SD6 2522

FIRST TIE TO BE 50MM FROM COLUMN FACE



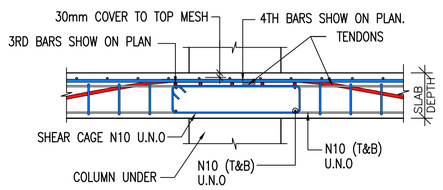
SHEAR DETAIL SD7 2522

FIRST TIE TO BE 50MM FROM COLUMN FACE



SHEAR DETAIL SD8 2522

FIRST TIE TO BE 50MM FROM COLUMN FACE



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REINFORCEMENT WEIGHT ON PLAN : 0.44 T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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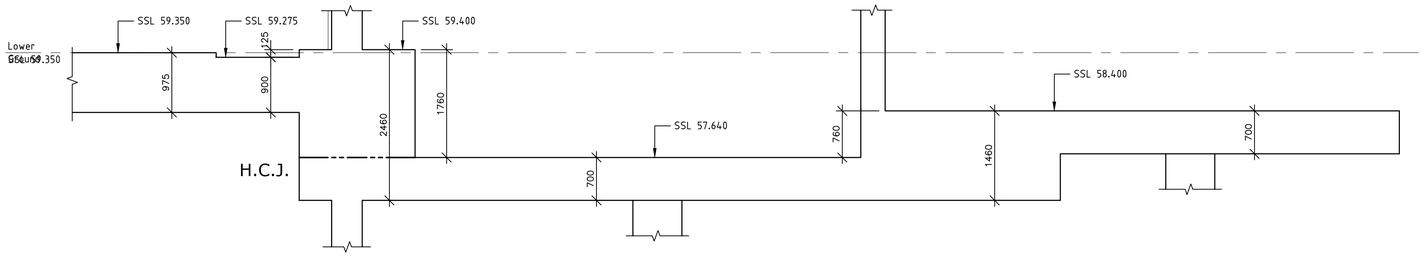
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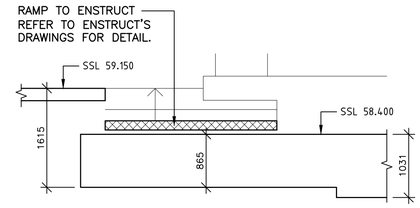
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 22 - POUR 1,2 SHEAR DETAILS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-040	Revision: 1

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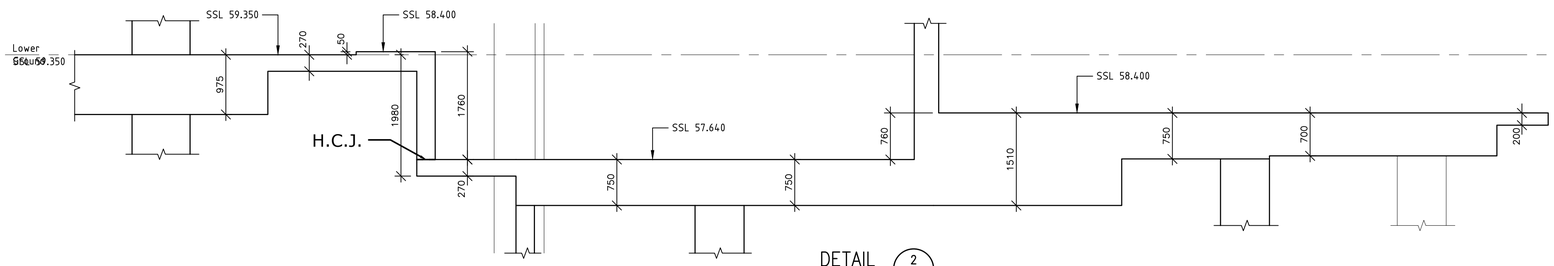
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER GROUND FLOOR - SECTIONS			Drawing No: INT-PT-052	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



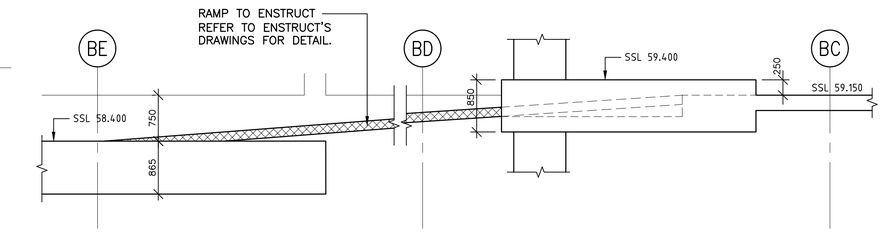
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SCALE 1:50 200



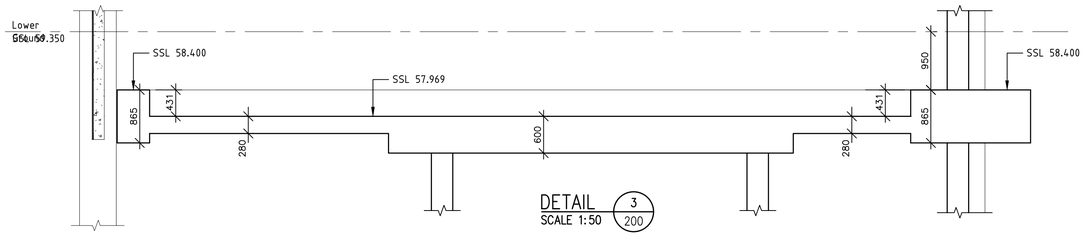
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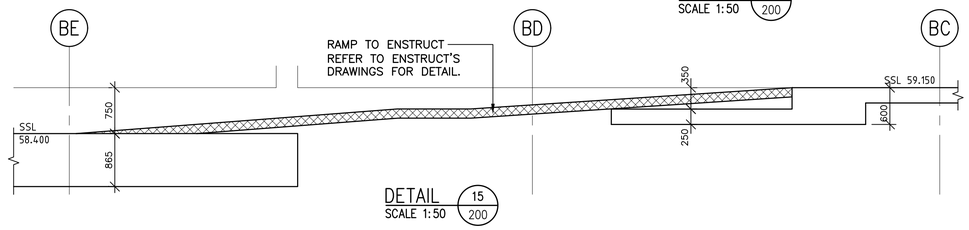
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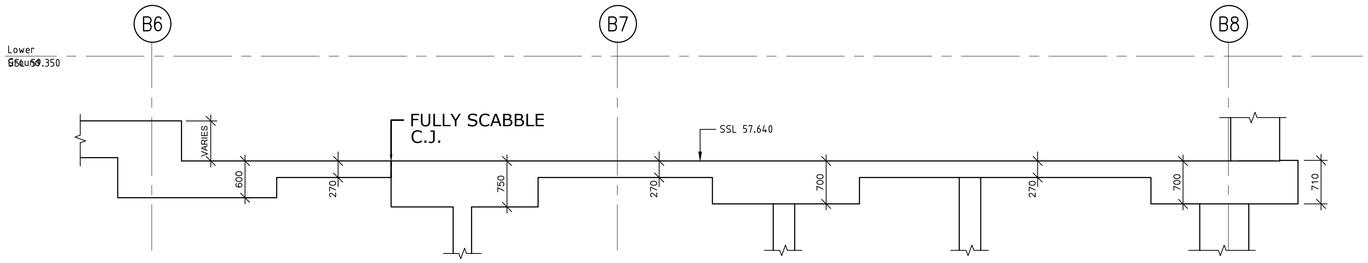
DETAIL 14
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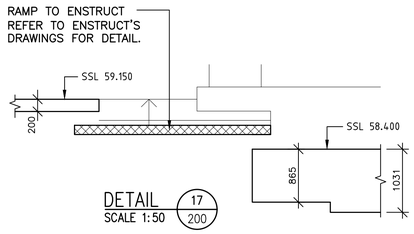
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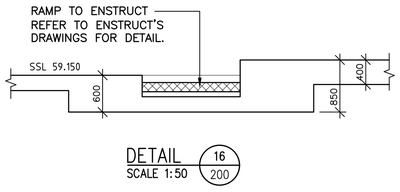
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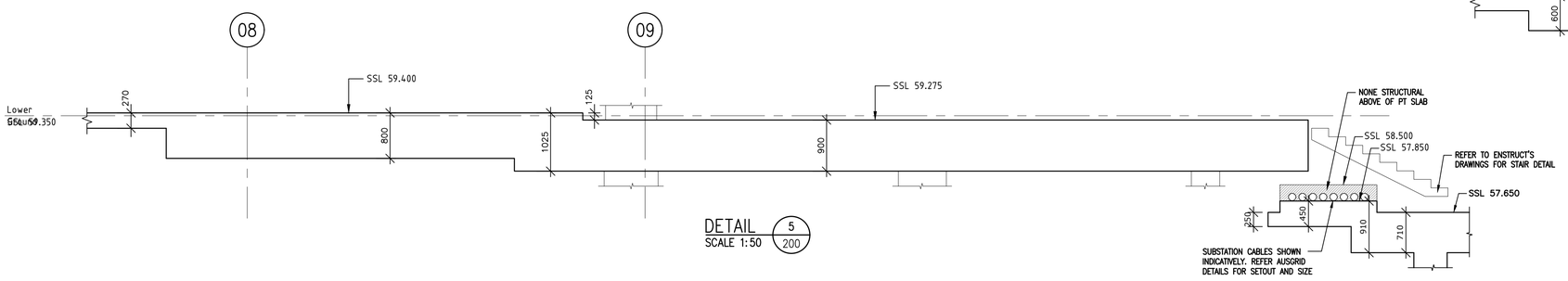
DETAIL 4
SCALE 1:50 200



DETAIL 17
SCALE 1:50 200



DETAIL 16
SCALE 1:50 200



DETAIL 5
SCALE 1:50 200

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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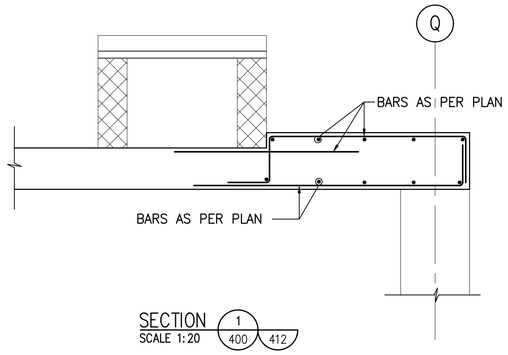
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LOWER GROUND FLOOR SECTIONS	Checked: CC
	Scale: 1:50 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-052	Revision: 1

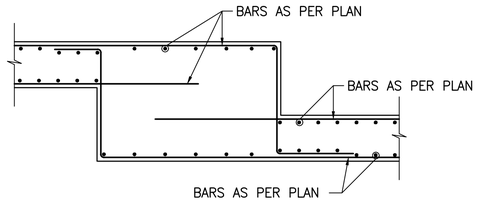
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 1 - POUR 1 - SECTIONS		Drawing No: INT-PT-053	

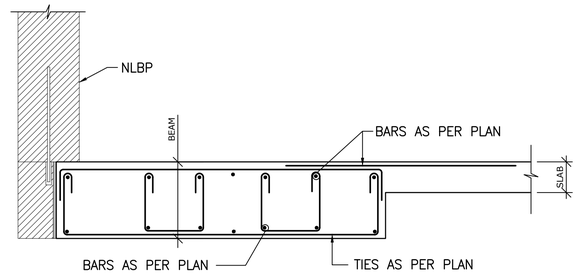
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



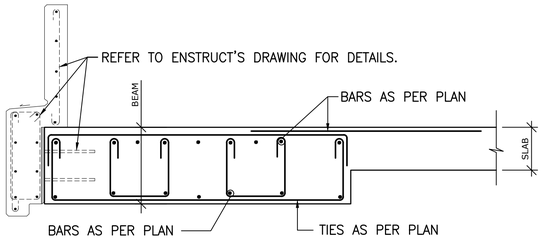
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SCALE 1:20



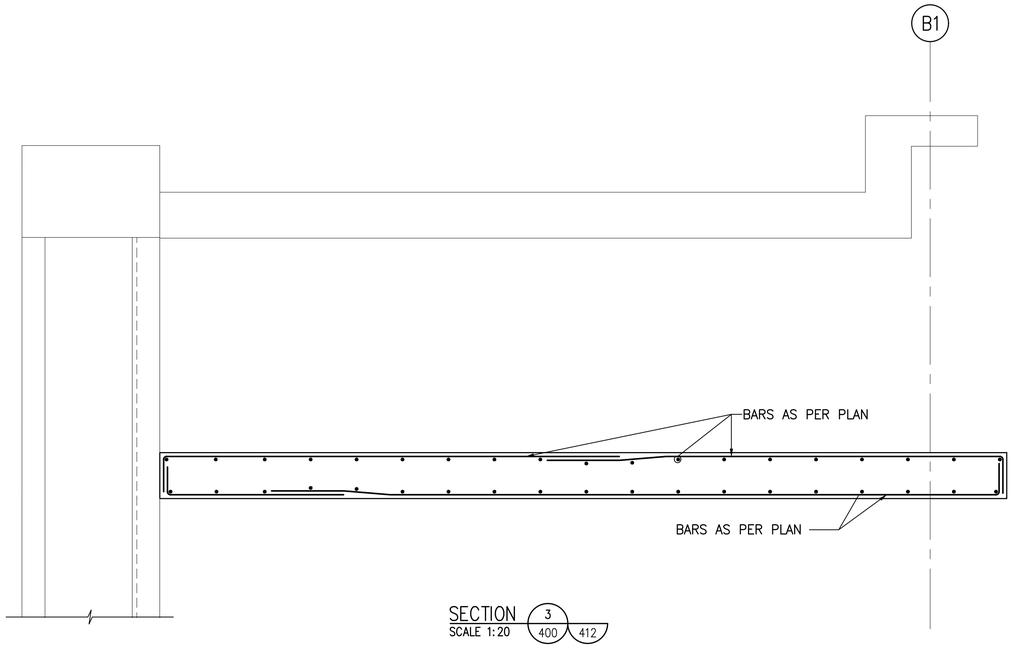
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SCALE 1:20



SECTION 4 400 412
SCALE 1:20



SECTION 5 400 412
SCALE 1:20



SECTION 3 400 412
SCALE 1:20

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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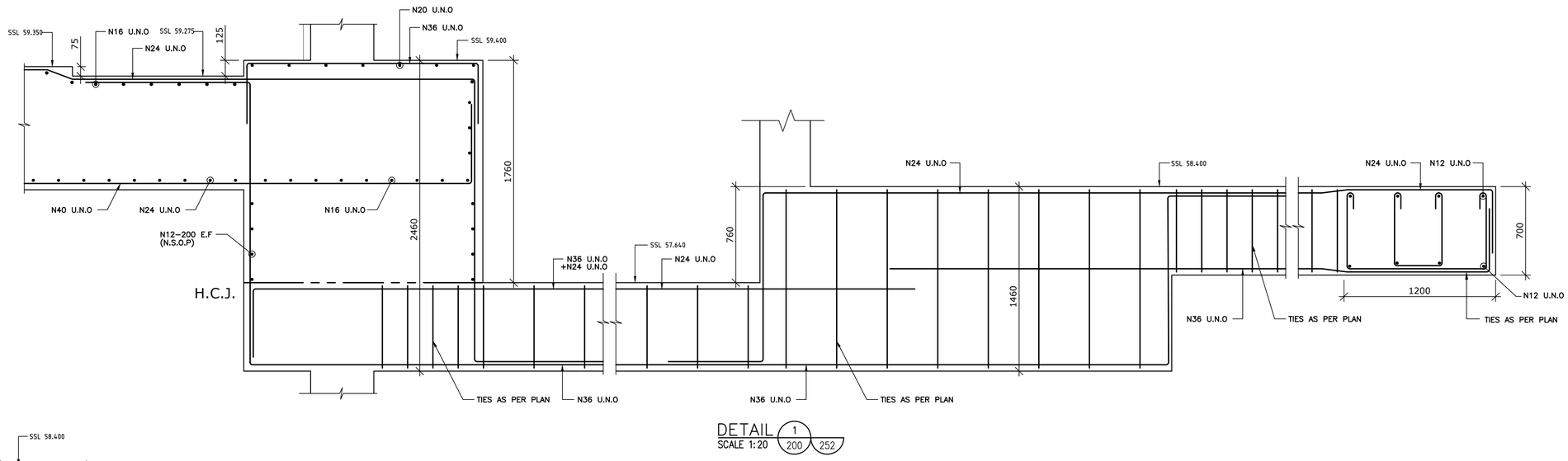
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Website: www.interspan.com.au

Project Title BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed HT
	Drawn HN1
Drawing Title LEVEL 1 - POUR 1 SECTION DETAILS	Checked CC
	Scale 1:20 @ A1
Project No. INPT20373	Date 20-12-21
Drawing No. INT-PT-053	Revision 1

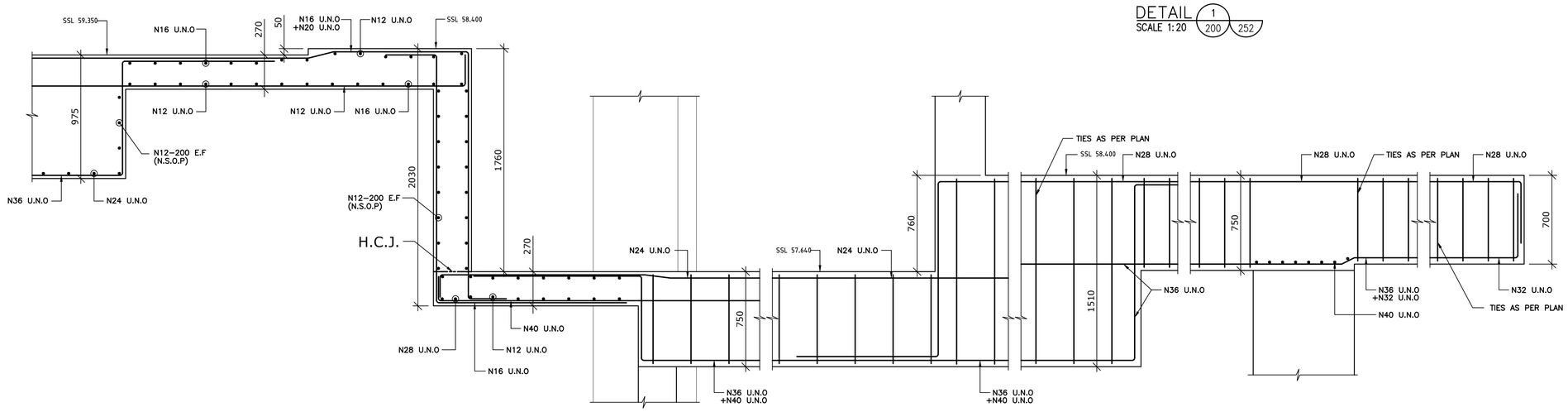
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LOWER GROUND FLOOR - SECTIONS	Drawing No: INT-PT-054		

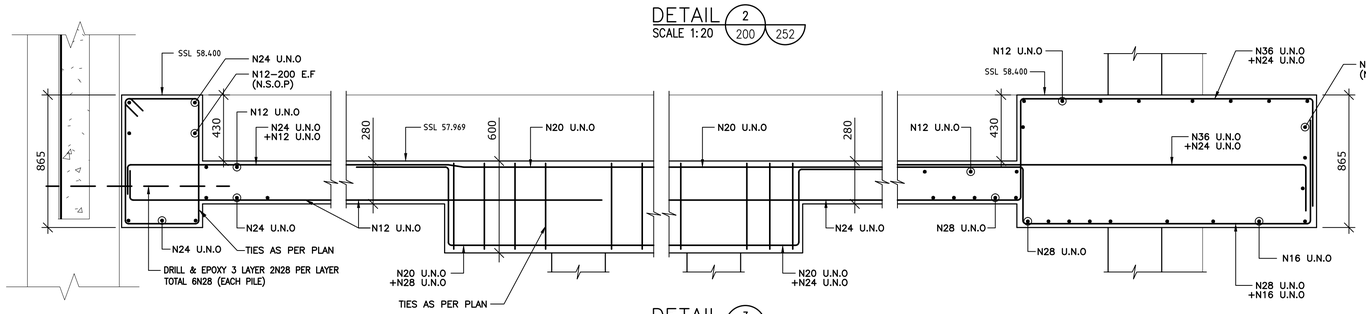
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



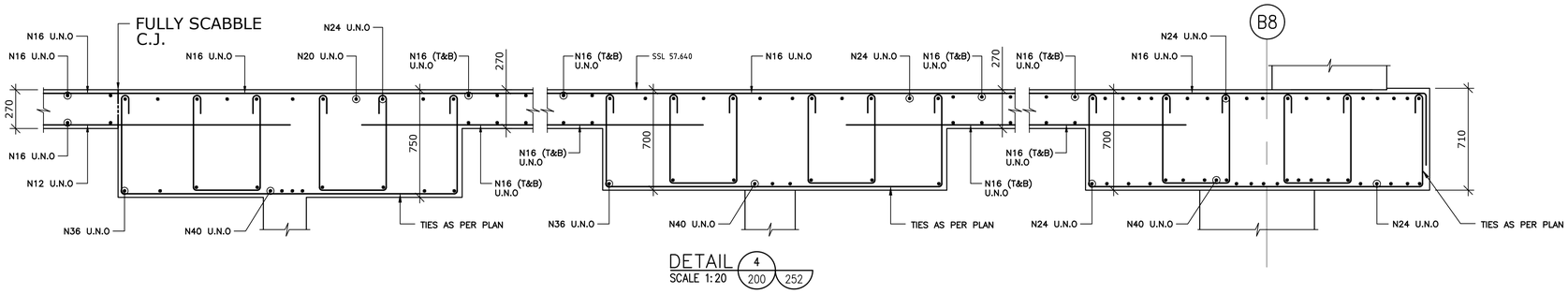
DETAIL 1 / SCALE 1:20 (200 252)



DETAIL 2 / SCALE 1:20 (200 252)



DETAIL 3 / SCALE 1:20 (200 262)



DETAIL 4 / SCALE 1:20 (200 252)

Rev	Date	Status
1	21-12-21	FOR CO-ORDINATION

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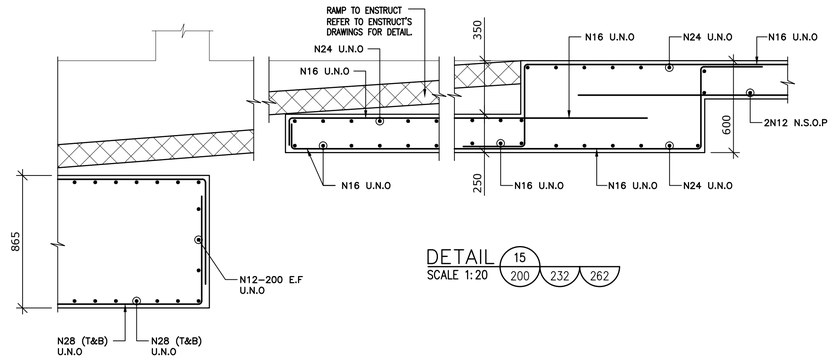
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LOWER GROUND FLOOR SECTIONS	Checked: CC
	Scale: 1:20 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-054	Revision: 1

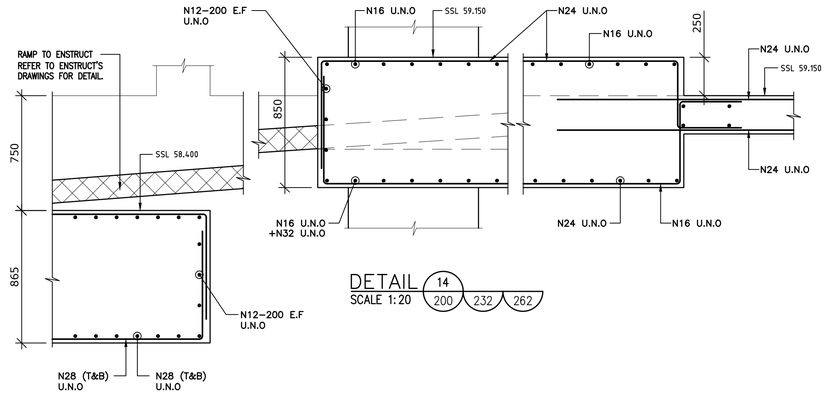
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LOWER GROUND FLOOR - SECTIONS		Drawing No: INT-PT-055	

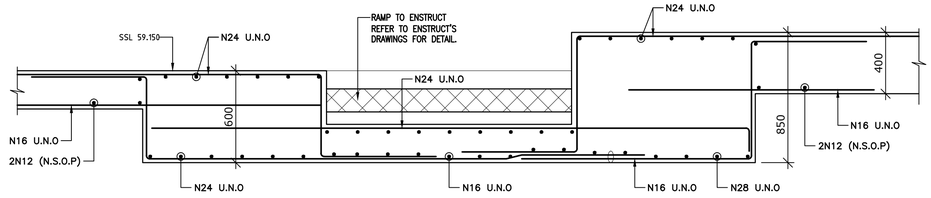
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



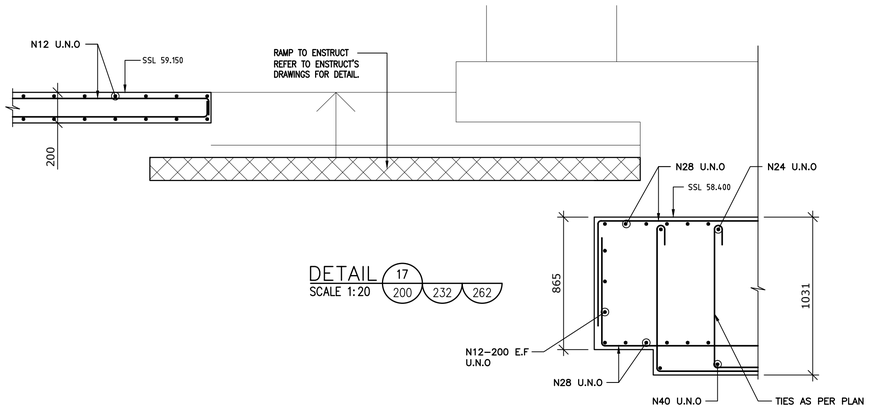
DETAIL 15 (200 232 262)
SCALE 1:20



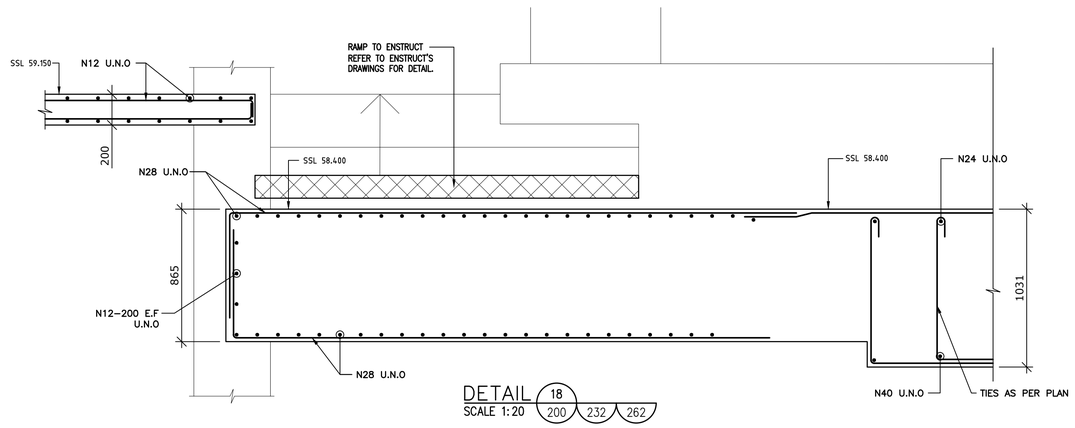
DETAIL 14 (200 232 262)
SCALE 1:20



DETAIL 16 (200 232 262)
SCALE 1:20



DETAIL 17 (200 232 262)
SCALE 1:20



DETAIL 18 (200 232 262)
SCALE 1:20

1	21-12-21	FOR CO-ORDINATION
Rev	Date	Status

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LOWER GROUND FLOOR SECTIONS	Checked: CC
	Scale: 1:20 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-055	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No:	NIL
Drawing Title: LOWER G. F. - GENERAL ARRANGEMENT PLAN		Drawing No:	INT-PT-200

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

PROVIDE PROPPING UNDER ALONG C.J UNTIL FUTURE POUR IS POURED AND REACHES 28 DAYS DESIGN STRENGTH.

ALL PLANTER AND STAIR TO BE CONFIRM. T.B.C

TEMPORARY SCAFFOLD STAIR PENETRATION. REMAIN PROPPING UNDER AROUND TEMPORARY PENETRATION UNTIL CONCRETE IS INFFILED AND REACHES 28 DAY DESIGN STRENGTH

SLAB EDGE IS DISCREPANCY BETWEEN ENSTRUCT & ARCHITECT. FOLLOW ENSTRUCT'S DRAWINGS FOR SLAB EDGE –T.B.C

PROVIDE PROPPING UNDER ALONG C.J UNTIL FUTURE POUR IS POURED AND REACHES 28 DAYS DESIGN STRENGTH.

POUR 1

POUR 2

POUR 3

POUR 4

POUR 5

POUR 6

FULLY SCABBLE C.J.

H.C.J.

T.B.C

600D MIN×2400W

700D MIN×2400W

700Dx2400W

750Dx2400W

465D MIN×1800W

540D MIN×1200W

700Dx1200W

400Dx600W

ON HOLD

CONFIRM INTENT CORRECT

ASSUME STAIR LOAD :
G : 25 kN/m
Q : 25 kN/m
ENSTRUCT TO CONFIRM

GRATED DRAIN
300 MAX. WIDTH
150 MAX. DEPTH

TEMPORARY HOIST PENETRATION

TEMPORARY CRANE PENETRATION

BONDEK SLAB WILL POUR LATE ABOVE OF PT STRUCTURAL–REFER TO ENSTRUCT'S DRAWING FOR DETAIL. –T.B.C

SHORING WALL TO SUPPORT PT SLAB – DOWEL BARS TO PIPES.

PROVIDE PROPPING UNDER ALONG C.J UNTIL FUTURE POUR IS POURED AND REACHES 28 DAYS DESIGN STRENGTH.

TRANSFER LOAD AS PER ENSTRUCT'S ADVICES:
SW: 480 kN
DL: 970 kN
LL: 180 kN

TEMPORARY SCAFFOLD STAIR PENETRATION. REMAIN PROPPING UNDER AROUND TEMPORARY PENETRATION UNTIL CONCRETE IS INFFILED AND REACHES 28 DAY DESIGN STRENGTH

DETAIL A

SECTION A SCALE 1:50

DETAIL A SCALE 1:100

ON HOLD

M.J. ENSTRUCT TO REVIEW AND CONFIRM. NO LOAD WILL IMPOSE TO PT STRUCTURAL

SUBSTATION CABLES SHOWN INDICATIVELY. REFER AUSGRID DETAILS FOR SETOUT AND SIZE

NONE STRUCTURAL ABOVE OF PT SLAB

Lower Ground SSL 59.350

SSL 59.275

SSL 58.500

SSL 57.850

REFER TO ENSTRUCT'S DRAWINGS FOR STAIR DETAIL

SSL 57.650

GENERAL ARRANGEMENT PLAN

CONCRETE STRENGTH 40MPa (U.N.O)

HATCH DENOTES 65MPA LOCALIZED.

DENOTES RC SLAB TO ENSTRUCT. REFER TO ENSTRUCT'S DRAWINGS FOR DETAIL.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-200	Revision: 1

KEY PLAN
LOWER GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F. - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-211
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

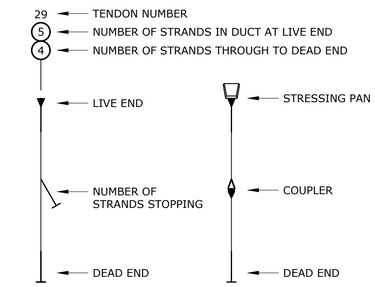


POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.32 T
- PAN REINFORCEMENT WEIGHT: 0.54 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

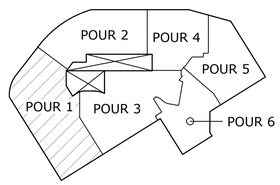
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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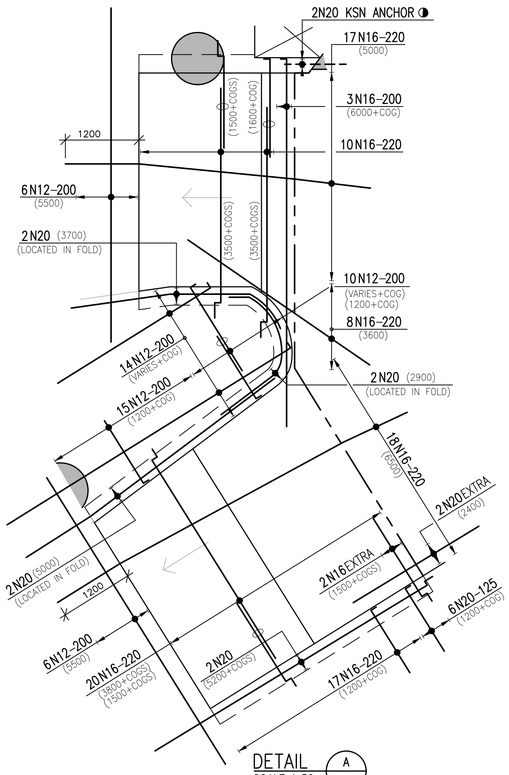


KEY PLAN
LOWER GROUND FLOOR

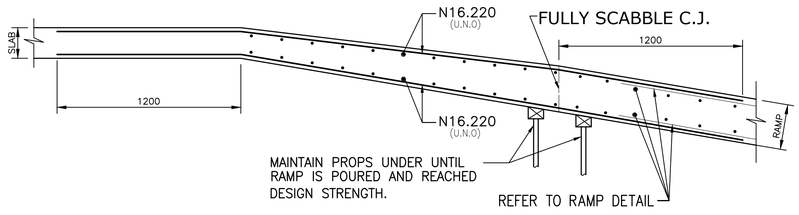
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-211	Revision: 1

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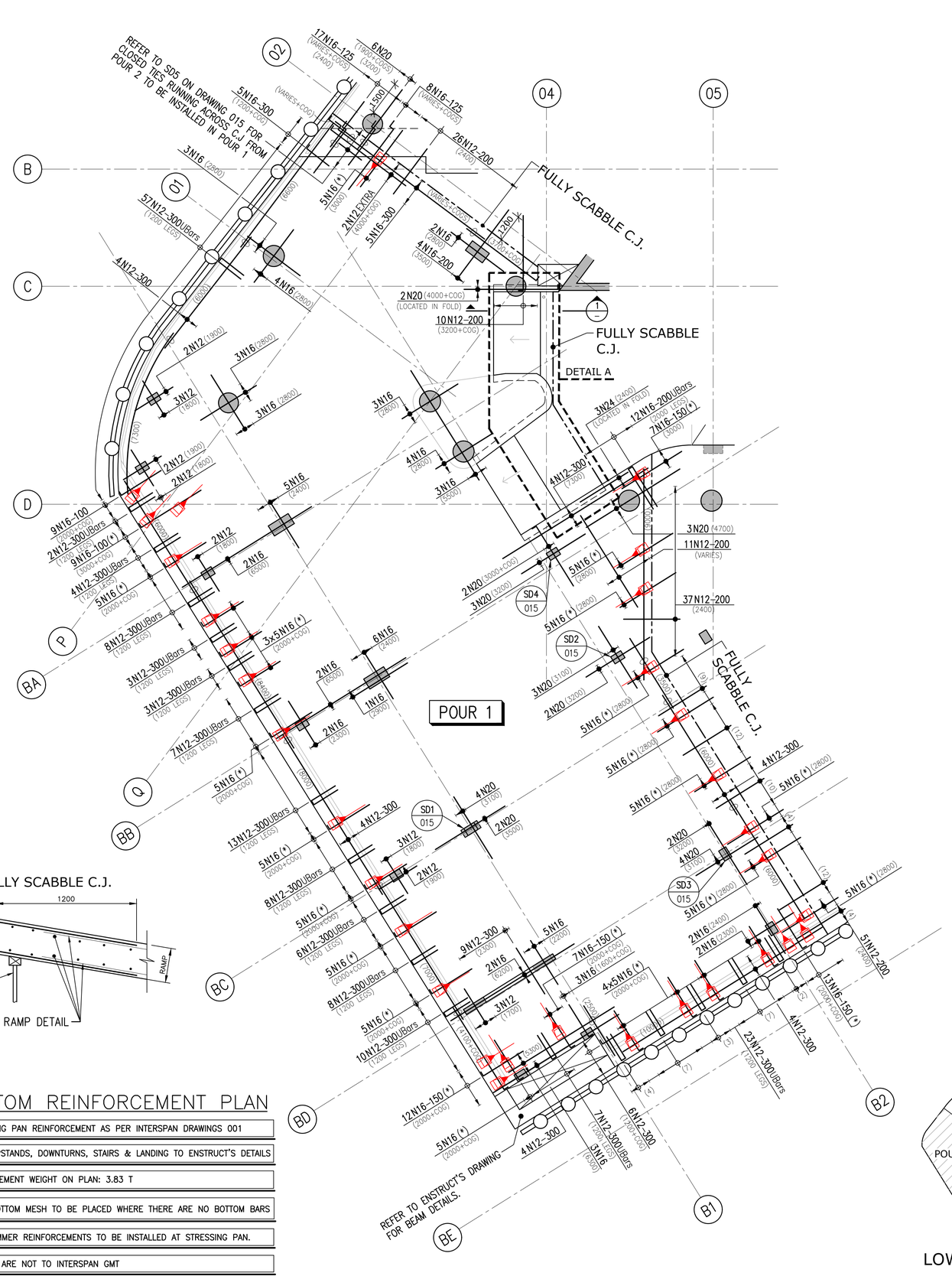
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.-POUR 1-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-212
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



DETAIL A
SCALE 1:50

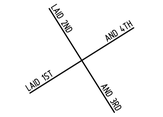


SECTION 1
SCALE 1:20



BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.83 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- ◑ BARS ARE NOT TO INTERSPAN GMT



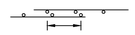
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

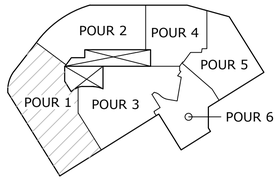


'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG





KEY PLAN
LOWER GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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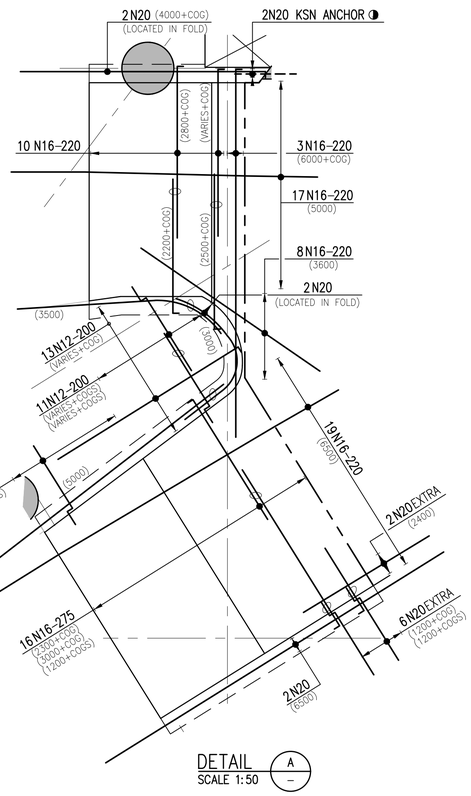
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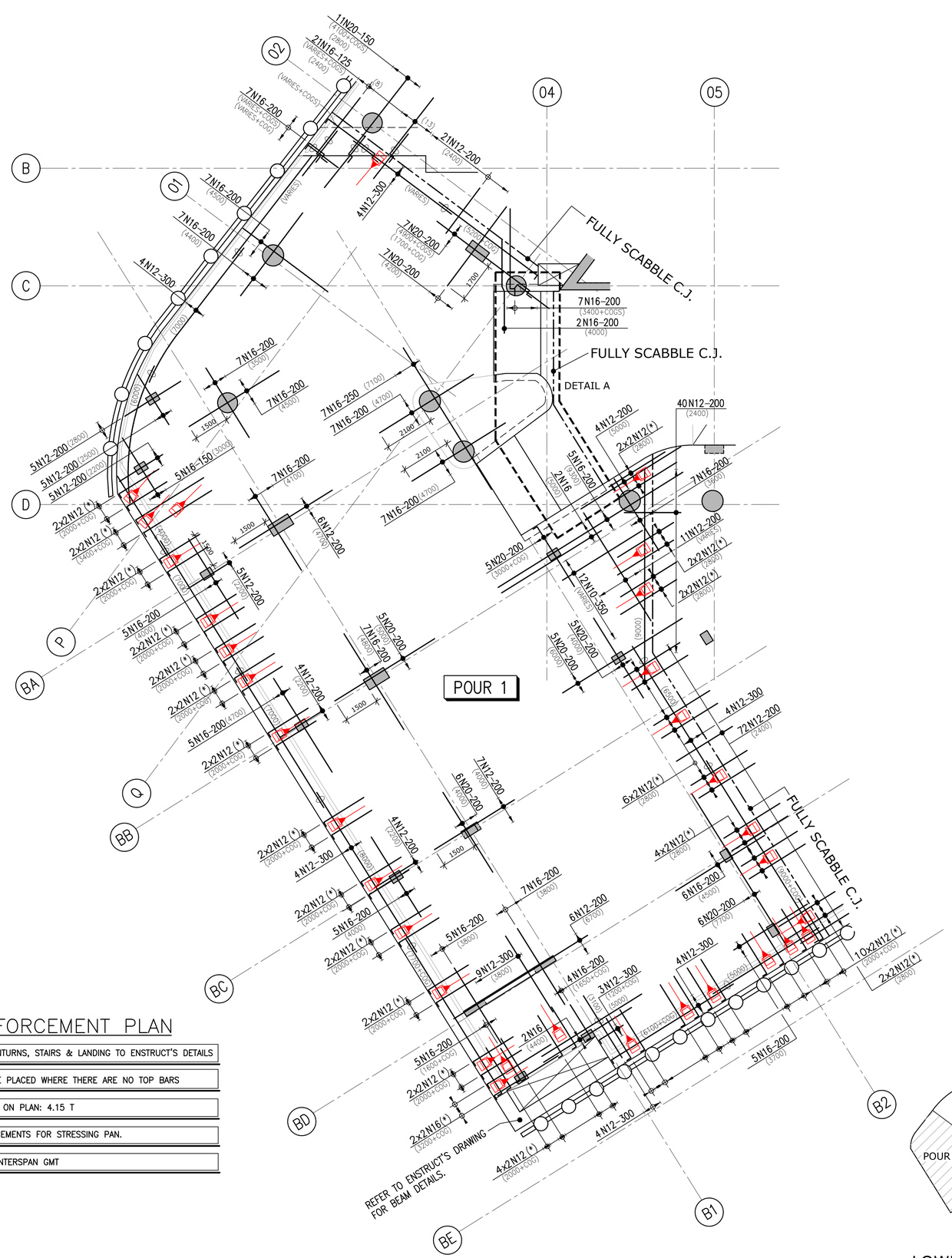
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-212	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 1-TOP REINFORCEMENT PLAN		Drawing No: INT-PT-213		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

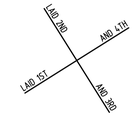


DETAIL A
SCALE 1:50



TOP REINFORCEMENT PLAN

- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- REINFORCEMENT WEIGHT ON PLAN: 4.15 T
- (*) TRIMMER REINFORCEMENTS FOR STRESSING PAN.
- ◑ BARS ARE NOT TO INTERSPAN GMT



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

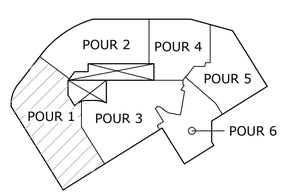
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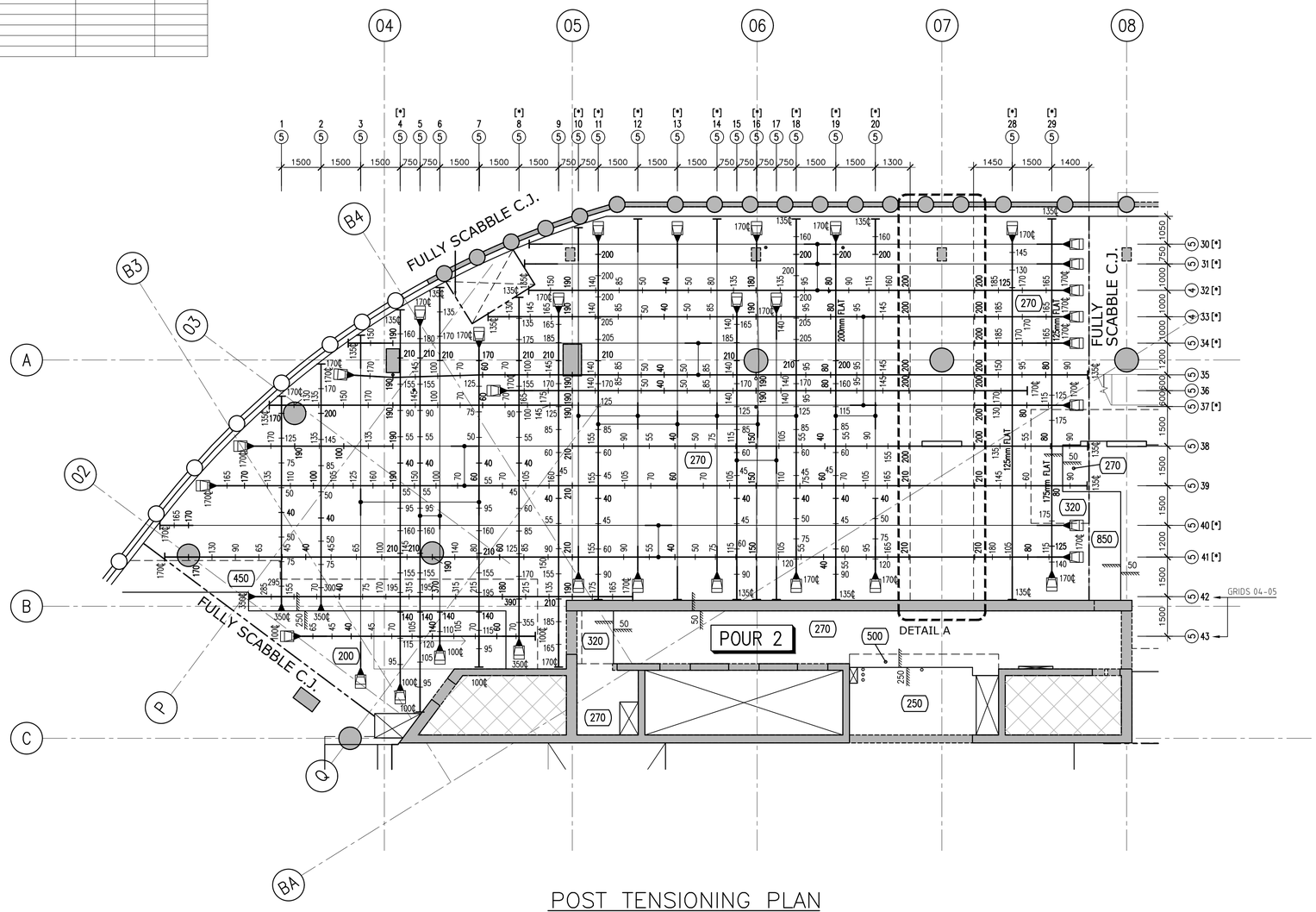
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-213	Revision: 1

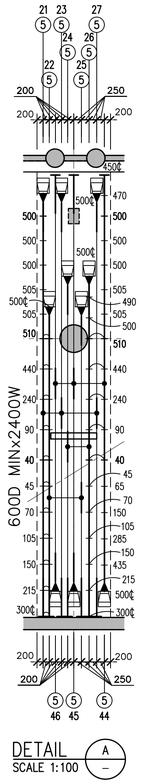


KEY PLAN
LOWER GROUND FLOOR

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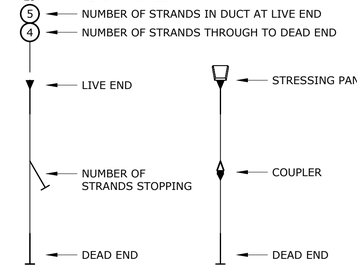
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F. - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-221	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



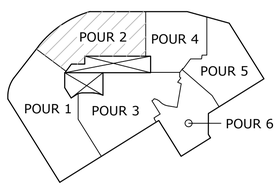
POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.286 T
- PAN REINFORCEMENT WEIGHT: 0.360 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LOWER GROUND FLOOR

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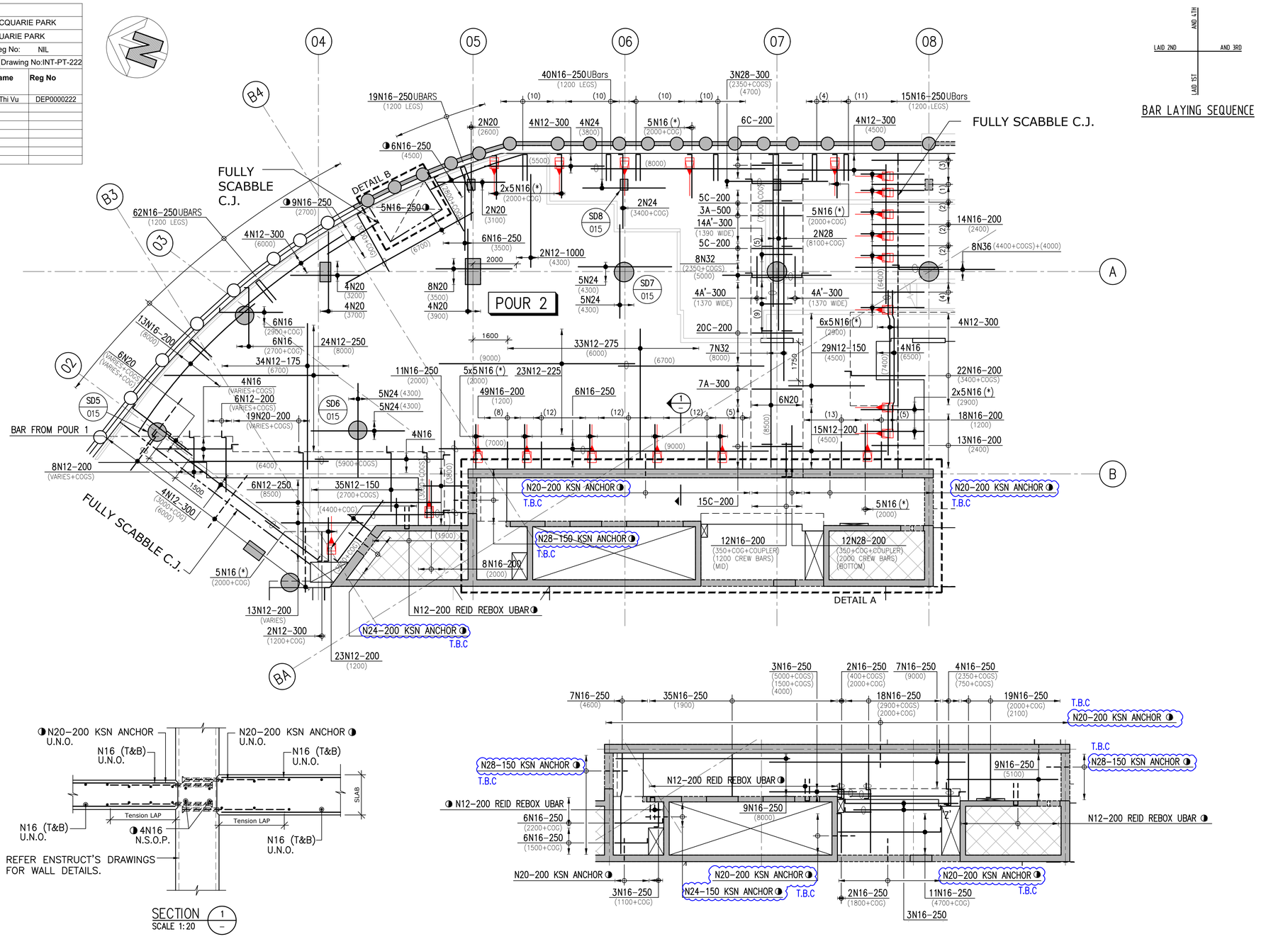
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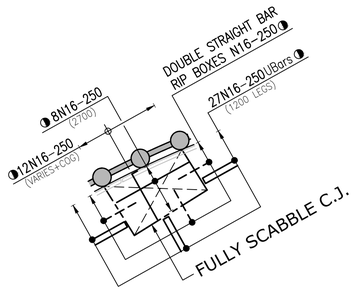
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-221	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 2 -BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-222
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

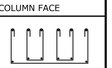


SECTION 1 / SCALE 1:20



DETAIL 1 / SCALE 1:100

STIRRUP SCHEDULE

A	2 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
A'	N16 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 8.62 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.36 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

   'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

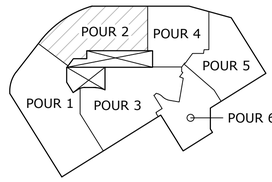
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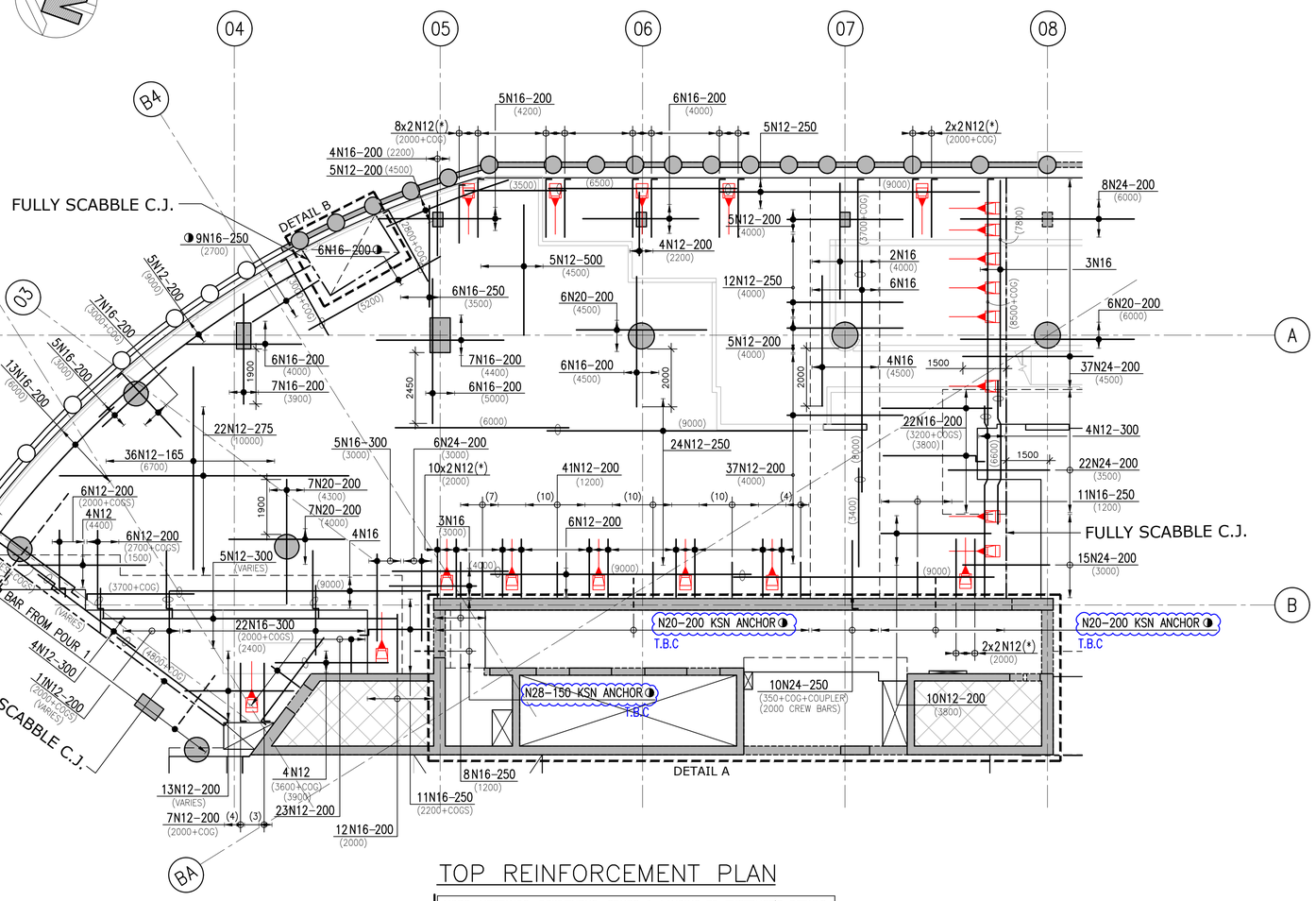
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-222	Revision: 1



KEY PLAN
LOWER GROUND FLOOR

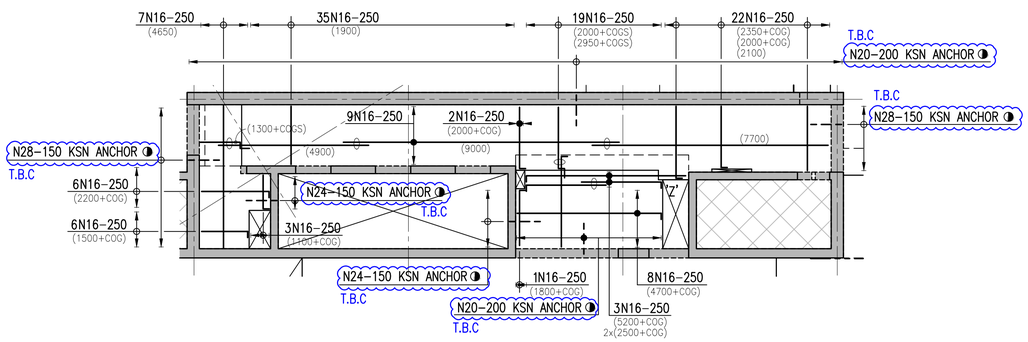
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 2-TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-223
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

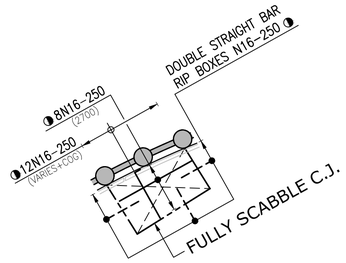


TOP REINFORCEMENT PLAN

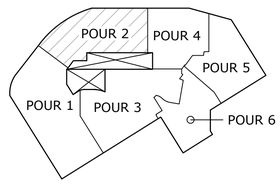
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- REINFORCEMENT WEIGHT ON PLAN: 5.95 T
- (*) TRIMMER REINFORCEMENTS FOR STRESSING PAN.
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.22 T



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



KEY PLAN
LOWER GROUND FLOOR



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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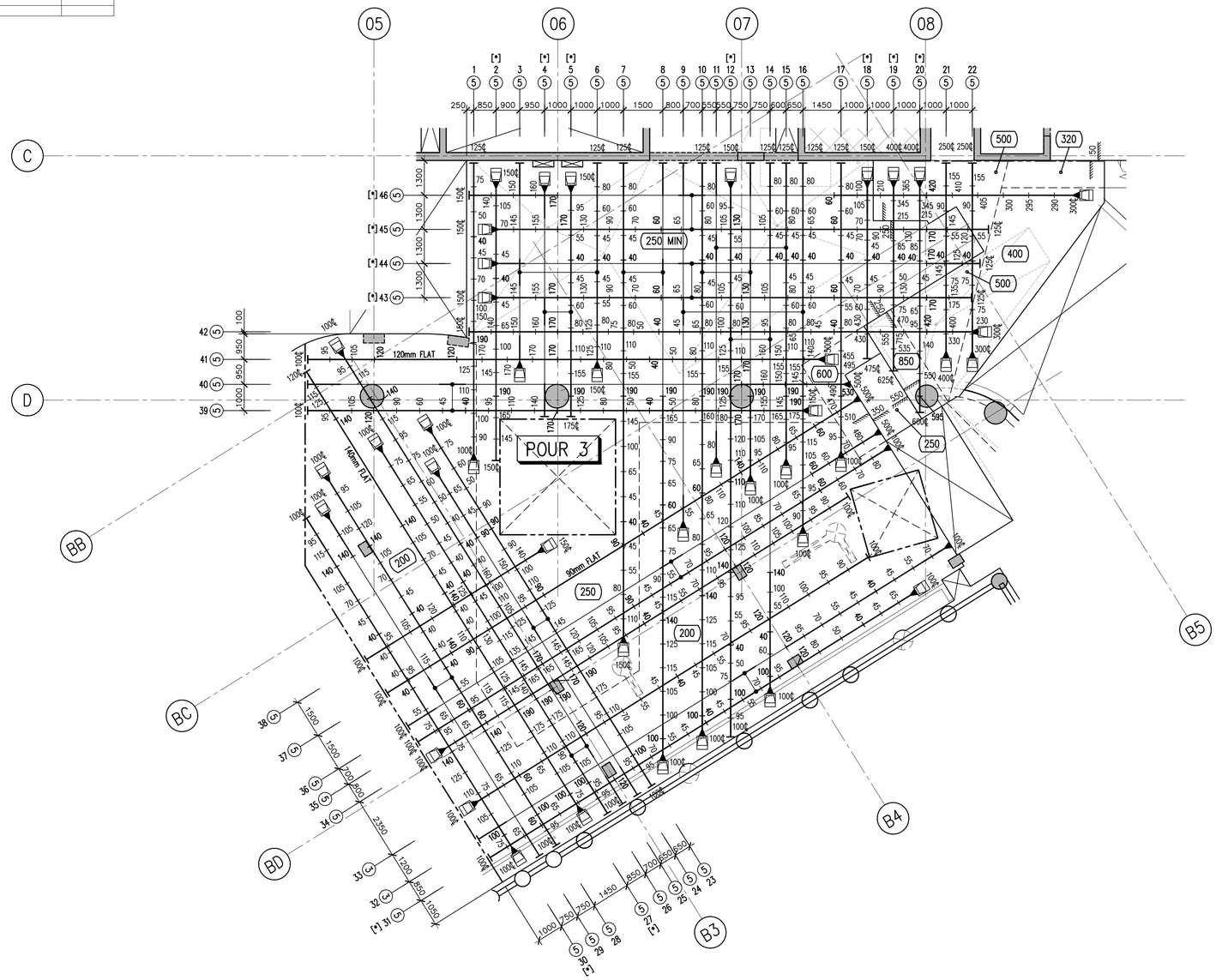
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Port Melbourne, VIC 3207
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-223	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 3 - POST TENSIONING PLAN			Drawing No:	INT-PT-231
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.286 T

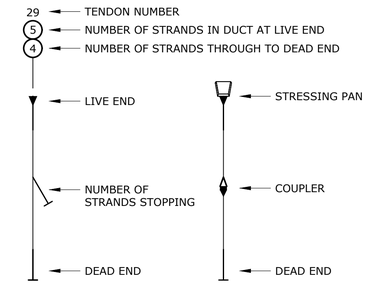
PAN REINFORCEMENT WEIGHT: 0.73 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

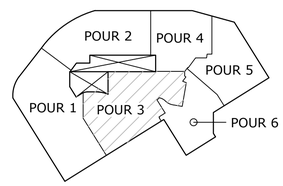
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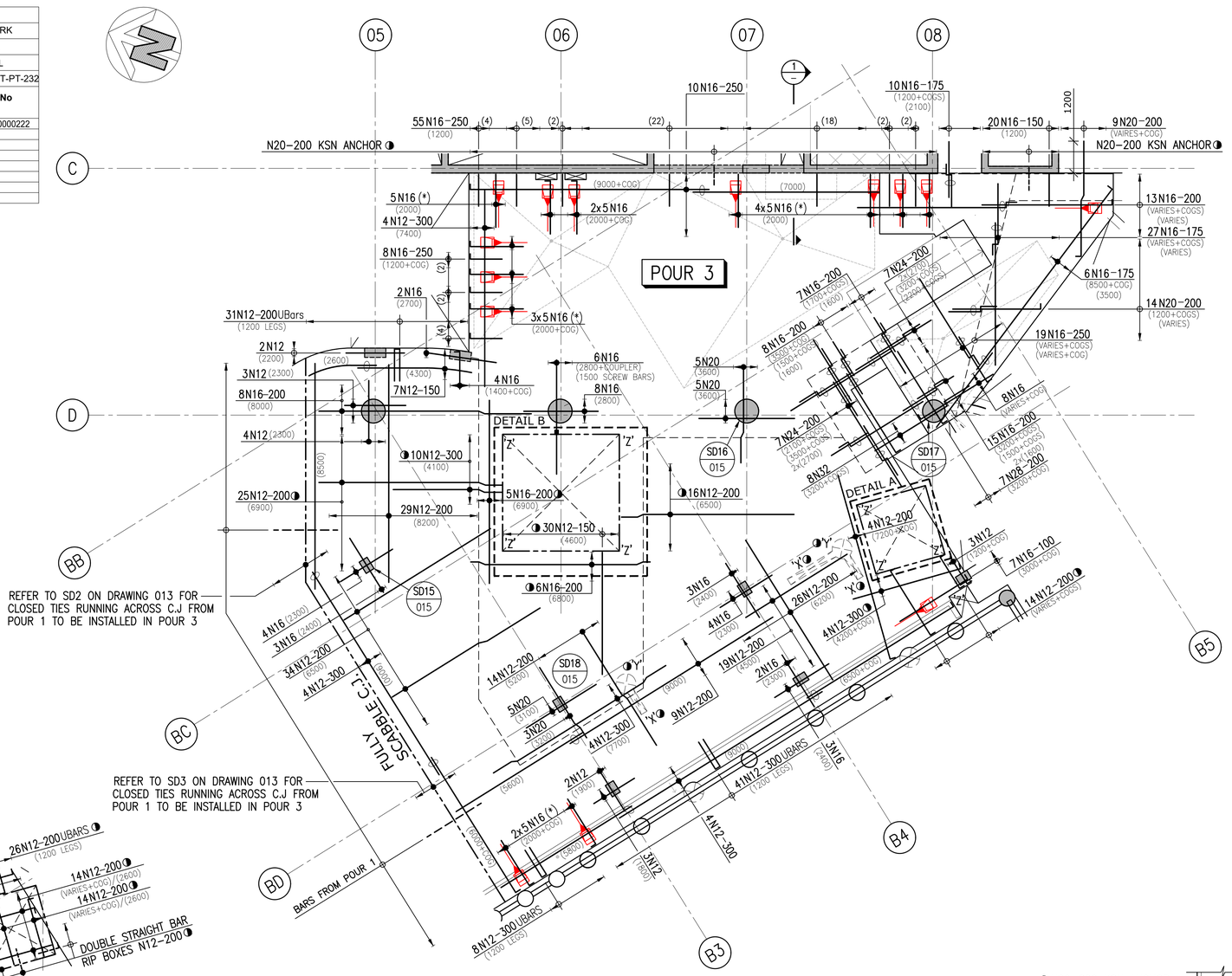
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 3 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-231	Revision: 1

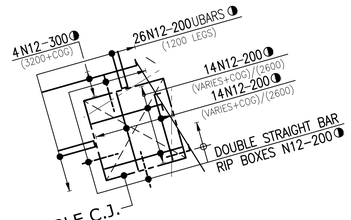


KEY PLAN
LOWER GROUND FLOOR

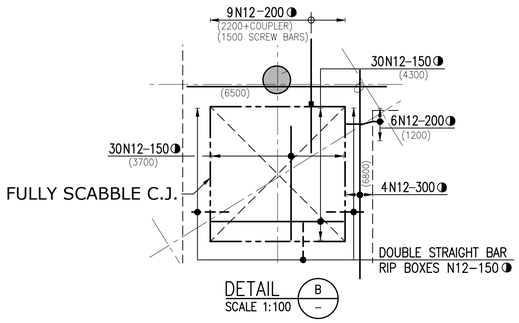
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.-POUR 3-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-232
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





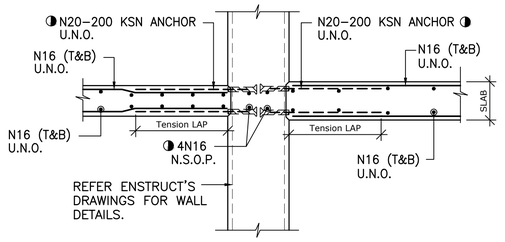
DETAIL A
SCALE 1:100



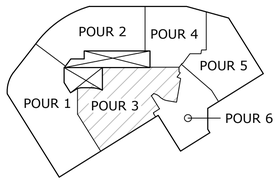
DETAIL B
SCALE 1:100

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 6.10 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 1.07 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



SECTION 1
SCALE 1:20



KEY PLAN
LOWER GROUND FLOOR



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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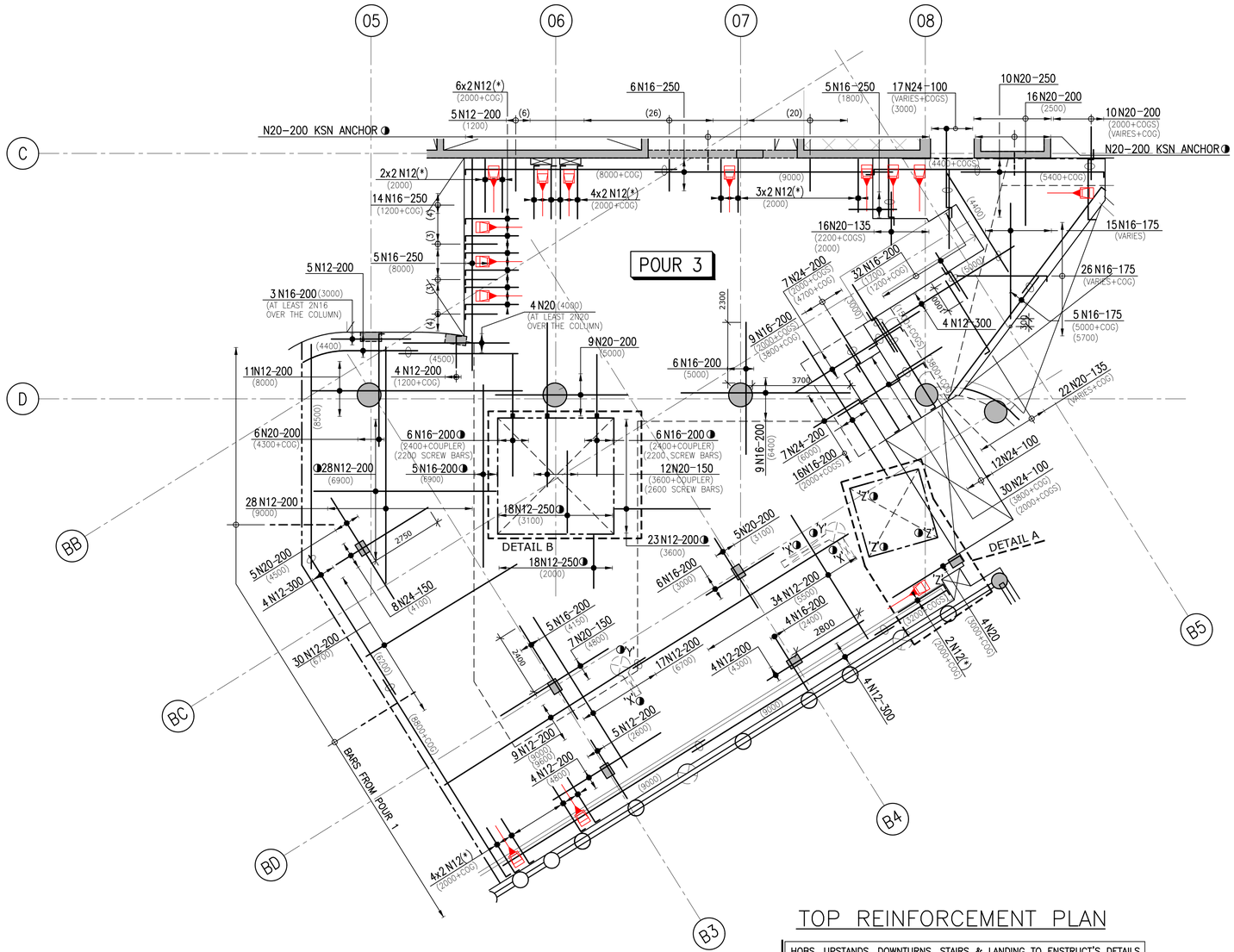
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 3 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-232	Revision: 1

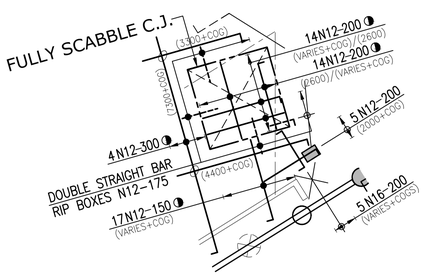
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G. F.-POUR 3-TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-233
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

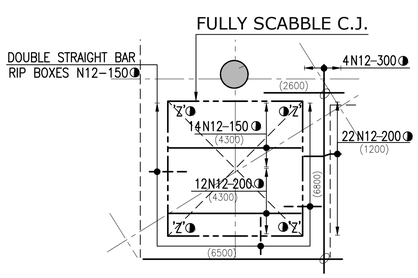


TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
REINFORCEMENT WEIGHT ON PLAN: 7.26 T
◑ BARS ARE NOT TO INTERSPAN GMT: 0.89 T
(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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   - (2000) - DENOTES BAR LENGTH
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   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

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'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



BAR LAYING SEQUENCE

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

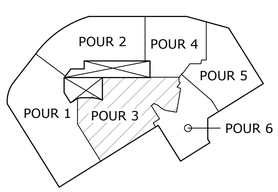
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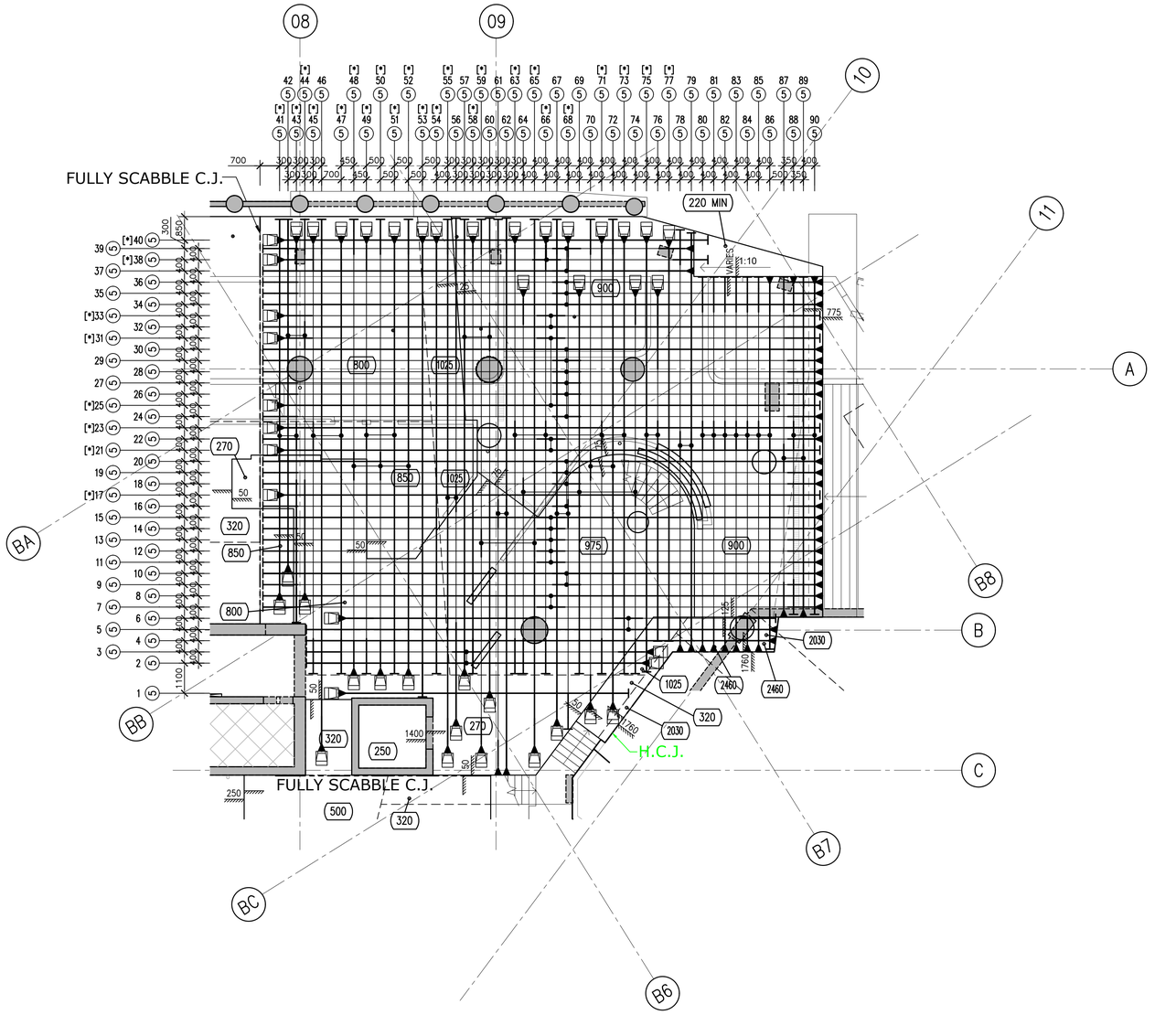
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 3 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-233	Revision: 1



KEY PLAN
LOWER GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 4 -POST TENSIONING PLAN			Drawing No:	INT-PT-241
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

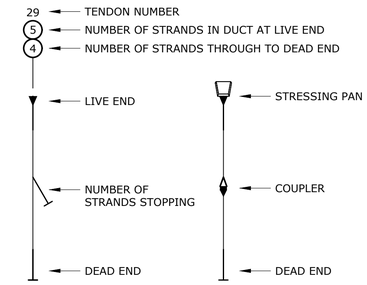


POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.56 T
- PAN REINFORCEMENT WEIGHT: 0.40 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

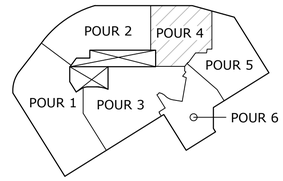
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
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KEY PLAN
LOWER GROUND FLOOR

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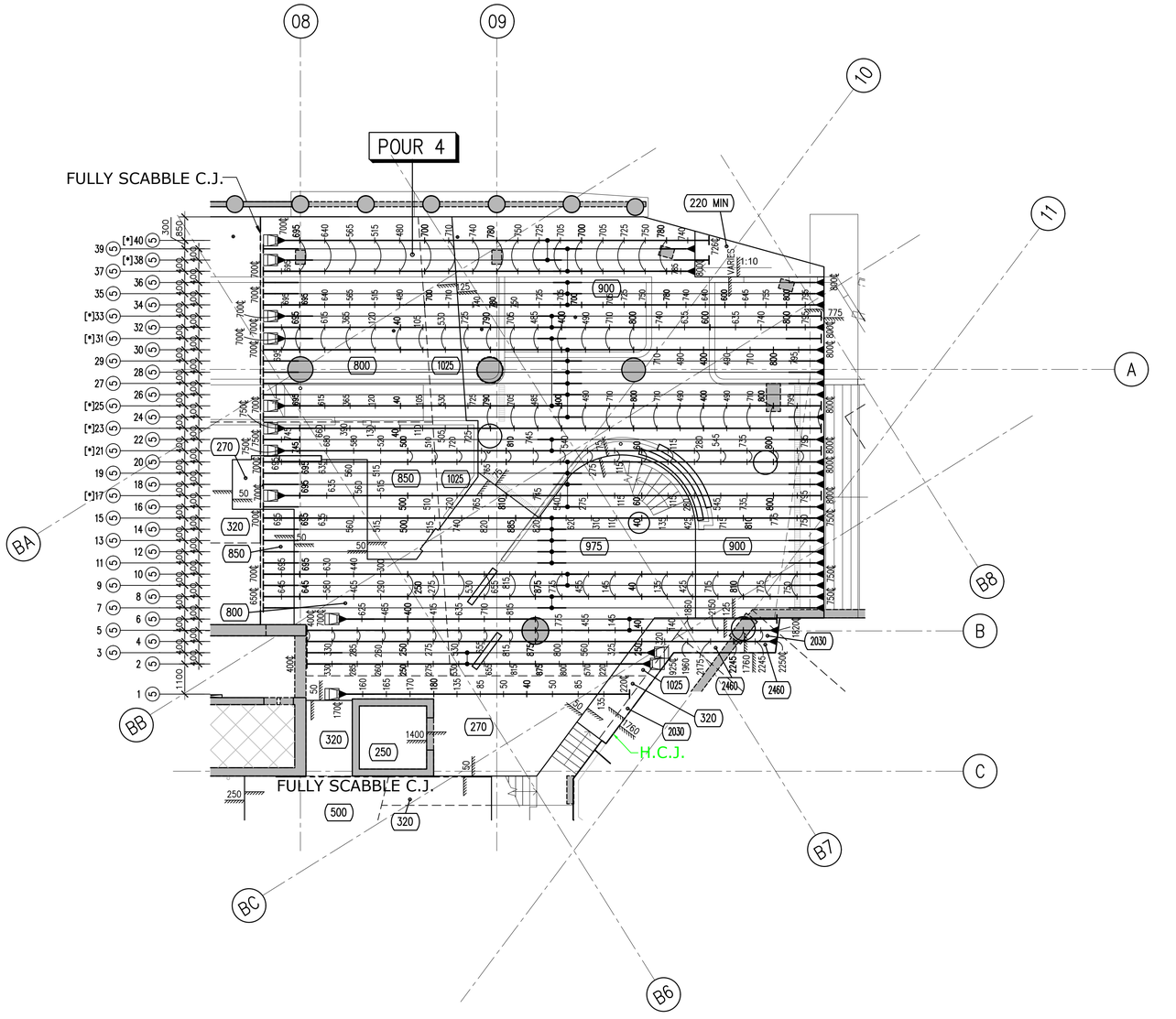
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 4 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-241	Revision: 1

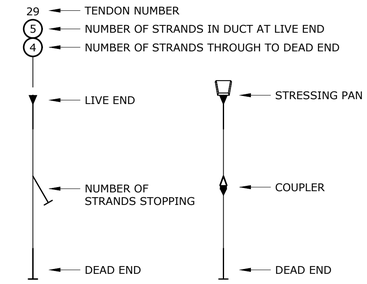
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 4 -POST TENSIONING PLAN - H			Drawing No:	INT-PT-241H
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



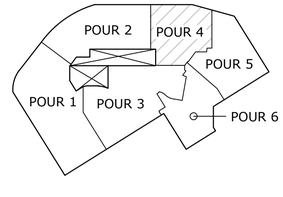
HORIZONTAL – POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.56 T
PAN REINFORCEMENT WEIGHT: 0.40 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LOWER GROUND FLOOR

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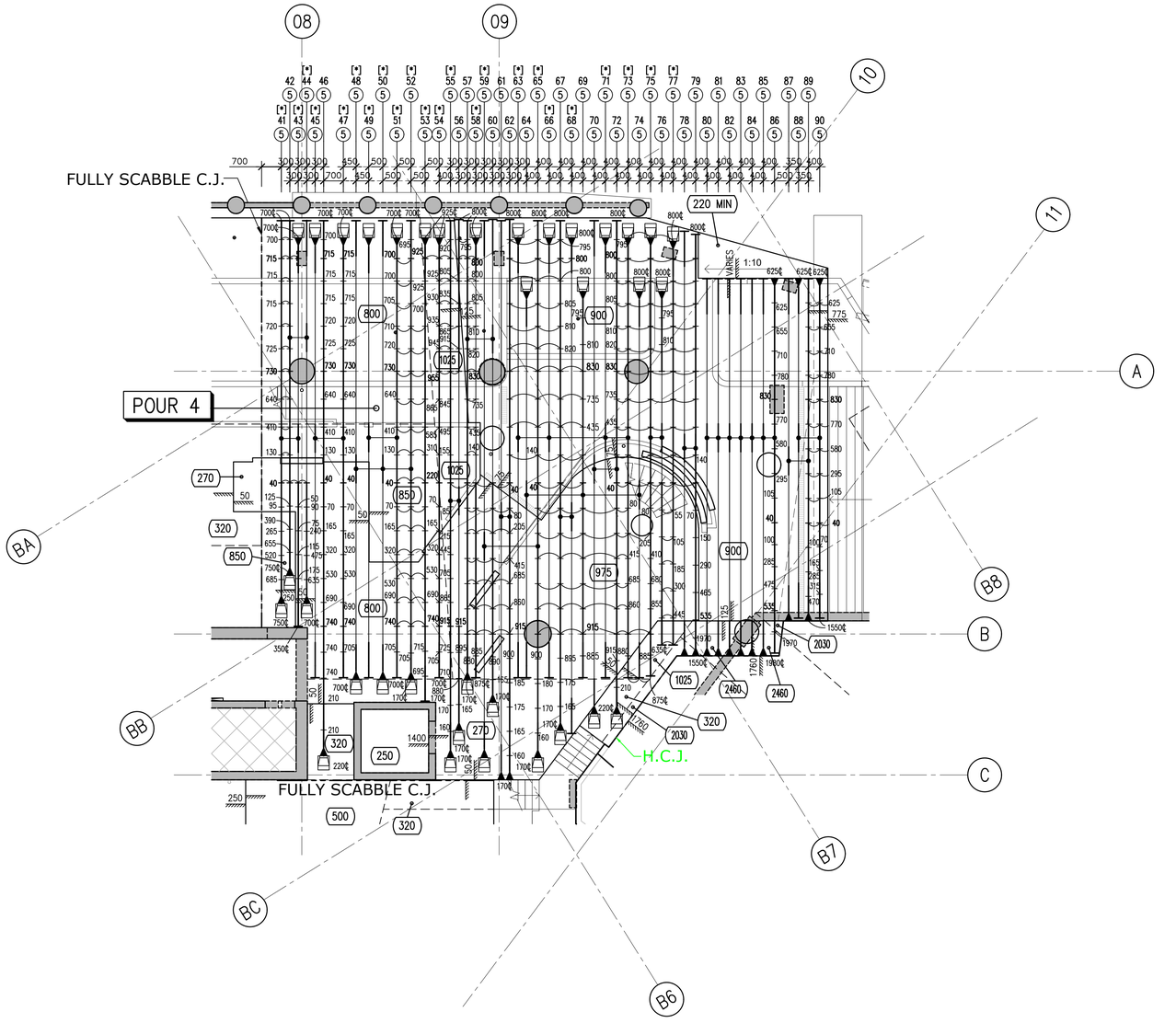
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 4 POST TENSIONING PLAN HORIZONTAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-241H	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.- POUR 4 -POST TENSIONING PLAN - V			Drawing No:	INT-PT-241V
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



VERTICAL – POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.56 T

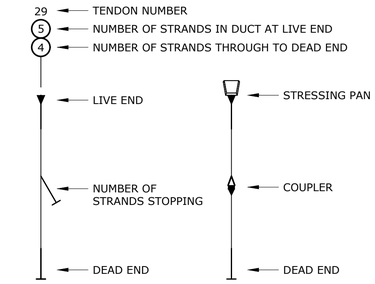
PAN REINFORCEMENT WEIGHT: 0.40 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

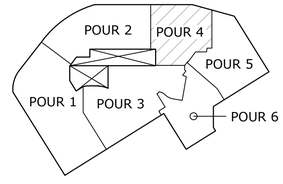
CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION

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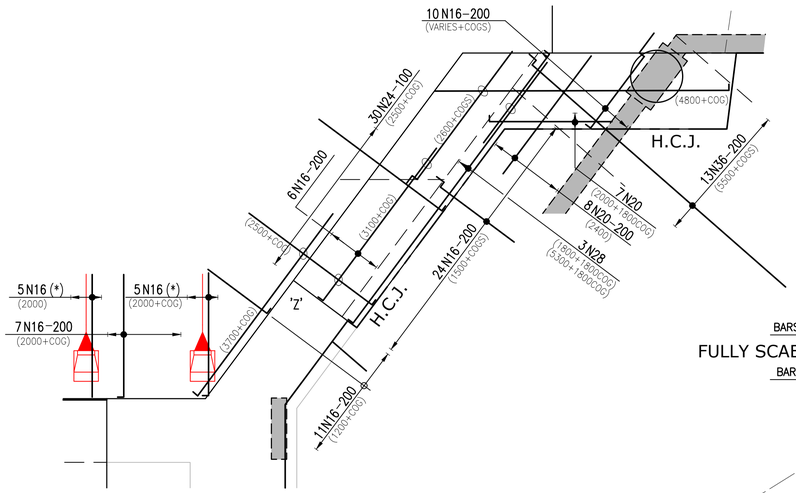


KEY PLAN
LOWER GROUND FLOOR

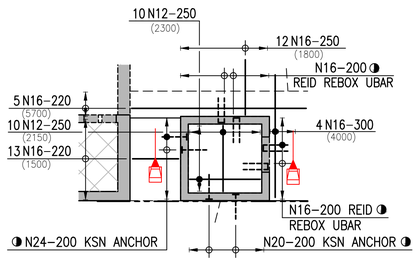
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 4 POST TENSIONING PLAN VERTICAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-241V	Revision: 1

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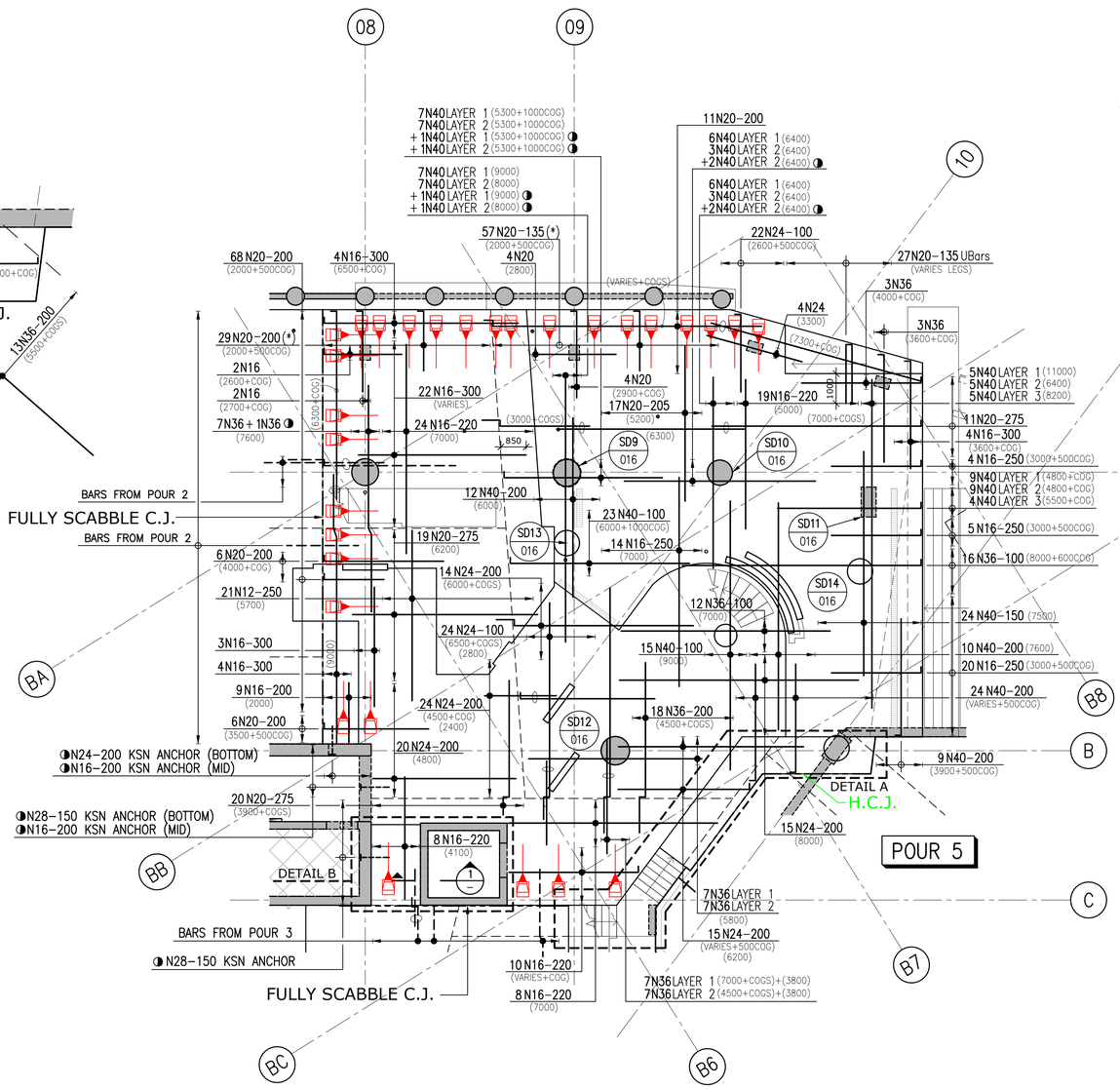
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.-POUR 4-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-242		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



DETAIL
SCALE 1:50 A



DETAIL
SCALE 1:100 B



BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 29.14 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.61 T.

STIRRUP SCHEDULE

A	2 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C'	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
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8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

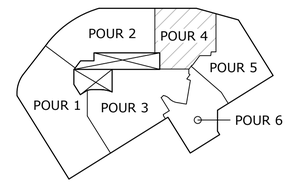
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LOWER GROUND FLOOR

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
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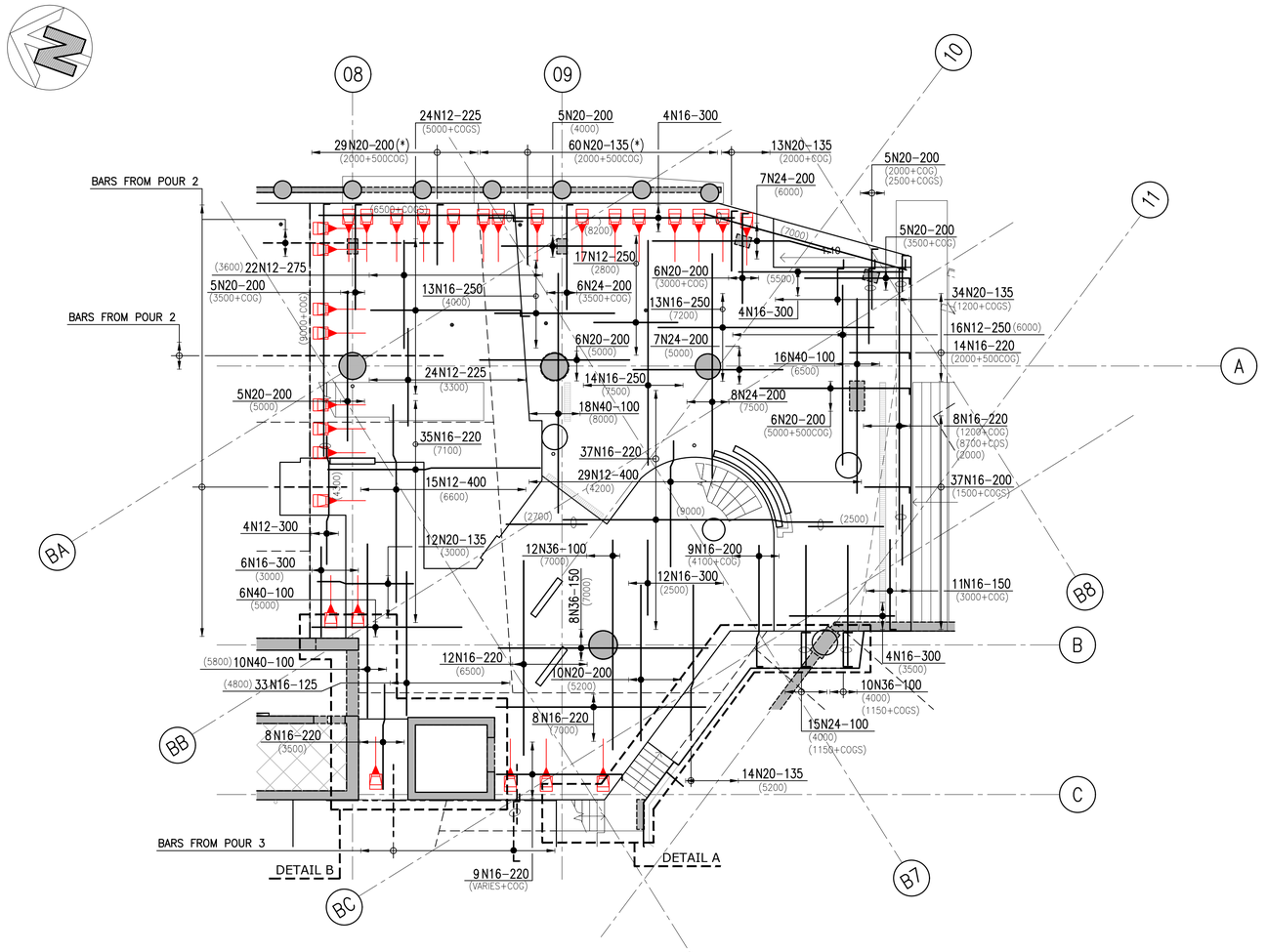
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 4 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-242	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F. - POUR 4 - TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-243
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



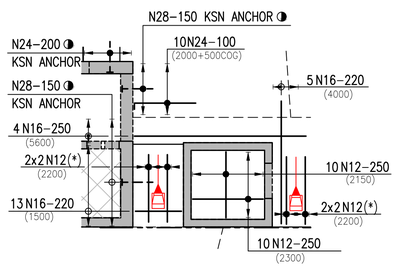
TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

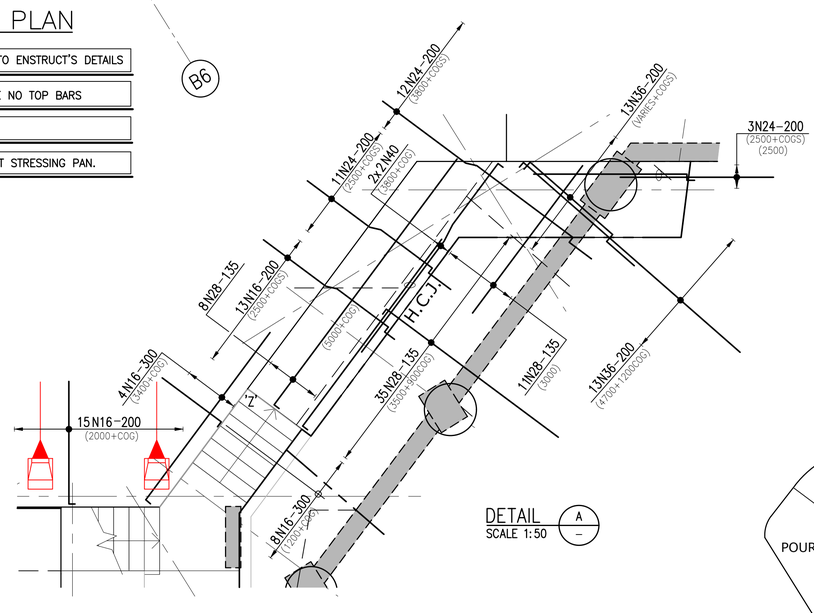
SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS

REINFORCEMENT WEIGHT ON PLAN: 15.3 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



DETAIL SCALE 1:100 (B)



DETAIL SCALE 1:50 (A)



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

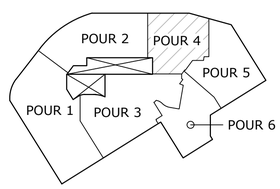
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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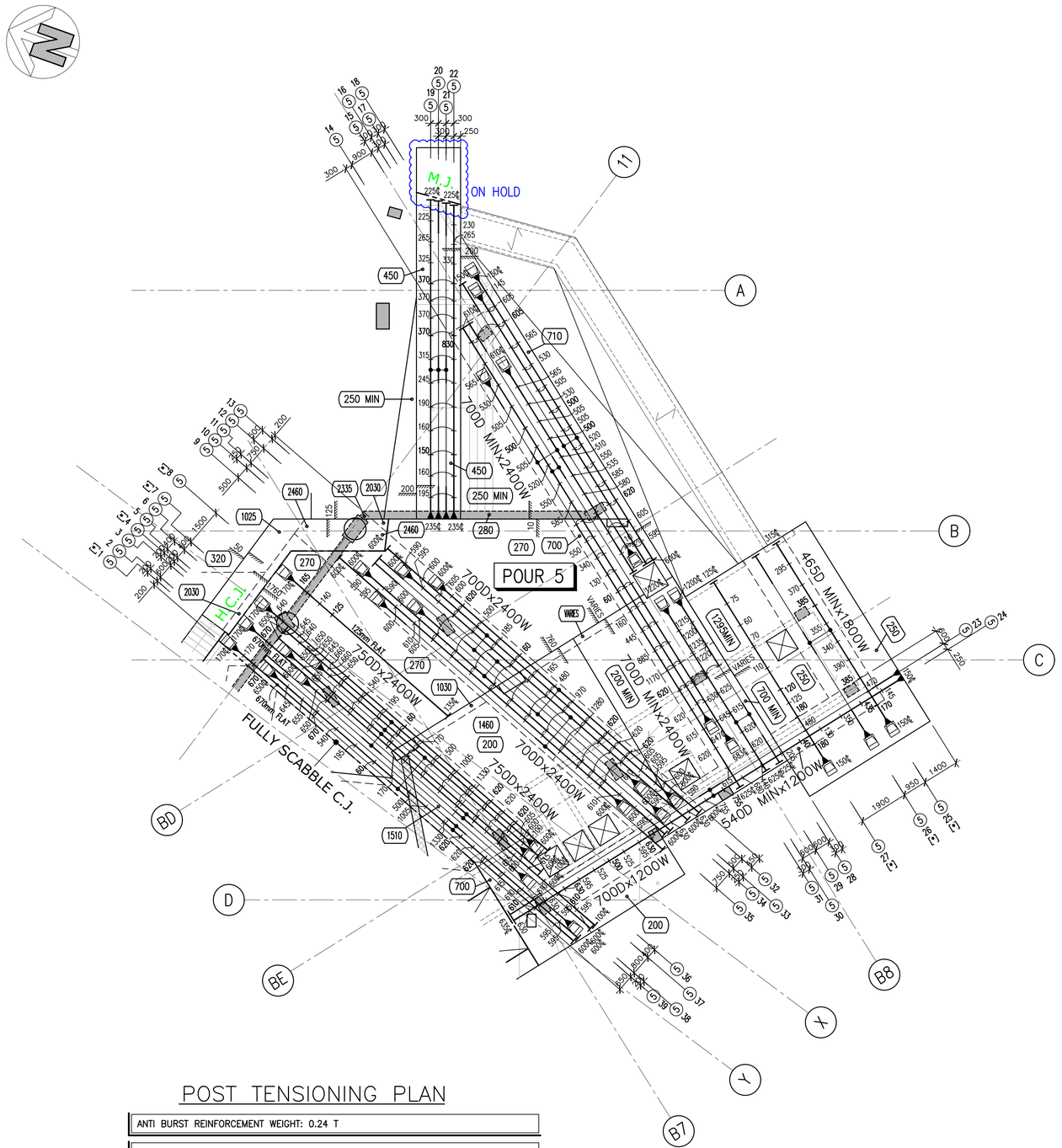
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 4 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-243	Revision: 1



KEY PLAN
LOWER GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F. - POUR 5 - POST TENSIONING PLAN			Drawing No: INT-PT-251	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.24 T

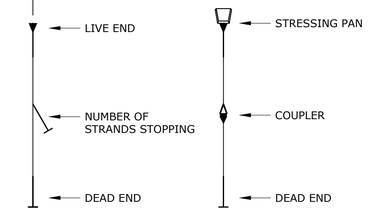
PAN REINFORCEMENT WEIGHT: 0.41 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

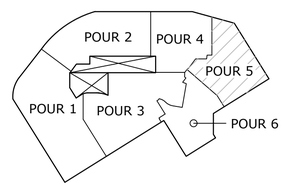
1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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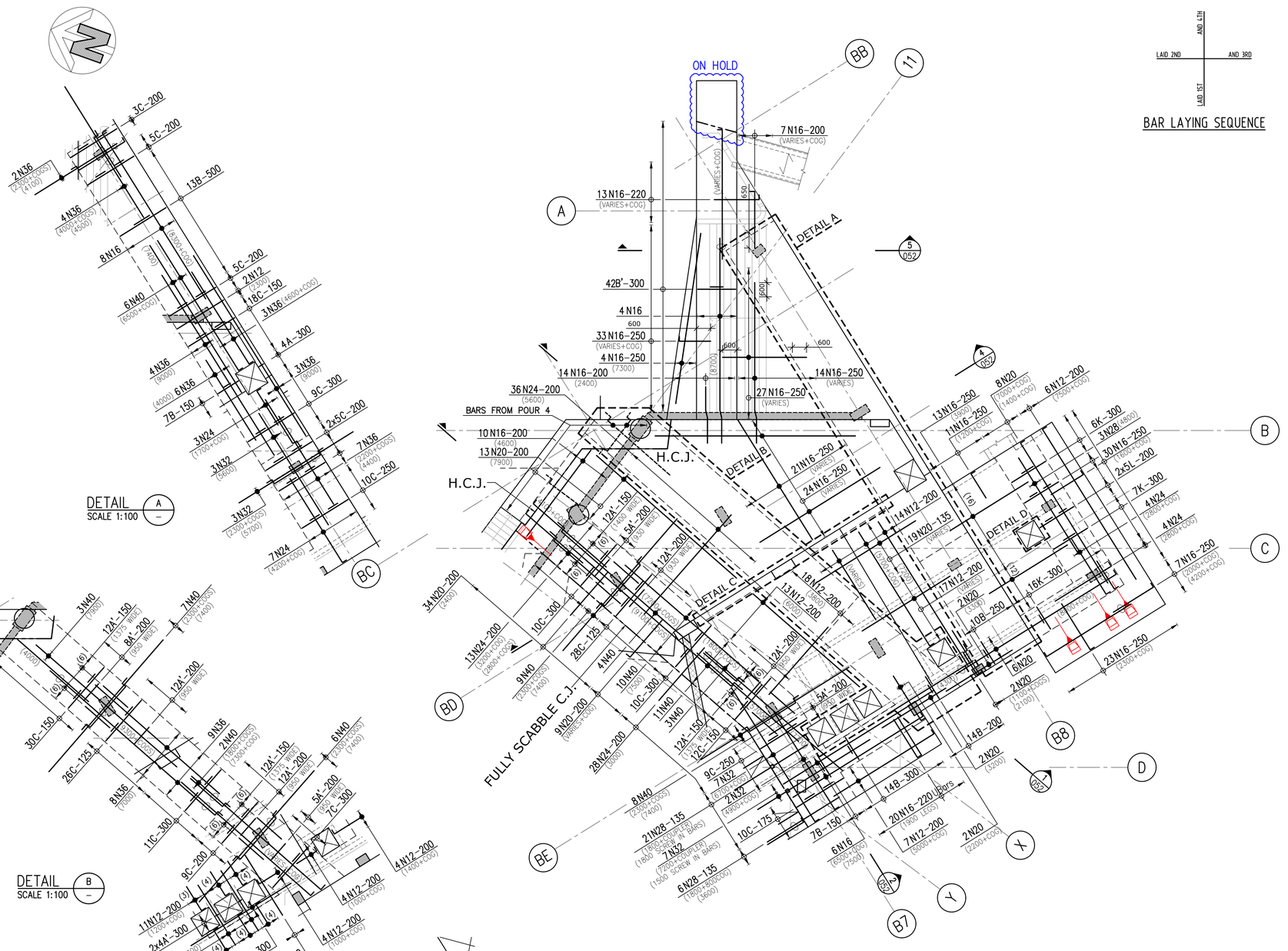


KEY PLAN
LOWER GROUND FLOOR

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 5 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-251	Revision: 1

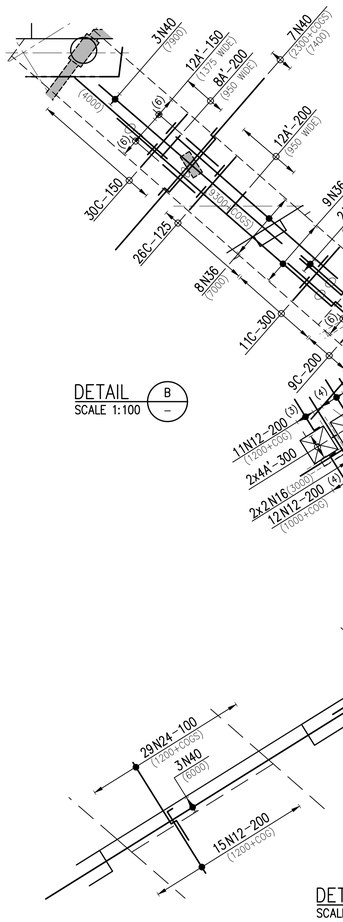
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:		NIL
Drawing Title: LOWER G.F.-POUR 5-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-252		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

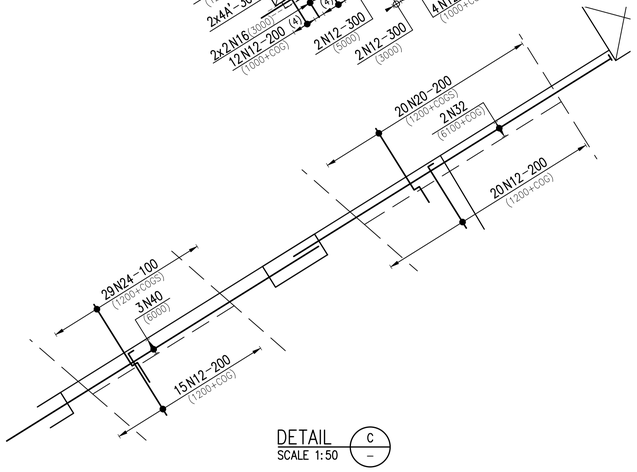


BAR LAYING SEQUENCE

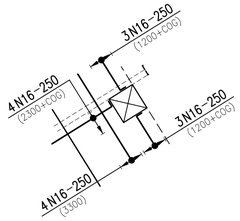
DETAIL A / SCALE 1:100



DETAIL B / SCALE 1:100



DETAIL C / SCALE 1:50



DETAIL D / SCALE 1:100

STIRRUP SCHEDULE

A	2 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
A'	N16 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
B	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
B'	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
C	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
D	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
E	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
F	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
G	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
H	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
K	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
L	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

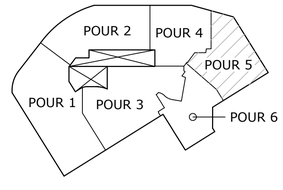
BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 25.11 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LOWER GROUND FLOOR

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
F: +61 2 8307 0297

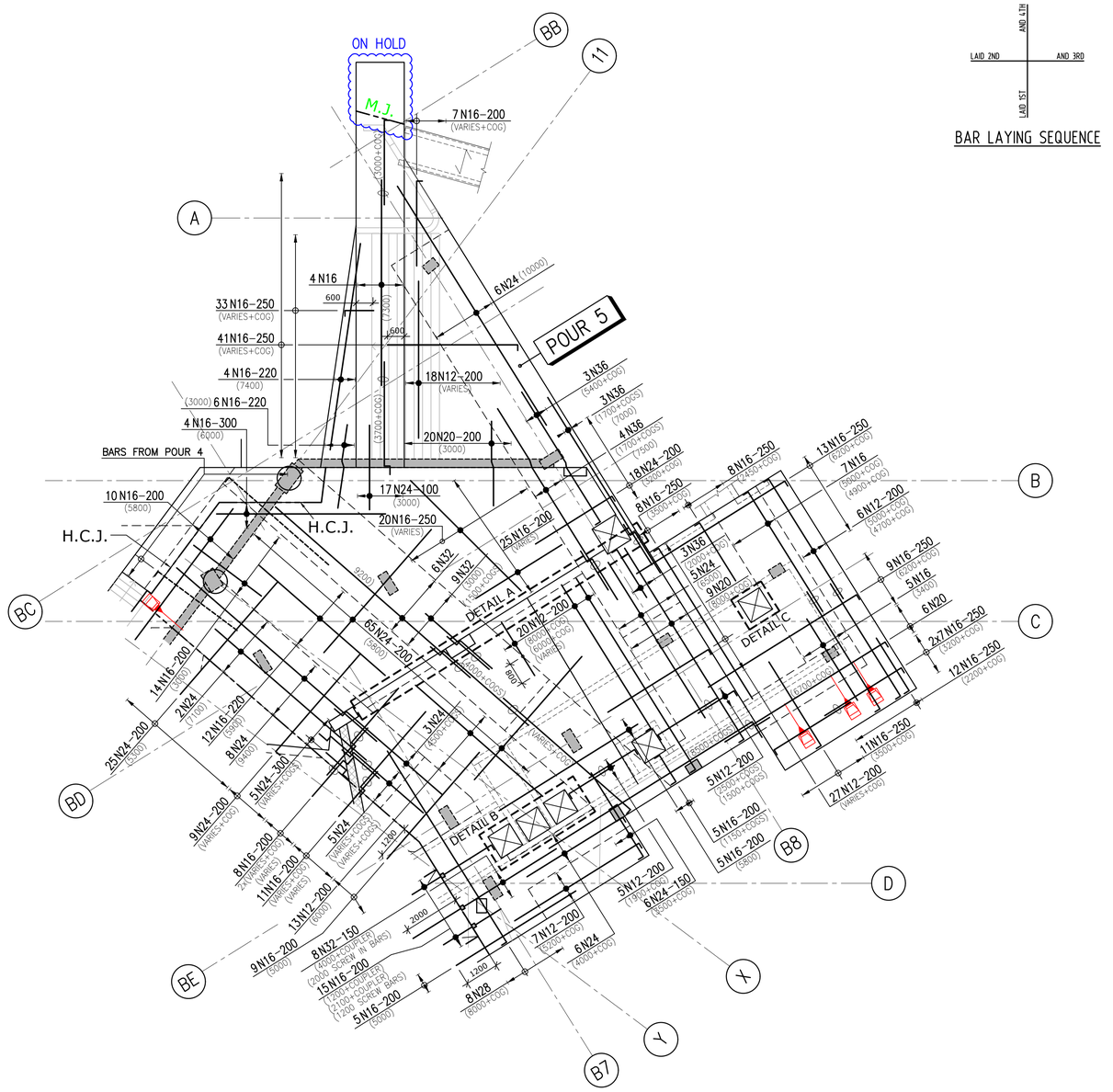
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 5 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-252	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F - POUR 5 -TOP REINFORCEMENT PLAN		Drawing No: INT-PT-253		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
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	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

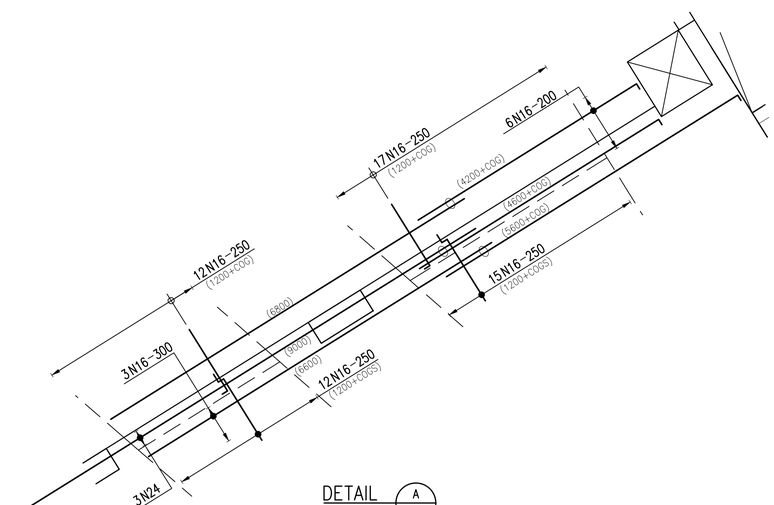


'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

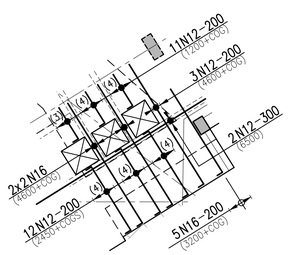


TOP REINFORCEMENT PLAN

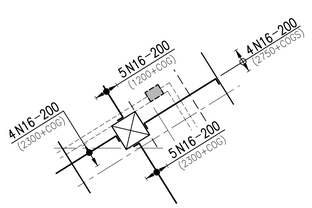
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- REINFORCEMENT WEIGHT ON PLAN: 10.49 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



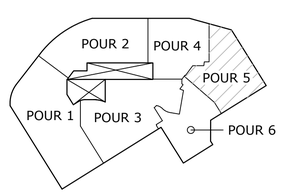
DETAIL A — SCALE 1:50



DETAIL B — SCALE 1:100



DETAIL C — SCALE 1:100



KEY PLAN
LOWER GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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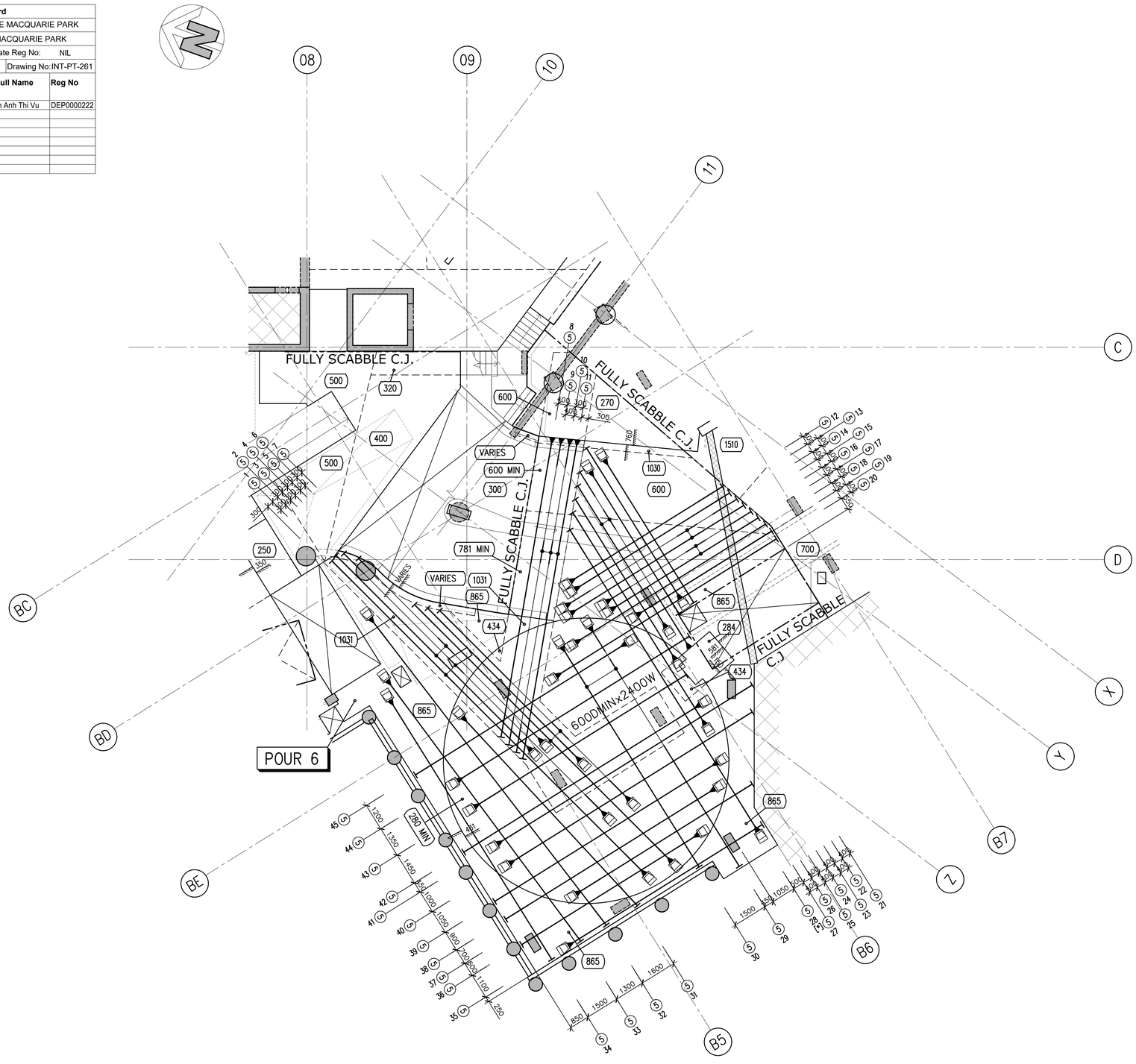
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 5 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-253	Revision: 1

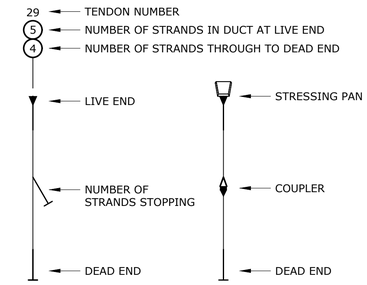
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G. F.-POUR 6 -POST TENSIONING PLAN			Drawing No:	INT-PT-261
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



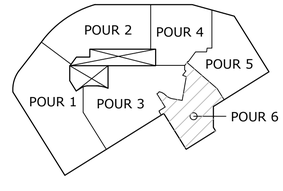
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.28 T

PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.



KEY PLAN
LOWER GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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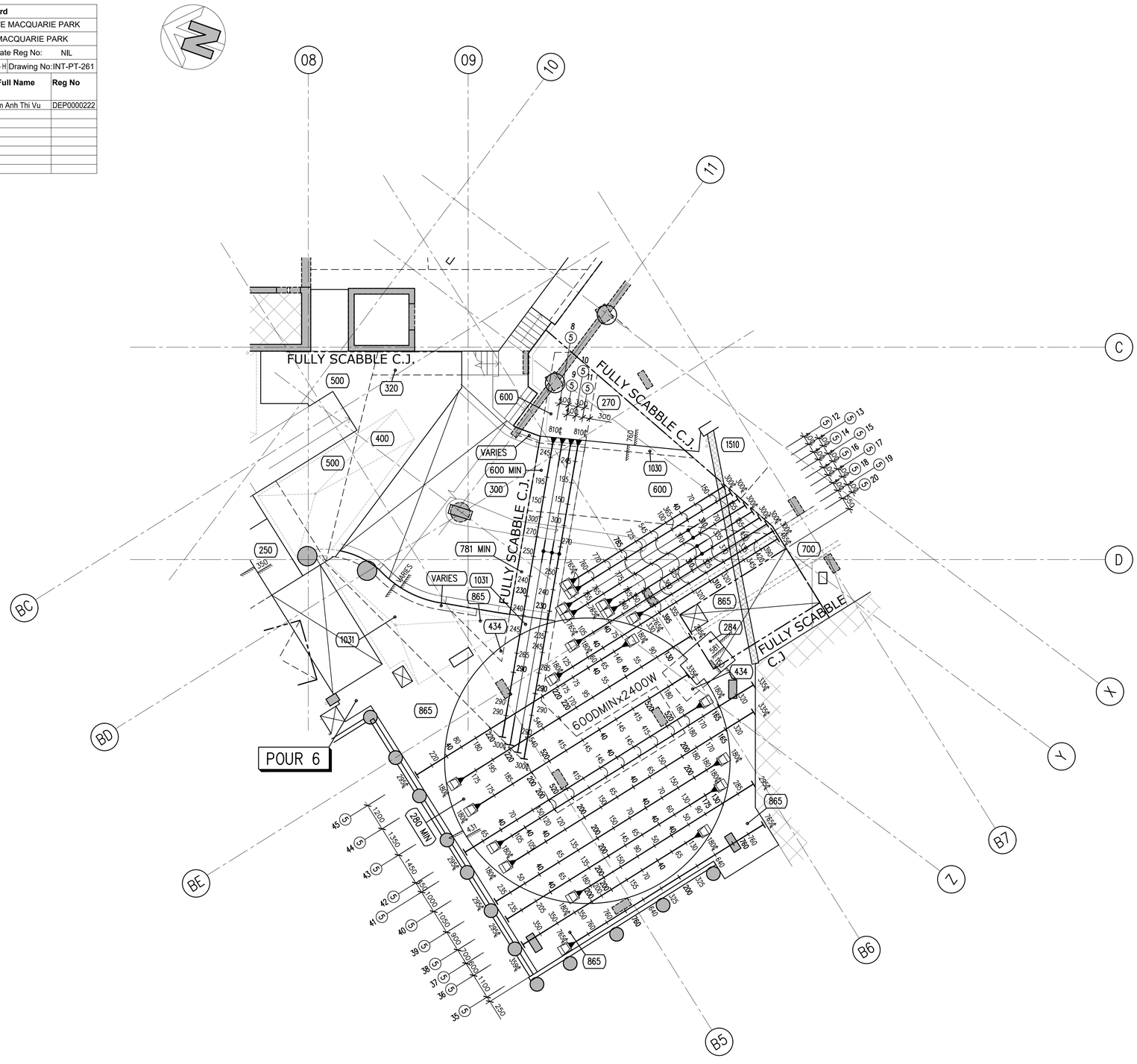
MELBOURNE
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 6 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-261	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G. F.-POUR 6 -POST TENSIONING PLAN - H			Drawing No:	INT-PT-261
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



HORIZONTAL – POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.28 T

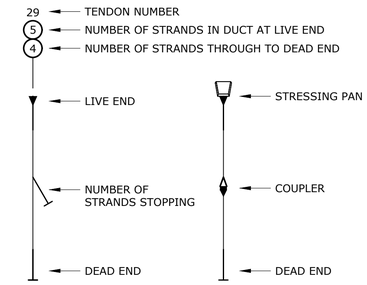
PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

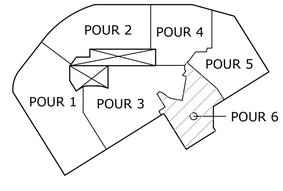
1	20-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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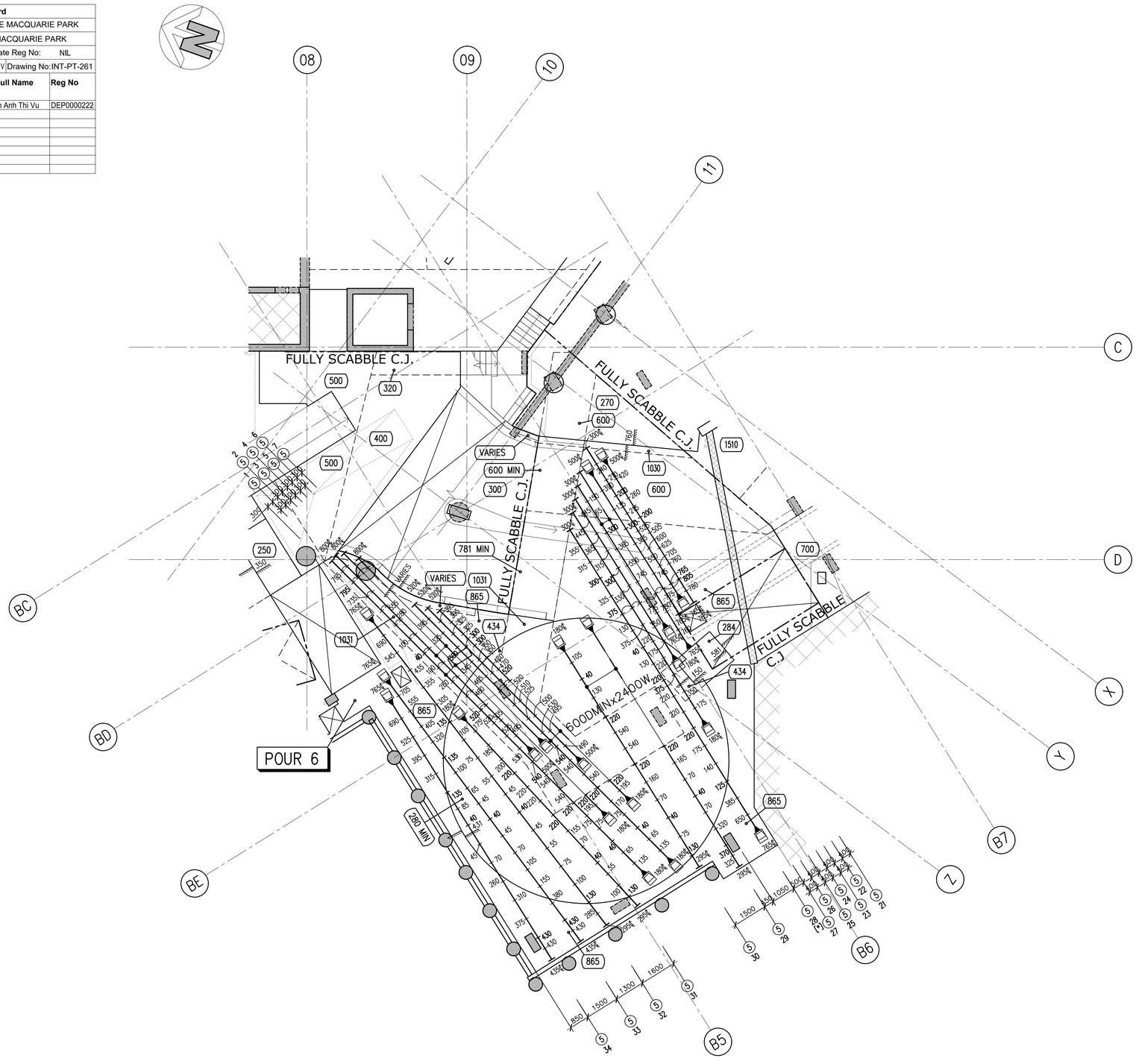


KEY PLAN
LOWER GROUND FLOOR

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 6 POST TENSIONING PLAN HORIZONTAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-261H	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G. F.-POUR 6 -POST TENSIONING PLAN - V		Drawing No: INT-PT-261		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



VERTICAL – POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.28 T

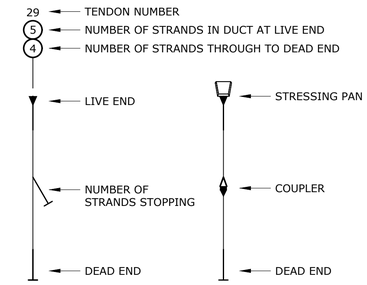
PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

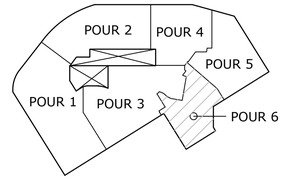
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION



KEY PLAN
LOWER GROUND FLOOR

Interspan

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SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 6 POST TENSIONING PLAN VERTICAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-261V	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G.F.-POUR 6-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-262		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

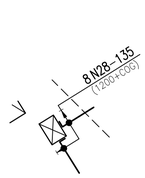
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

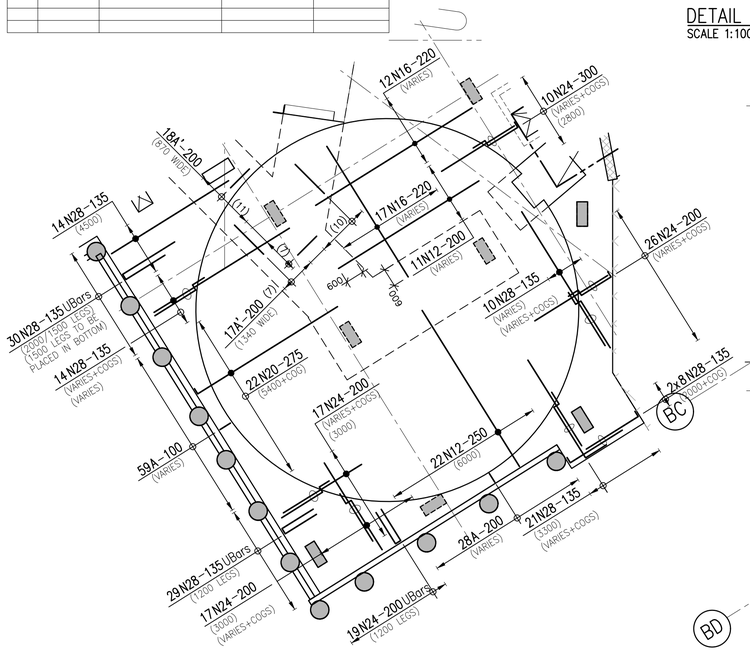
BAR LAYING SEQUENCE

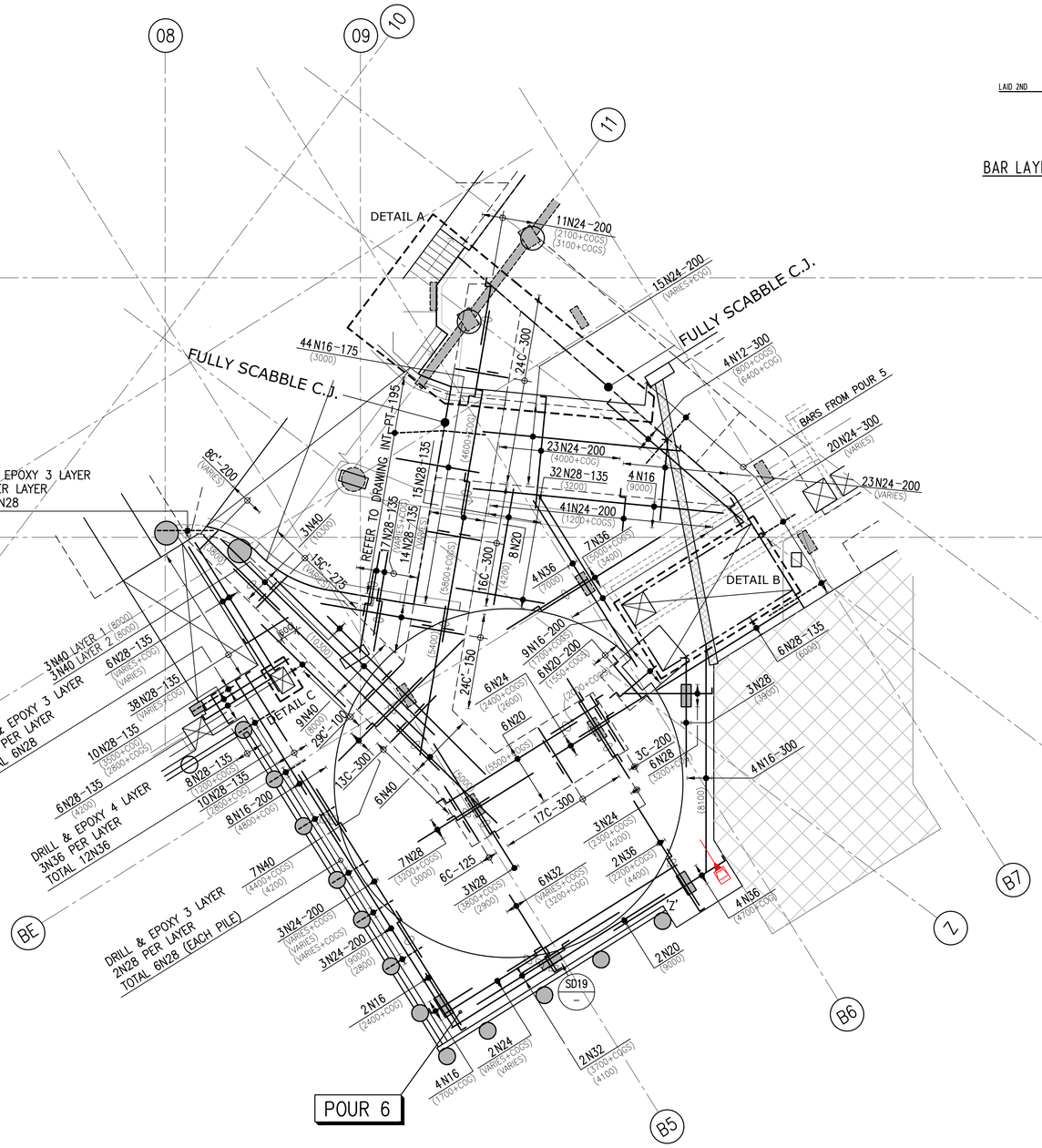
LAID 2ND, AND 4TH, AND 3RD, LAID 1ST

DETAIL C
SCALE 1:100

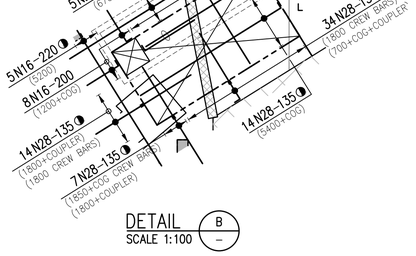


DOCK DETAIL
SCALE 1:100

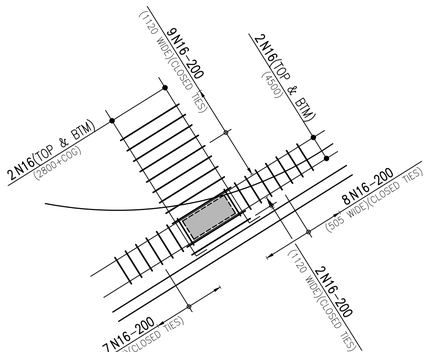




DETAIL
SCALE 1:100

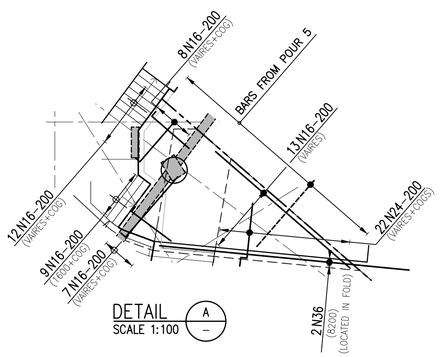


DETAIL
SCALE 1:100



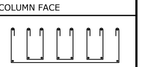
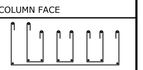
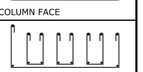
SHEAR DETAIL
SCALE 1:50

FIRST TIE TO BE 50MM FROM COLUMN FACE



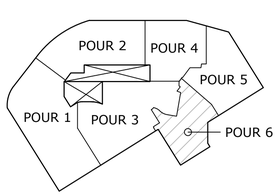
DETAIL
SCALE 1:100

STIRRUP SCHEDULE

A	N24 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
A'	N16 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C'	6 LEGS N20 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
D	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
E	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
F	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
G	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
H	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 25.85 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



KEY PLAN
LOWER GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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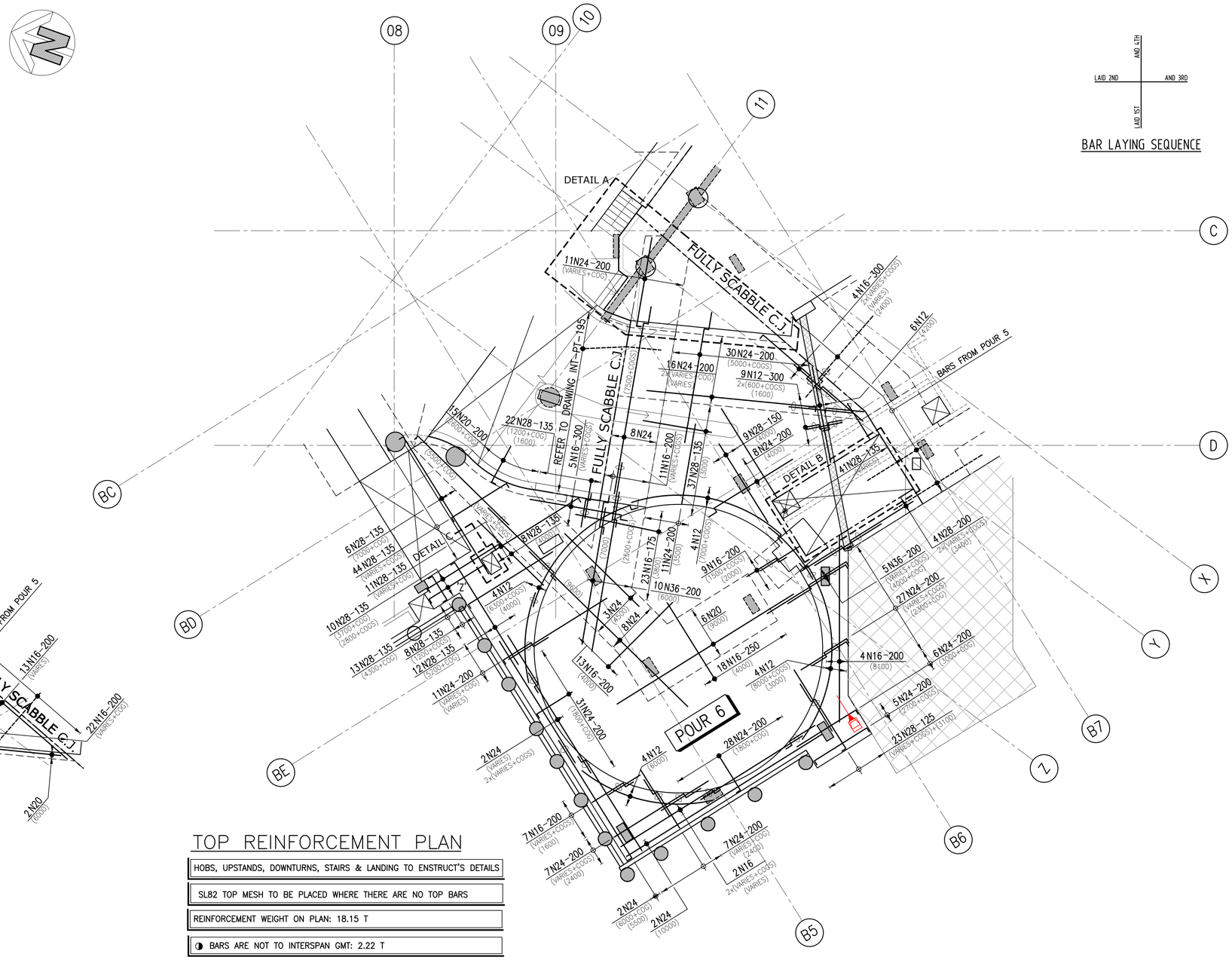
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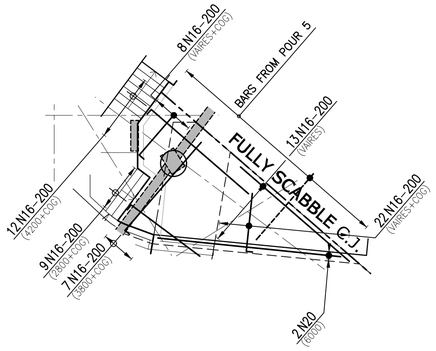
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 6 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-262	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LOWER G. F.-POUR 6 -TOP REINFORCEMENT PLAN		Drawing No: INT-PT-263		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100

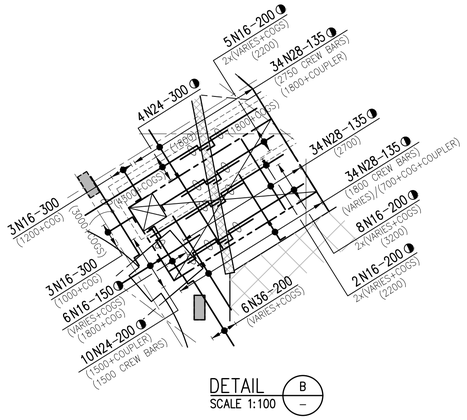
TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

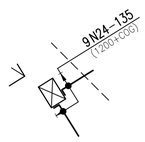
SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS

REINFORCEMENT WEIGHT ON PLAN: 18.15 T

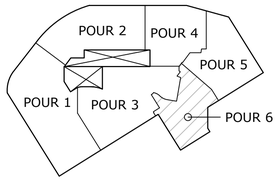
◑ BARS ARE NOT TO INTERSPAN GMT: 2.22 T



DETAIL B
SCALE 1:100



DETAIL C
SCALE 1:100



KEY PLAN
LOWER GROUND FLOOR

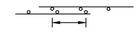
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-099-00	ST-299-00
REVISION:	D	D
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.0LG	A03.A1.0LG
REVISION:	E	T

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LOWER GROUND FLOOR - POUR 6 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-263	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-300		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

PLANTER TO BE CONFIRMED –ON HOLD

ON HOLD – ARCHITECT & STRUCTURAL TO CONFIRM

PROVIDE PROPPING UNDER ALONG C.J UNTIL FUTURE POUR IS POURED AND REACHES 28 DAYS DESIGN STRENGTH.

DISCREPANCY BETWEEN ENSTRUCT & ARCHIECT . FOLLOW ENSTRUCT'S DRAWINGS FOR STRUCTURAL PROFILES – T.B.C

TYPE 1 STRUT AND TIES MECHANISM. ASSUMED ENSTRUCT HASE RESOLVED THIS ECCENTRICITY FROM COLUMN'S DESIGN PERSPACTIVE. SLAB WILL NOT REQUIRE TO DESIGN FOR ANY COLUMN'S AXIAL LOADS. NORTHROP TO CONFIRM [*]

ASSUME STAIR LOAD : G : 25 KN/M Q : 15 KN/M

POUR 1

POUR 2

POUR 3

POUR 4

FULLY SCABBLE C.J.

CORE WALLS ARE JUMPED, ENSTRUCT TO ADVICES FOR THE CONNECTION BETWEEN TRANSFER BEAM WITH CORE WALL–T.B.C

DEFLECTION ISSUE – TBC

DEPTH–TBC

THERE IS A 50MM GAP EXPAND THE BEAM LOCALLY HERE

SLAB EDGE – DISCREPANCY BETWEEN ENSTRUCT & ARCHIECT . FOLLOW ENSTRUCT'S DRAWINGS FOR STRUCTURAL PROFILES – T.B.C

65mm 5x8mm step

90mm 5x8mm step

750D x 1500W

750D x 2400W UPSTAND

900D x 2400W

1000D MIN. x 3000W

1100D MIN. x 3000W

800D x 3000W UPSTAND

400D x 600W

WALL IS NOT TO SUPPORT THE SLAB – TBC?

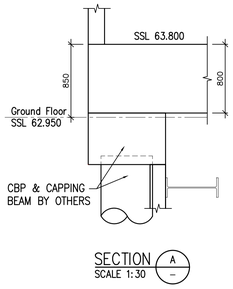
STRUCTURAL WALL BY ENSTRUCT DESIGN & DETAIL. NO LOAD FROM WALL WILL IMPOSE TO PT SLAB/BEAM – T.B.C DO THESE WALLS SUPPORT THE PT SLAB?

PILES/CAPPING BEAM. DO NOT USE TO SUPPORT THE PT SLAB

PILE TO SUPPORT THE PT SLAB – CONNECTION BY OTHERS

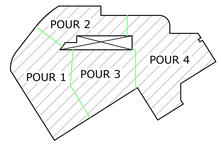
ON HOLD

SECTION A
SCALE 1:30



GENERAL ARRANGEMENT PLAN

FOLLOW TO ARCHITECTS DRAWINGS FOR SETDOWNS, PLINTH, HOBS SETOUT, UPSTAND WALL , PENETRATIONS SETOUT – U.N.O



KEY PLAN
GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00 D, ST-300-00 D, ST-300-10 C, ST-002-04 B, ST-300-20 C
REVISION:

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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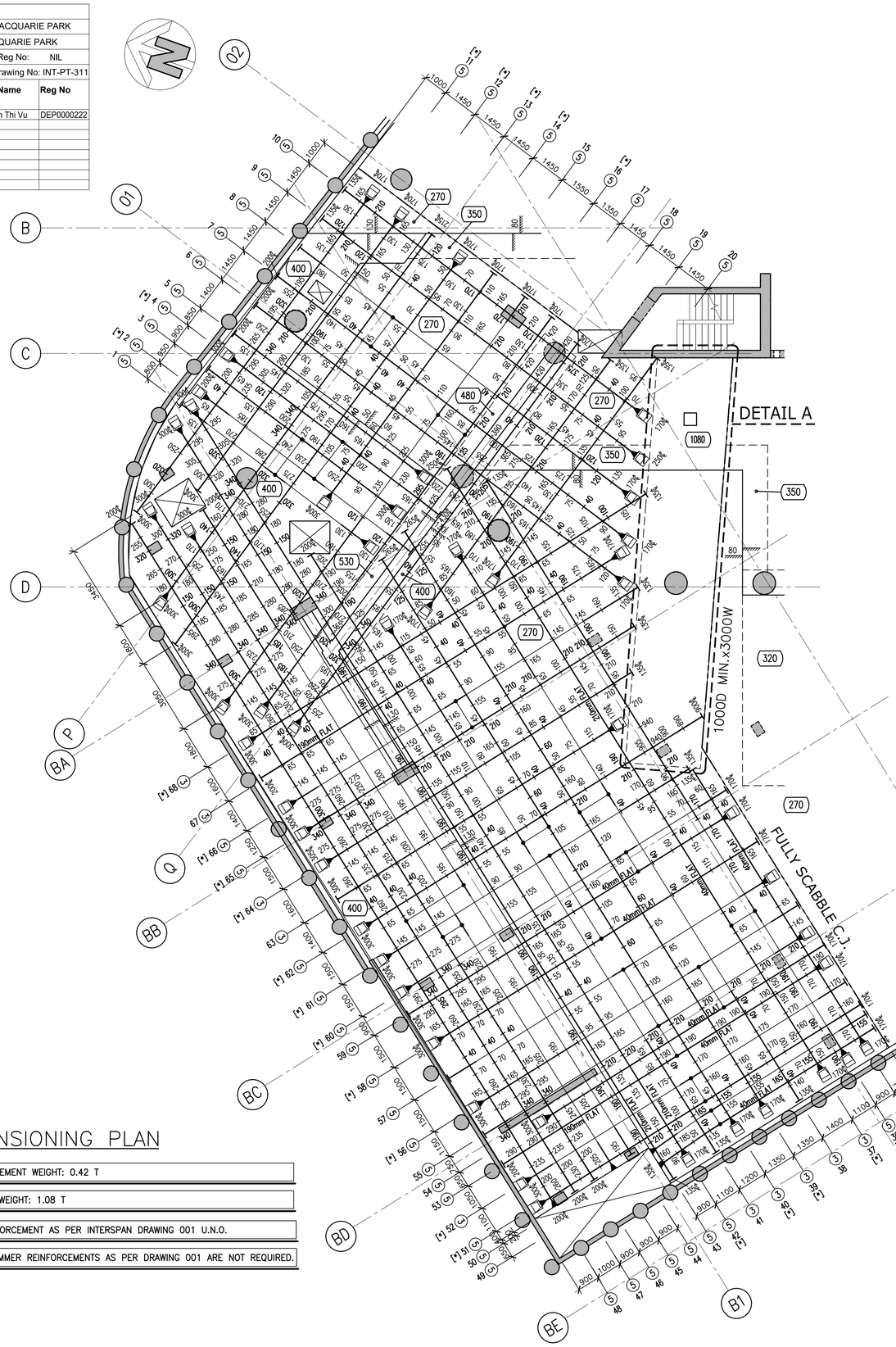
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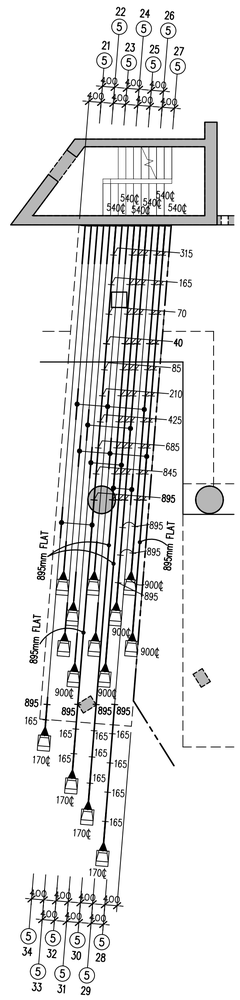
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: GROUND FLOOR GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-300	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-311
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



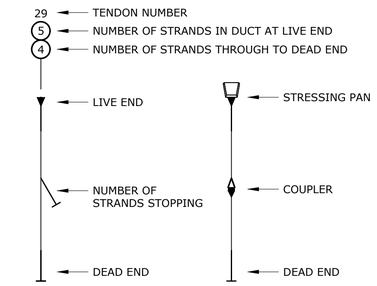


POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.42 T
- PAN REINFORCEMENT WEIGHT: 1.08 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

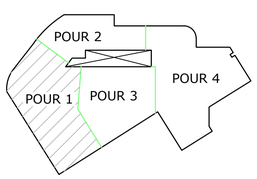
1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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KEY PLAN
GROUND FLOOR

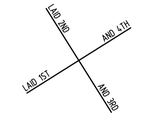
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: MK
Drawing Title: GROUND FLOOR - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-311	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: G. F. - POUR 1 - BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-312
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N12.800 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: D

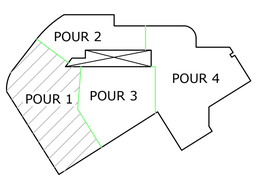
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

STIRRUP SCHEDULE

A	2 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
D	N12 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 8.99 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



KEY PLAN
GROUND FLOOR

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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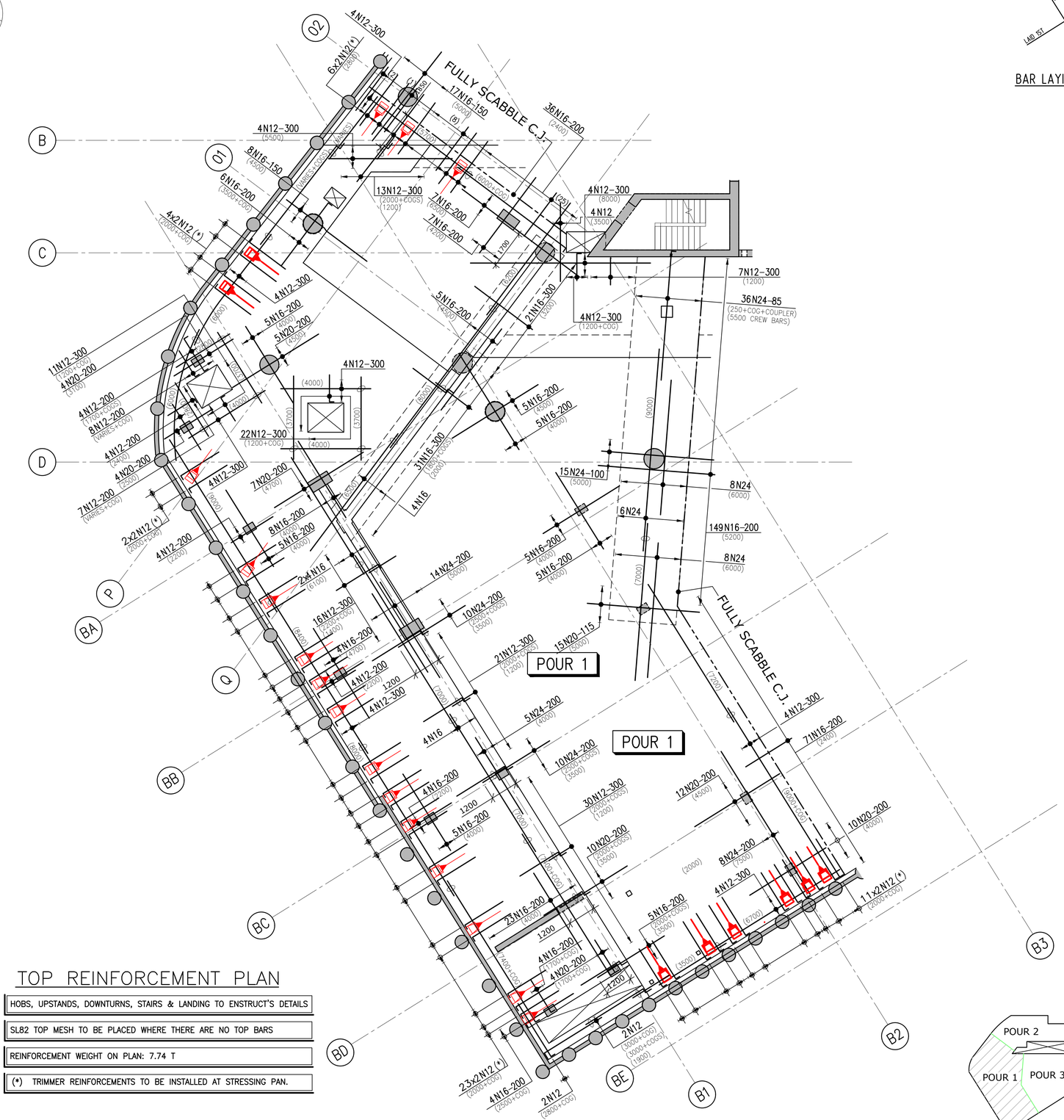
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: GROUND FLOOR - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-312	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 1 -TOP REINFORCEMENT PLAN		Drawing No: INT-PT-313		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



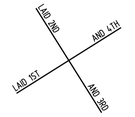
TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS

REINFORCEMENT WEIGHT ON PLAN: 7.74 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N12.800 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

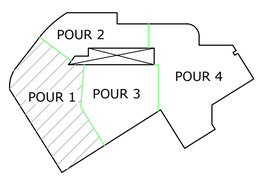
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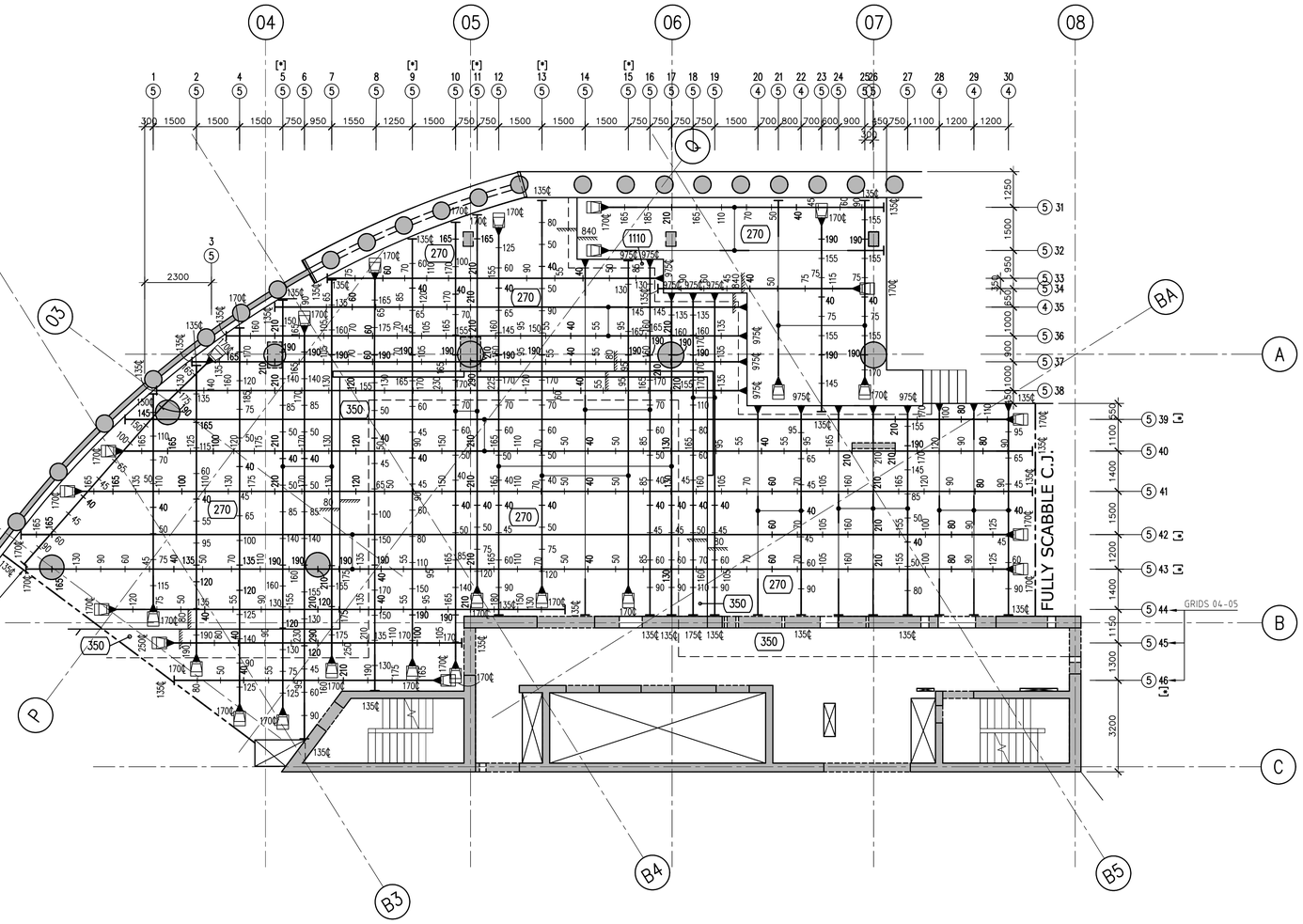
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: GROUND FLOOR - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-313	Revision: 1



KEY PLAN
GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND FLOOR-POUR 2-POST TENSIONING PLAN		Drawing No: INT-PT-321		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.286 T

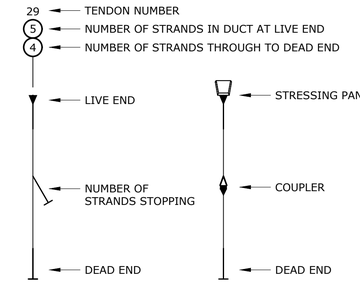
PAN REINFORCEMENT WEIGHT: 0.513 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

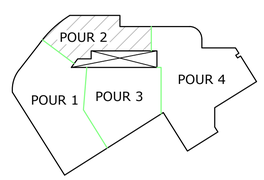
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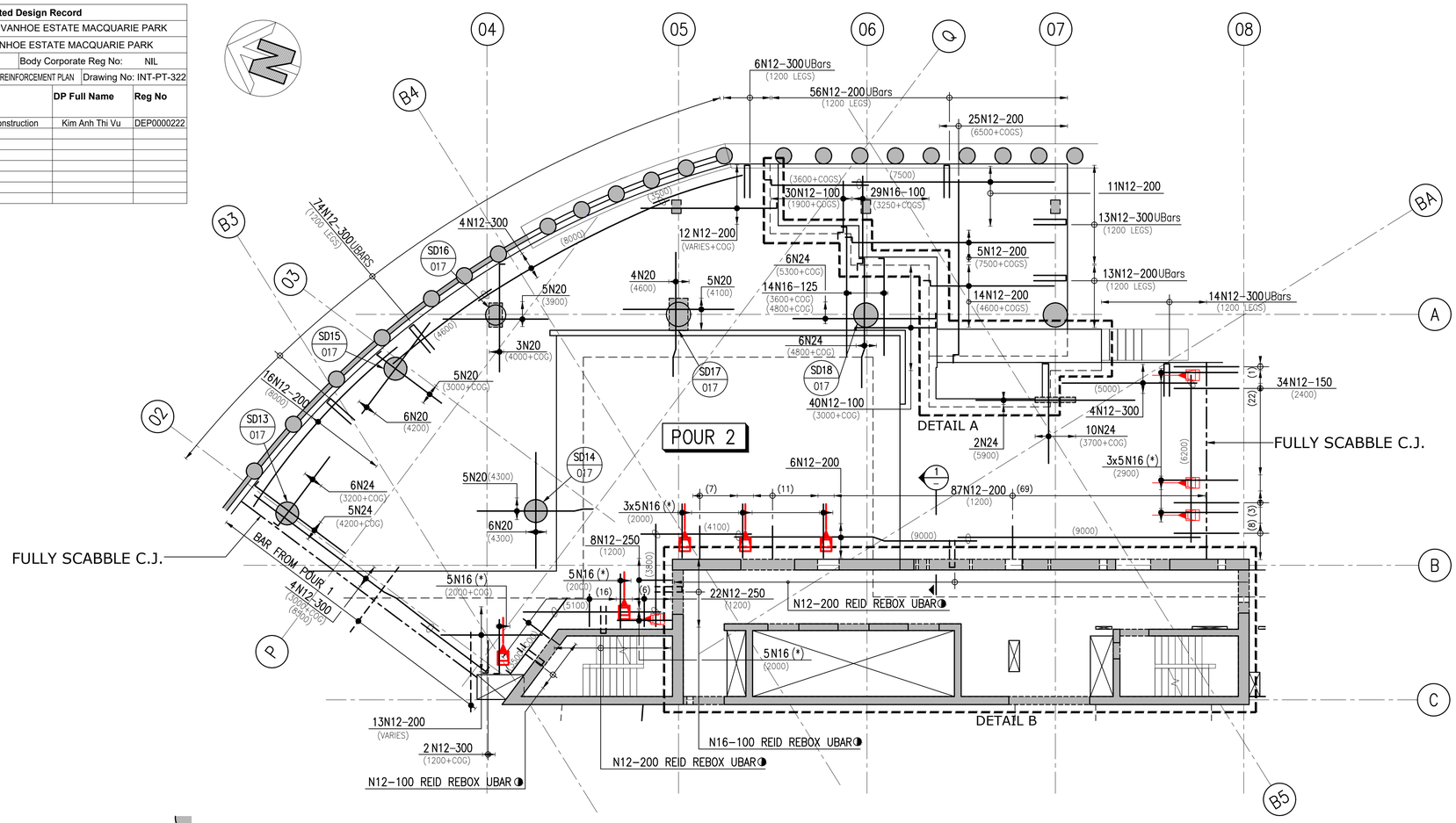


KEY PLAN
GROUND FLOOR

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: GROUND FLOOR - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-321	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: G. F. - POUR 2 -BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-322
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N12.800 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

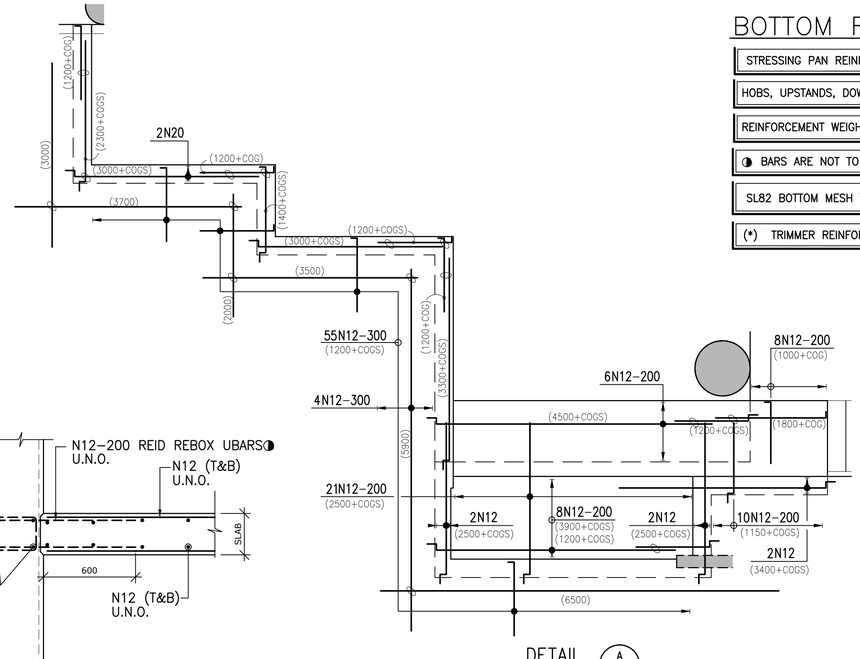
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

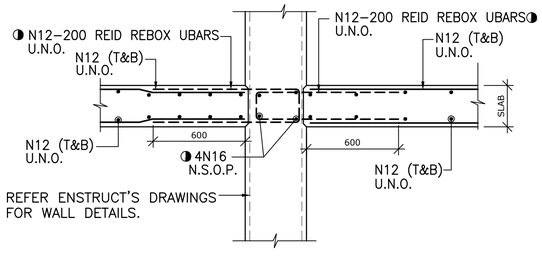
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

BOTTOM REINFORCEMENT PLAN

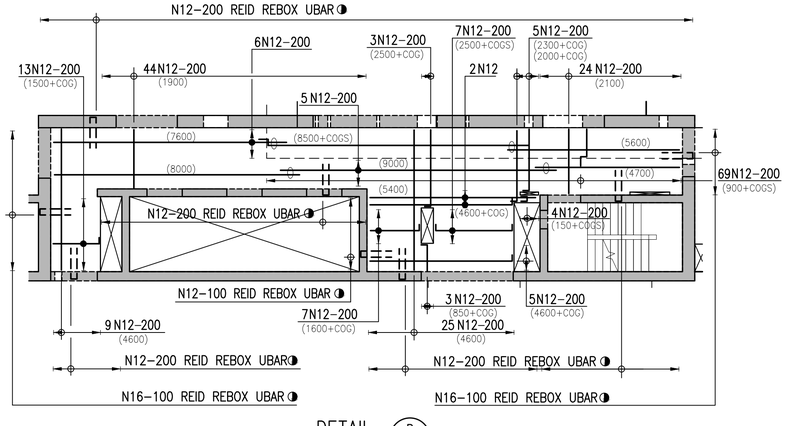
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.48 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



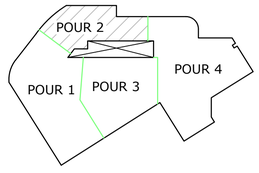
DETAIL A
SCALE 1:50



SECTION 1
SCALE 1:20



DETAIL B
SCALE 1:100



KEY PLAN
GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: D

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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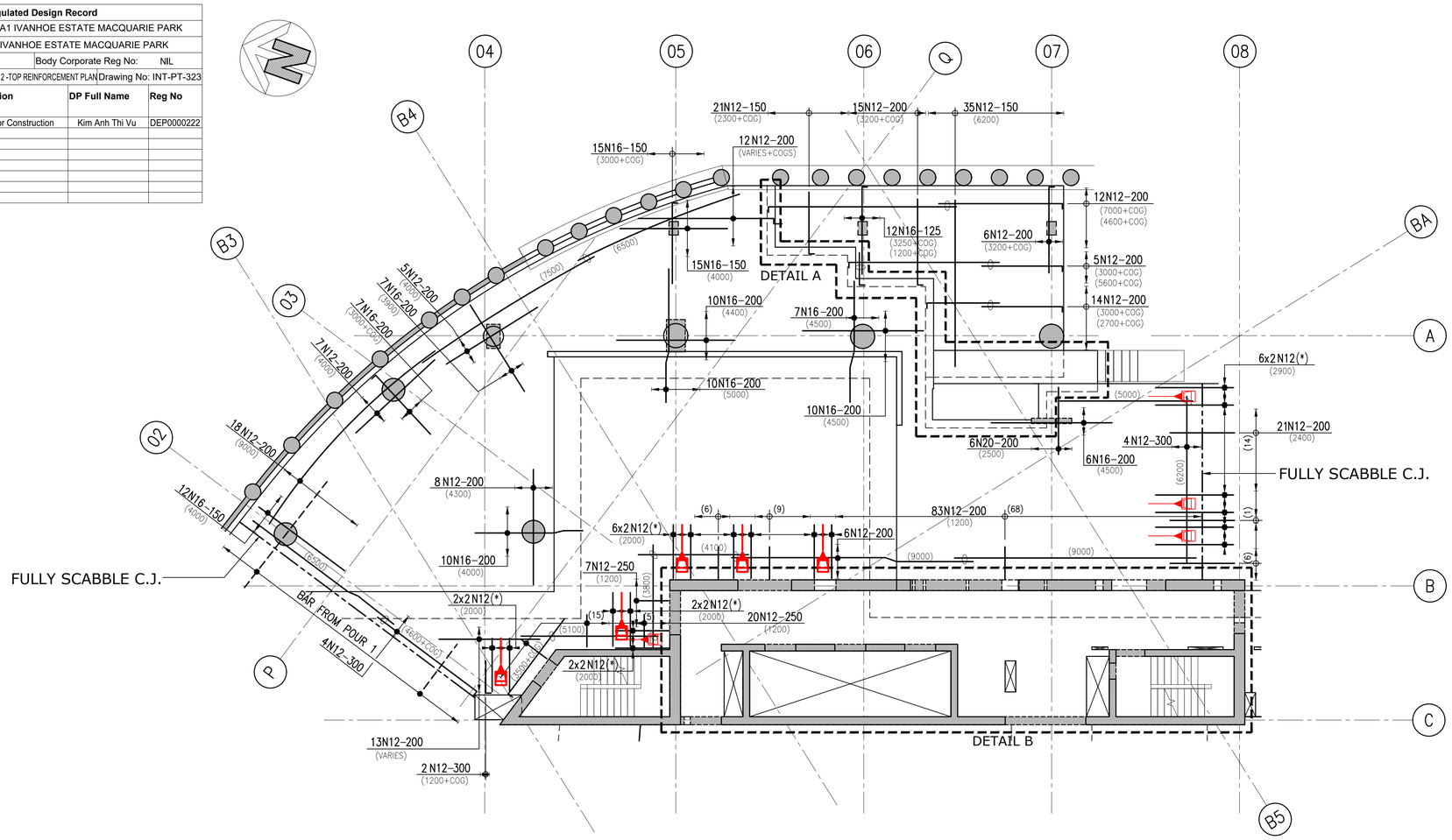
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F: +61 3 8396 9640

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: GROUND FLOOR - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: KA
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-322	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 2 -TOP REINFORCEMENT PLAN		Drawing No: INT-PT-323		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





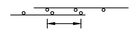
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N12.800 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

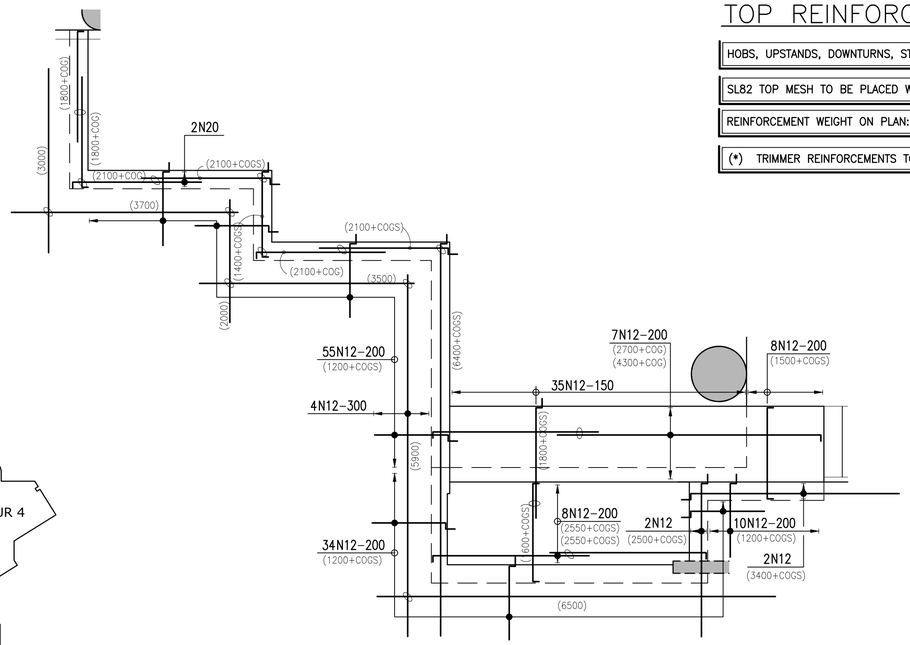


'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

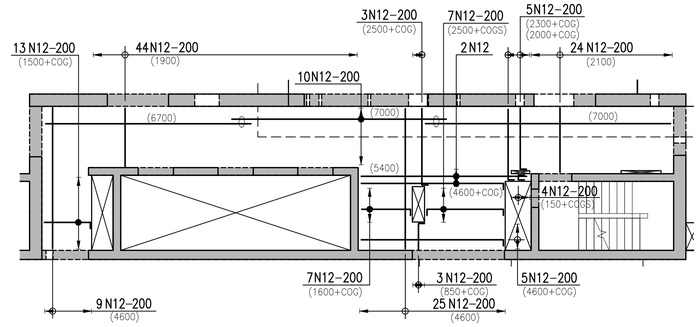


TOP REINFORCEMENT PLAN

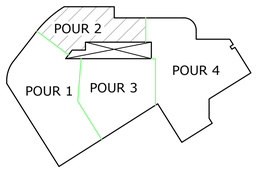
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- REINFORCEMENT WEIGHT ON PLAN: 3.50 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



DETAIL A
SCALE 1:50



DETAIL B
SCALE 1:100



KEY PLAN
GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: D

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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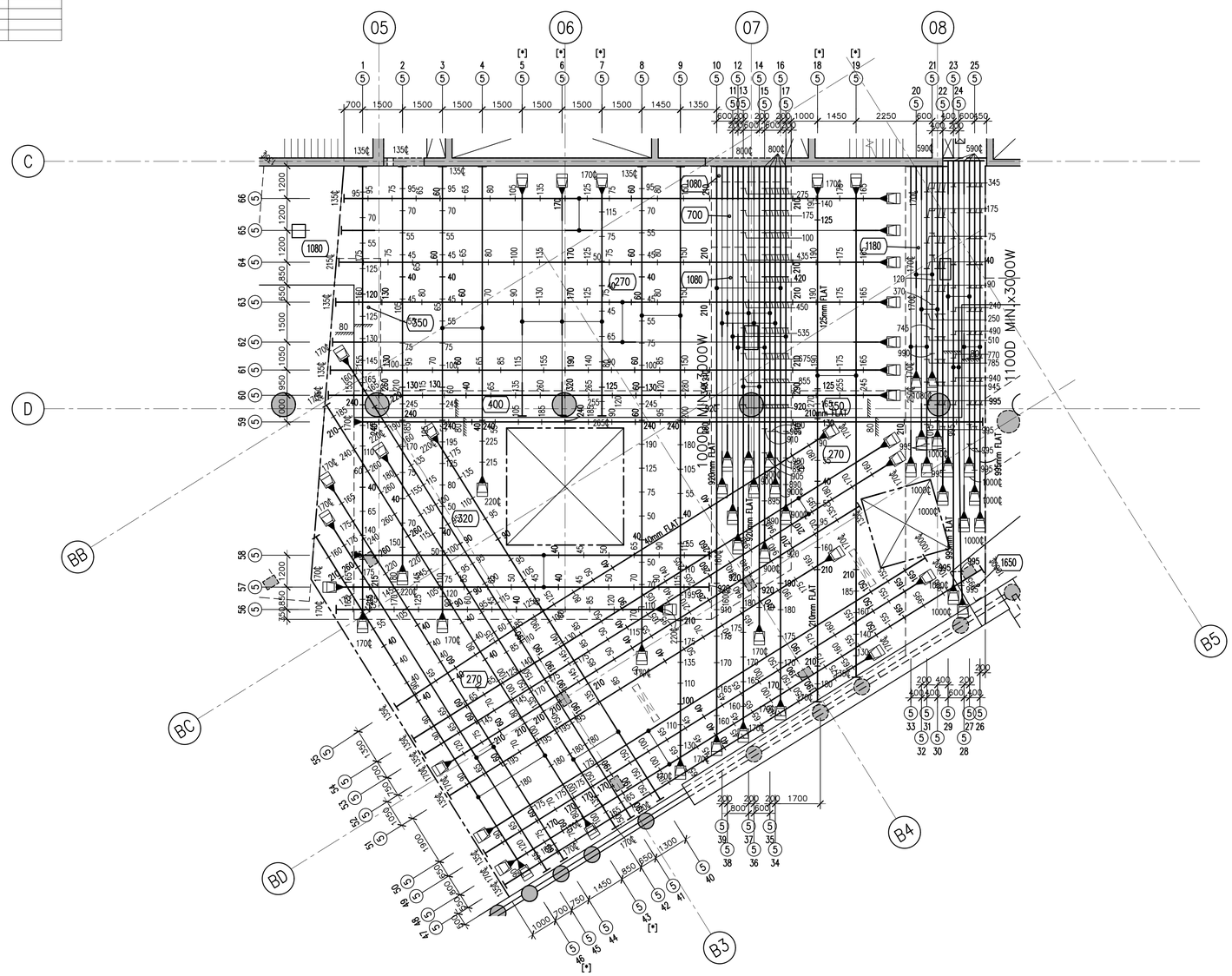
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: GROUND FLOOR - POUR 2 TOP REINFORCEMENT PLAN	Checked: KA
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-323	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND FLOOR-POUR 3-POST TENSIONING PLAN			Drawing No:	INT-PT-331
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

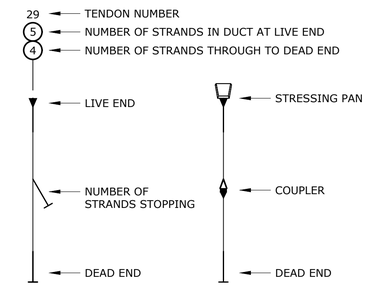


POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.41 T
PAN REINFORCEMENT WEIGHT: 1.539 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

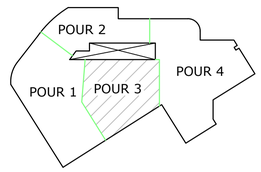
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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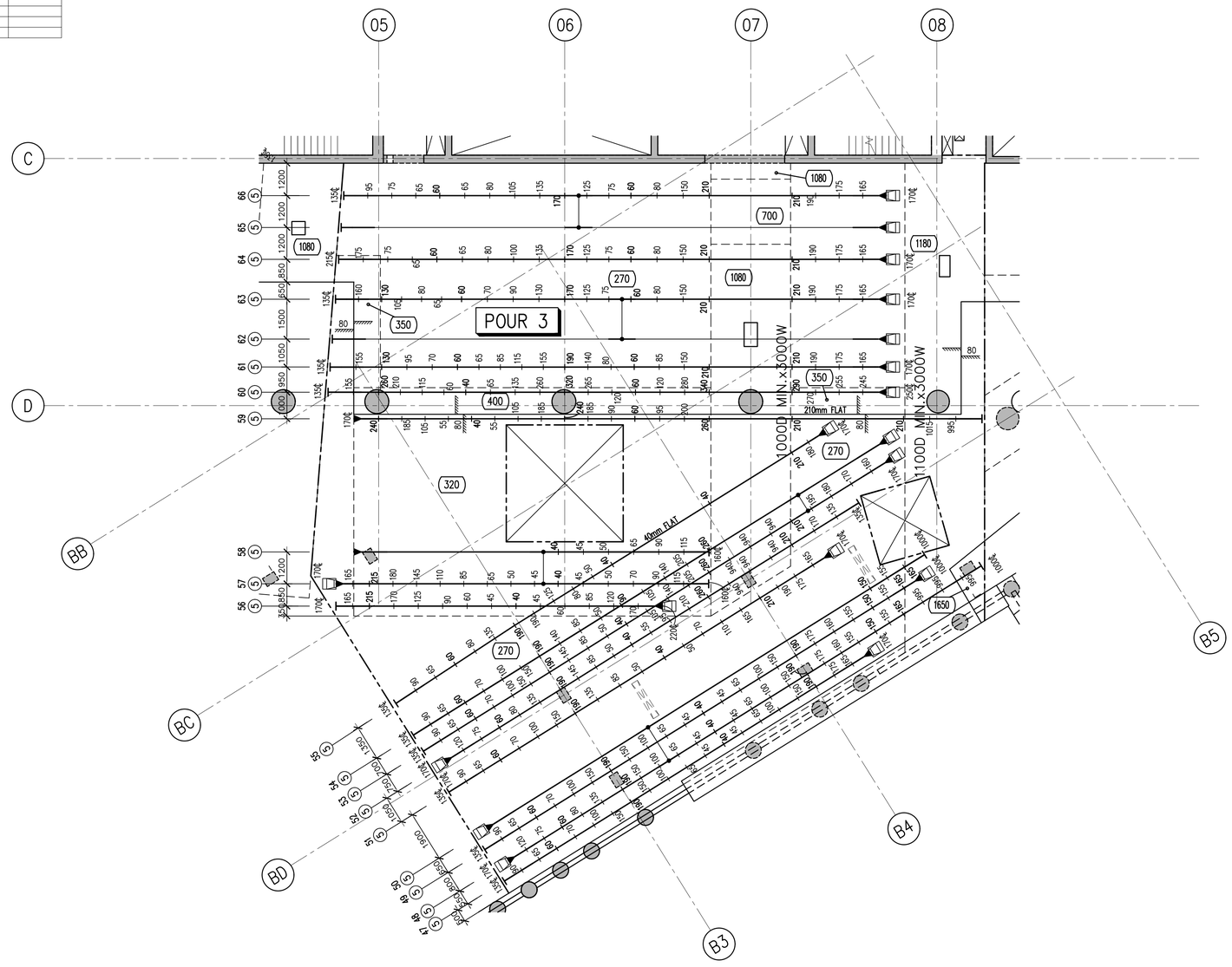


KEY PLAN
GROUND FLOOR

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: MK
Drawing Title: GROUND FLOOR - POUR 3 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-331	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F.-POUR 3-POST TENSIONING PLAN - H			Drawing No:	INT-PT-331
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



HORIZONTAL–POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.41 T

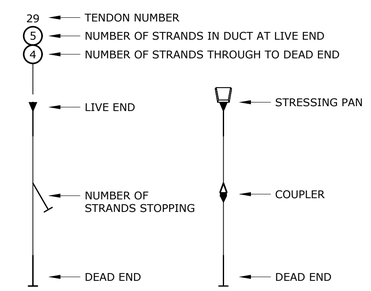
PAN REINFORCEMENT WEIGHT: 1.539 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION

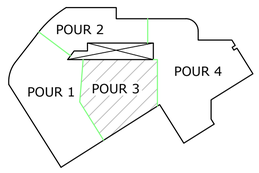
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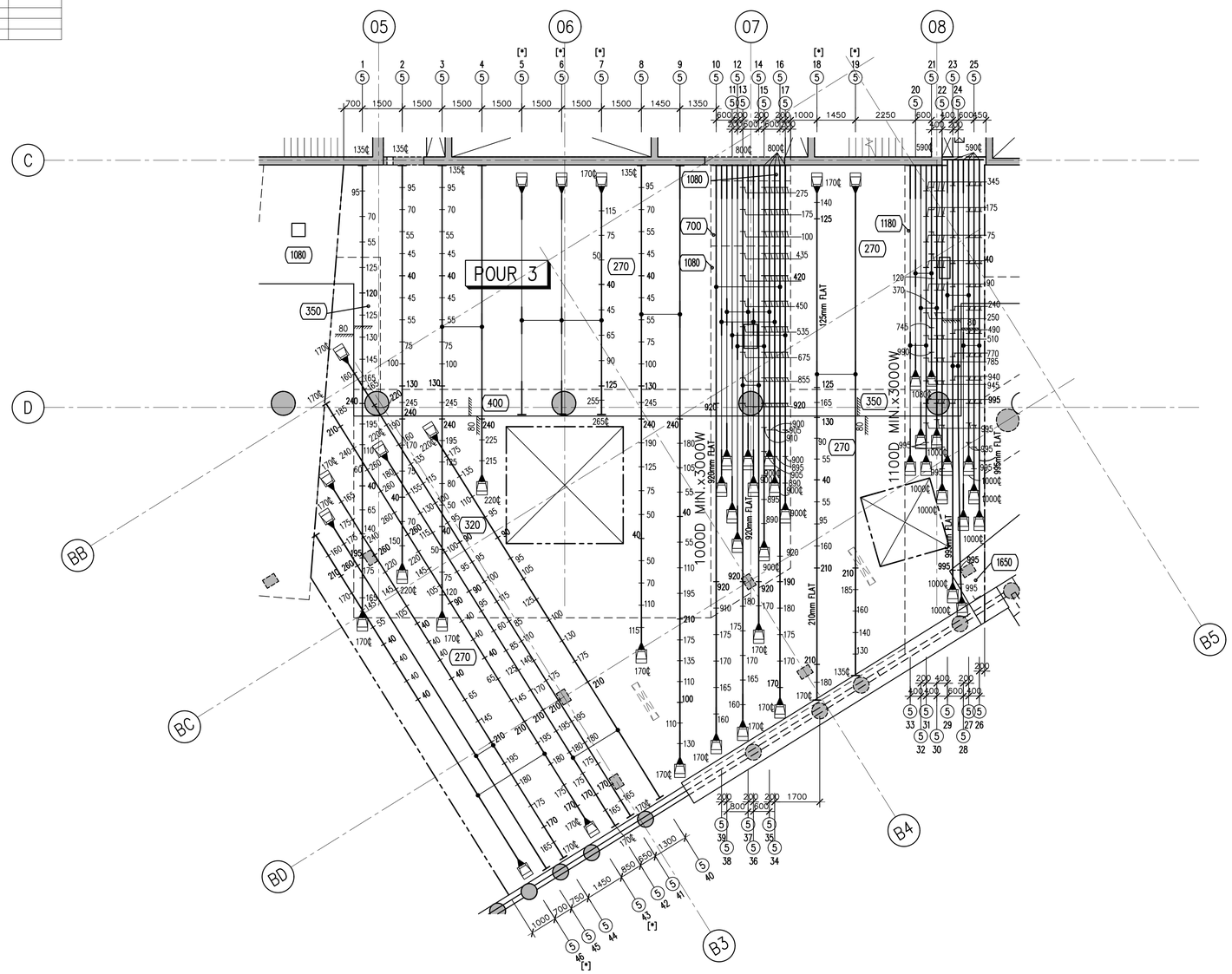
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: MK
Drawing Title: GROUND FLOOR - POUR 3 POST TENSIONING PLAN HORIZONTAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-331-H	Revision: 1



KEY PLAN
GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F.-POUR 3-POST TENSIONING PLAN - V		Drawing No: INT-PT-331		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



VERTICAL–POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.41 T

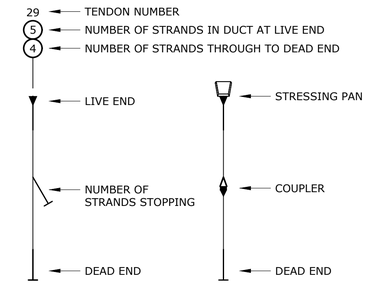
PAN REINFORCEMENT WEIGHT: 1.539 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

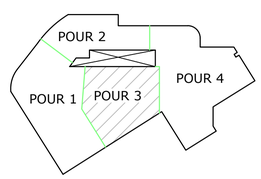
Rev	Date	Status
B	06-12-21	FOR CO-ORDINATION
~~A~~	~~08/12/21~~	~~AS FOR CONSTRUCTION~~

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F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

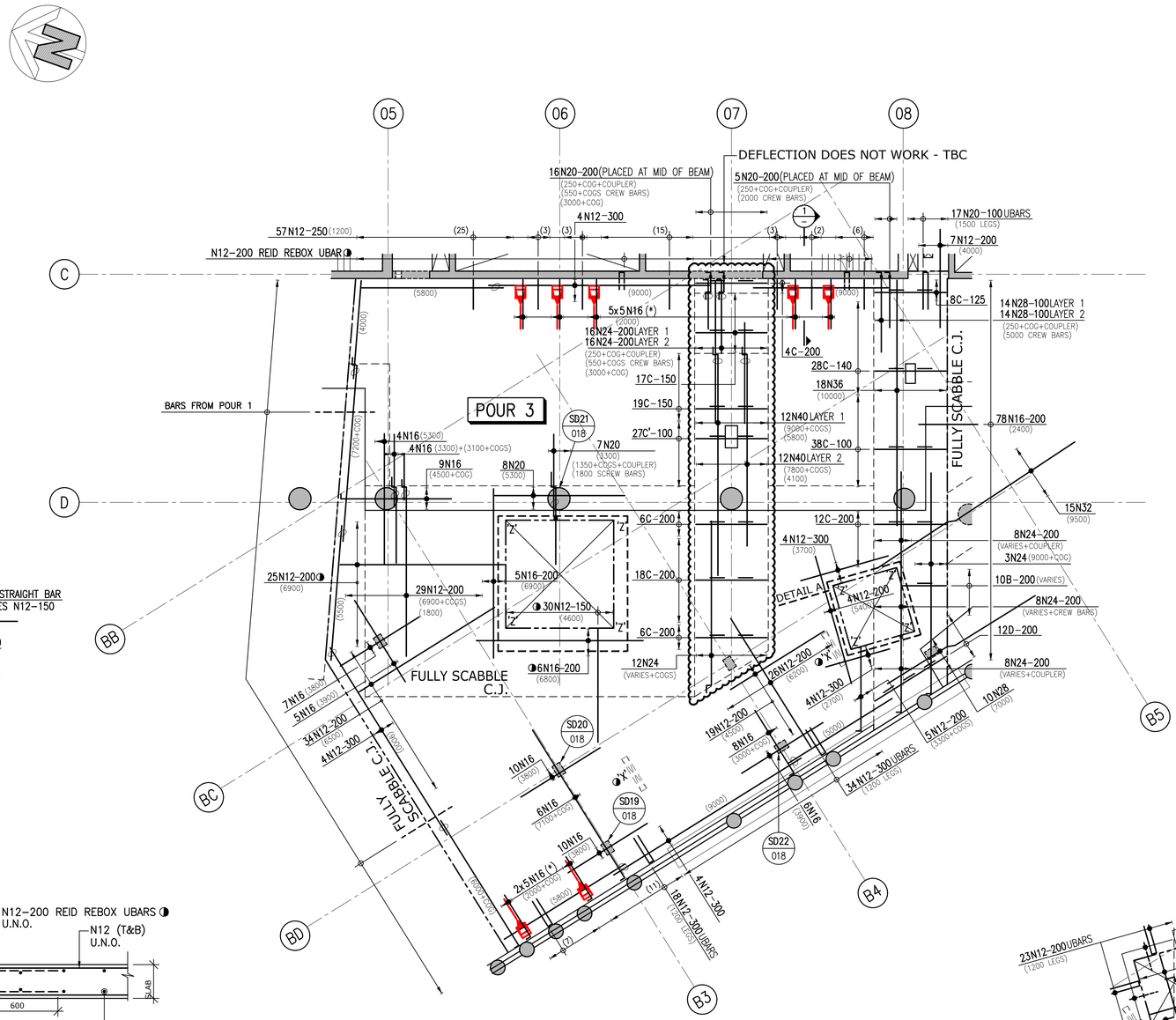


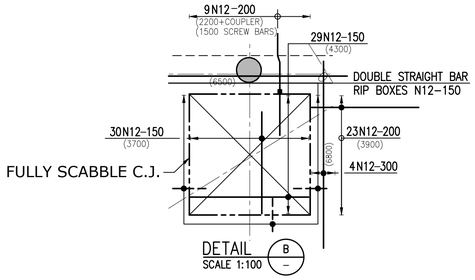
KEY PLAN
GROUND FLOOR

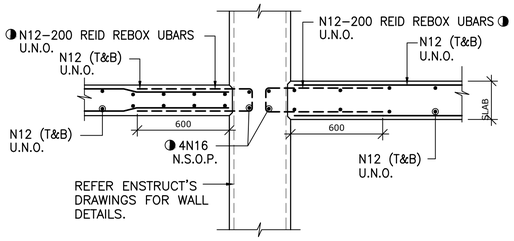
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: MK
Drawing Title: GROUND FLOOR - POUR 3 POST TENSIONING PLAN VERTICAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-331-V	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: GROUND F. - POUR 3-BOTTOM REINFORCEMENT PLAN		Drawing No:	INT-PT-332	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222







SECTION 1 SCALE 1:20

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 16.19 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

STIRRUP SCHEDULE

A	2 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C'	6 LEGS N20 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
D	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

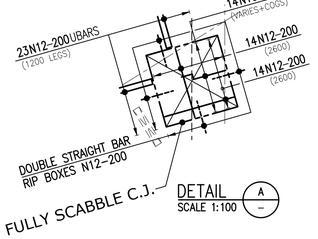


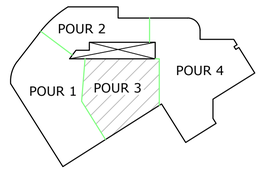
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG







KEY PLAN
GROUND FLOOR

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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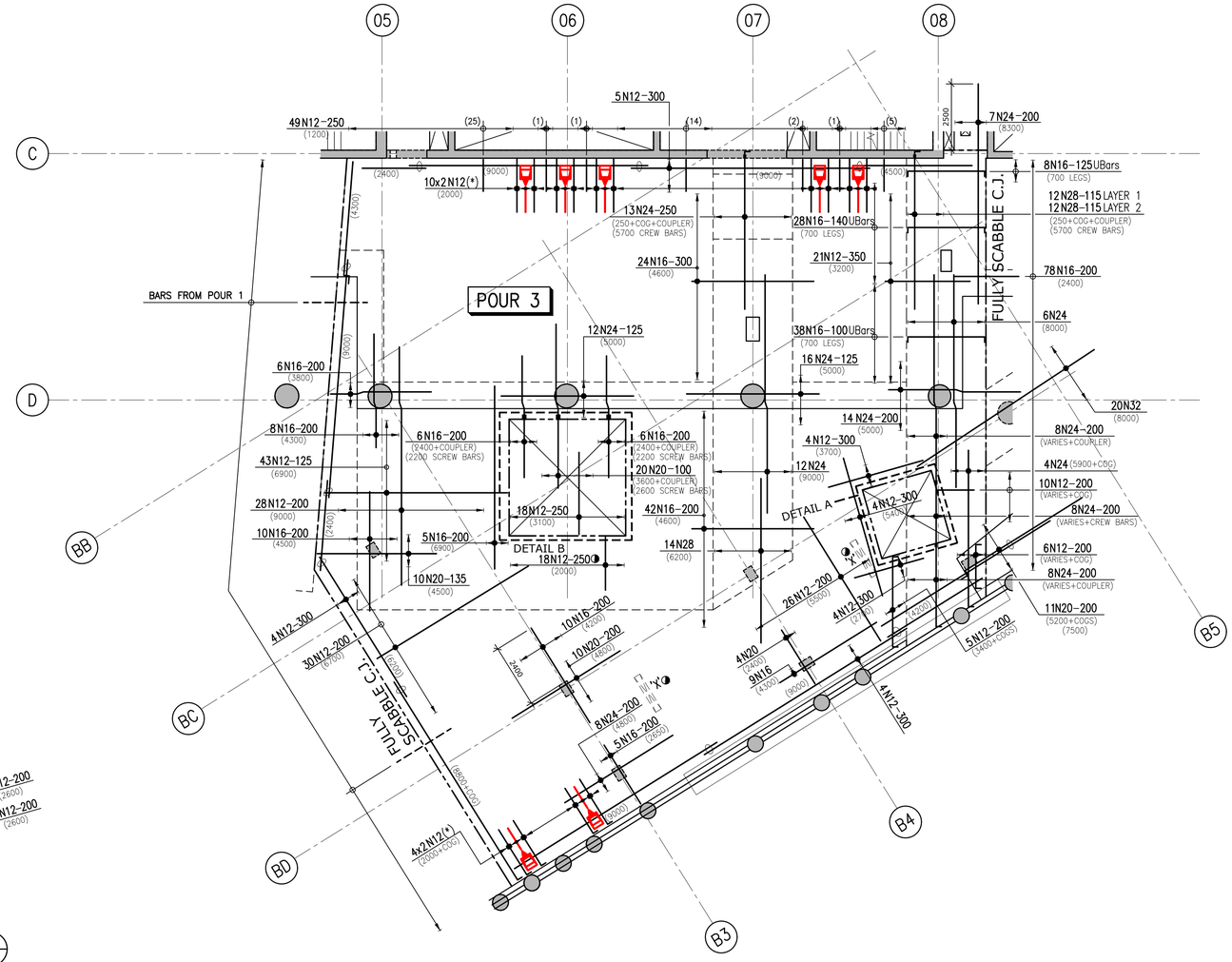
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Website: www.interspan.com.au

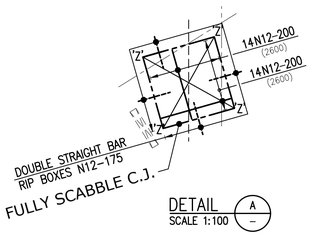
Project Title BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed PL Drawn CP
Drawing Title GROUND FLOOR - POUR 3 BOTTOM REINFORCEMENT PLAN	Checked KA Scale 1:100 @ A1
Project No. INPT20373	Date 20-12-21
Drawing No. INT-PT-332	Revision 1

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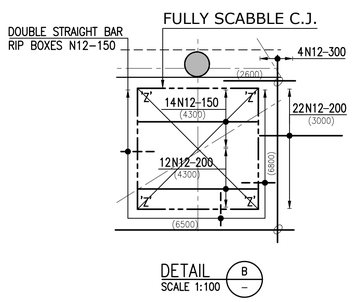
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 3 -TOP REINFORCEMENT PLAN			Drawing No: INT-PT-333	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222







DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100

TOP REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 8.88 T
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	35	30	40	30	40
BTM	30	35	30	40	30	40
SIDES	30	35	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

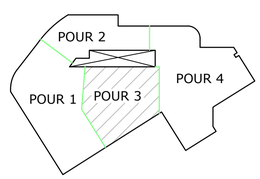
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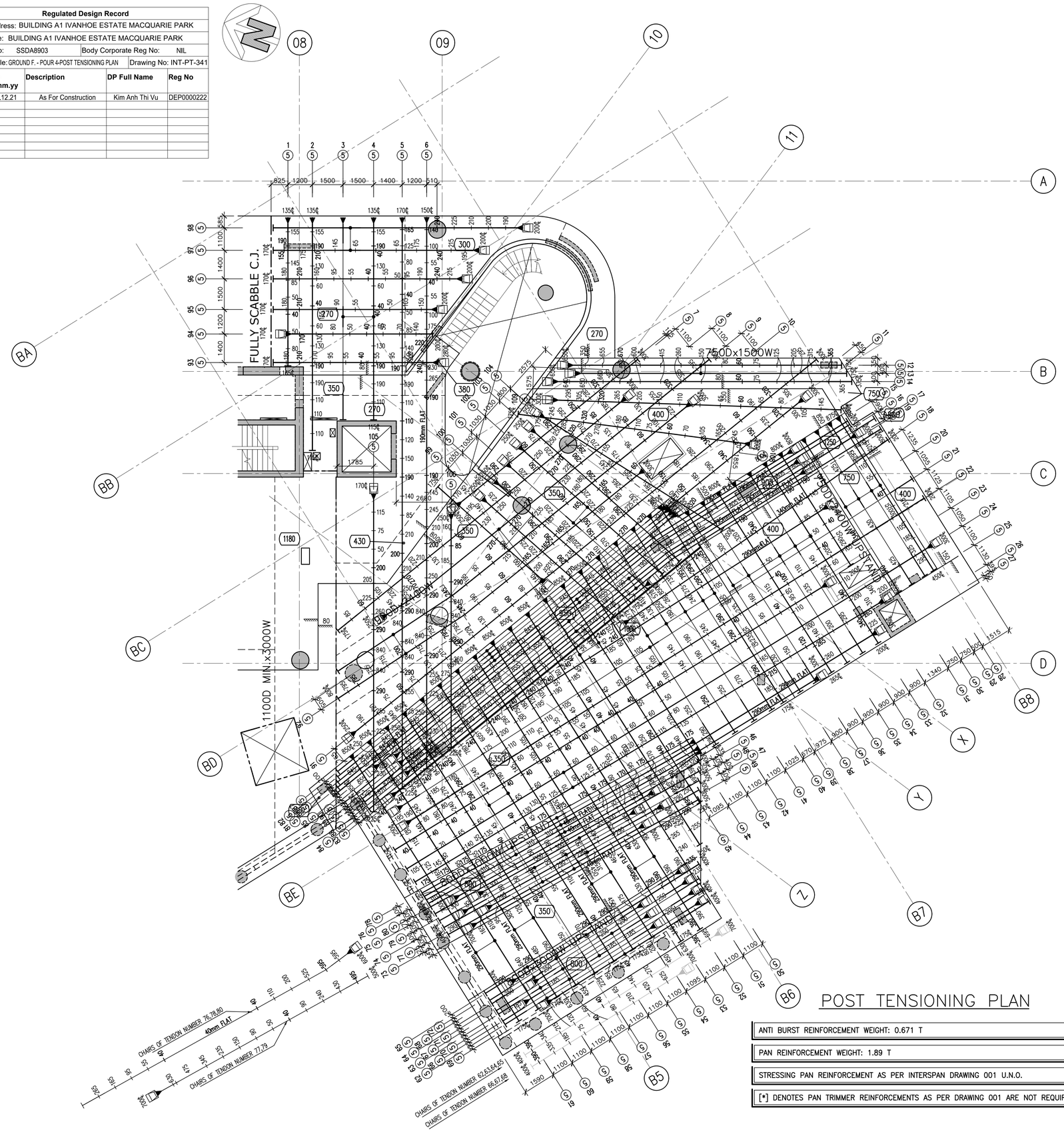
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: GROUND FLOOR - POUR 3 TOP REINFORCEMENT PLAN	Checked: KA
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-333	Revision: 1



KEY PLAN
GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 4-POST TENSIONING PLAN			Drawing No: INT-PT-341	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

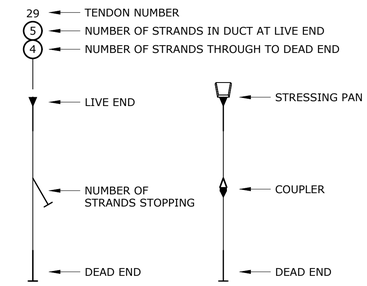


POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.671 T
PAN REINFORCEMENT WEIGHT: 1.89 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

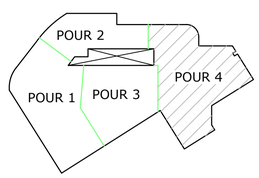


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
GROUND FLOOR

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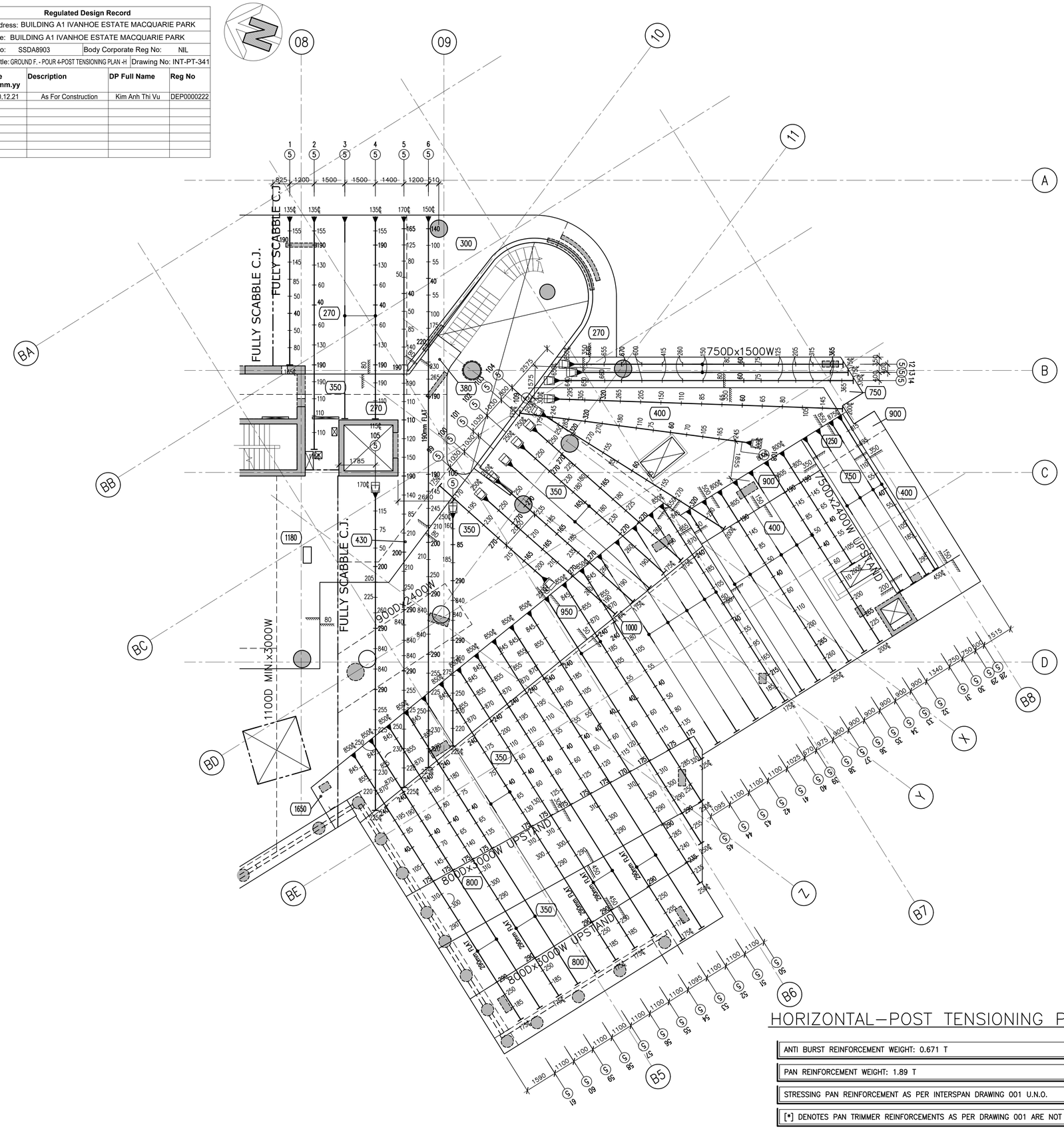
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: GROUND FLOOR - POUR 4 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20
Drawing No.: 341	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 4-POST TENSIONING PLAN -H	Drawing No: INT-PT-341		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

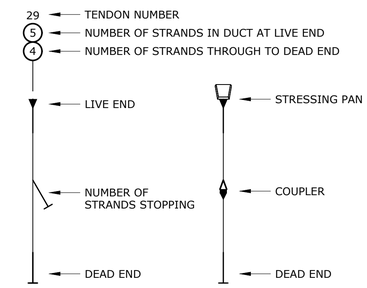


HORIZONTAL–POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.671 T
PAN REINFORCEMENT WEIGHT: 1.89 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

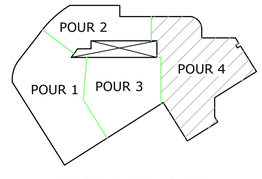
Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION

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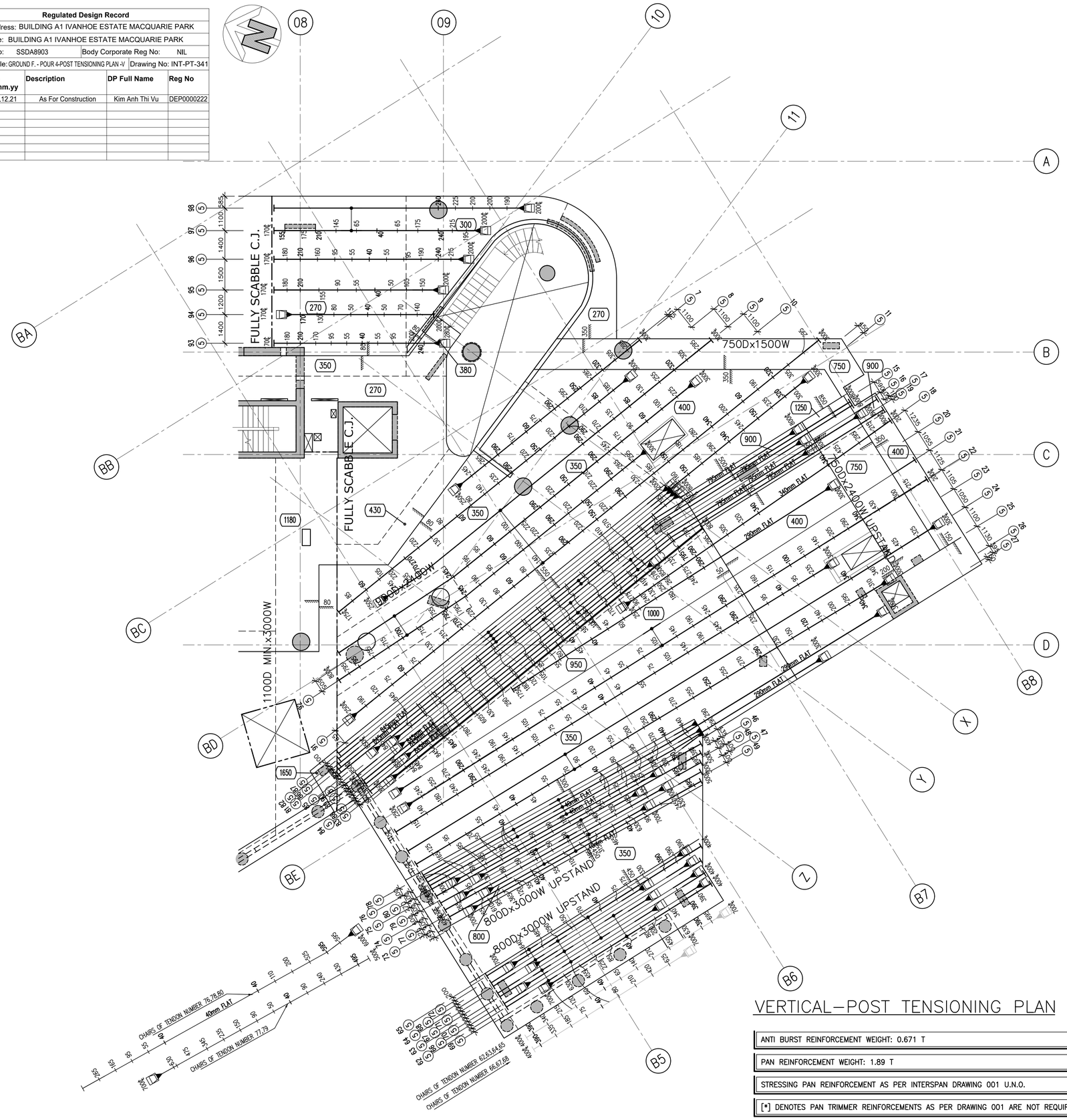


KEY PLAN
GROUND FLOOR

Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	PL
	Drawn: CP
Drawing Title: GROUND FLOOR - POUR 4 POST TENSIONING PLAN HORIZONTAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 341	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 4-POST TENSIONING PLAN -V			Drawing No: INT-PT-341	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

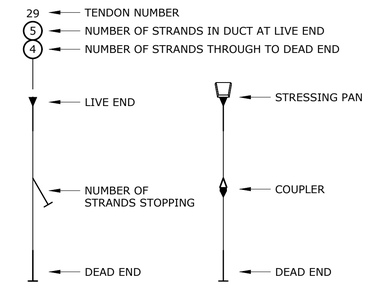


VERTICAL–POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.671 T
PAN REINFORCEMENT WEIGHT: 1.89 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

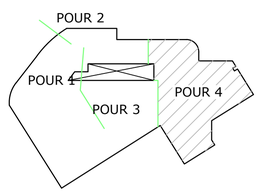


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION



KEY PLAN
GROUND FLOOR

Interspan

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Rosebery, NSW 2018
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F: +61 2 8307 0297

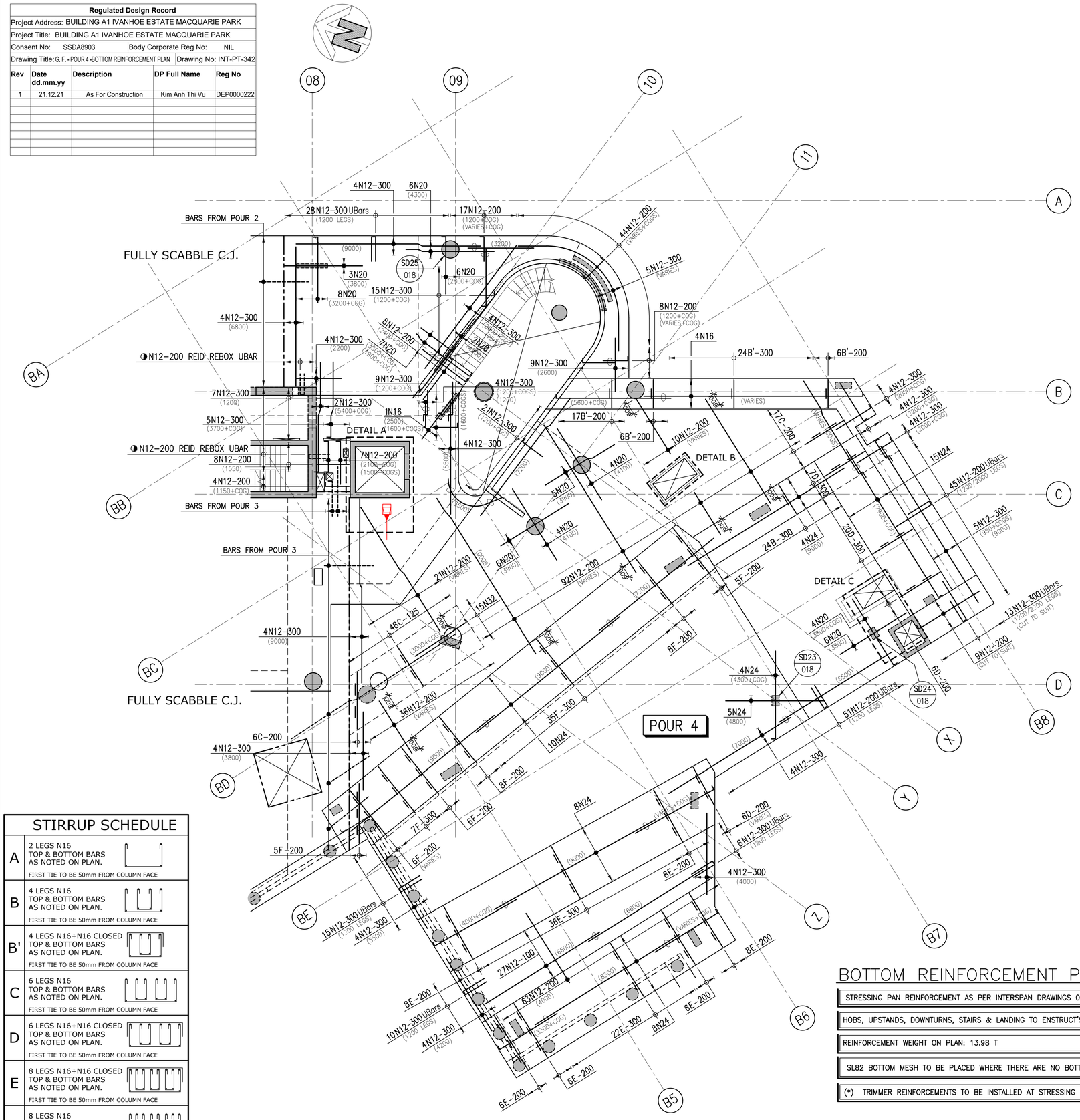
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P: +61 3 8396 9600
F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: GROUND FLOOR - POUR 4 POST TENSIONING PLAN VERTICAL	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 341	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: G. F. - POUR 4 -BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-342		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



STIRRUP SCHEDULE

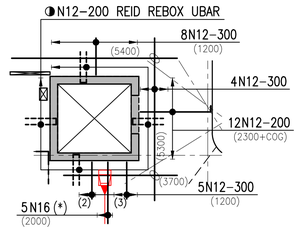
A	2 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
B	4 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
B'	4 LEGS N16+N16 CLOSED TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
C	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
D	6 LEGS N16+N16 CLOSED TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
E	8 LEGS N16+N16 CLOSED TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
F	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

BOTTOM REINFORCEMENT PLAN

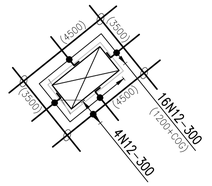
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 13.98 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



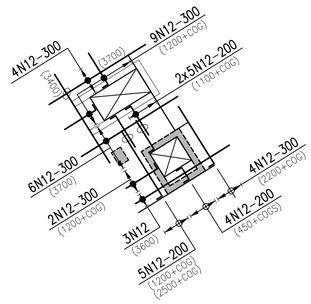
BAR LAYING SEQUENCE



DETAIL A / SCALE 1:100



DETAIL B / SCALE 1:100



DETAIL C / SCALE 1:100

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

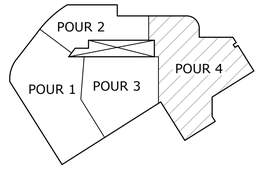
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E



KEY PLAN
GROUND FLOOR

Interspan

SYDNEY
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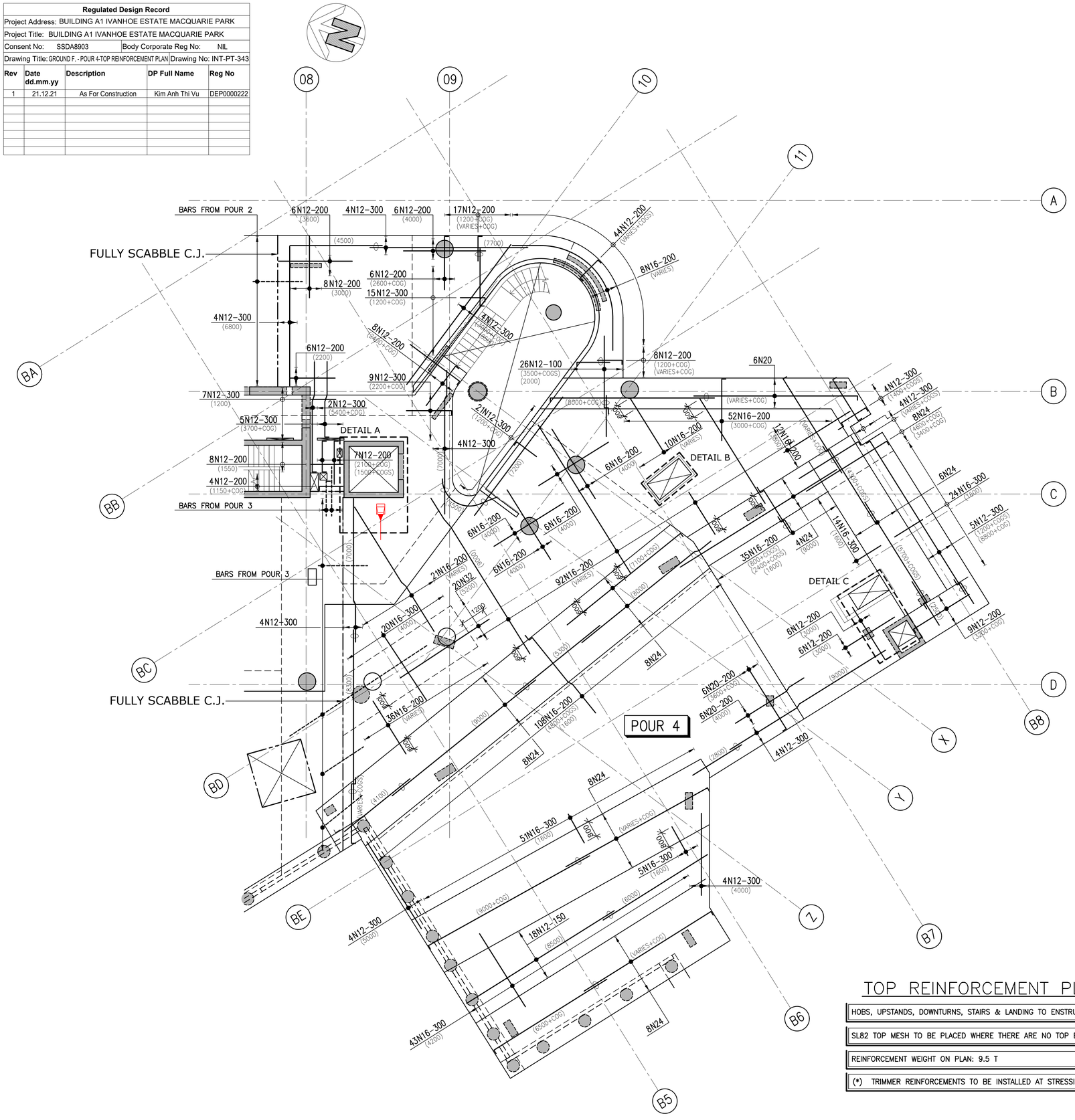
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: GROUND FLOOR - POUR 4 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-342	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: GROUND F. - POUR 4-TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-343
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

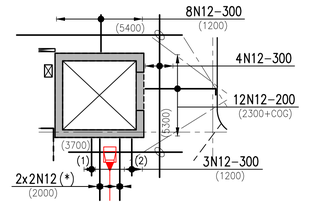


TOP REINFORCEMENT PLAN

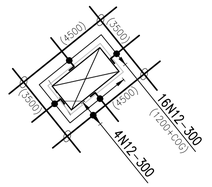
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS
- REINFORCEMENT WEIGHT ON PLAN: 9.5 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.



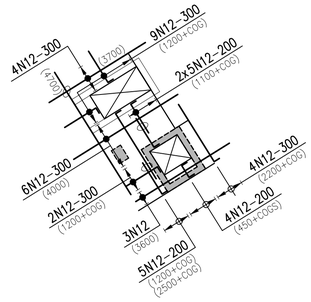
BAR LAYING SEQUENCE



DETAIL SCALE 1:100 (A)



DETAIL SCALE 1:100 (B)



DETAIL SCALE 1:100 (C)

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

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5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-100-00
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.100
REVISION: E

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

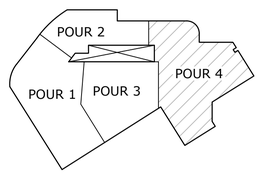
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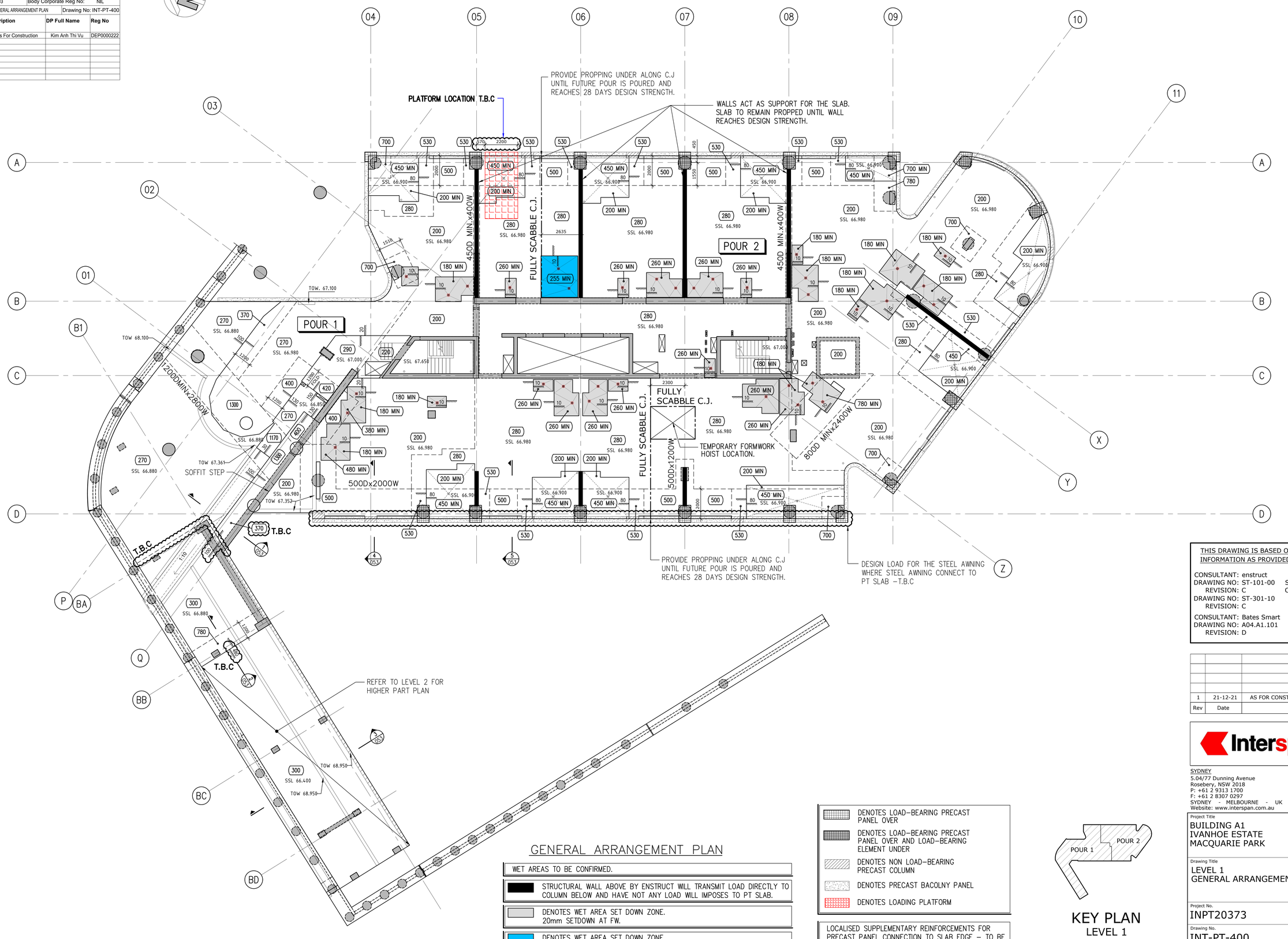
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: GROUND FLOOR - POUR 4 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-343	Revision: 1



KEY PLAN
GROUND FLOOR

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-400	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

- WET AREAS TO BE CONFIRMED.
- STRUCTURAL WALL ABOVE BY ENSTRUCT WILL TRANSMIT LOAD DIRECTLY TO COLUMN BELOW AND HAVE NOT ANY LOAD WILL IMPOSES TO PT SLAB.
- DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.
- DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

- DENOTES LOAD–BEARING PRECAST PANEL OVER
- DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER
- DENOTES NON LOAD–BEARING PRECAST COLUMN
- DENOTES PRECAST BACOLNY PANEL
- DENOTES LOADING PLATFORM

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

KEY PLAN
LEVEL 1

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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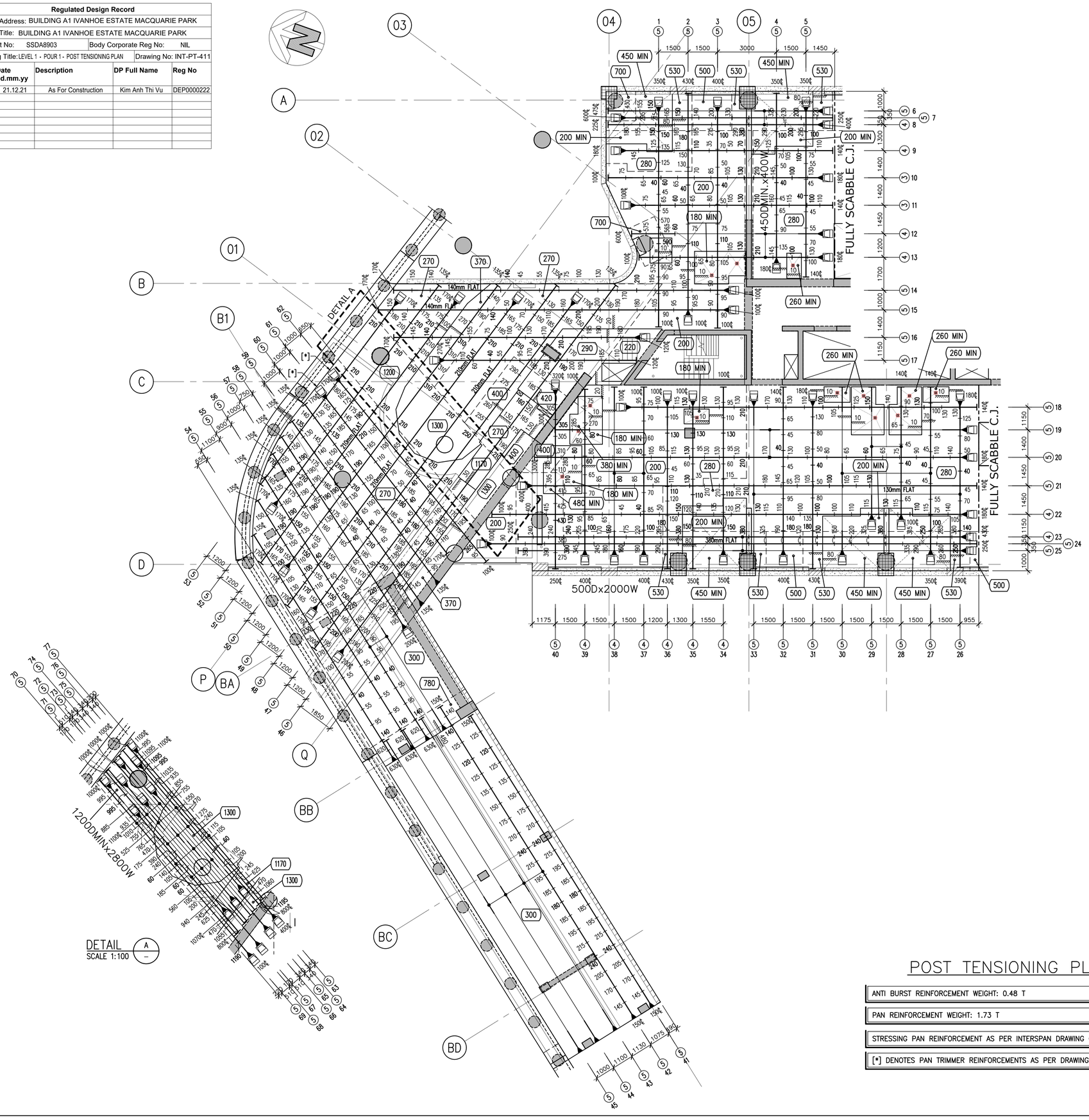
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 1 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-400	Revision: 1

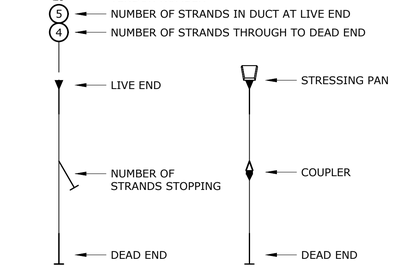
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-411		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

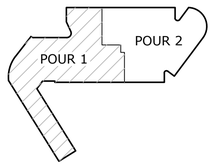


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 1

POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.48 T
- PAN REINFORCEMENT WEIGHT: 1.73 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 1 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: 411	Revision: 1

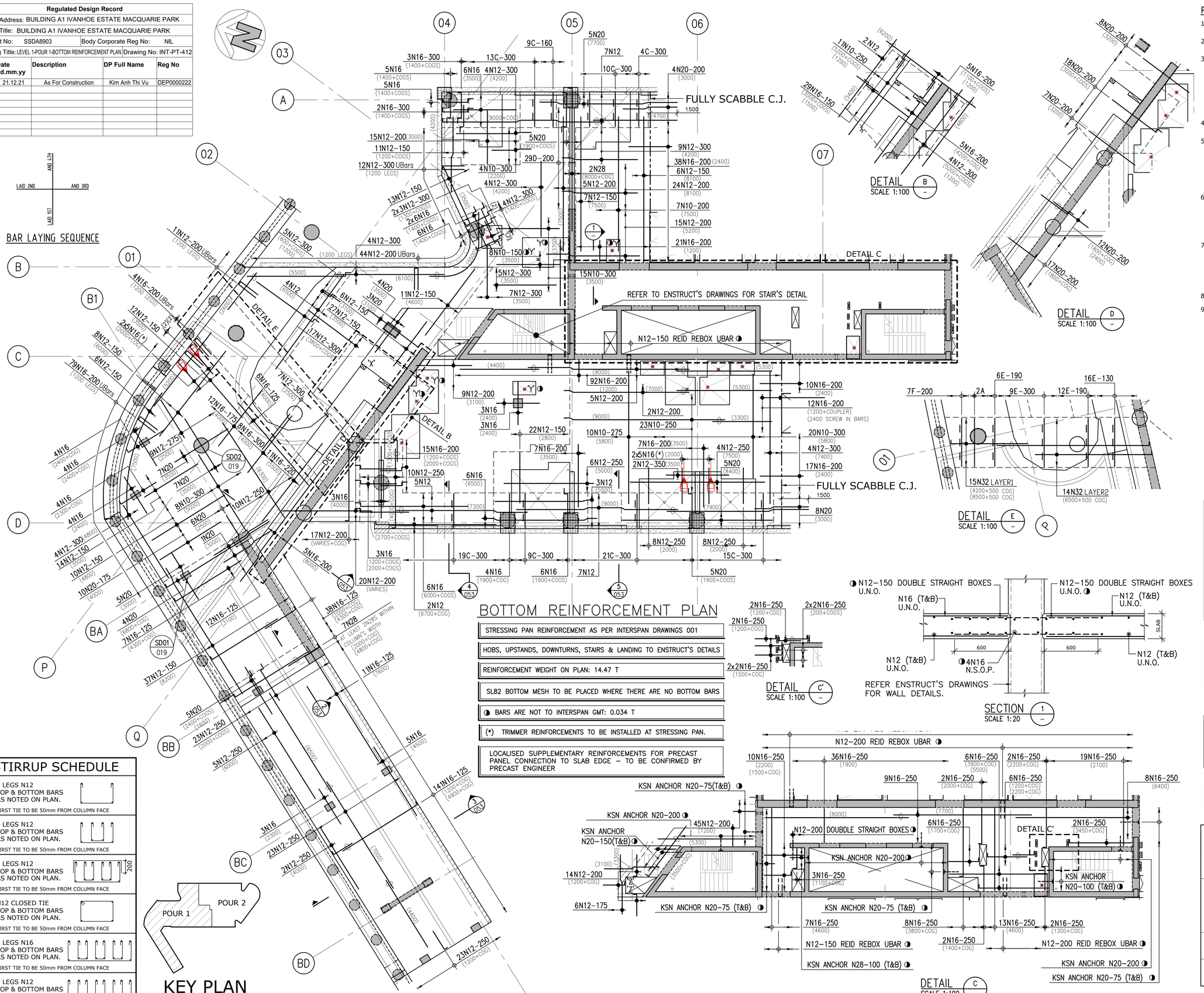
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 1-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No:	INT-PT-412	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

BAR LAYING SEQUENCE

LAID 2ND, AND 4TH, AND 3RD, LAID 1ST



KEY PLAN
LEVEL 1

STIRRUP SCHEDULE

A	2 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
D	N12 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
E	8 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE
F	8 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 14.47 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.034 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

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THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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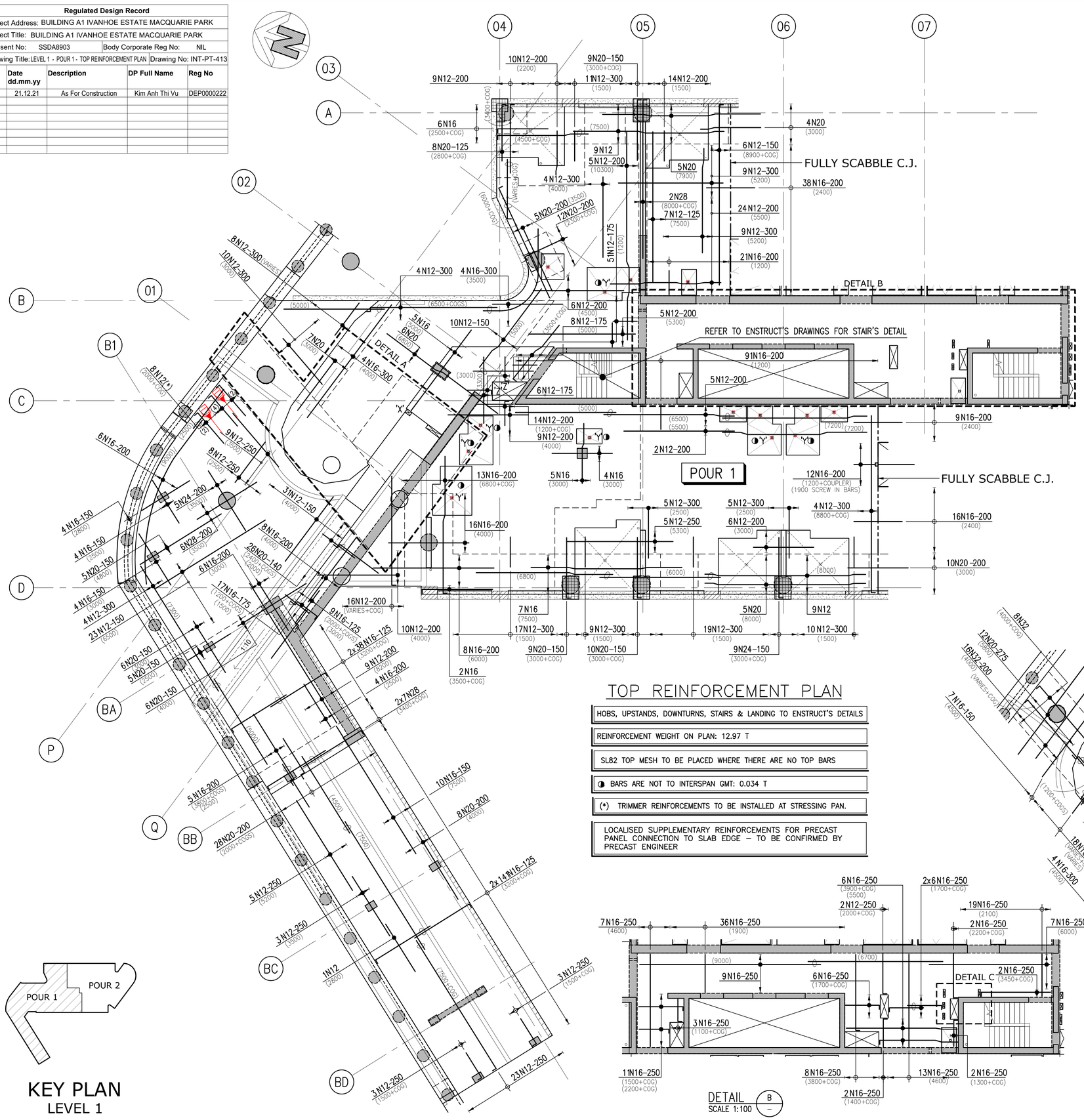
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 1 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-412	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-413		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 12.97 T

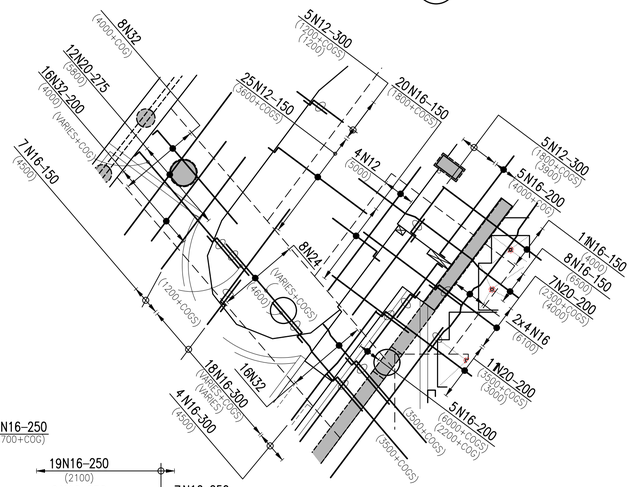
SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS

◑ BARS ARE NOT TO INTERSPAN GMT: 0.034 T

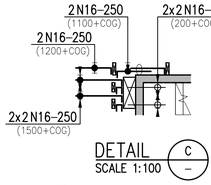
(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

DETAIL B SCALE 1:100



DETAIL A SCALE 1:100



DETAIL C SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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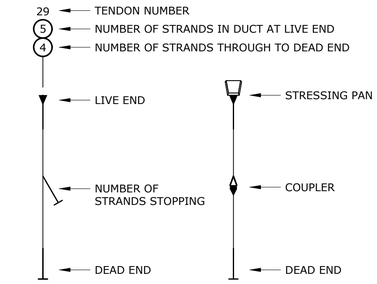
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LEVEL 1 - POUR 1 TOP REINFORCEMENT PLAN	Checked: KA
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-413	Revision: 1

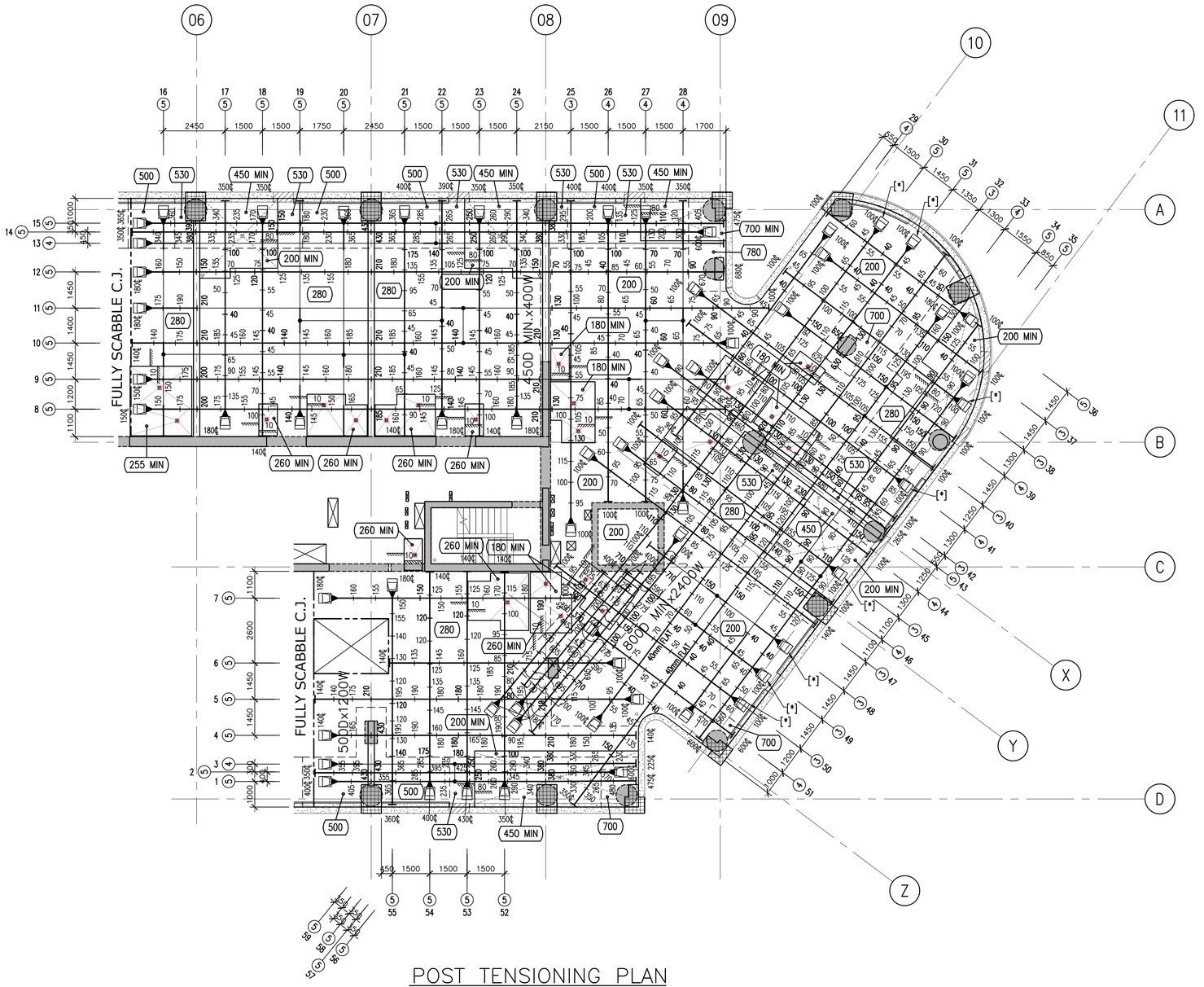
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-421	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 1.37 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

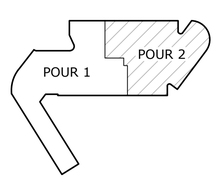
[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 1

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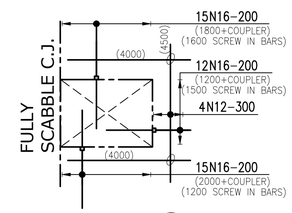
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F: +61 3 8396 9640

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Website: www.interspan.com.au

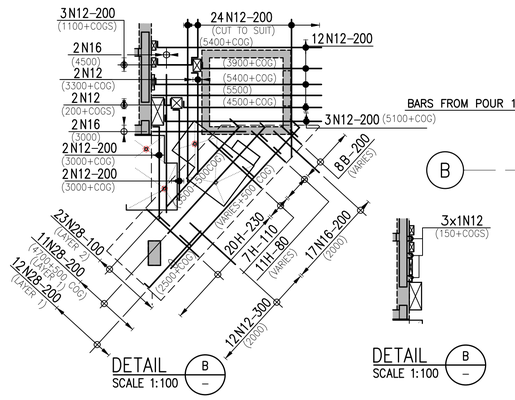
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 1 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: 421	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-422		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

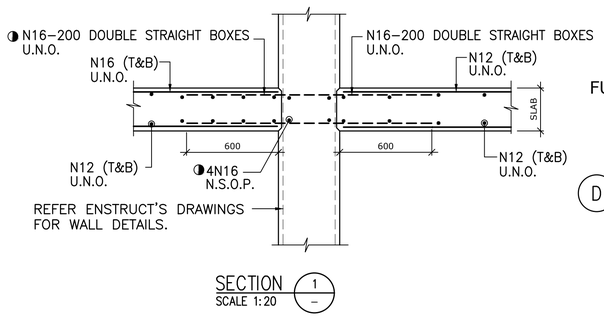


DETAIL A / SCALE 1:100



DETAIL B / SCALE 1:100

DETAIL C / SCALE 1:100



SECTION 1 / SCALE 1:20



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

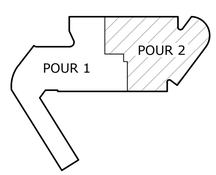
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

STIRRUP SCHEDULE

A	2 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B'	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	200
H	6 LEGS N16 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	250
D	N12 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 8.4 T
- SL82 BOTTOM MESH TO BE PLACED WHERE THERE ARE NO BOTTOM BARS
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.11 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 1

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 1 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-422	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-411		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





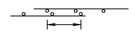
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
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   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

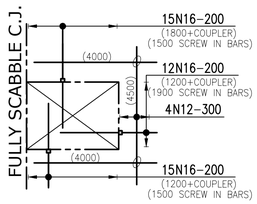


'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

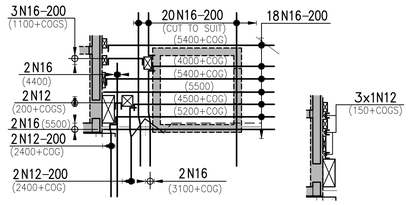


'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



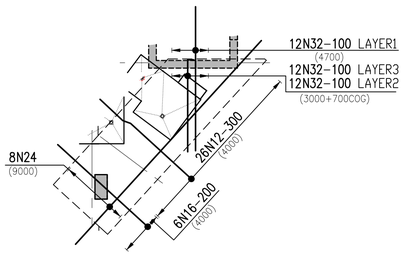


DETAIL A
SCALE 1:100

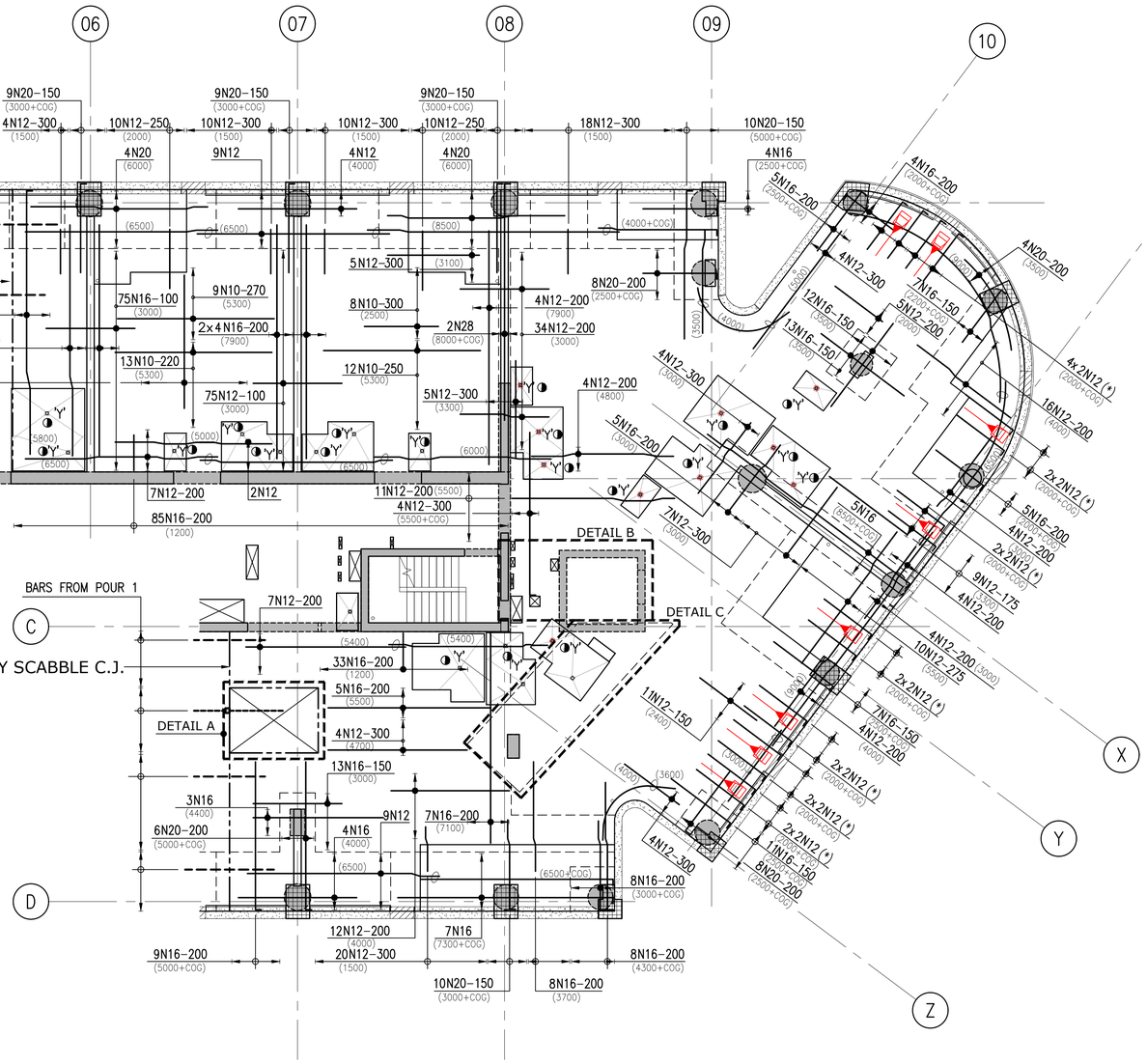


DETAIL B
SCALE 1:100

DETAIL B
SCALE 1:100



DETAIL C
SCALE 1:100



TOP REINFORCEMENT PLAN

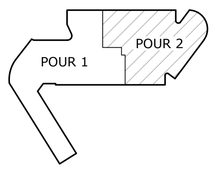
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 6.0 T

SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP BARS

◑ BARS ARE NOT TO INTERSPAN GMT: 0.11 T

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 1

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-101-00 ST-301-00 ST-002-05
REVISION: C C B
DRAWING NO: ST-301-10
REVISION: C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.101
REVISION: D

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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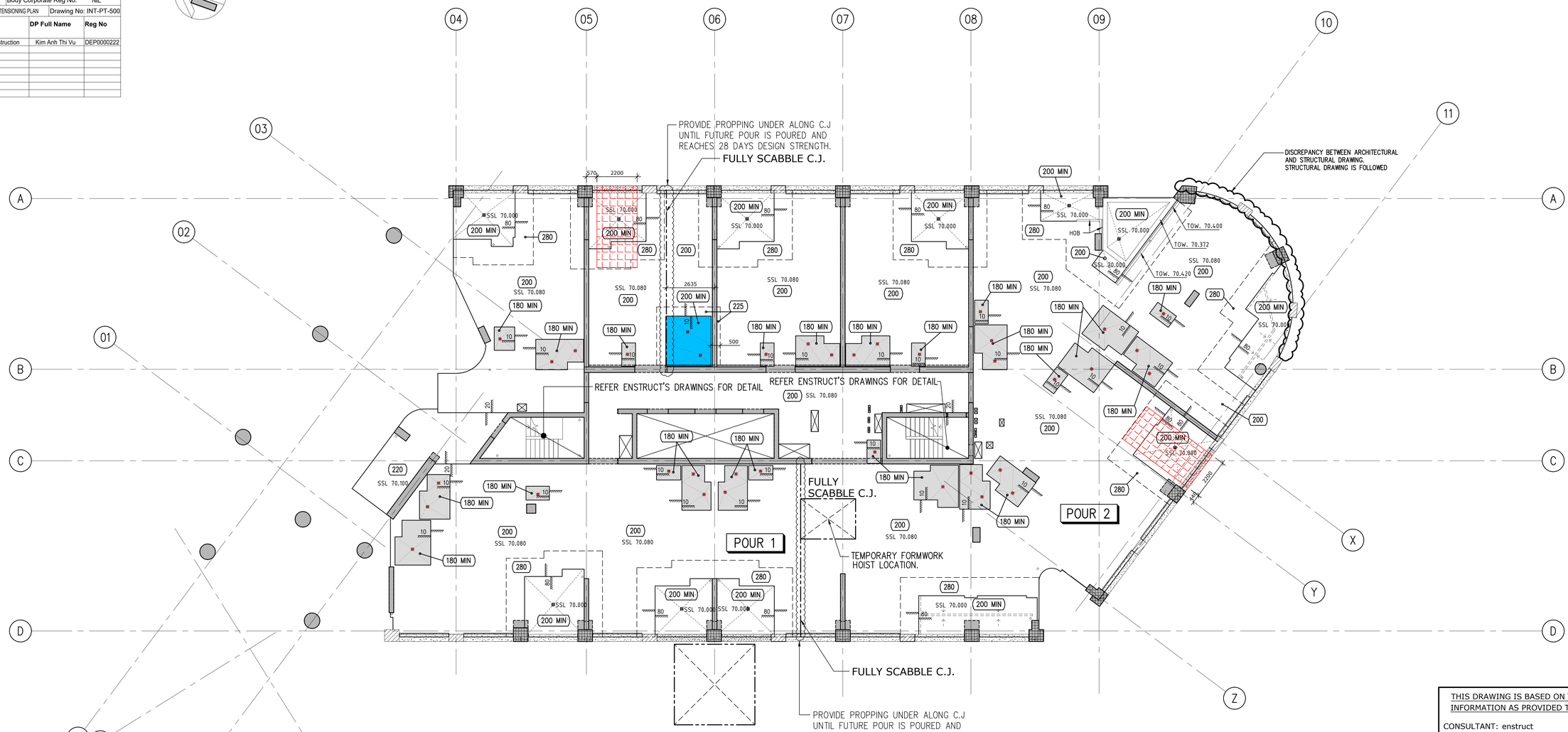
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LEVEL 1 - POUR 2 TOP REINFORCEMENT PLAN	Checked: KA
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-423	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 1 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-500	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

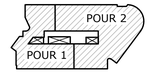


GENERAL ARRANGEMENT PLAN

- WET AREAS TO BE CONFIRMED.
- DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.
- DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

- DENOTES LOAD–BEARING PRECAST PANEL OVER
- DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER
- DENOTES NON LOAD–BEARING PRECAST COLUMN
- DENOTES PRECAST BACOLNY PANEL
- DENOTES LOADING PLATFORM

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 2

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-102-00 ST-302-00
REVISION: E C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.102
REVISION: F

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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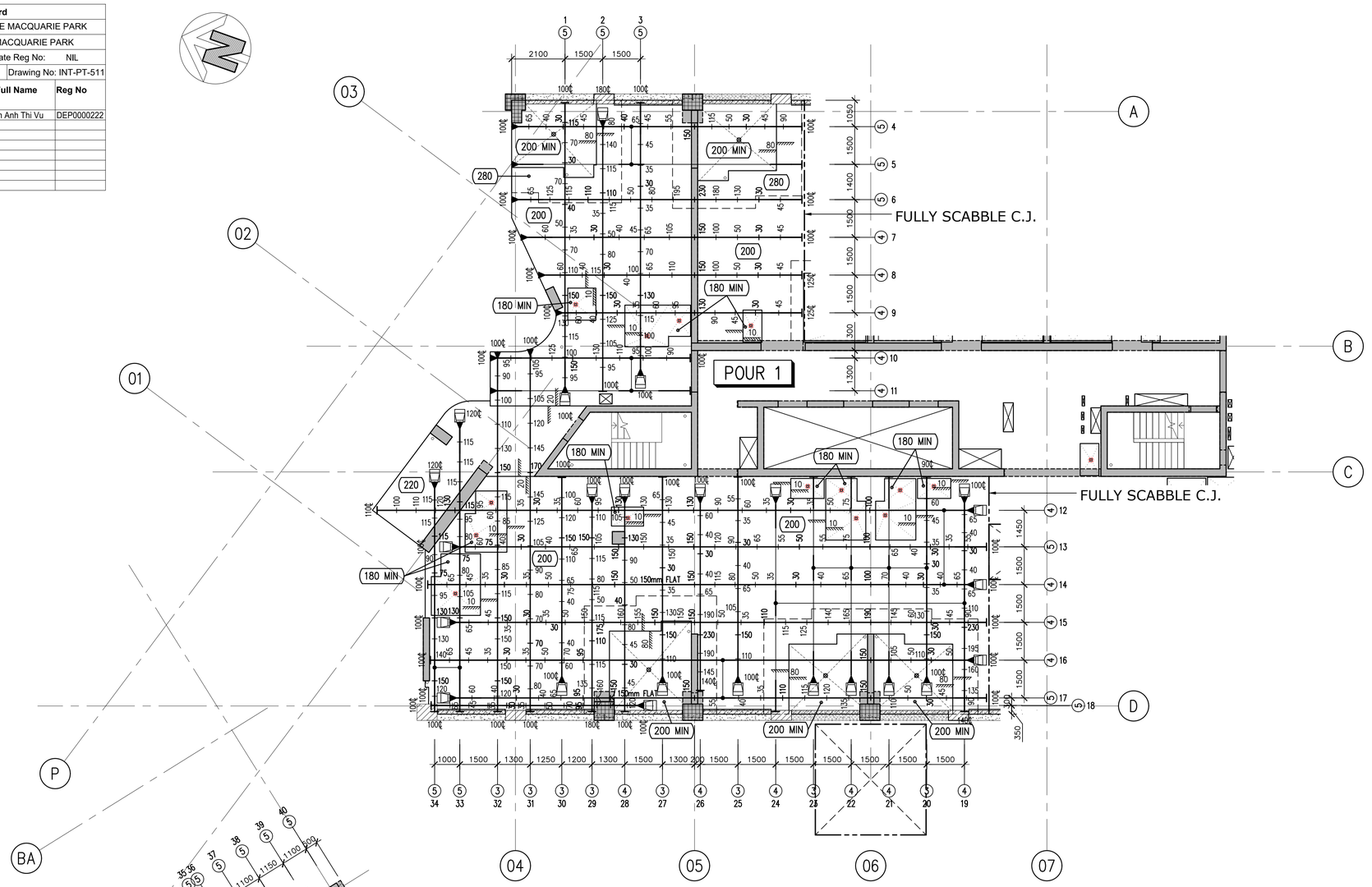
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6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: TT
	Drawn: TX
Drawing Title: LEVEL 2 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-500	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 2 - POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-511		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

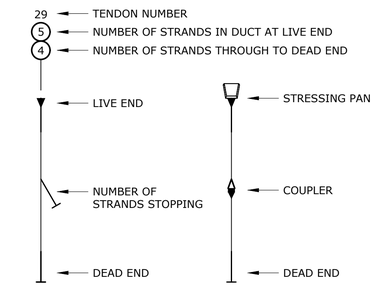


POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.25 T
PAN REINFORCEMENT WEIGHT: 0.675 T
STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-102-00 ST-302-00
REVISION: E C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.102
REVISION: F

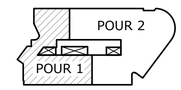
1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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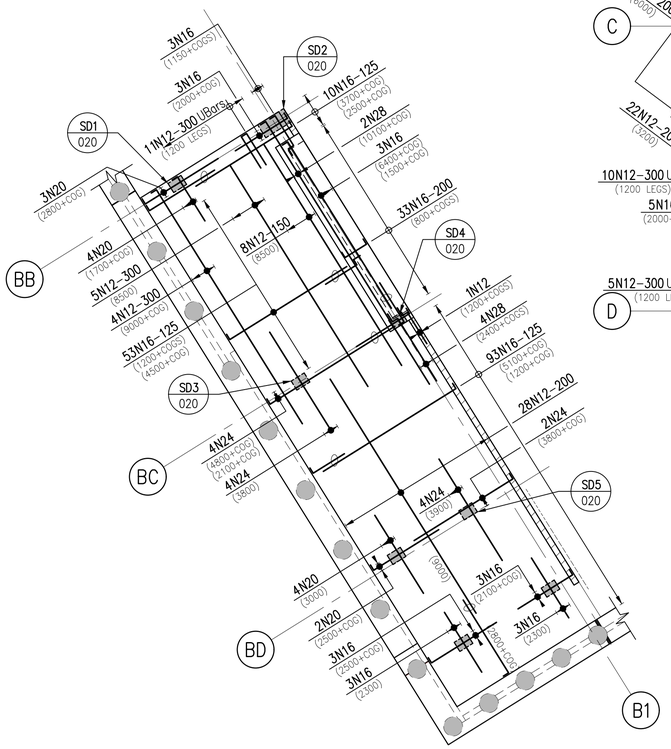
KEY PLAN
LEVEL 2

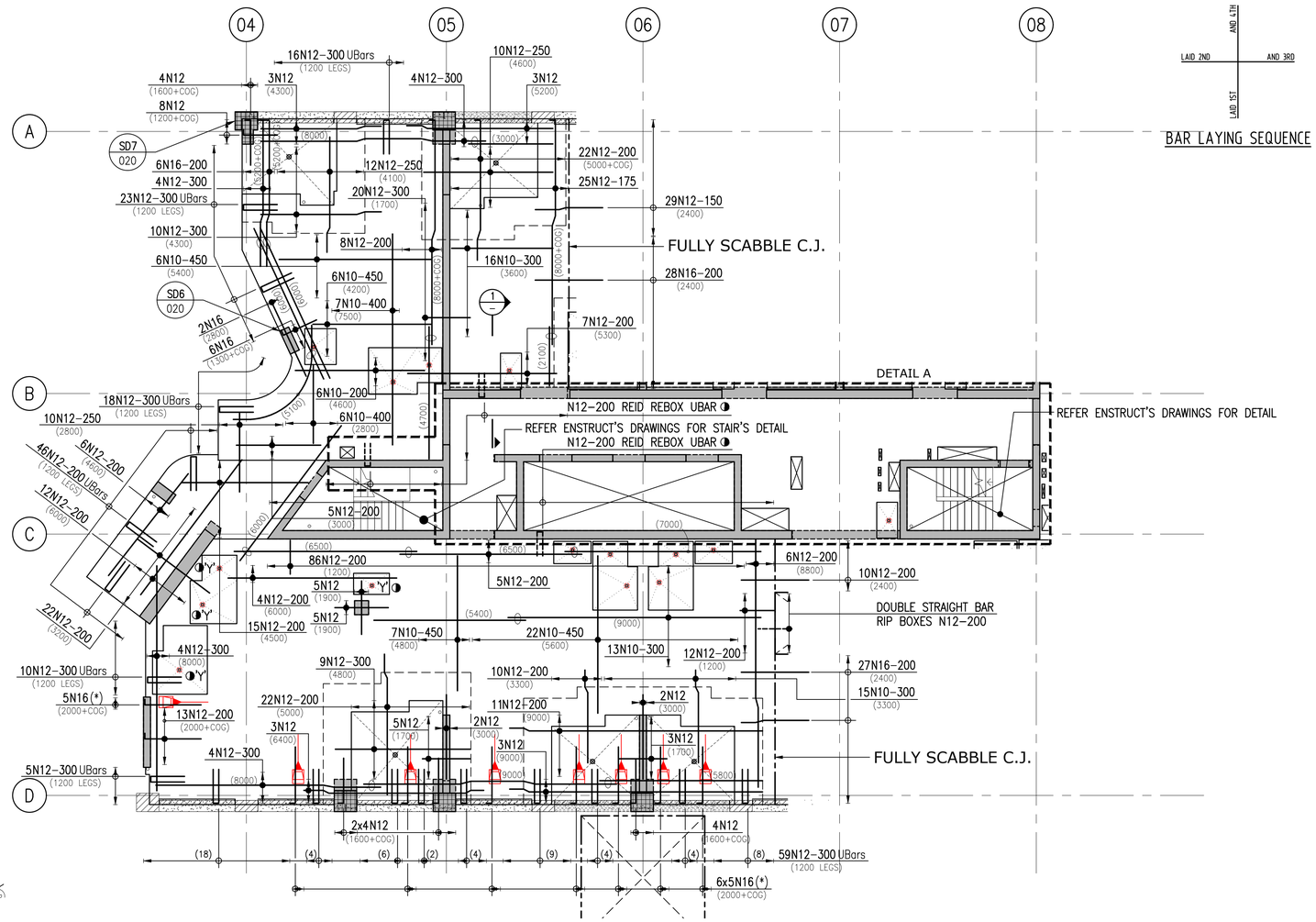
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 2 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-511	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 2-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-512		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222







BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   17 - DENOTES NUMBER OF BARS IN GROUP
   N20 - DENOTES BAR GRADE AND DIAMETER
   250 - DENOTES BAR SPACINGS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
   (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   200 - DENOTES SPACING OF STIRRUP SETS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

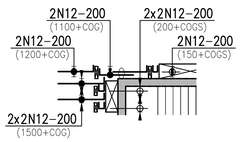
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

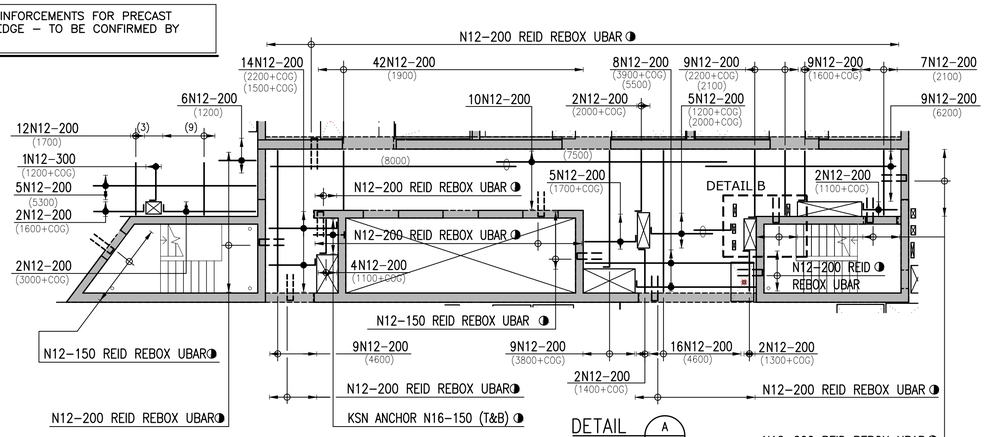
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

BOTTOM REINFORCEMENT PLAN

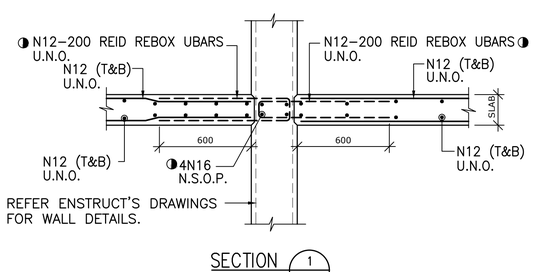
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 6.58 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



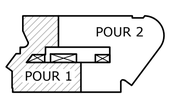
DETAIL B SCALE 1:100



DETAIL A SCALE 1:100



SECTION 1 SCALE 1:20



KEY PLAN
LEVEL 2

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-102-00 ST-302-00
REVISION: E C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.102
REVISION: F

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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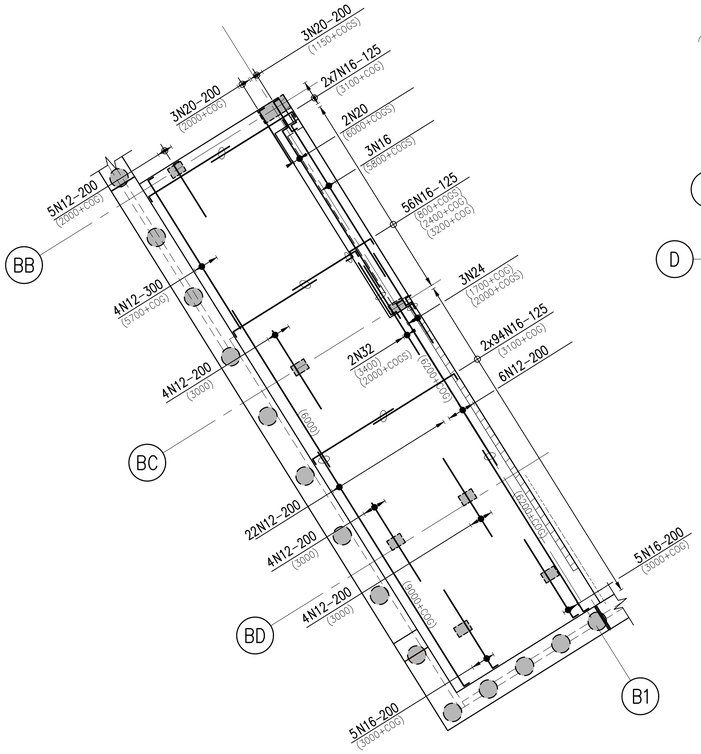
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F: +61 3 8396 9640

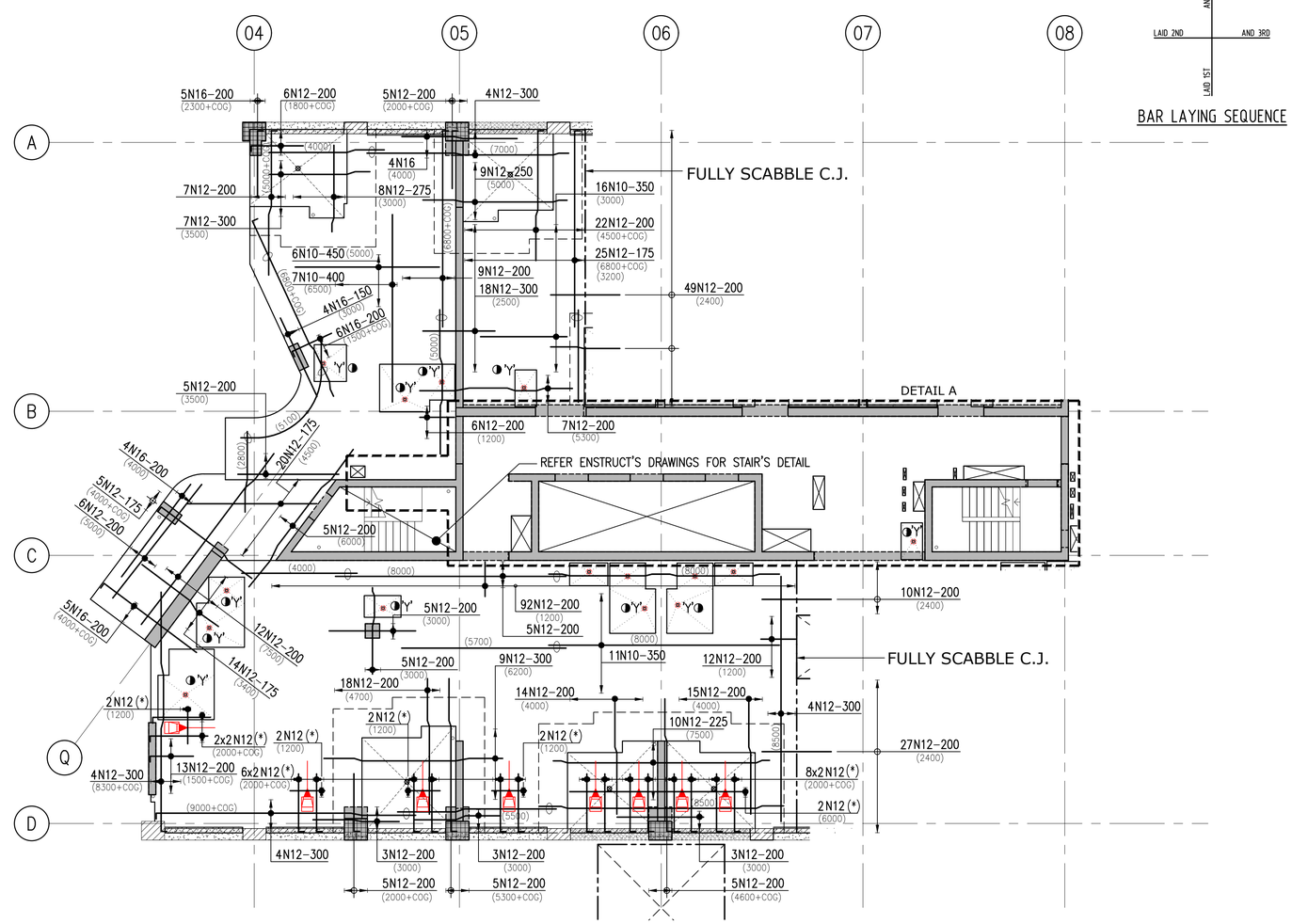
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Website: www.interspan.com.au

Project Title BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed PL
	Drawn HN1
Drawing Title LEVEL 2 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked CC
	Scale 1:100 @ A1
Project No. INPT20373	Date 21-12-21
Drawing No. INT-PT-512	Revision 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 2 - POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-513		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222







BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

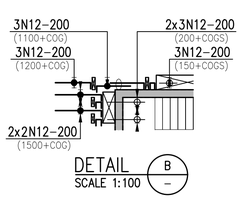
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-102-00 ST-302-00
REVISION: E C

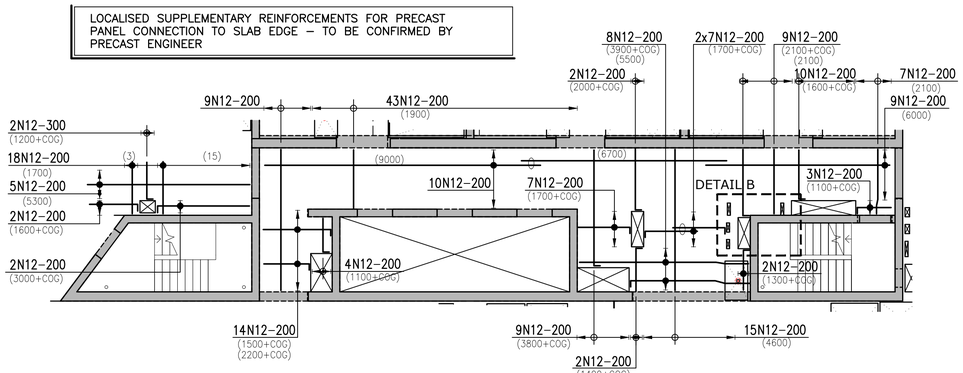
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.102
REVISION: F

TOP REINFORCEMENT PLAN

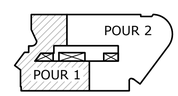
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 5.59 T
- SL82 TOP MESH TO BE PLACED WHERE THERE ARE NO TOP REINFORCEMENT
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL B SCALE 1:100



DETAIL A SCALE 1:100



KEY PLAN
LEVEL 2

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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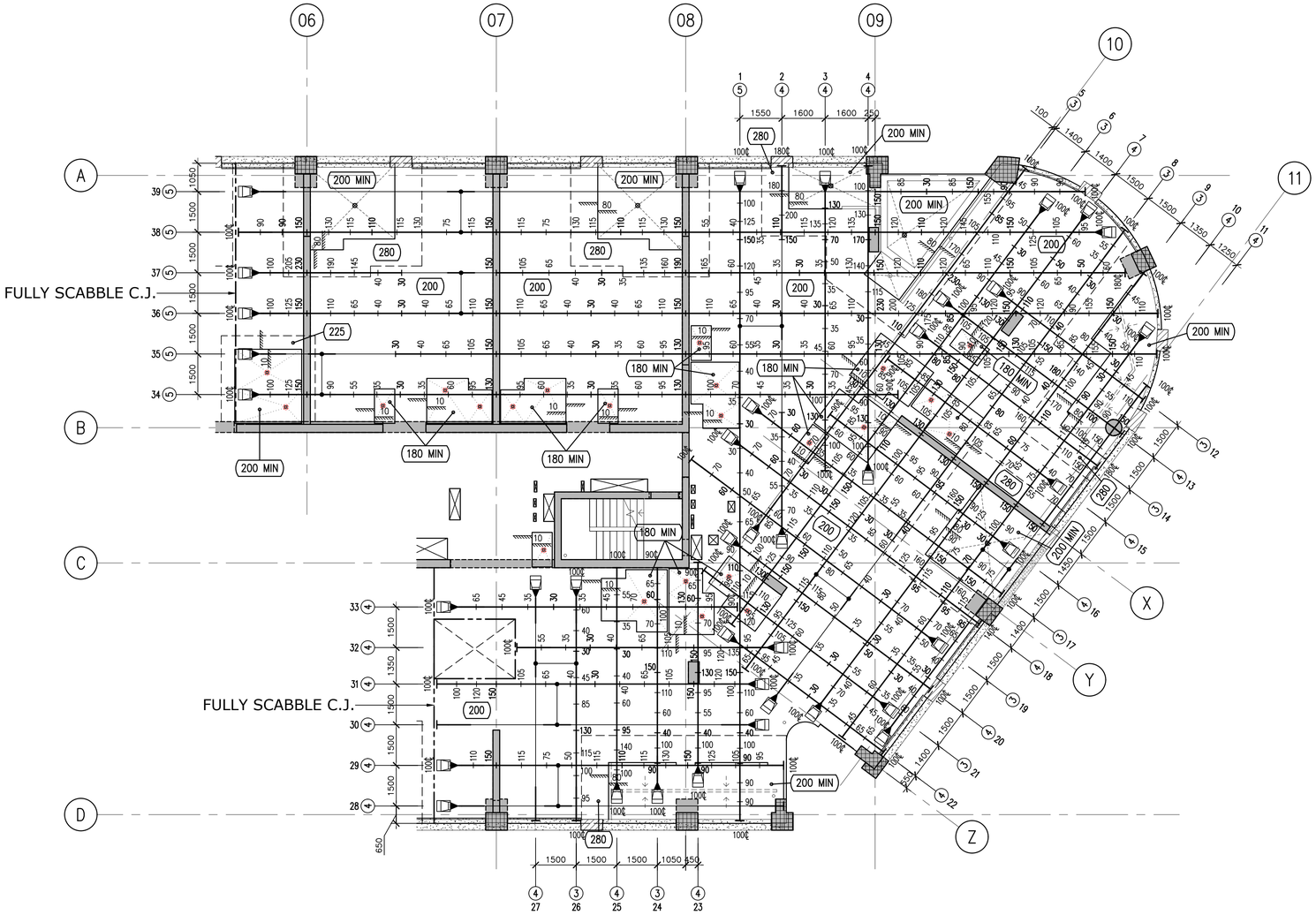
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LEVEL 2 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-513	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 2 - POUR 2 - POST TENSIONING PLAN		Drawing No: INT-PT-521		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



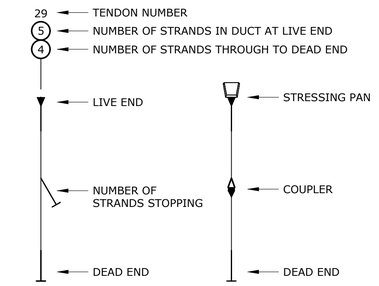
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.24 T

PAN REINFORCEMENT WEIGHT: 1.05 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-102-00	ST-302-00
REVISION:	E	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.102	
REVISION:	F	

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

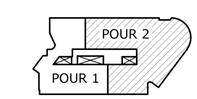
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 2 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-521	Revision: 1



KEY PLAN
LEVEL 2

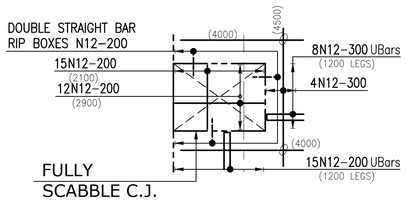
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - POUR 2 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-522		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

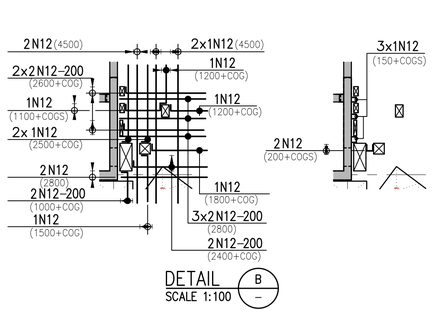




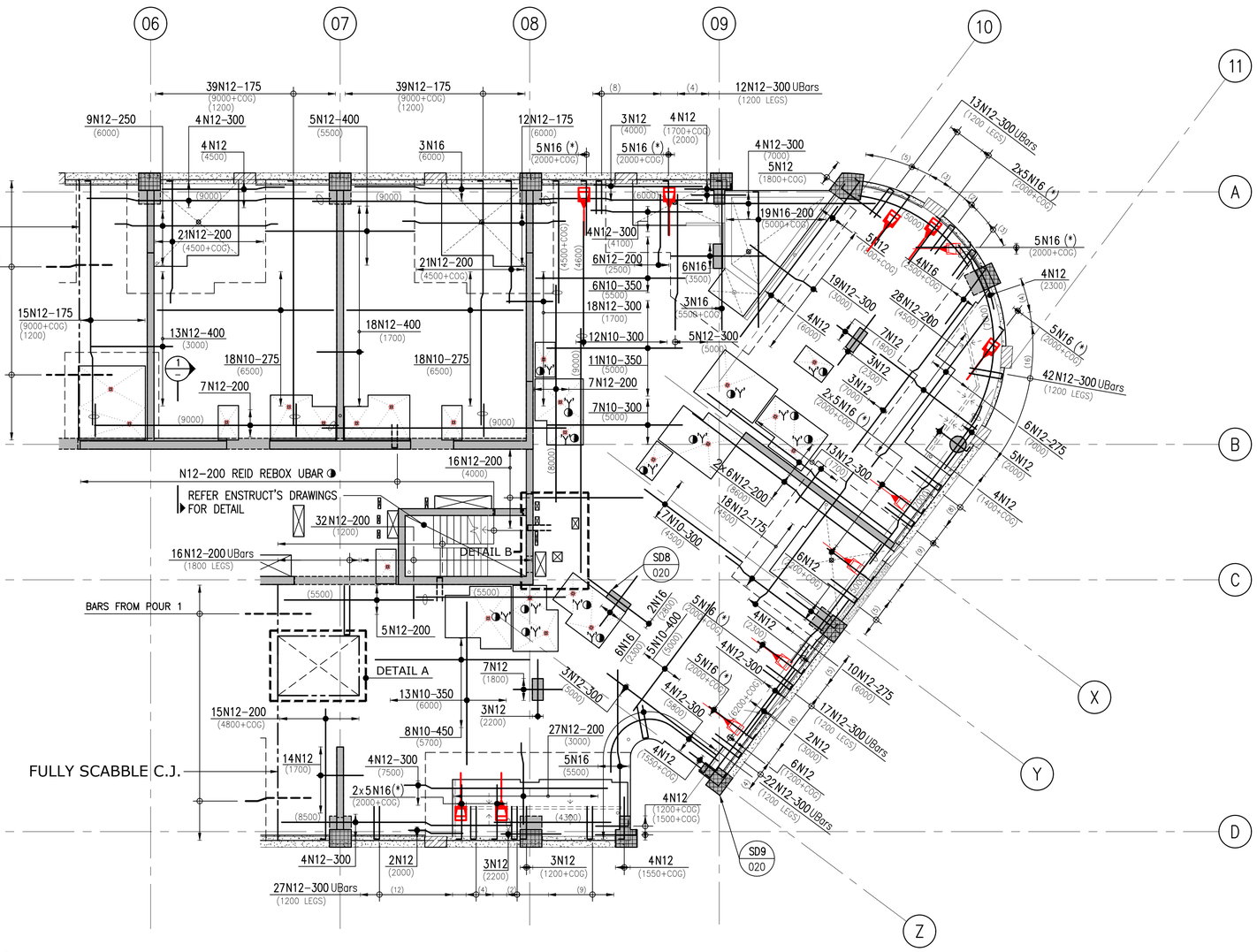
BAR LAYING SEQUENCE



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100

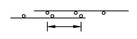


REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

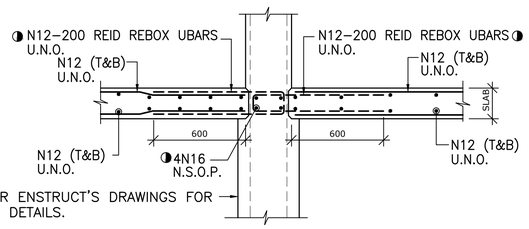


'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG





SECTION 1
SCALE 1:20

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.43 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-102-00 ST-302-00
REVISION: E C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.102
REVISION: F

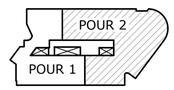
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au



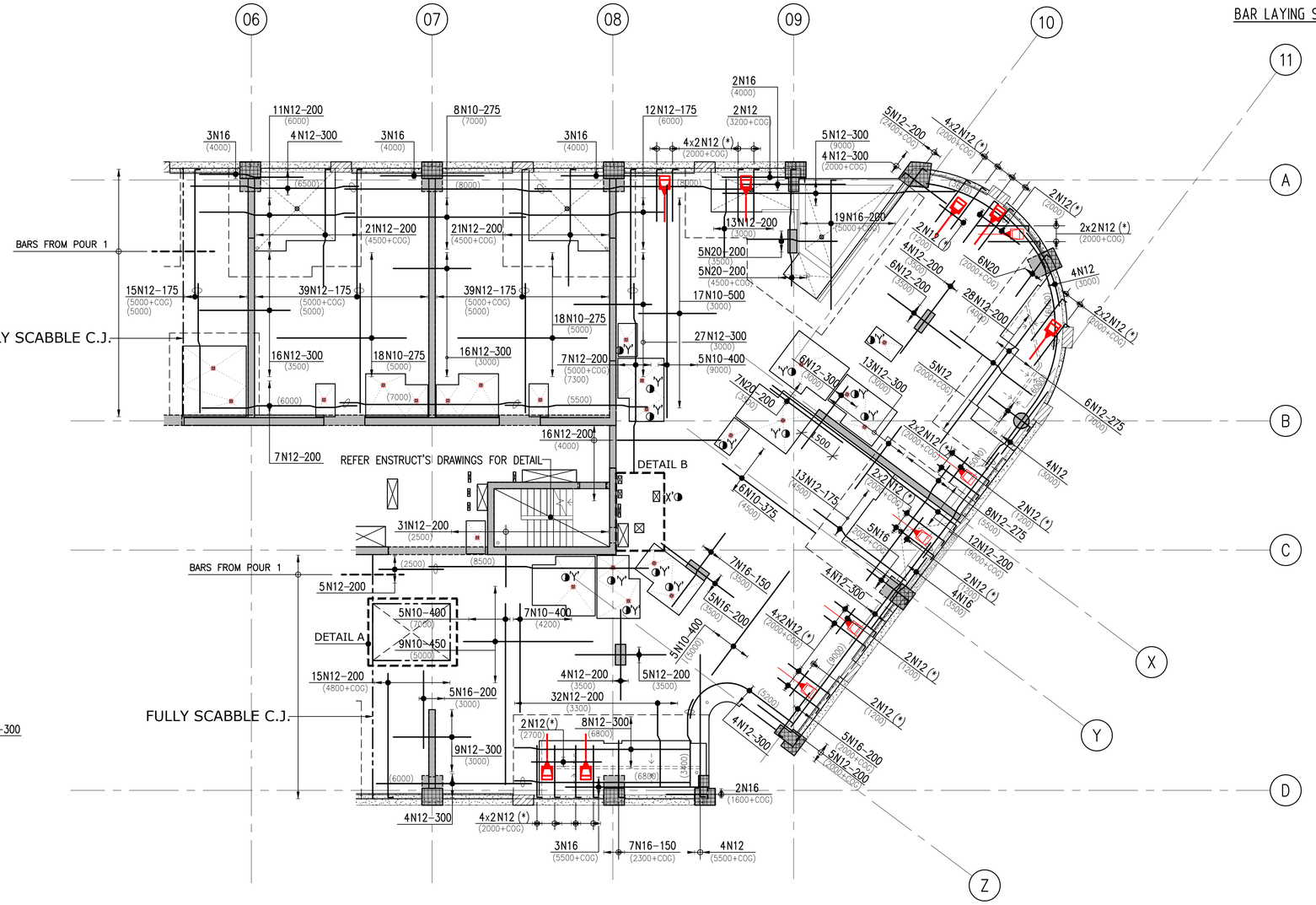
KEY PLAN
LEVEL 2

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LEVEL 2 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-522	Revision: 1

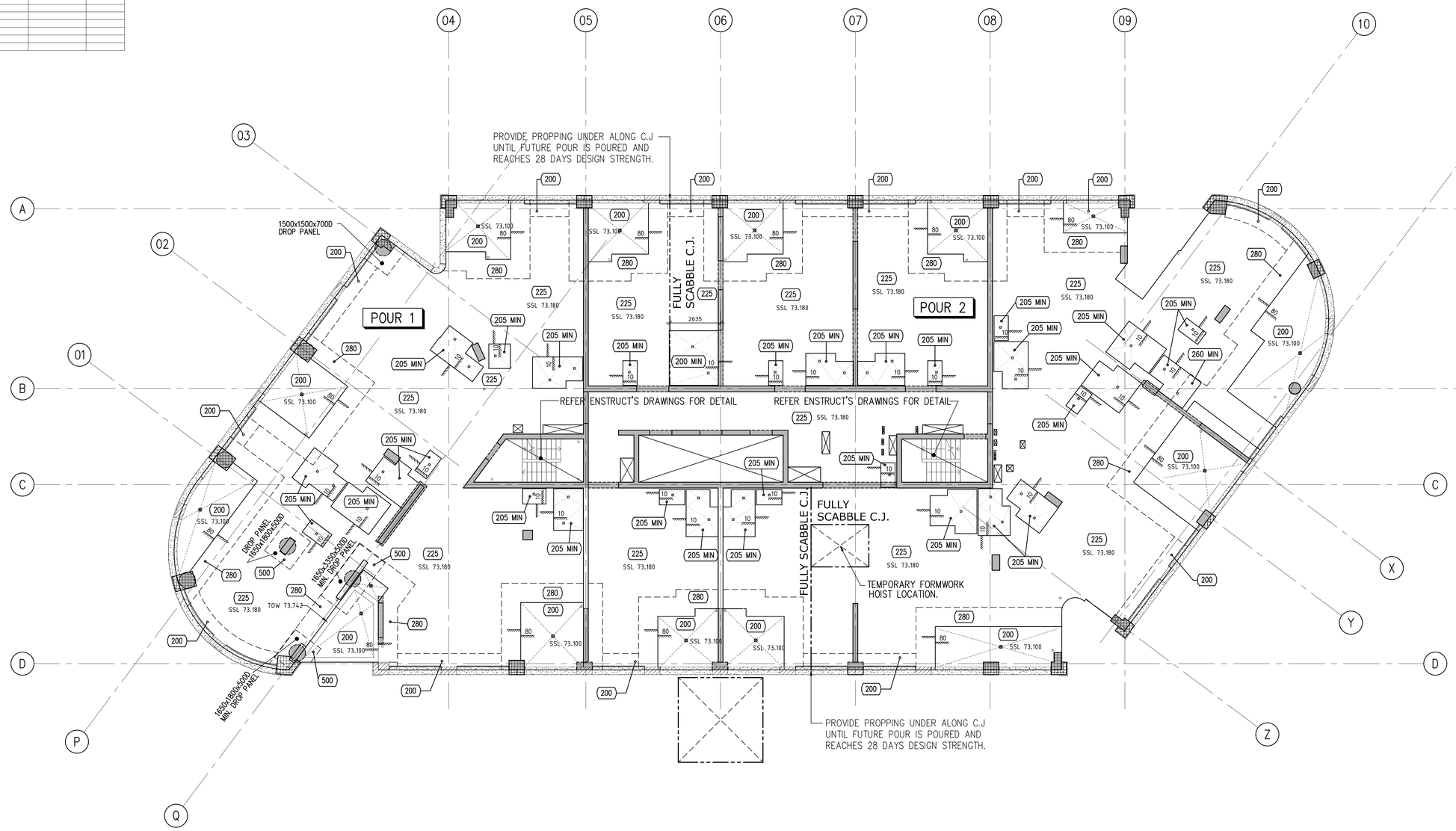
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 2 - POUR 2 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-523	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222


06
07
08
09
10
11
A
B
C
D
X
Y
Z
BARS FROM POUR 1
FULLY SCABBLE C.J.
DETAIL A
DETAIL B
REFER ENSTRUCT'S DRAWINGS FOR DETAIL
11N12-200 (6000)
8N10-275 (7000)
12N12-175 (6000)
2N16 (4000)
2N12 (3200+COG)
3N16 (4000)
4N12-300
4x2N12 (*) (2000+COG)
5N12-300 (9000)
4N12-300 (2000+COG)
21N12-200 (4500+COG)
13N12-200 (3000)
19N16-200 (5000+COG)
5N20-200 (3500)
5N20-200 (4500+COG)
17N10-500 (3000)
15N12-175 (5000+COG) (5000)
39N12-175 (5000+COG) (5000)
18N10-275 (5000)
27N12-300 (3000)
16N12-300 (3500)
18N10-275 (5000)
16N12-300 (3000)
7N12-200 (5000+COG) (7300)
5N10-400 (9000)
16N12-200 (4000)
7N12-200
31N12-200 (2500)
(8500)
5N12-200
5N10-400 (2000)
9N10-450 (5000)
7N10-400 (4200)
15N12-200 (4800+COG)
5N16-200 (3000)
4N12-200 (3500)
5N12-200 (3500)
32N12-200 (3300)
2N12 (*) (2700)
8N12-300 (6800)
9N12-300 (3000)
4N12-300
4x2N12 (*) (2000+COG)
3N16 (5500+COG)
7N16-150 (2300+COG)
4N12 (5500+COG)
2N16 (1600+COG)
5N12-200 (2400+COG)
2N12 (*) (2000)
2x2N12 (*) (2000+COG)
6N12-200 (3500)
6N20 (2000+COG)
28N12-200 (4000)
6N12-300 (3500)
13N12-300 (3000)
5N12 (2000+COG)
6N12-275 (3000)
7N20-200 (3500)
6N10-375 (4500)
13N12-175 (4000)
5N16 (3000+COG)
8N12-275 (3500)
12N12-200 (9000+COG)
4N16 (3500)
5N16-200 (3500)
4N12-300
5N16-200 (6000+COG)
5N12-200 (2400+COG)
2N12 (*) (1200)
2N12 (*) (1200)
4N12-300
4N12 (3000)
2x2N12 (*) (2000+COG)
2N12 (*) (1200)
2N12 (*) (1200)
4N12 (3000)
2N12 (*) (1200)
2N12 (*) (1200)
2N12 (*) (1200

Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-600	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: E B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

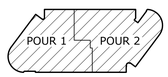
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: VH
	Drawn: CP
Drawing Title: LEVEL 3 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-600	Revision: 1



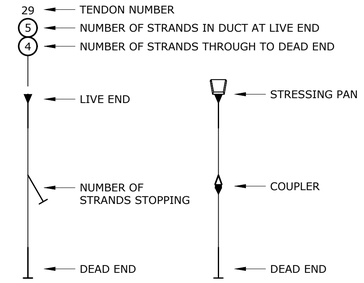
KEY PLAN
LEVEL 3

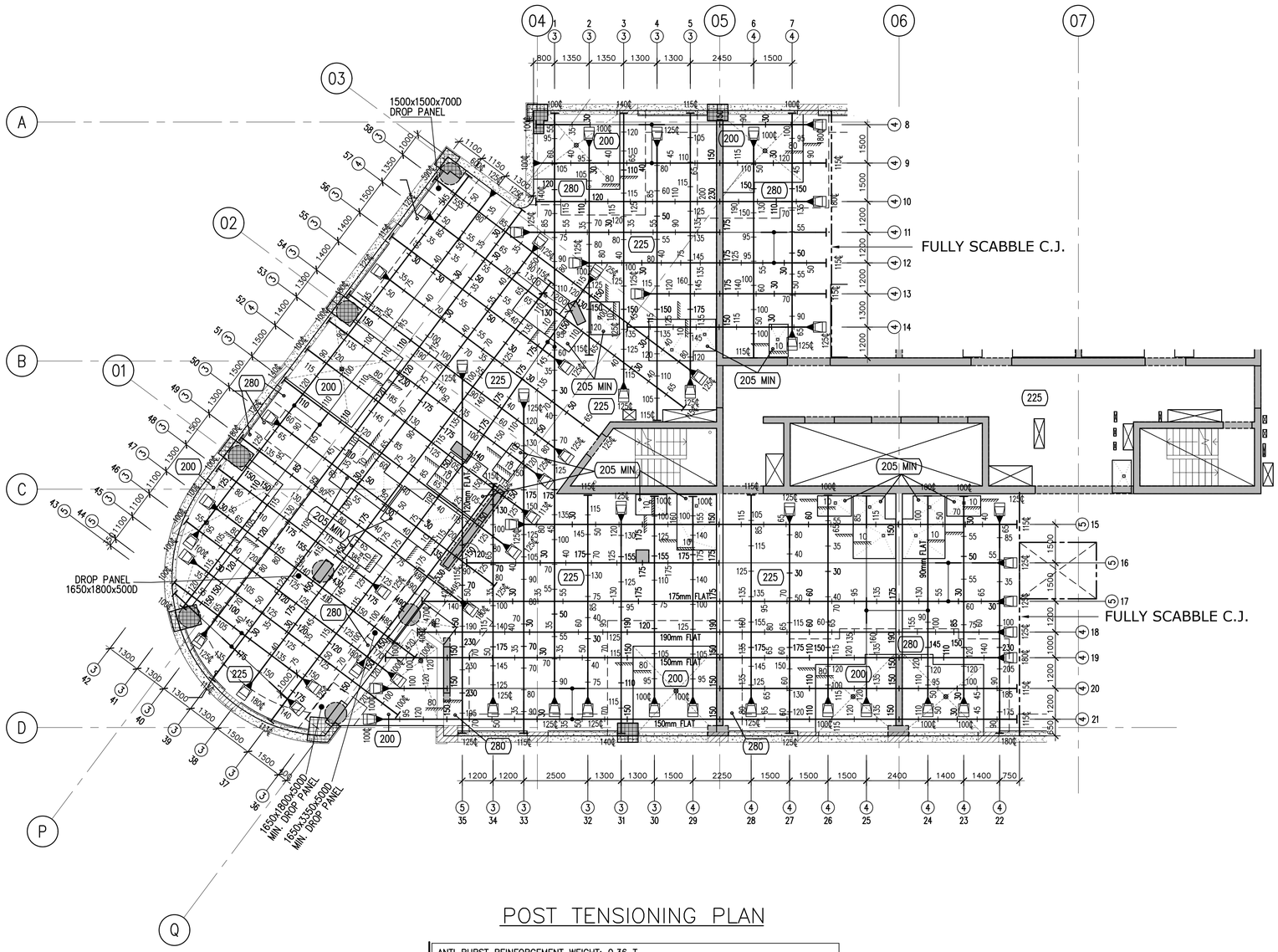
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-611	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.36 T

PAN REINFORCEMENT WEIGHT: 1.49 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: E B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

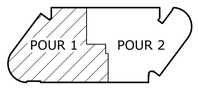
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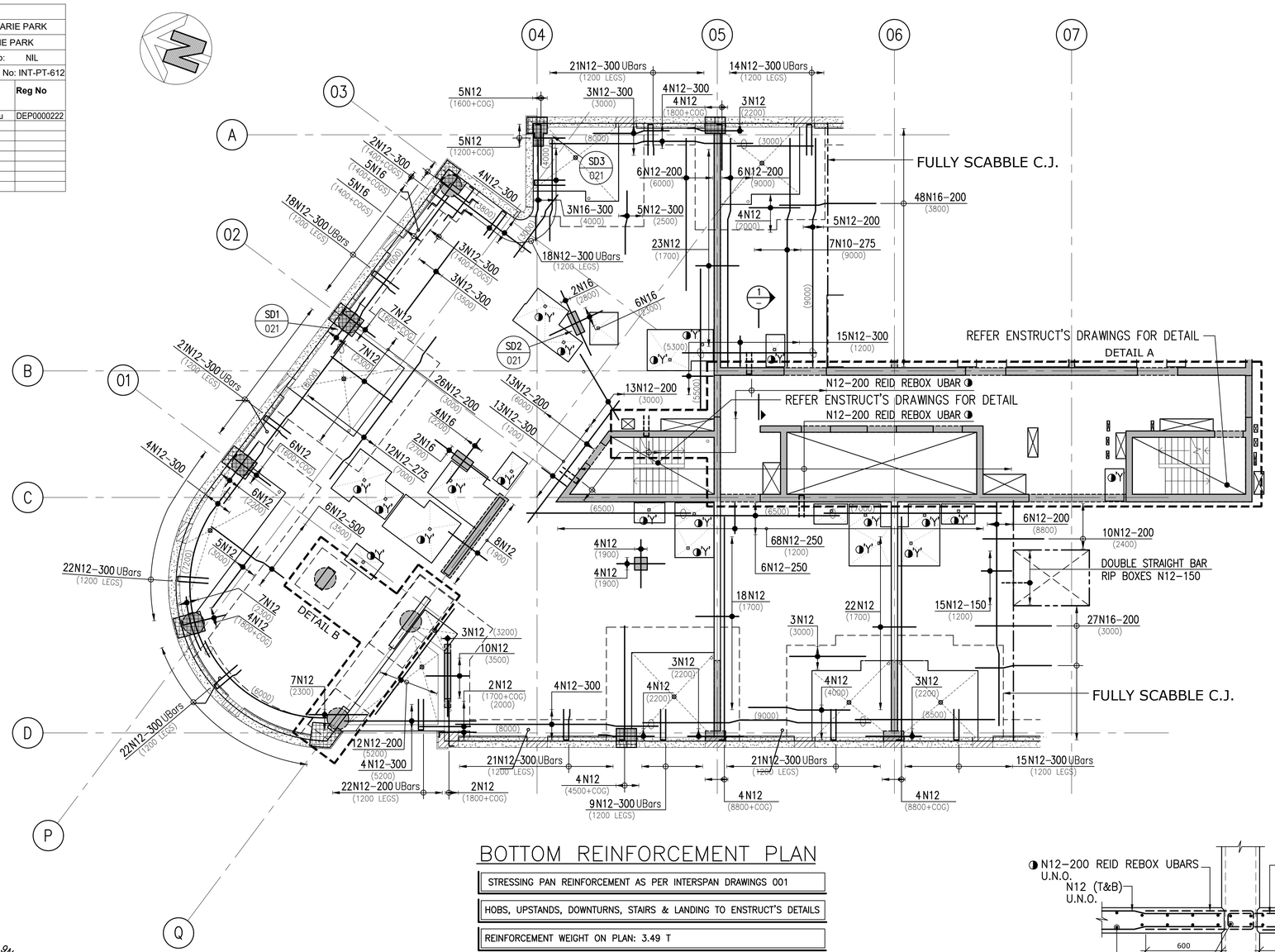
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 3 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-611	Revision: 1



KEY PLAN
LEVEL 3

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-612		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



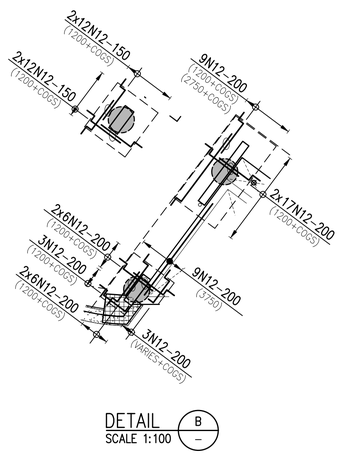
BOTTOM REINFORCEMENT PLAN

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001

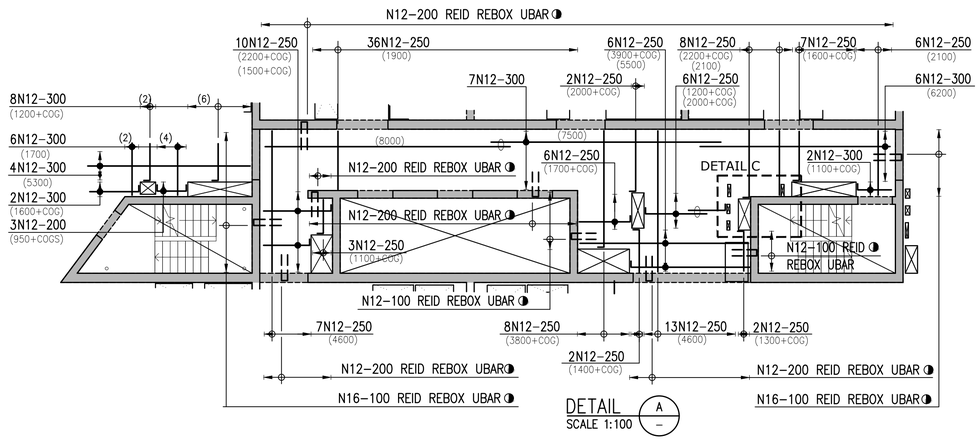
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.49 T

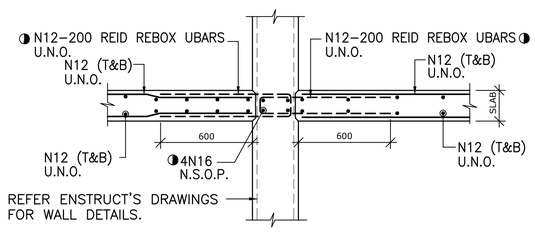
◑ BARS ARE NOT TO INTERSPAN GMT



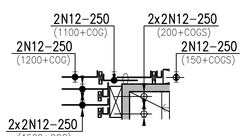
DETAIL B
SCALE 1:100



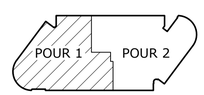
DETAIL C
SCALE 1:100



SECTION 1
SCALE 1:20



DETAIL C
SCALE 1:100



KEY PLAN
LEVEL 3

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

   'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: E B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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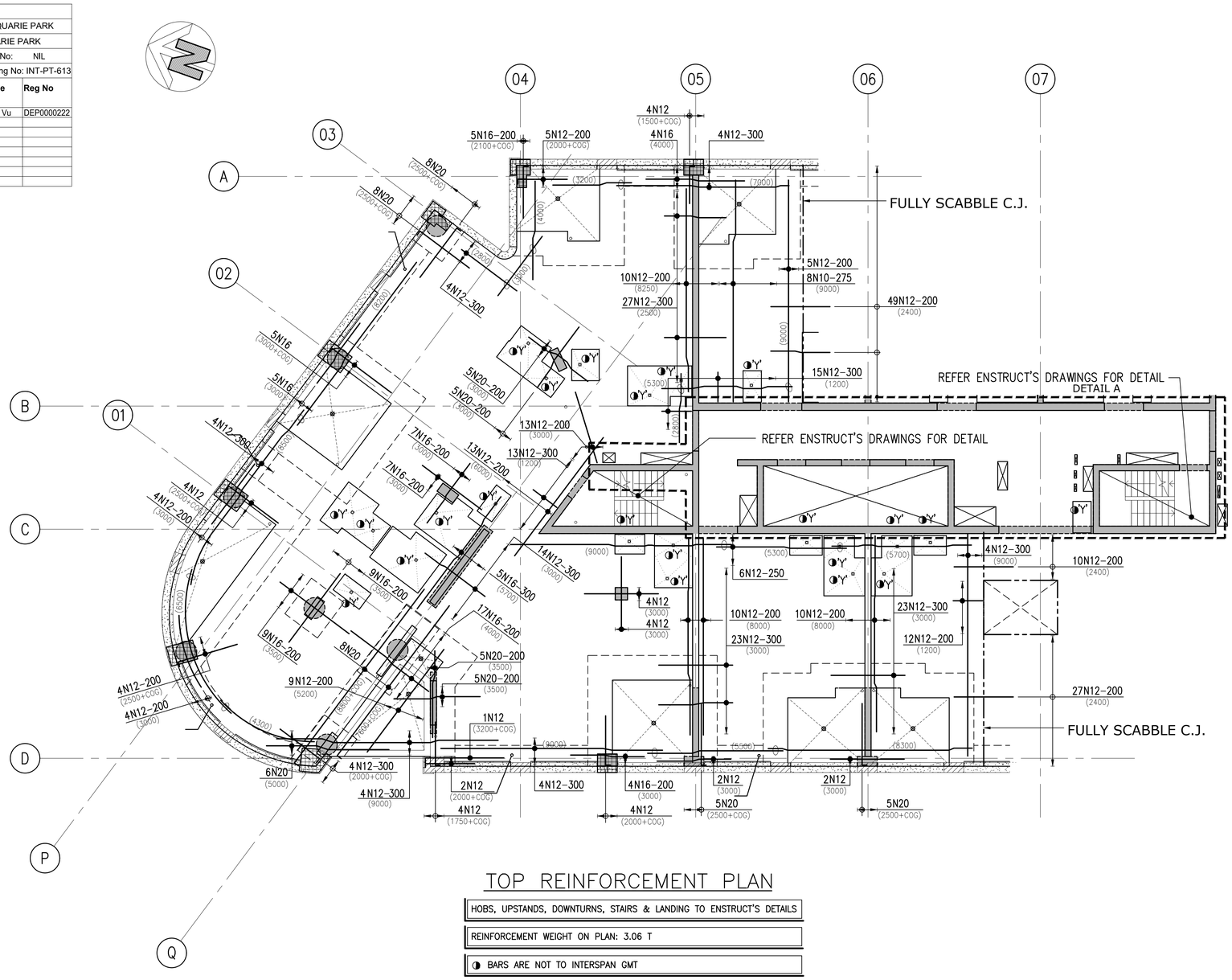
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 3 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-612	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-613		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

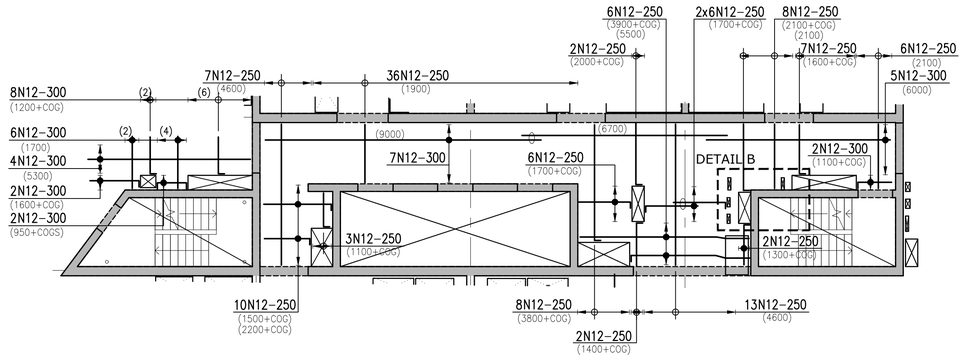


TOP REINFORCEMENT PLAN

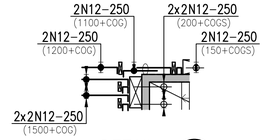
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.06 T

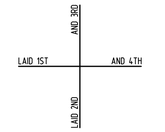
◑ BARS ARE NOT TO INTERSPAN GMT



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

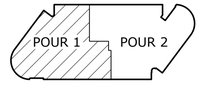
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 3

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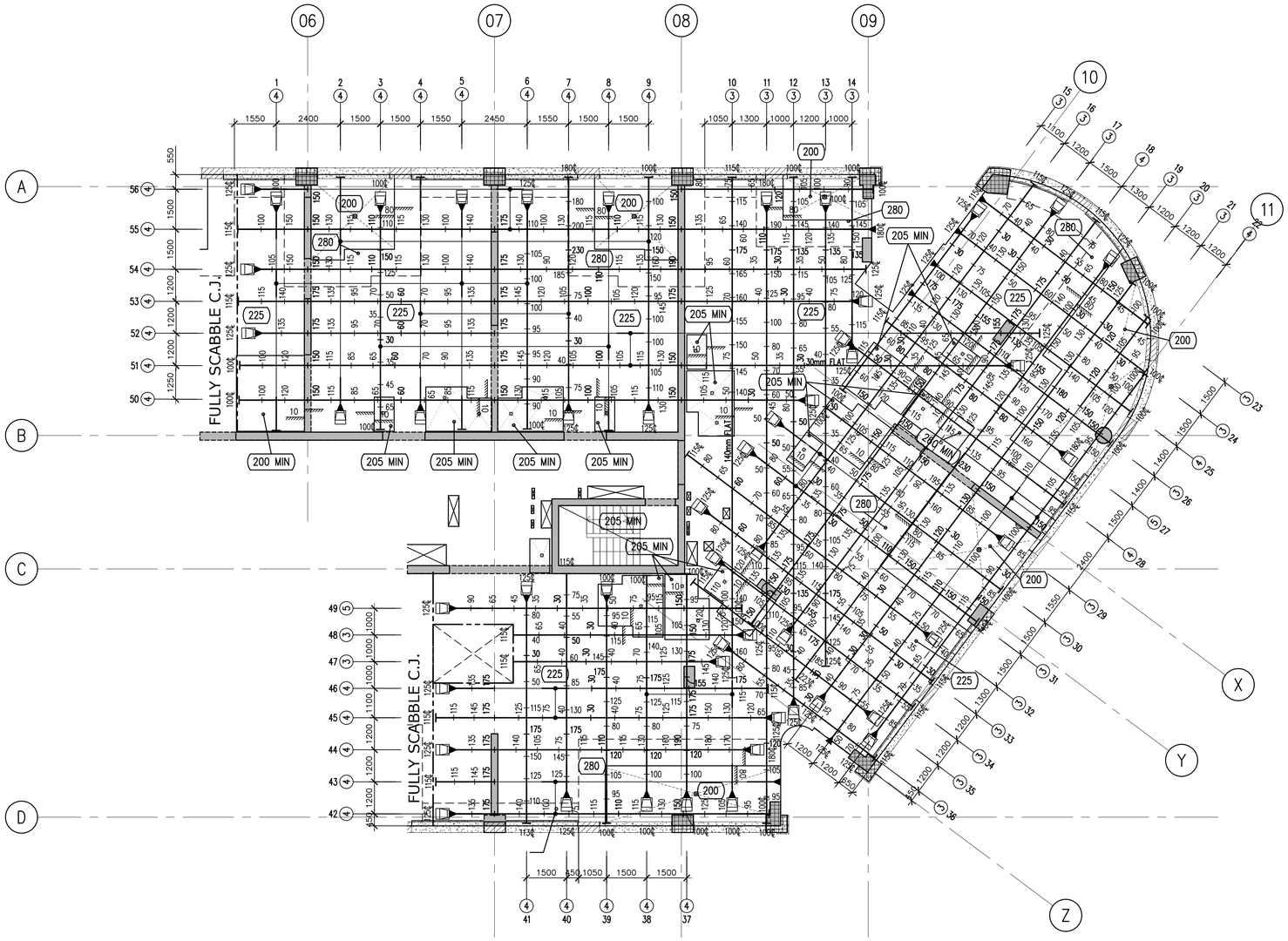
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: CP
Drawing Title: LEVEL 3 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-613	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 3 - POUR 2 - POST TENSIONING PLAN		Drawing No: INT-PT-621		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



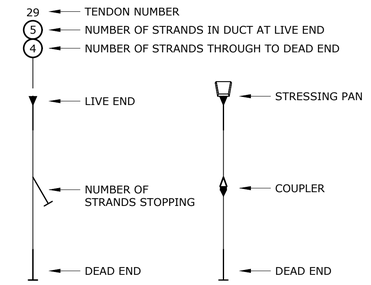
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.35 T

PAN REINFORCEMENT WEIGHT: 1.35 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: E B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

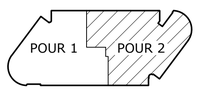
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 3 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-621	Revision: 1

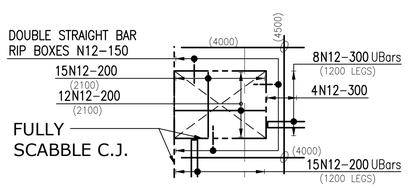


KEY PLAN
LEVEL 3

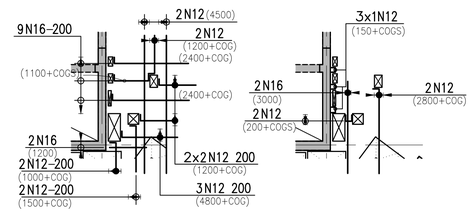
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 3-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-622	

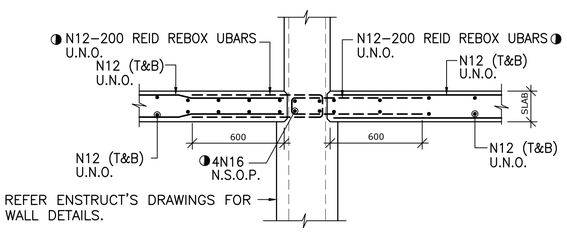
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



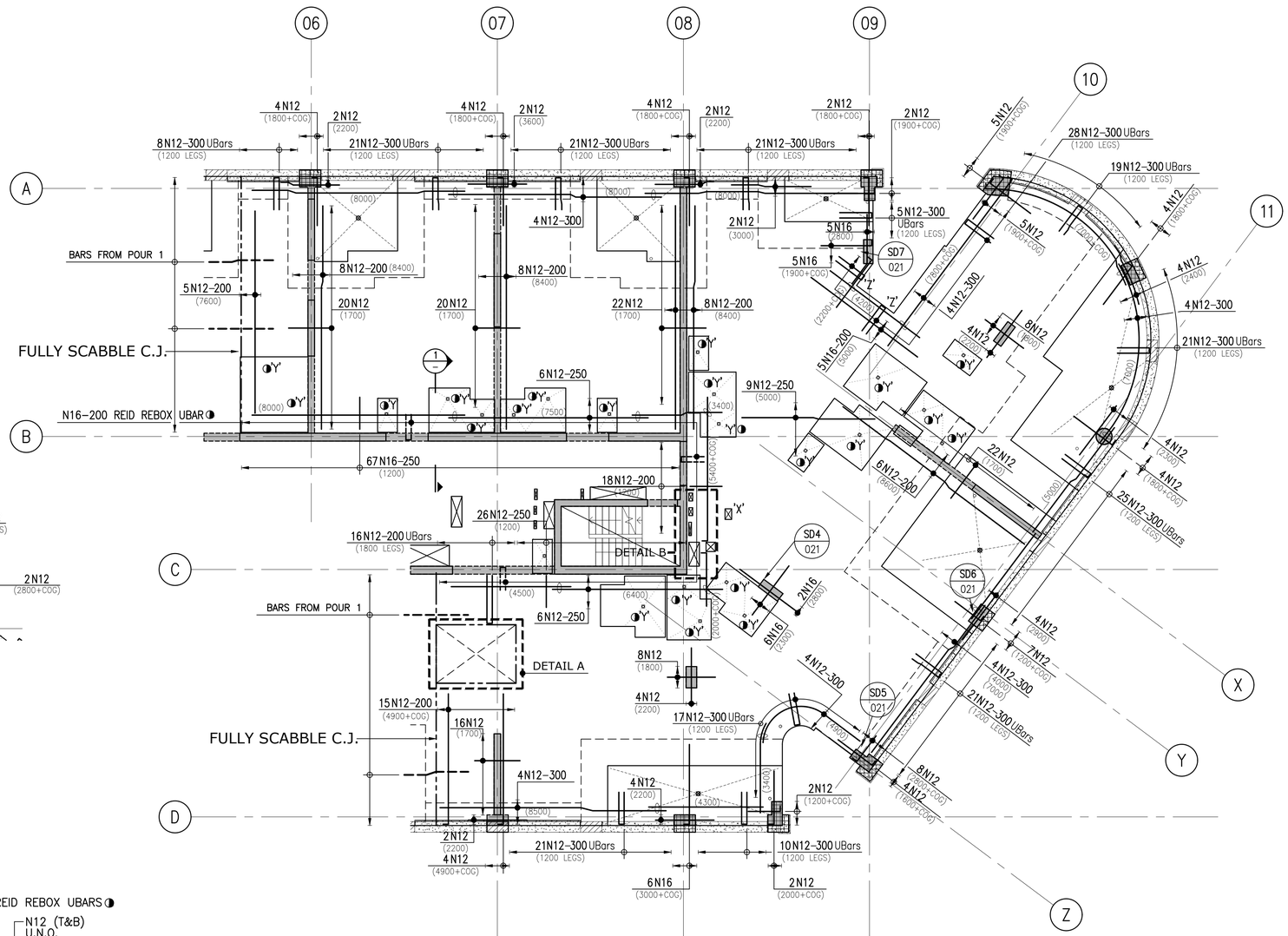
DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



SECTION 1 SCALE 1:20

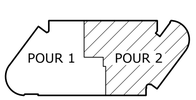


BOTTOM REINFORCEMENT PLAN

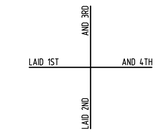
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 2.51 T
- ◑ BARS ARE NOT TO INTERSPAN GMT

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



KEY PLAN
LEVEL 3



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: E B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

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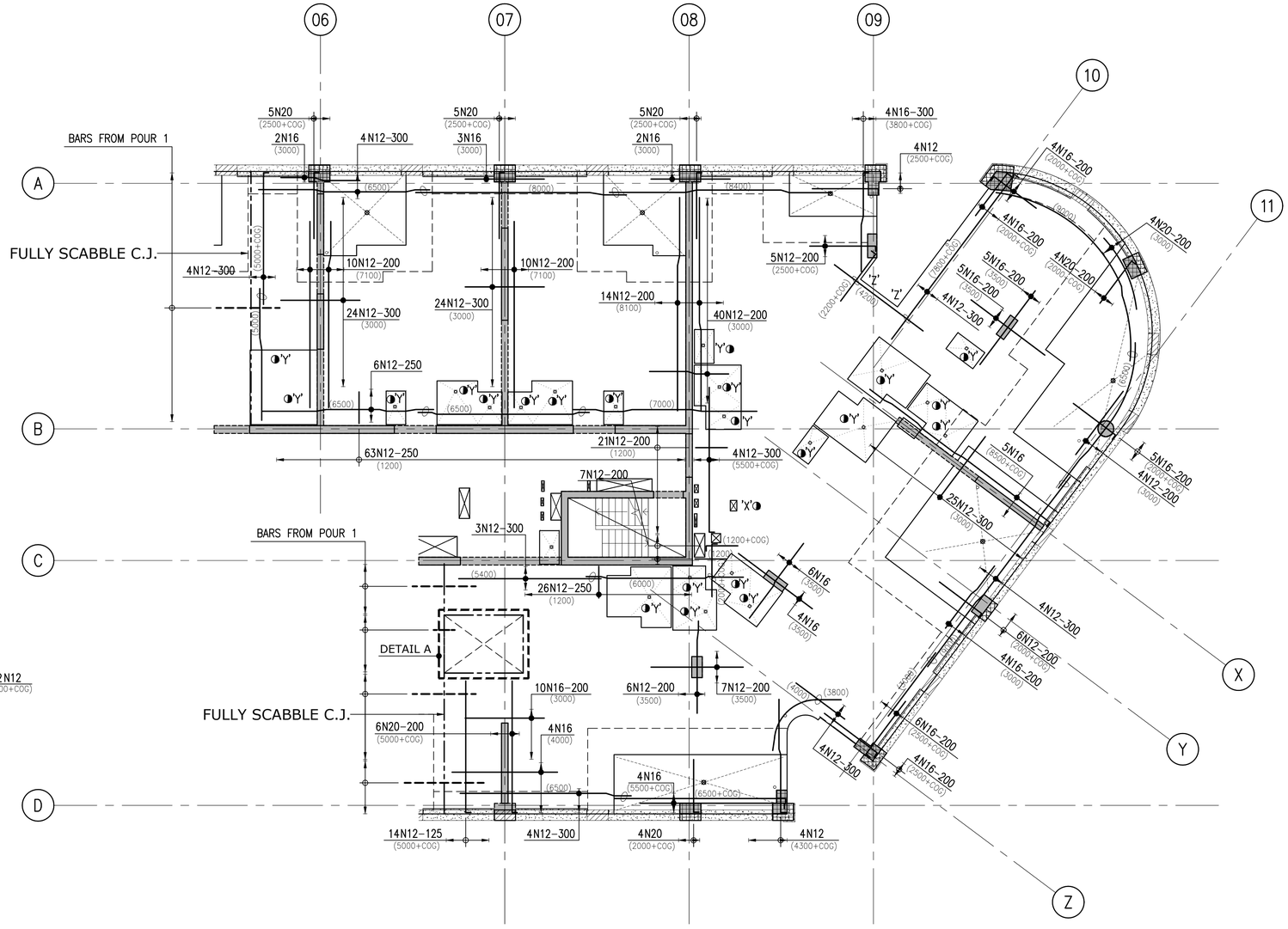
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 3 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-622	Revision: 1

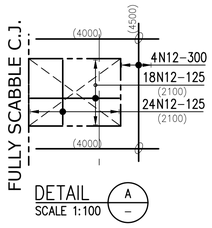
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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 3 - POUR 2 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-623	

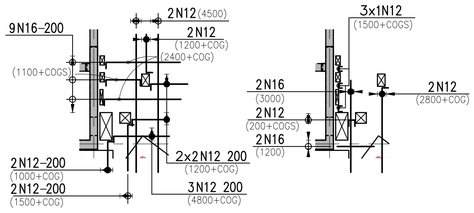
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222







DETAIL A
SCALE 1:100



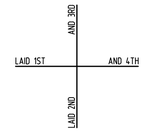
DETAIL B
SCALE 1:100

TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.36 T

◑ BARS ARE NOT TO INTERSPAN GMT



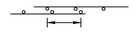
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-103-00 ST-303-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.103
REVISION: J

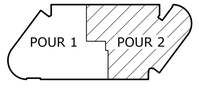
1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 3 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-623	Revision: 1

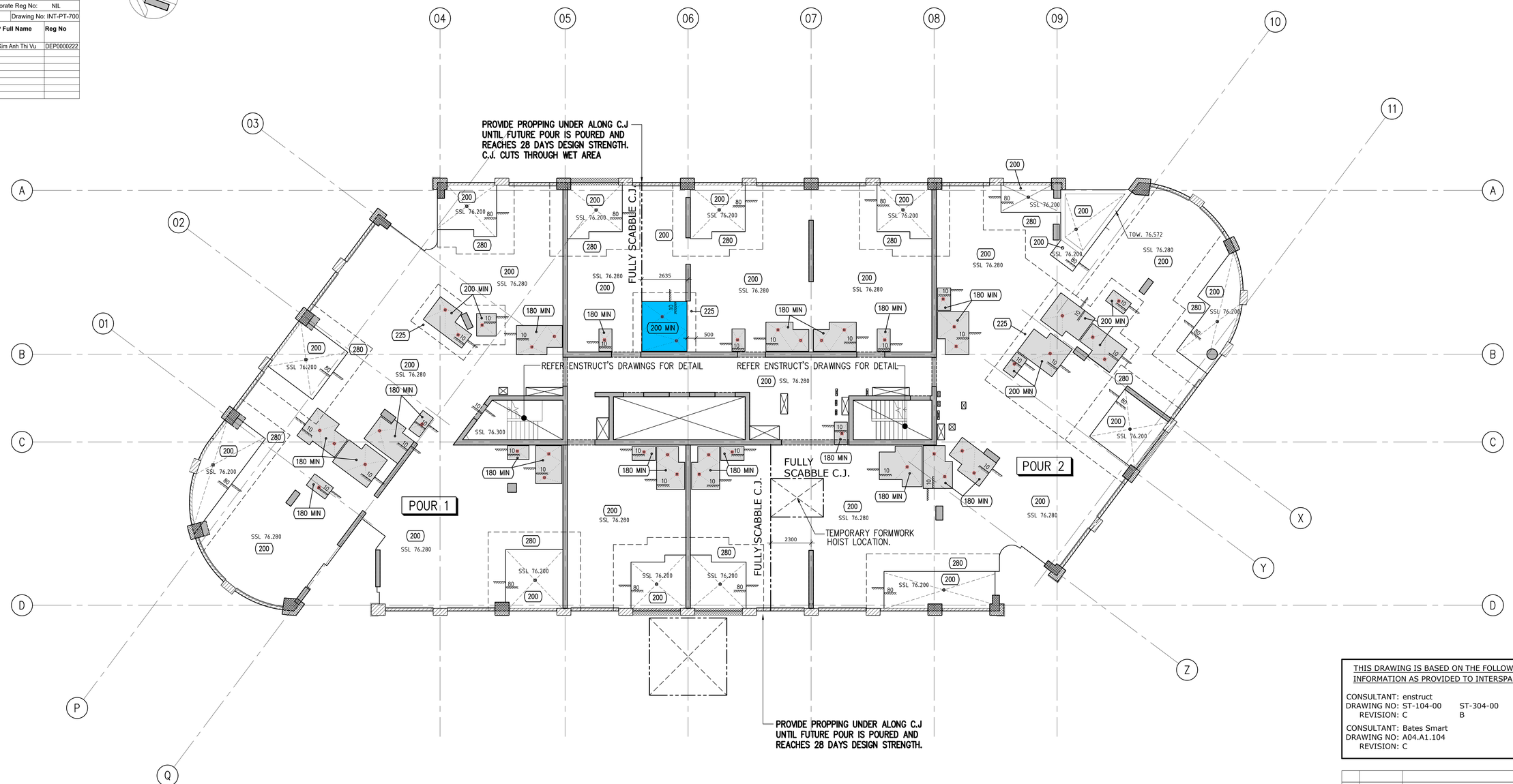


KEY PLAN
LEVEL 3

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No:	NIL
Drawing Title: LEVEL 4 - GENERAL ARRANGEMENT PLAN		Drawing No:	INT-PT-700

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

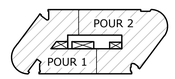
DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 4

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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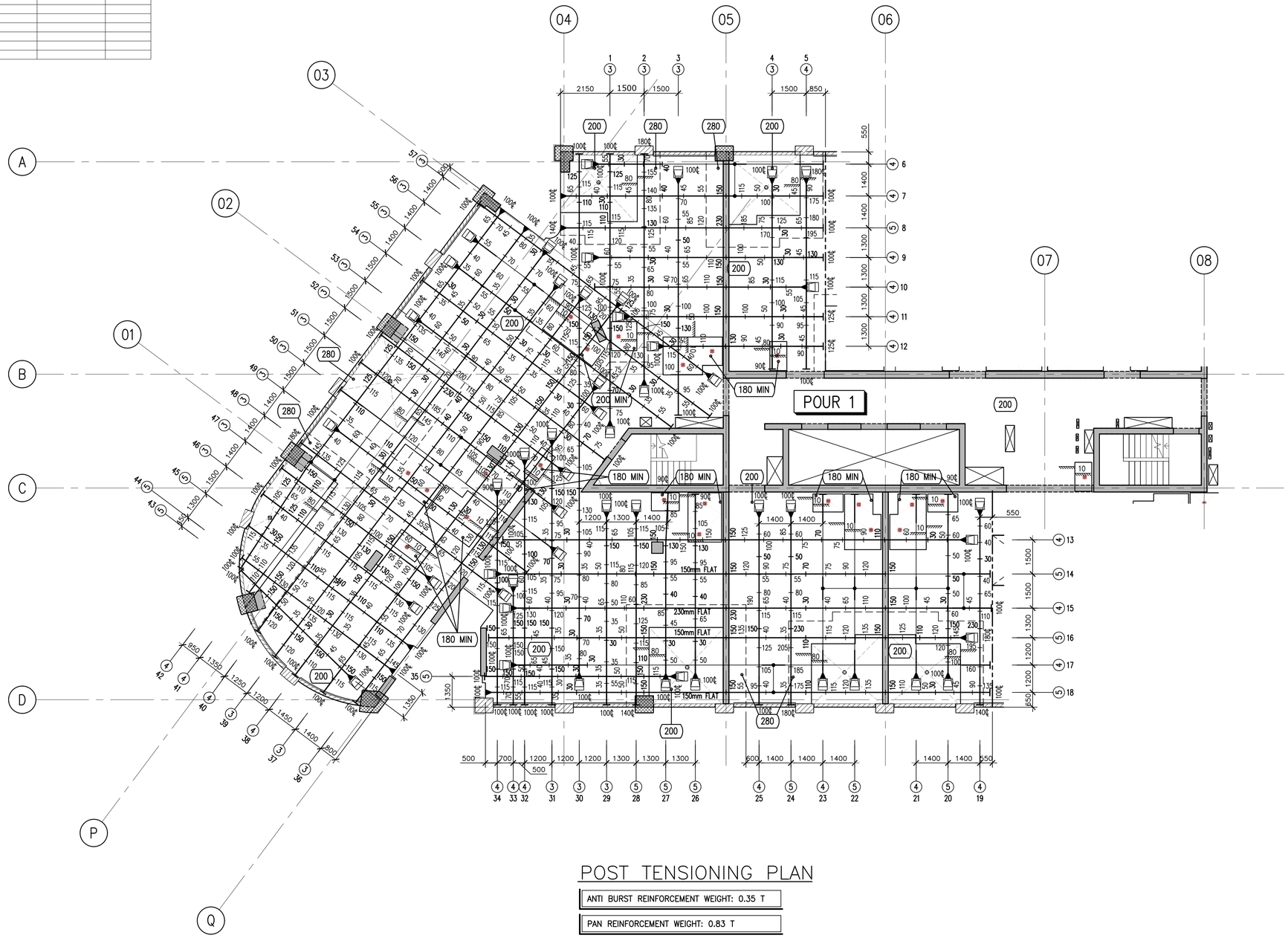
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 4 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-700	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-711	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



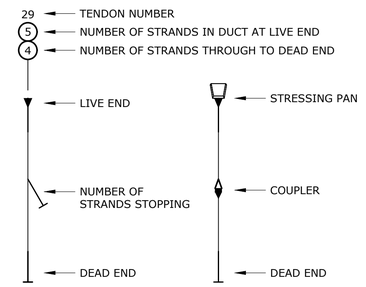
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.35 T

PAN REINFORCEMENT WEIGHT: 0.83 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

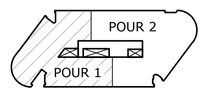


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 4

Interspan

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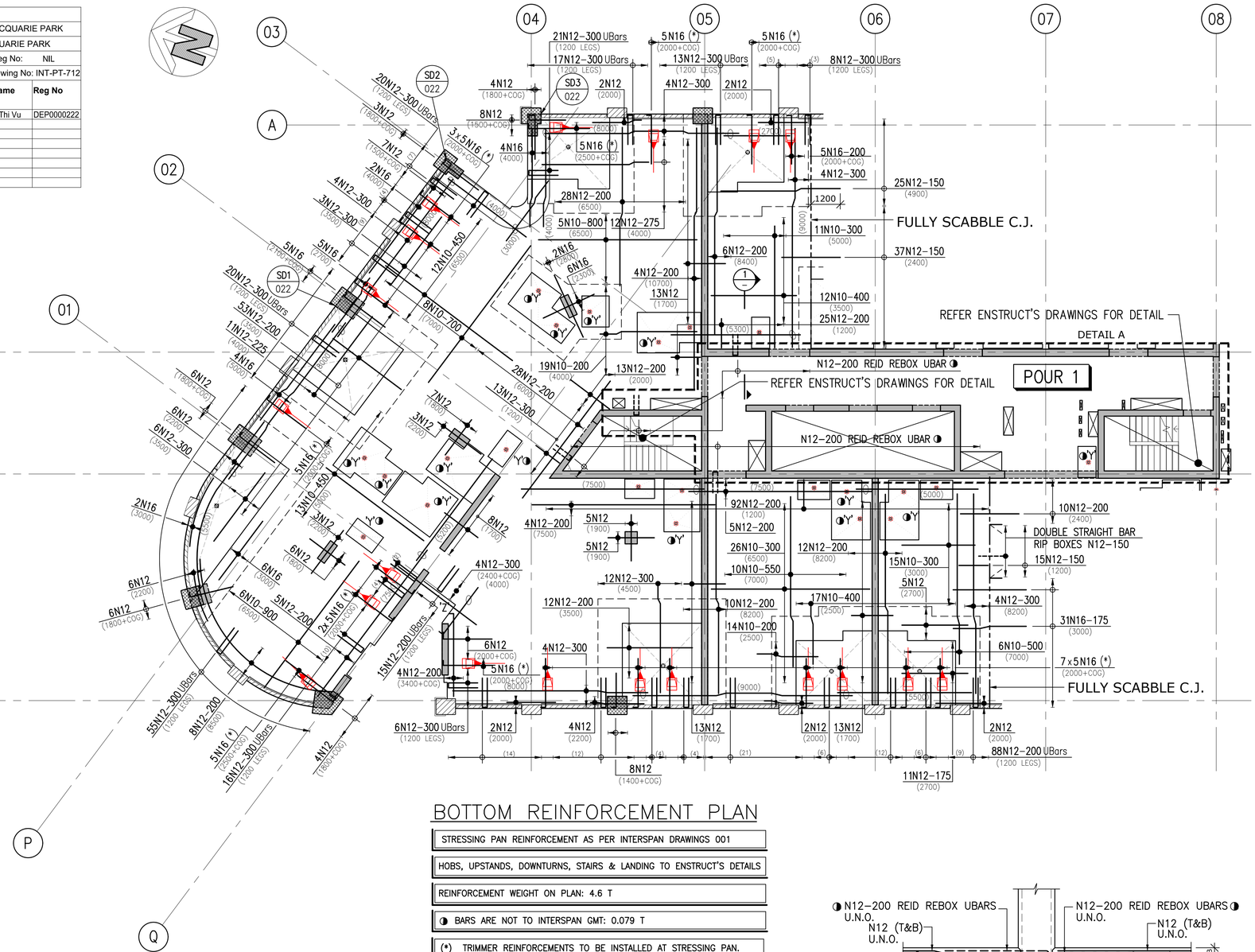
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 4 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-711	Revision: 1

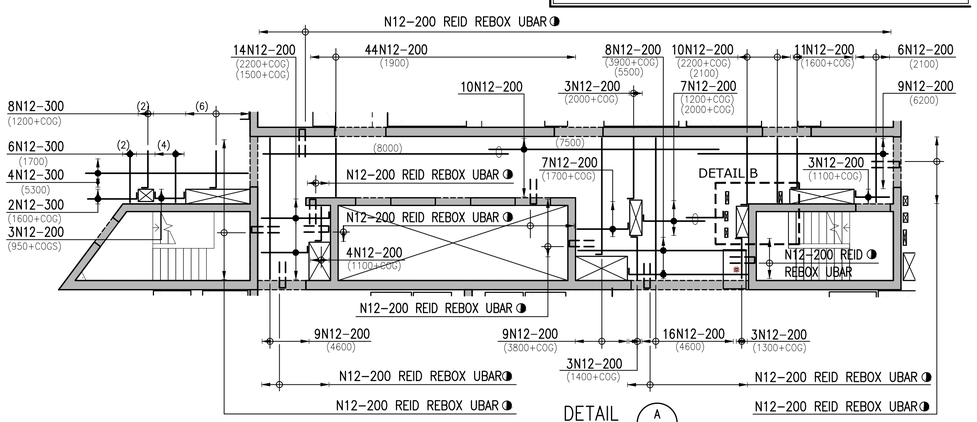
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-712		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

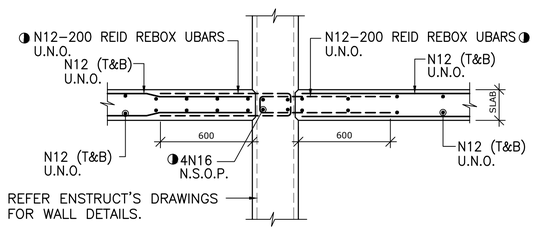


BOTTOM REINFORCEMENT PLAN

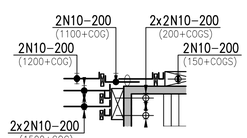
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.6 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.079 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



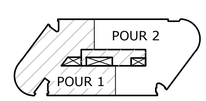
DETAIL A SCALE 1:100



SECTION 1 SCALE 1:20



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 4



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-104-00	ST-304-00
REVISION:	C	B
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.104	
REVISION:	C	

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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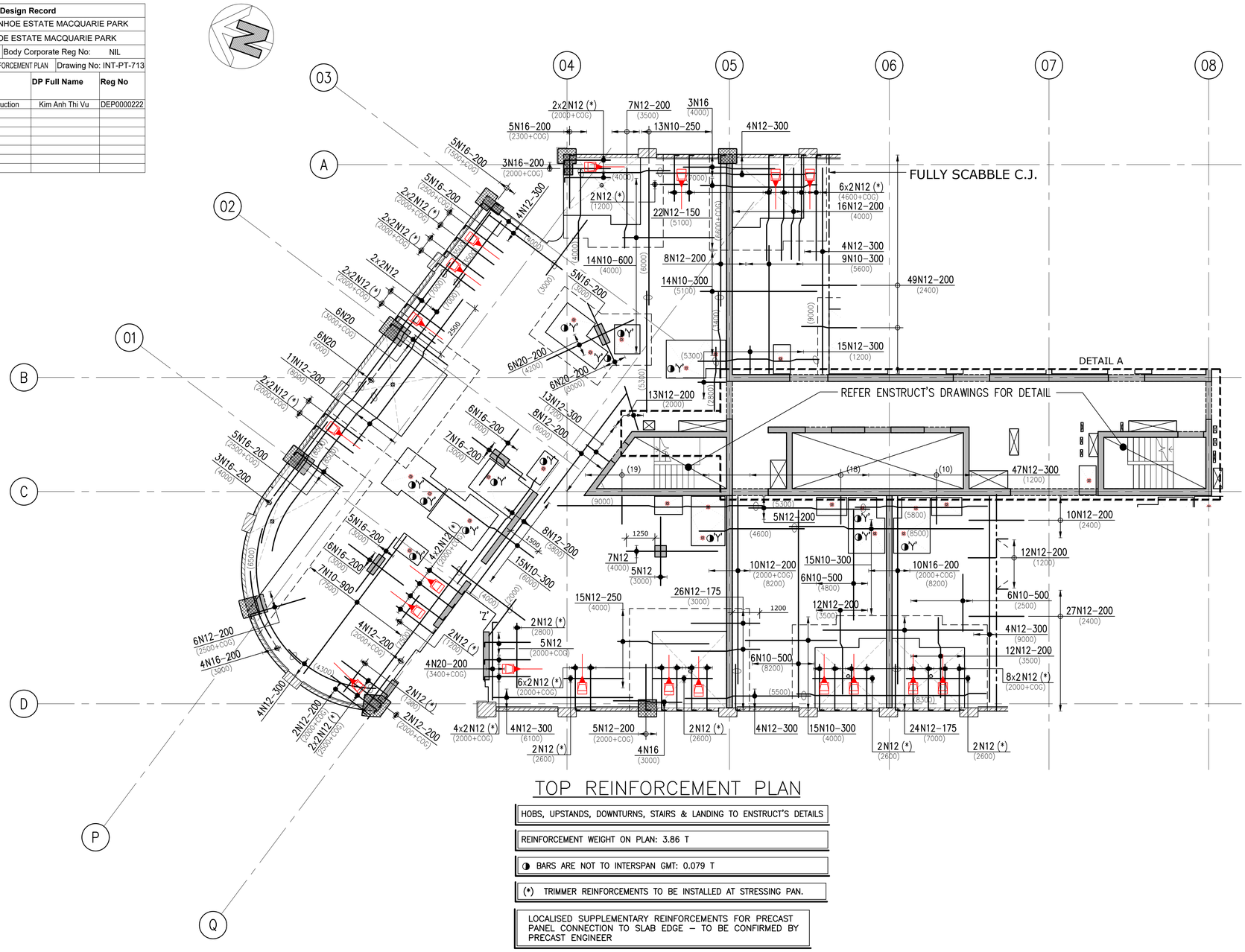
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 4 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-712	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-713	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

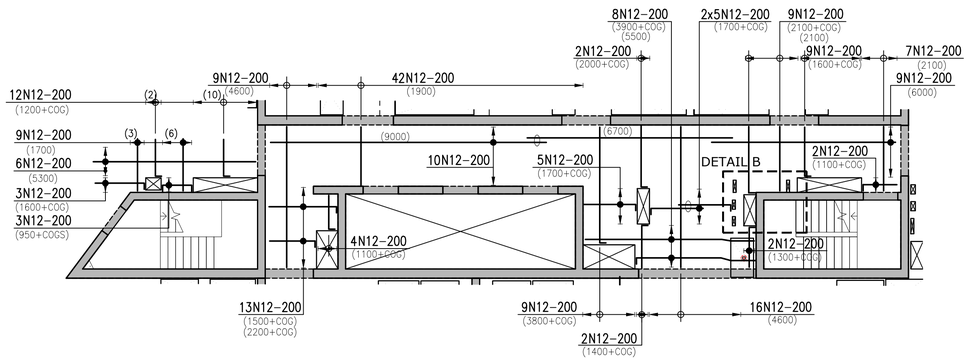
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.86 T

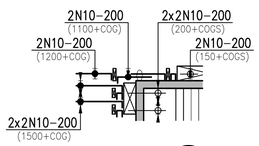
◑ BARS ARE NOT TO INTERSPAN GMT: 0.079 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

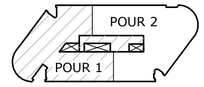
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 4 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-713	Revision: 1

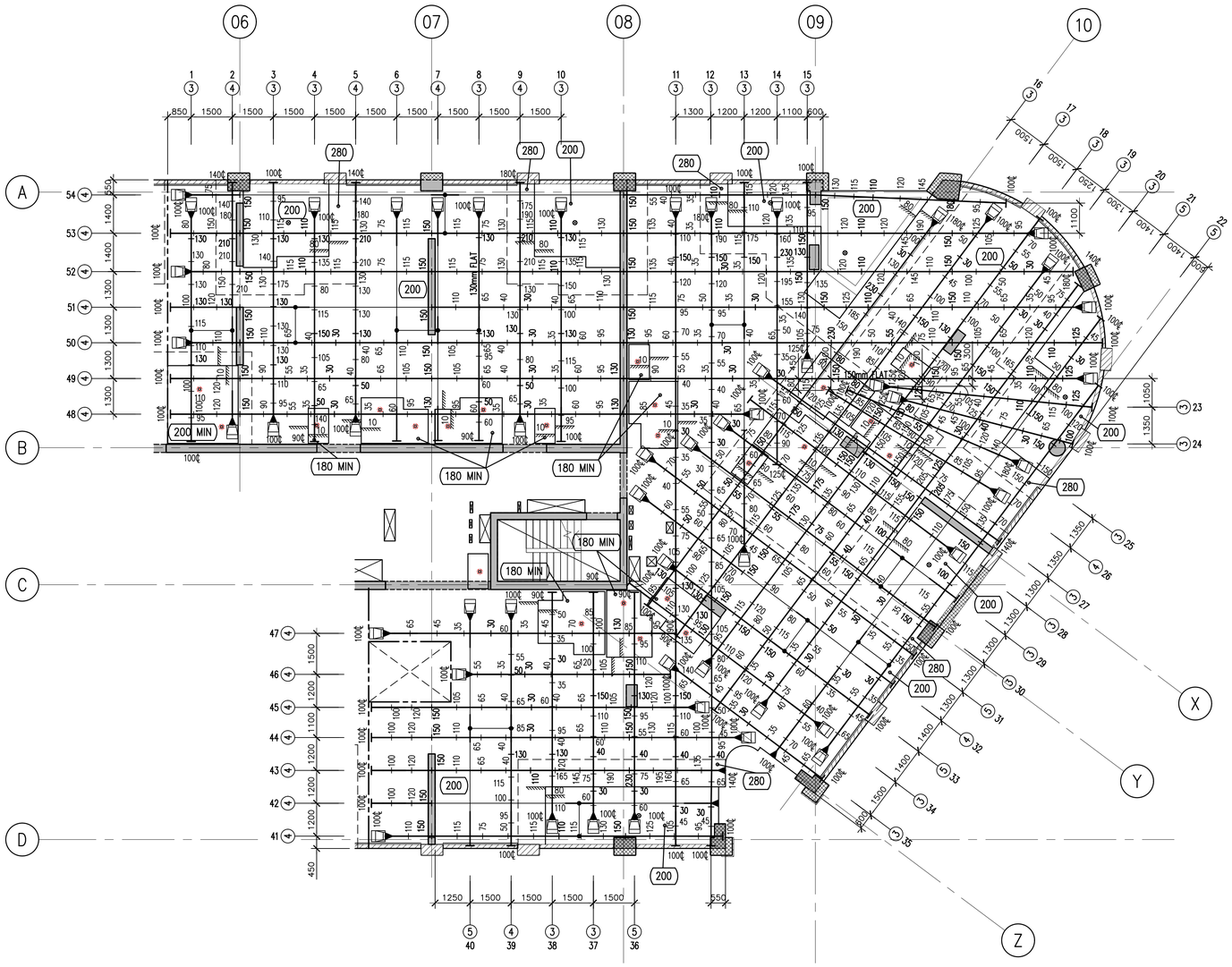


KEY PLAN
LEVEL 4

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4 - POUR 2 - POST TENSIONING PLAN		Drawing No: INT-PT-721	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



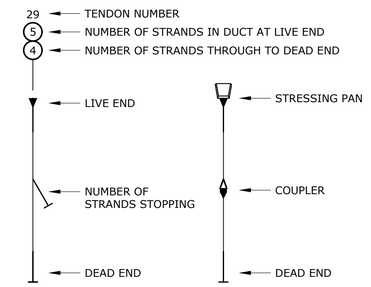
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.34 T

PAN REINFORCEMENT WEIGHT: 0.78 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



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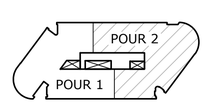
CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

Rev	Date	Status
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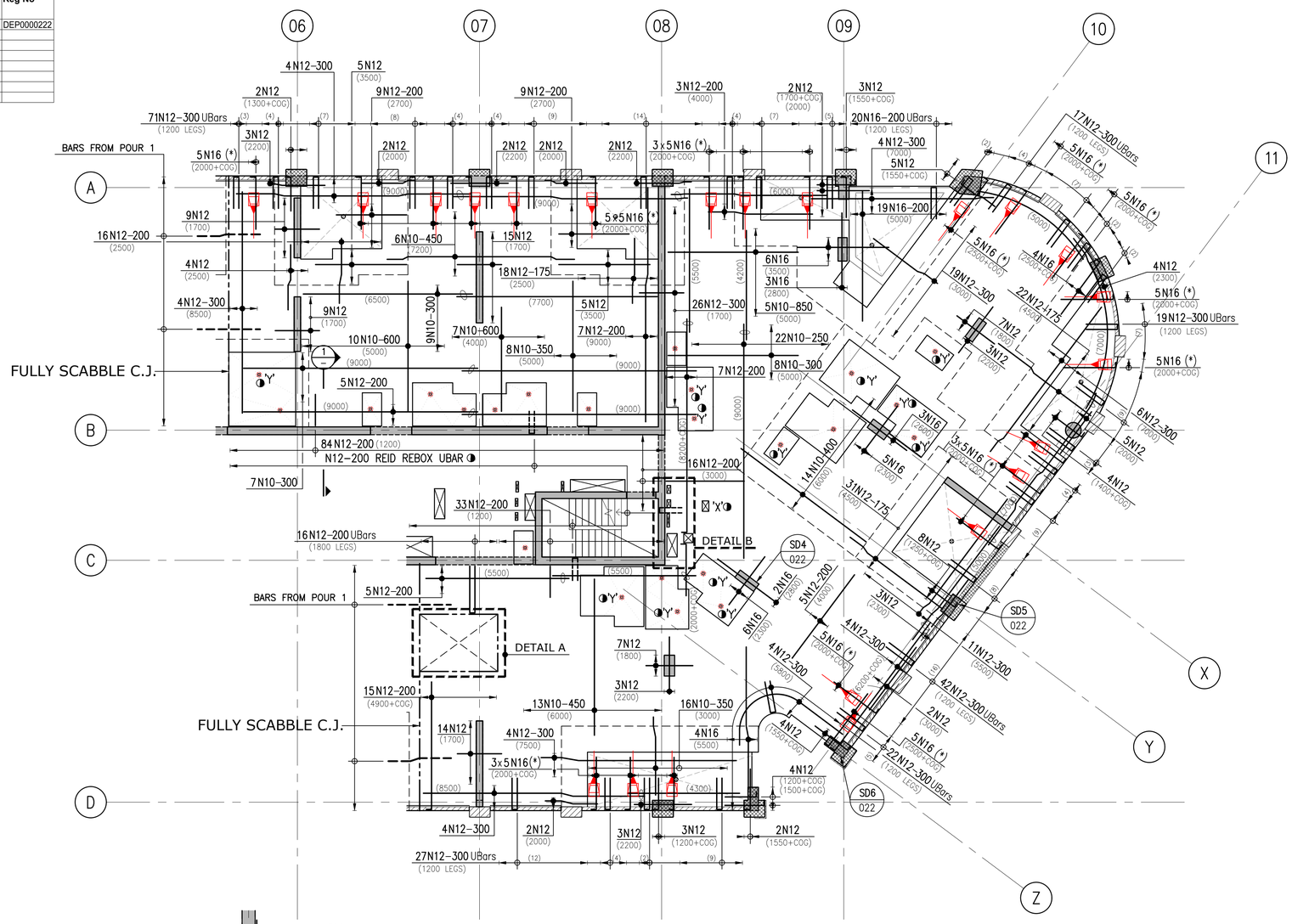


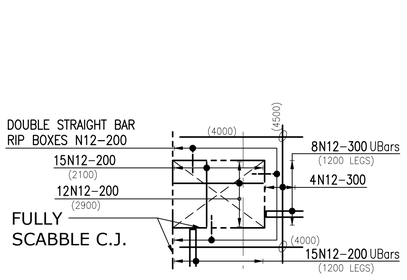
KEY PLAN
LEVEL 4

Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	LT
	Drawn: HN1
Drawing Title LEVEL 4 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No. INPT20373	Date: 21-12-21
Drawing No. INT-PT-721	Revision: 1

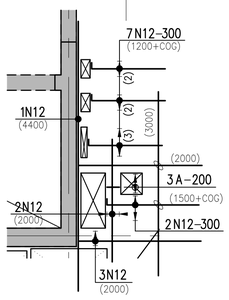
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4-POUR 2-BOTTOM REINFORCEMENT PLAN			Drawing No: INT-PT-722	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





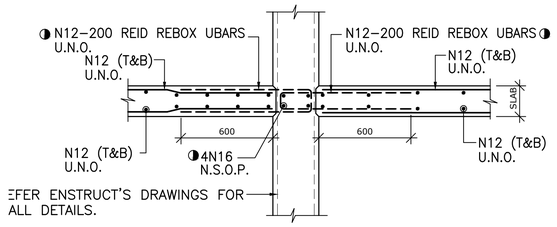
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

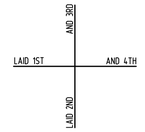
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.82 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.07 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1
SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
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   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

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'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

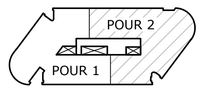
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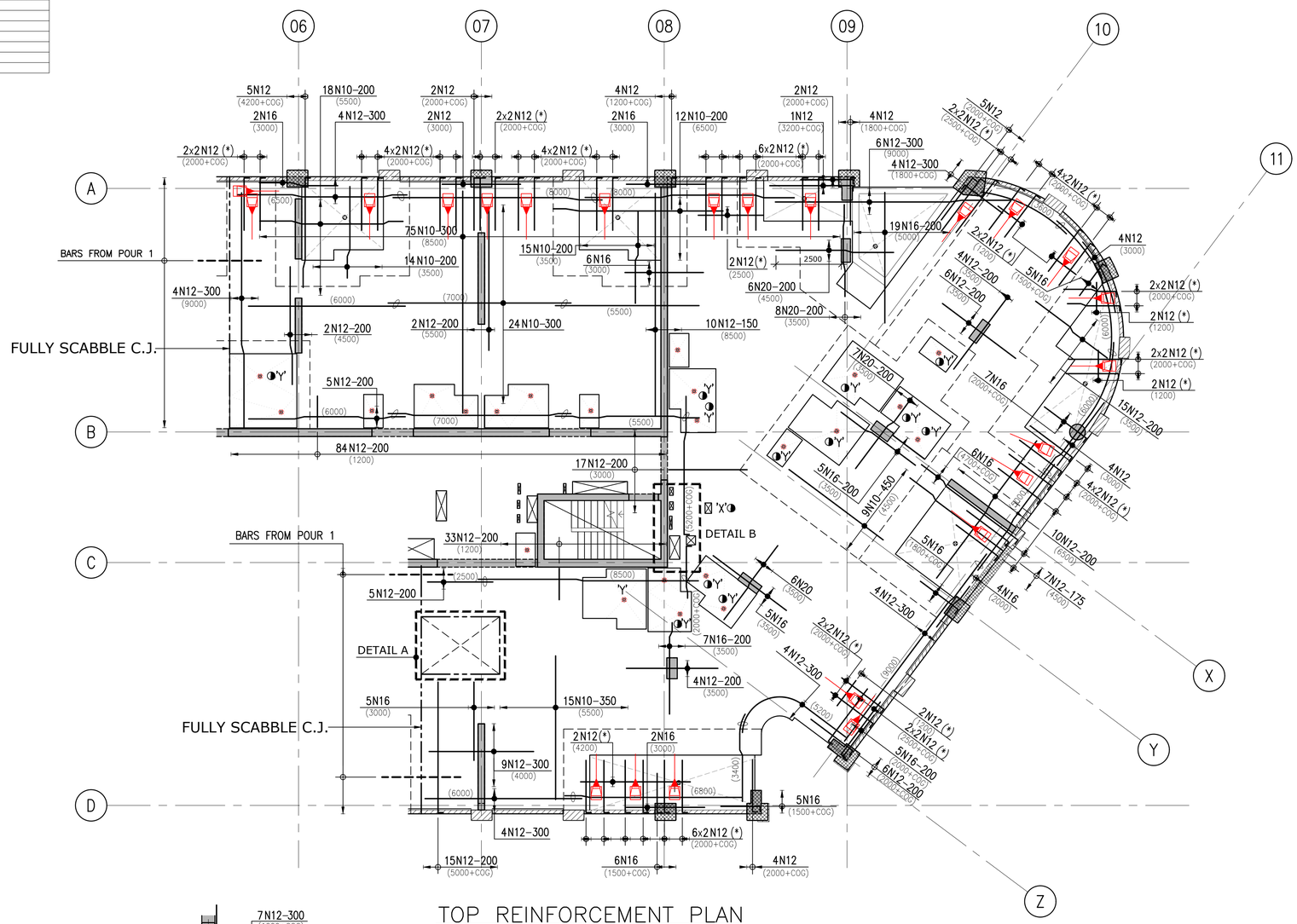
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 4 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-722	Revision: 1

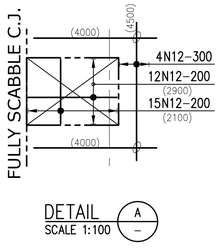


KEY PLAN
LEVEL 4

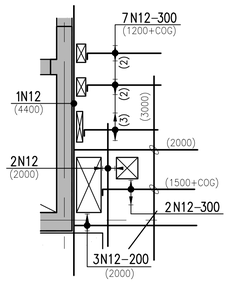
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 4 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-723	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.22 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.07 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
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THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-104-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.104
REVISION: C

Rev	Date	Status
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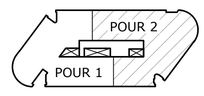
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 4 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-723	Revision: 1



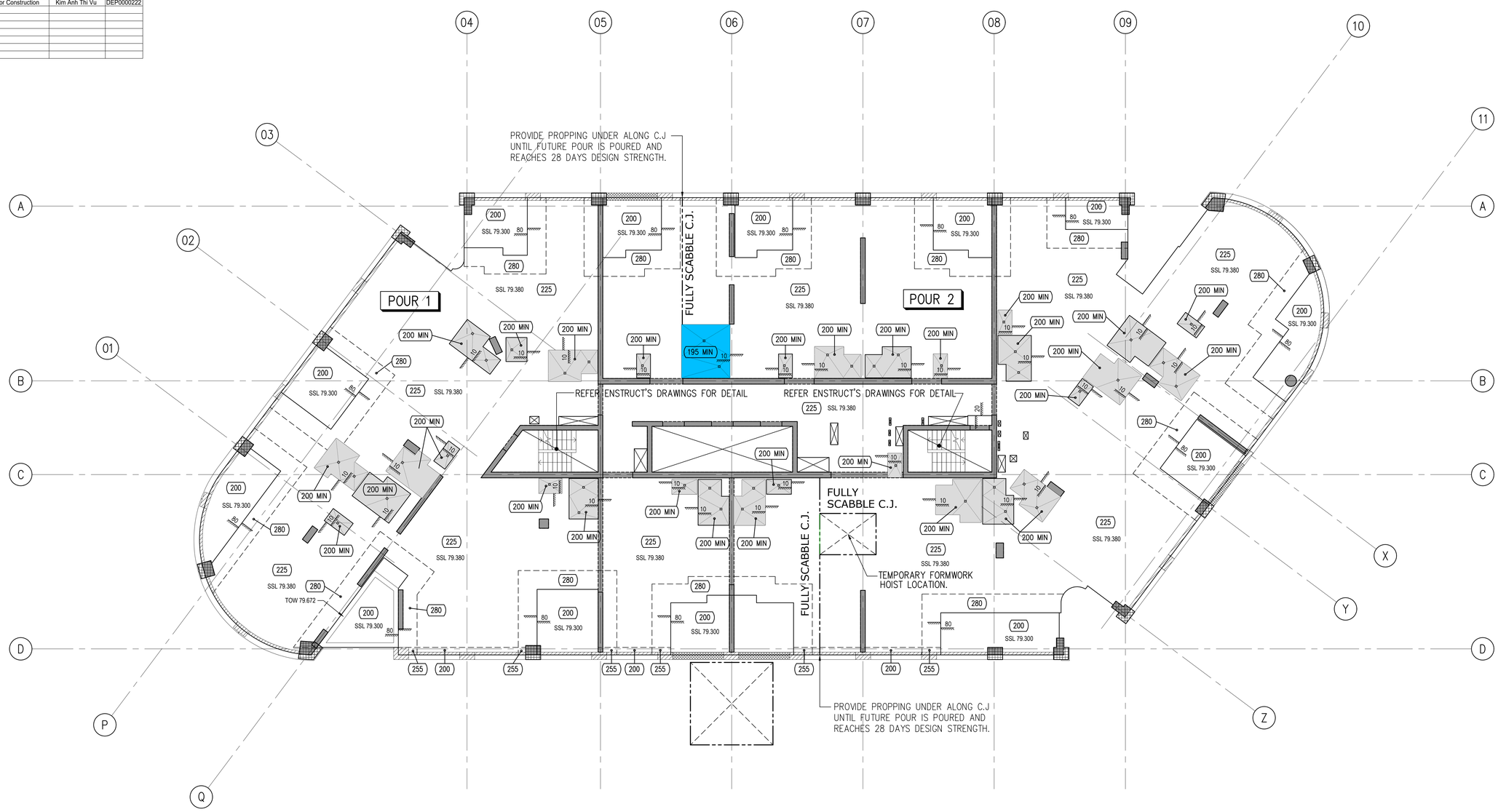
KEY PLAN
LEVEL 4

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Regulated Design Record

Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 5 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-800	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE - TO BE CONFIRMED BY PRECAST ENGINEER

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

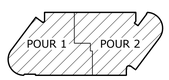
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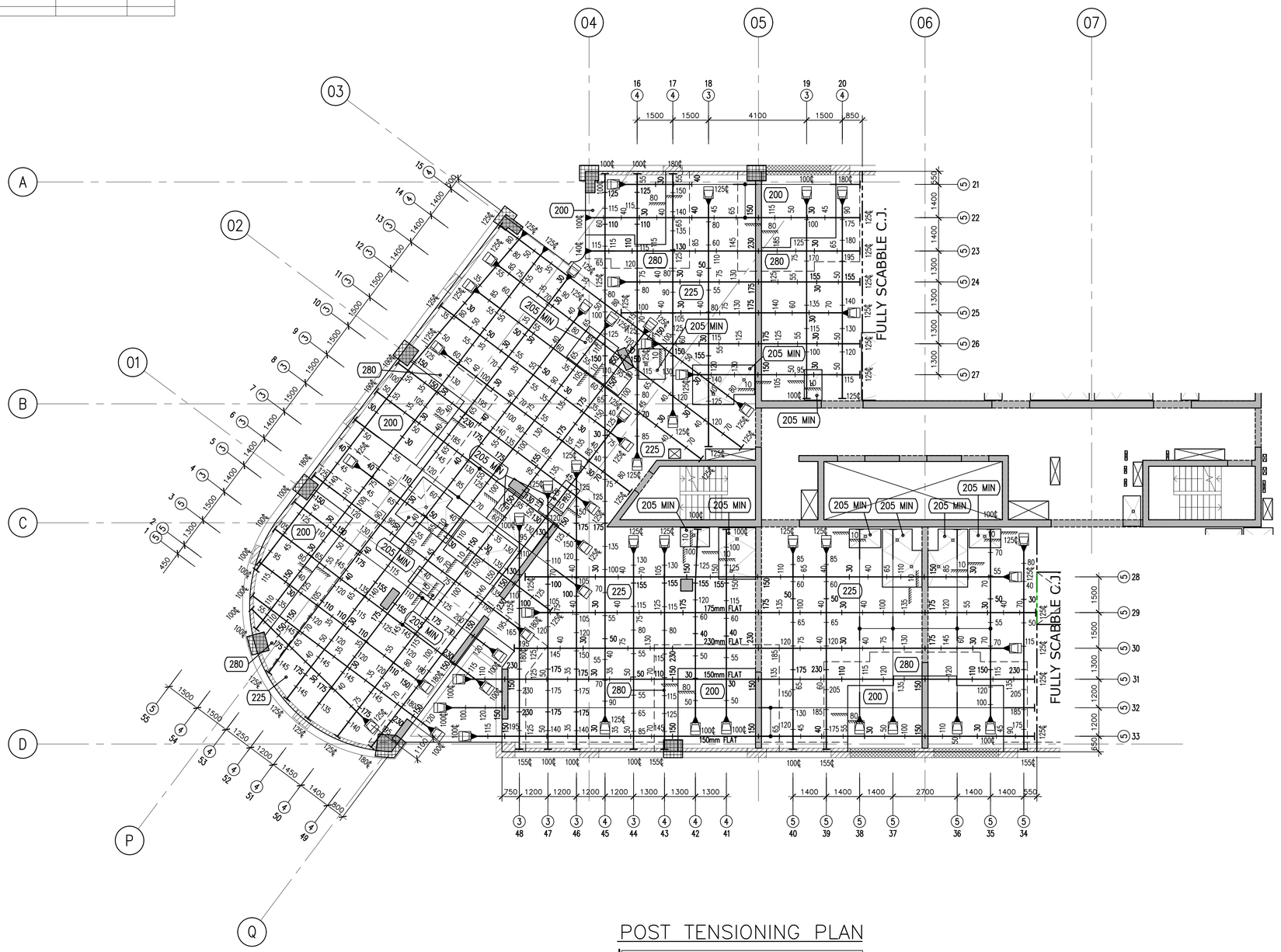
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 5 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-800	Revision: 1



KEY PLAN
LEVEL 5

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-811
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



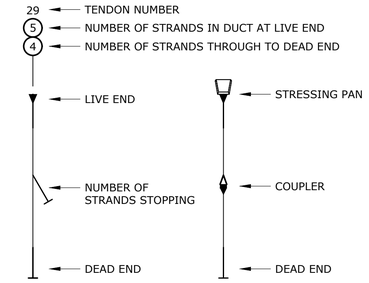
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.34 T

PAN REINFORCEMENT WEIGHT: 0.95 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-105-00	ST-305-00
REVISION:	C	B
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.105	
REVISION:	C	

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

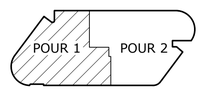
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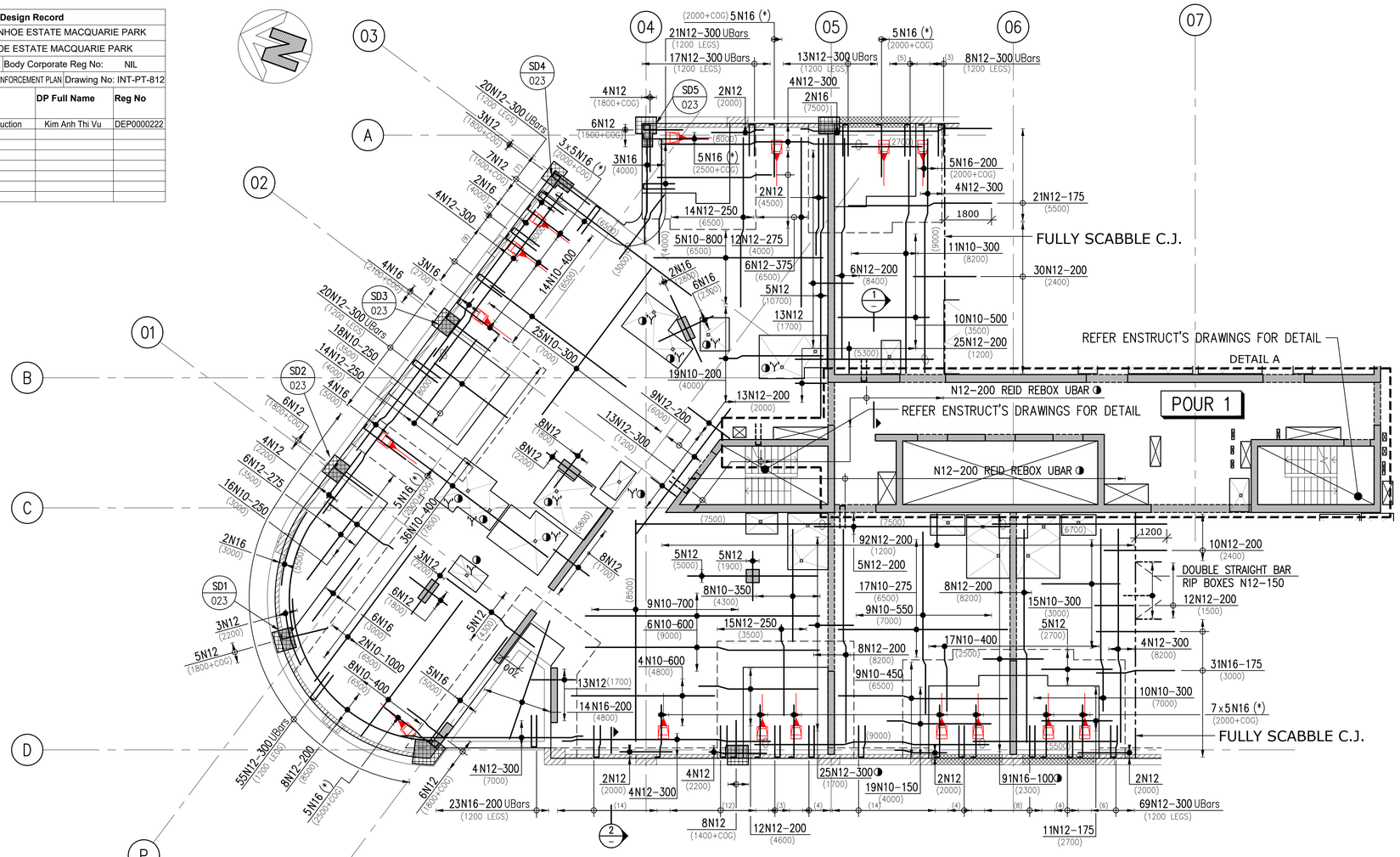
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TH
Drawing Title: LEVEL 5 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-811	Revision: 1



KEY PLAN
LEVEL 5

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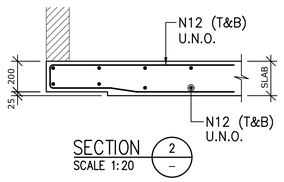
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Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-812		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

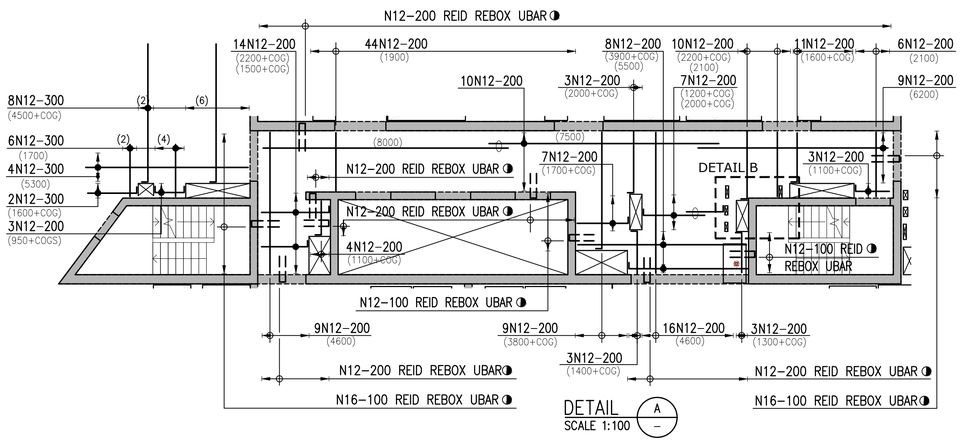


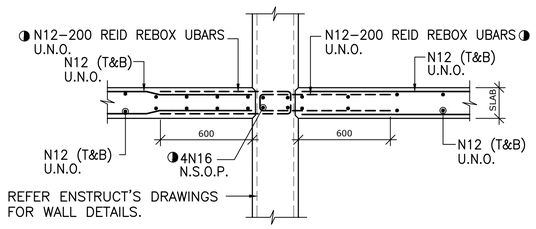
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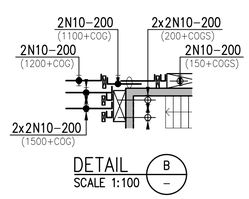
BOTTOM REINFORCEMENT PLAN

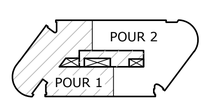
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.85 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.41 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER











KEY PLAN
LEVEL 5



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

   'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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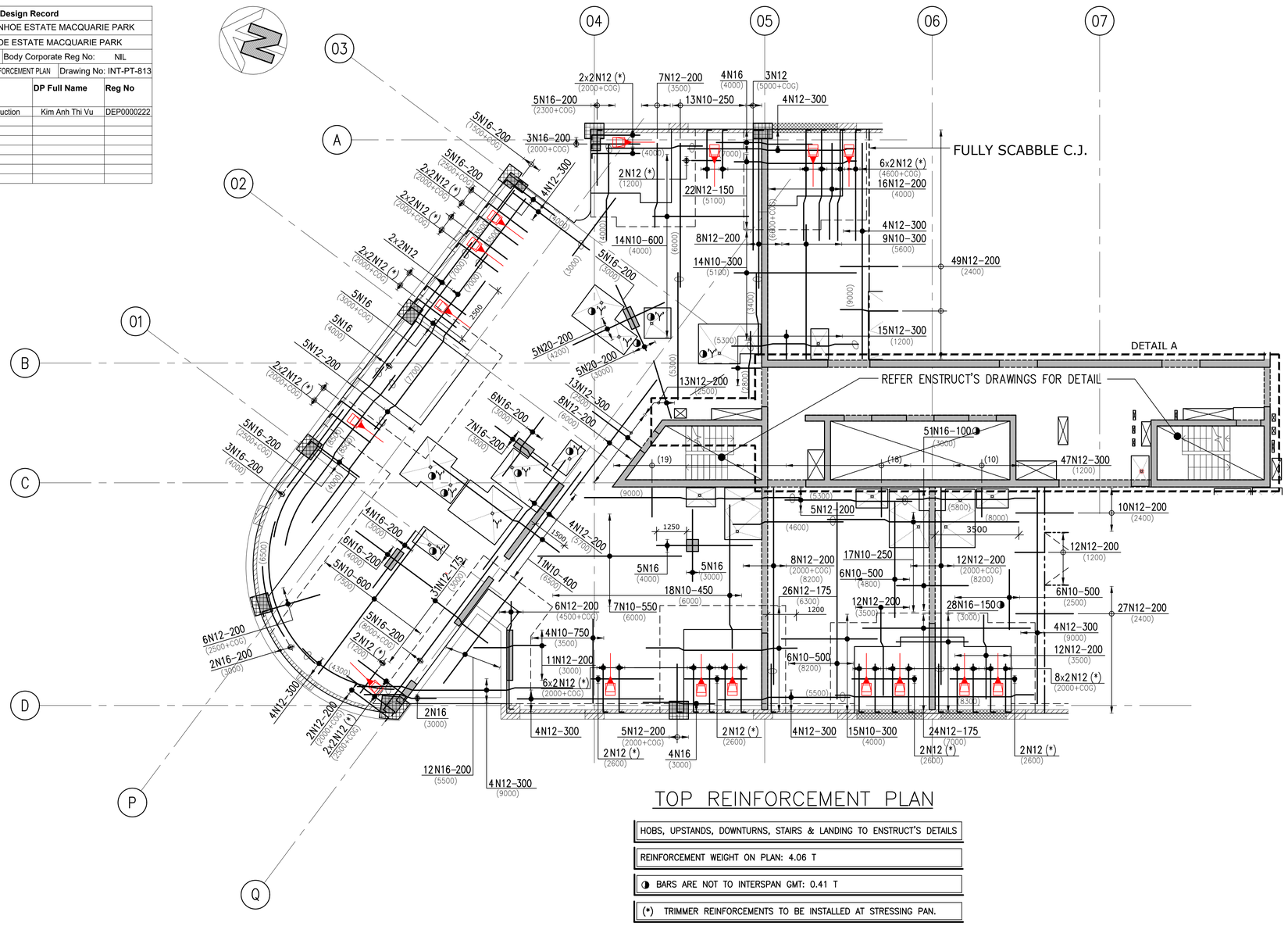
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 5 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-812	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-813	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

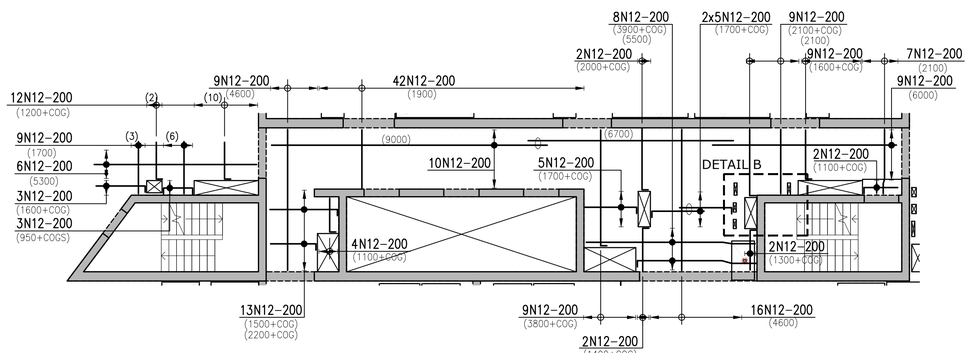
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 4.06 T

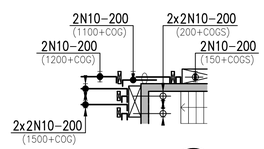
◑ BARS ARE NOT TO INTERSPAN GMT: 0.41 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

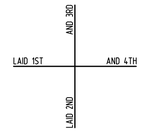
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   17 - DENOTES NUMBER OF BARS IN GROUP
   N20 - DENOTES BAR GRADE AND DIAMETER
   250 - DENOTES BAR SPACINGS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
   (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   200 - DENOTES SPACING OF STIRRUP SETS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

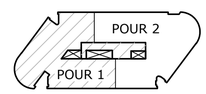
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 5

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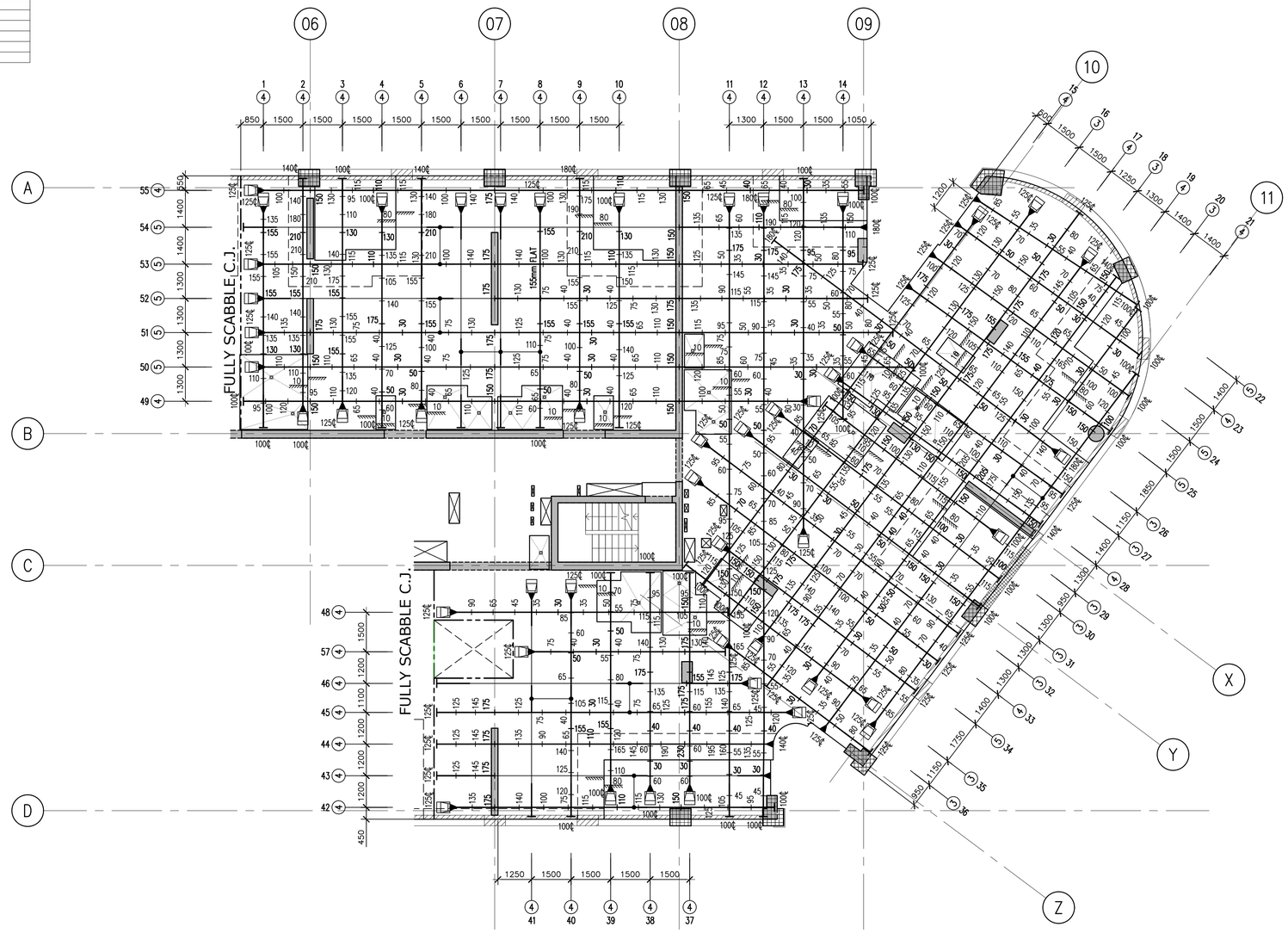
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 5 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-813	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-821	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



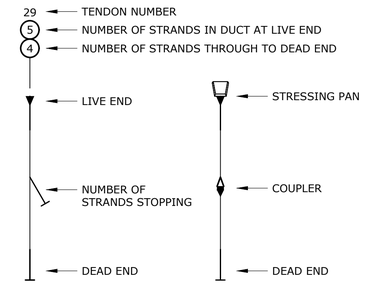
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.34

PAN REINFORCEMENT WEIGHT: 0.70 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

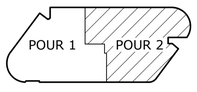


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 5

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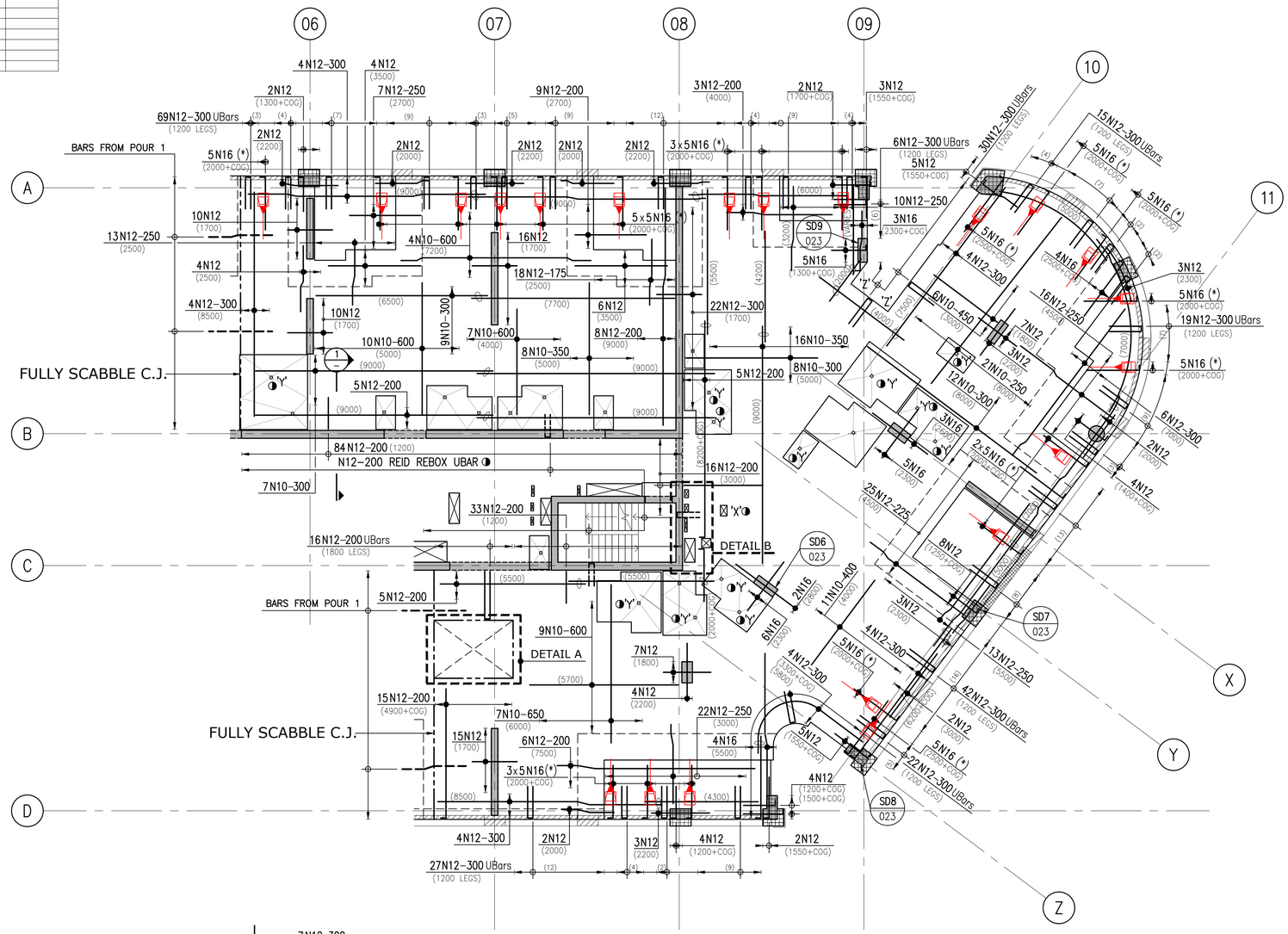
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F: +61 3 8396 9640

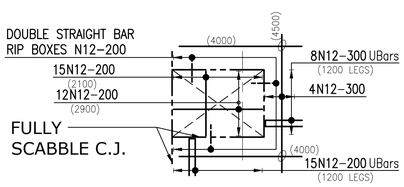
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TH
Drawing Title: LEVEL 5 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-821	Revision: 1

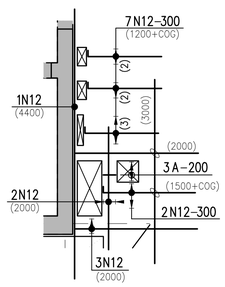
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-822		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





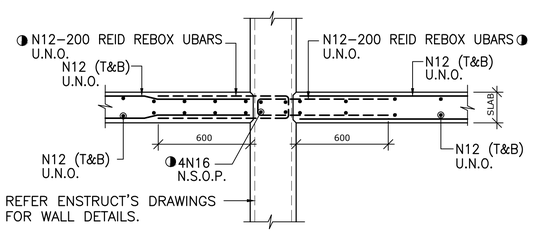
DETAIL A SCALE 1:100



DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

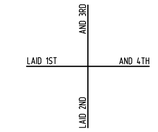
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.68 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.055 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

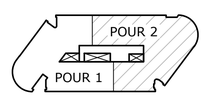
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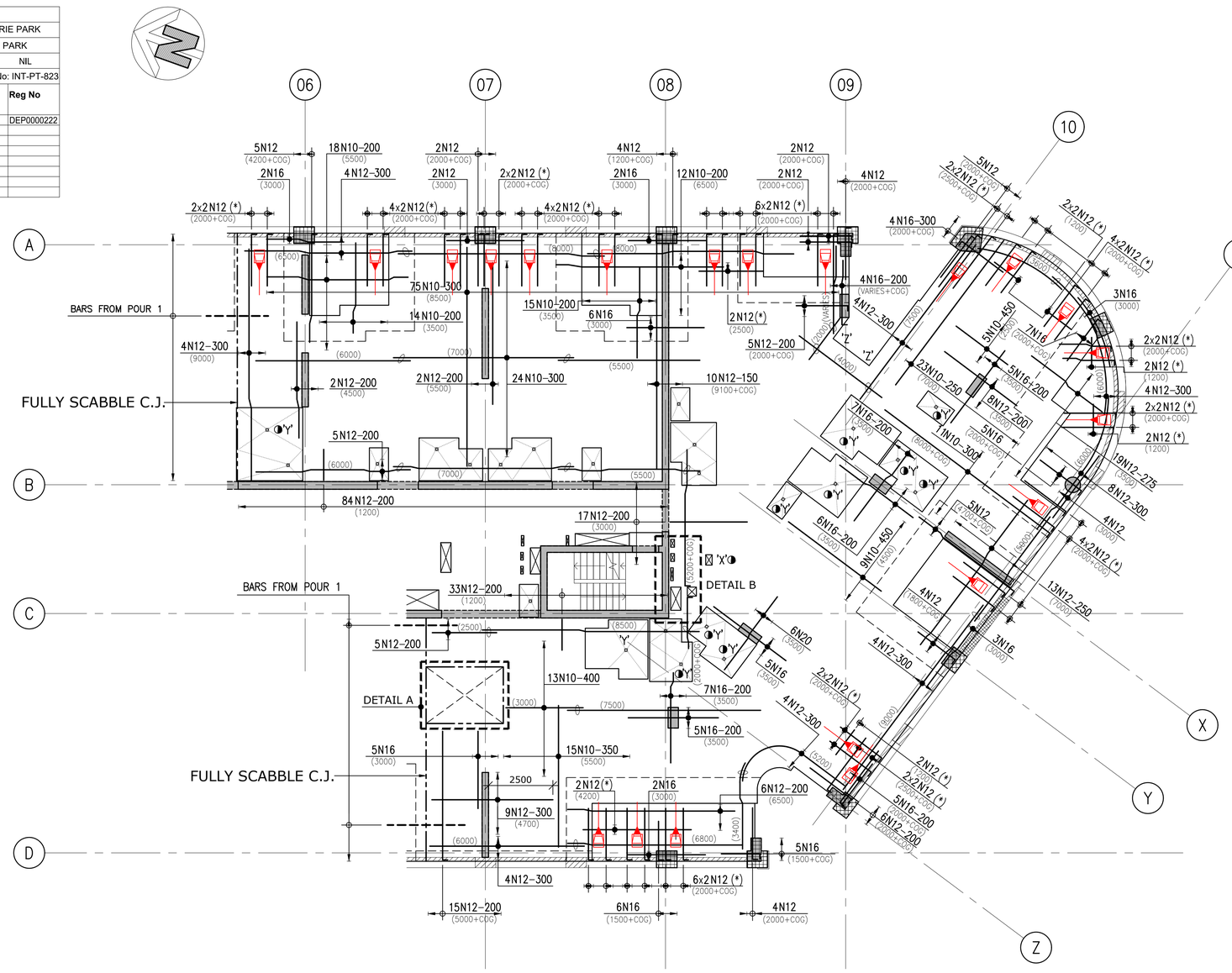
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 5 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-822	Revision: 1

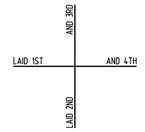


KEY PLAN
LEVEL 5

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 5 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-823	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

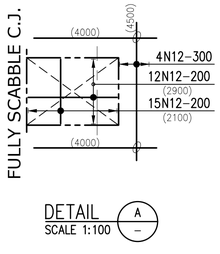
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

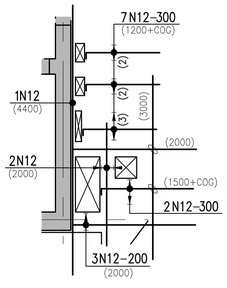
'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

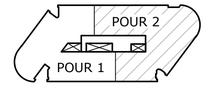
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.29 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.051 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 5

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-105-00 ST-305-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.105
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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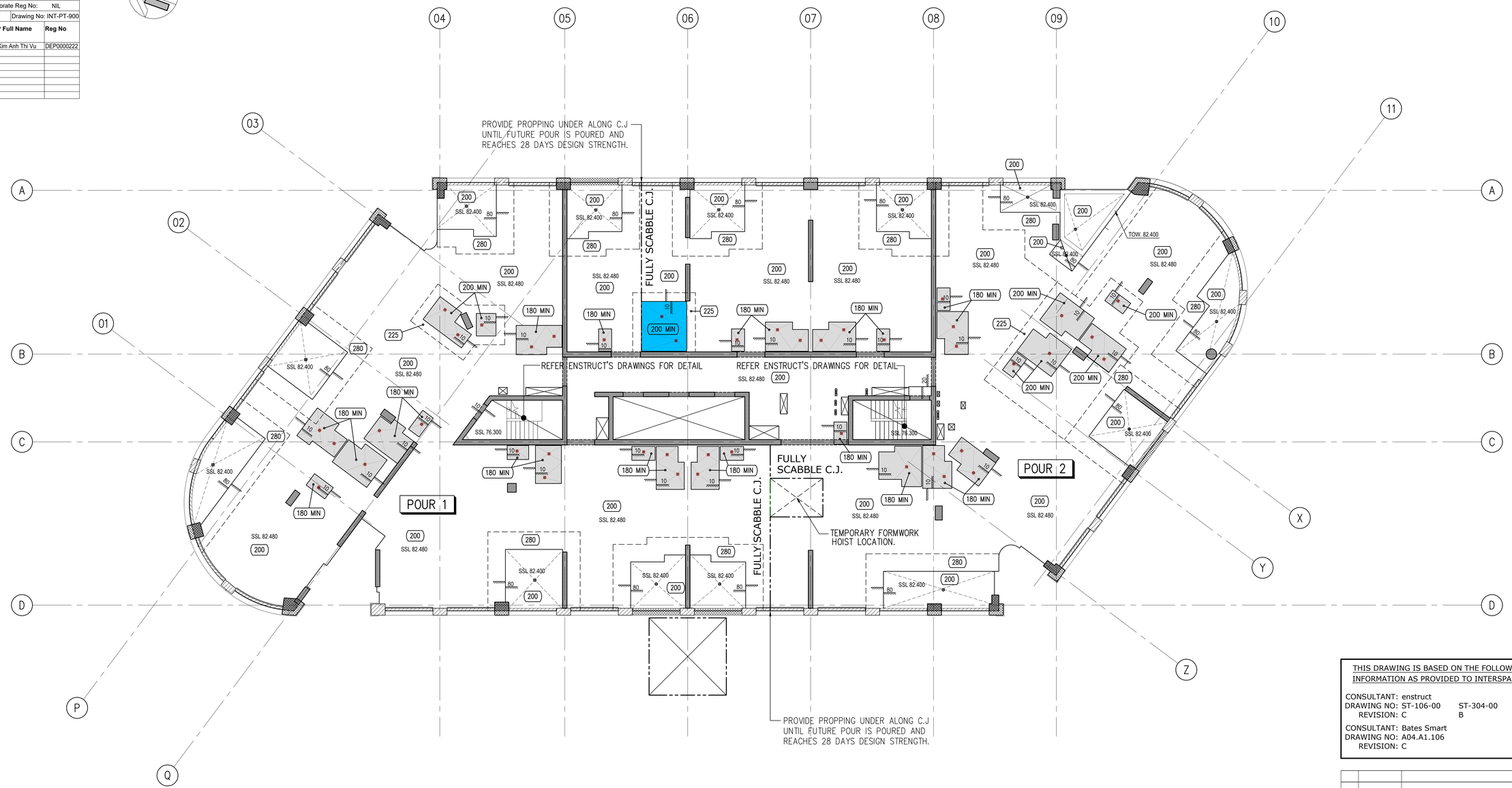
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 5 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-823	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-900	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

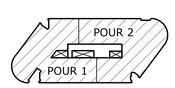
DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.

DENOTES LOAD–BEARING PRECAST PANEL OVER

DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER

DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 6

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-106-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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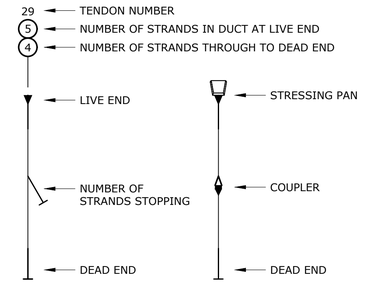
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: CP
Drawing Title: LEVEL 6 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-900	Revision: 1

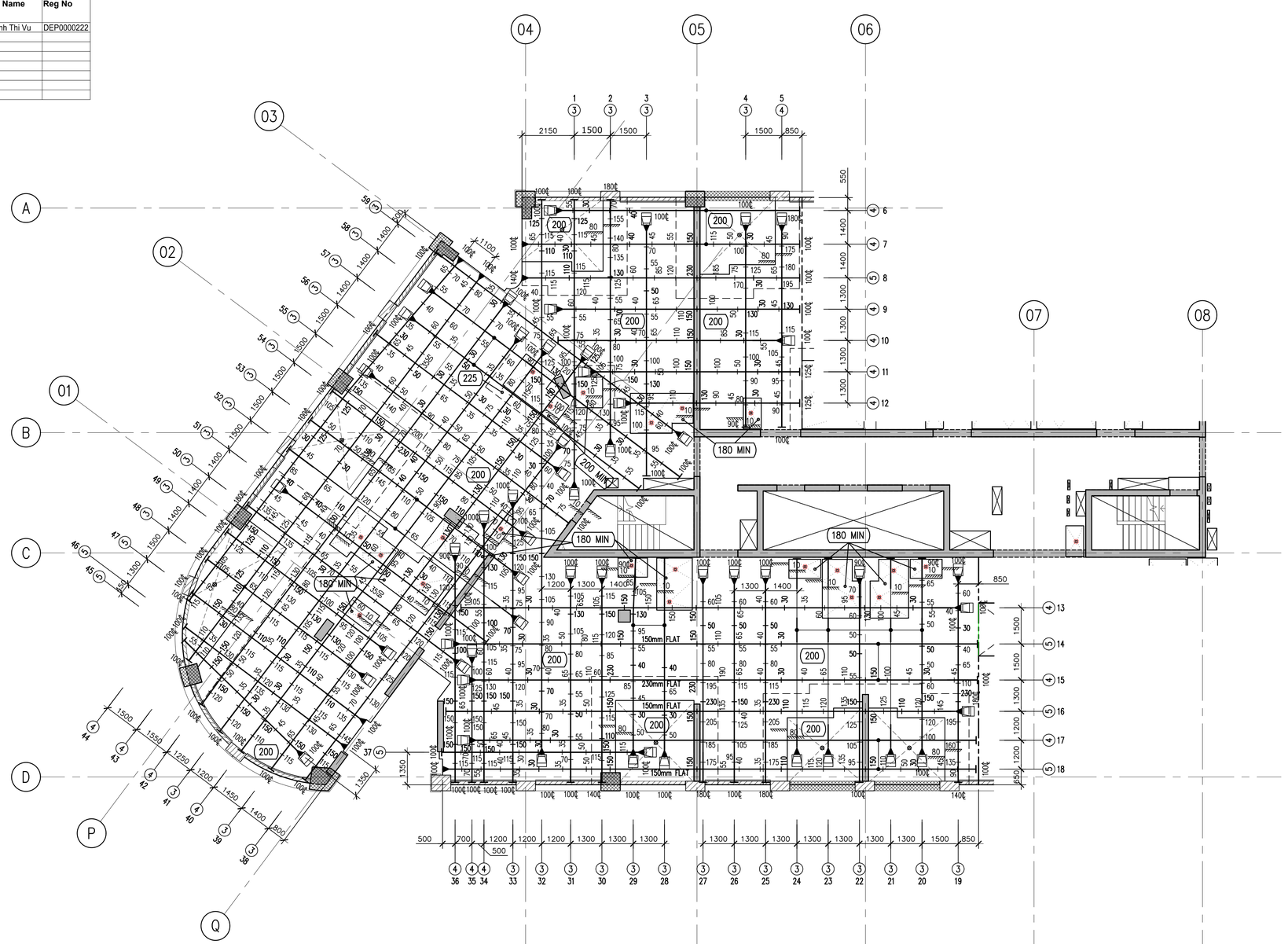
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-911
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

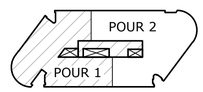
PAN REINFORCEMENT WEIGHT: 0.89 T

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-106-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 6

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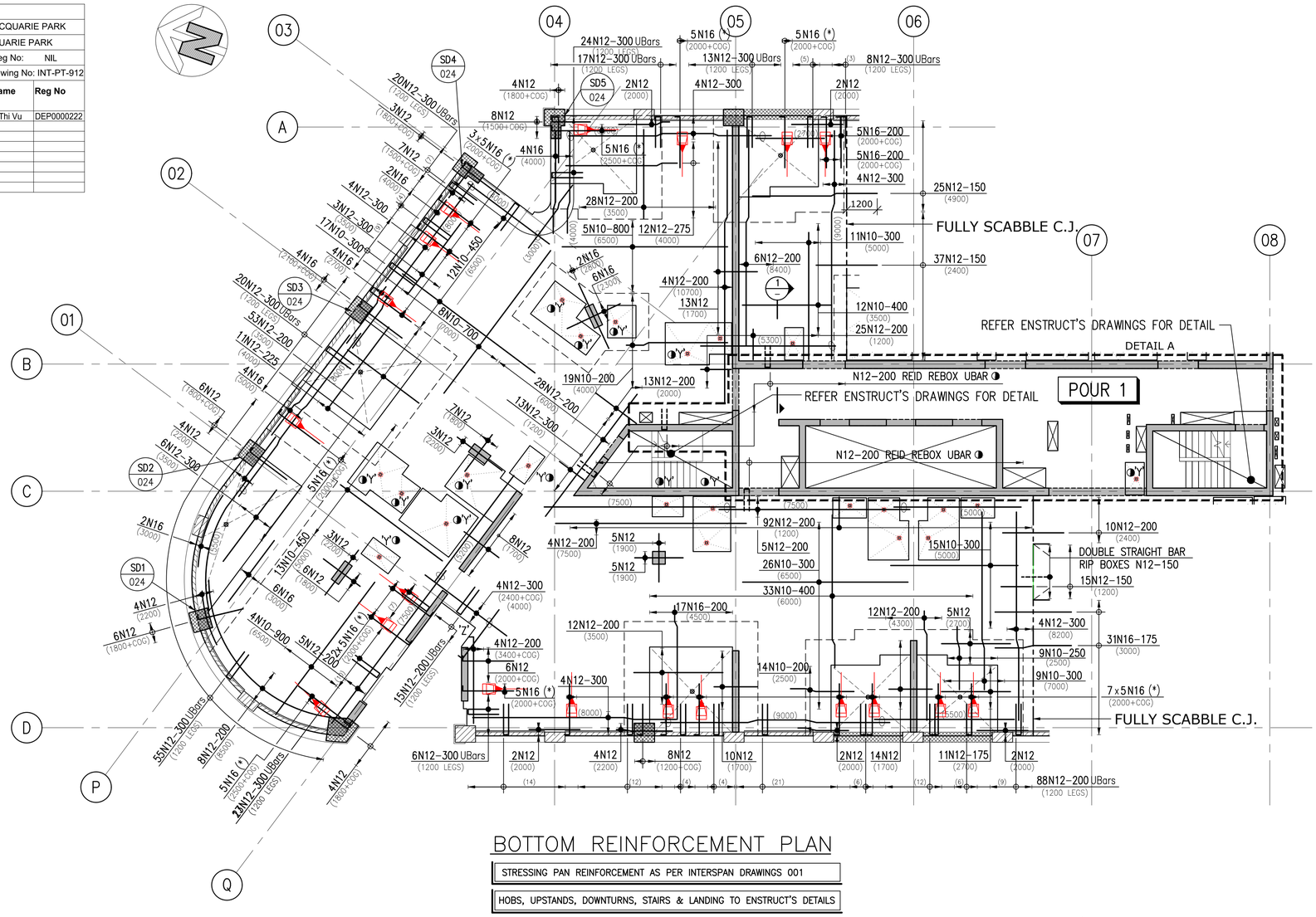
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-911	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-912		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

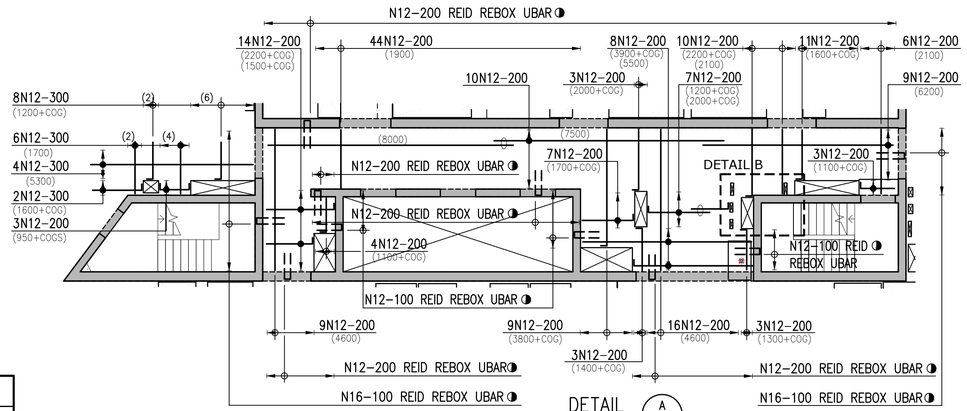
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-106-00 ST-304-00
REVISION: C B

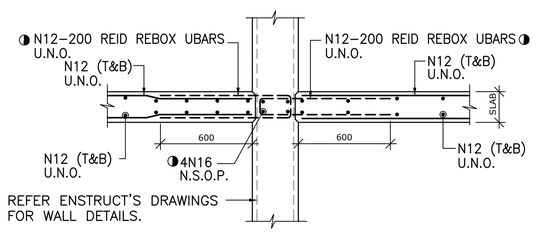
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

BOTTOM REINFORCEMENT PLAN

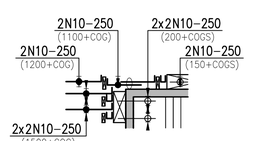
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 5.48 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



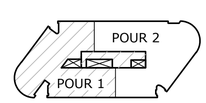
DETAIL A / SCALE 1:100



SECTION 1 / SCALE 1:20



DETAIL B / SCALE 1:100



KEY PLAN
LEVEL 6

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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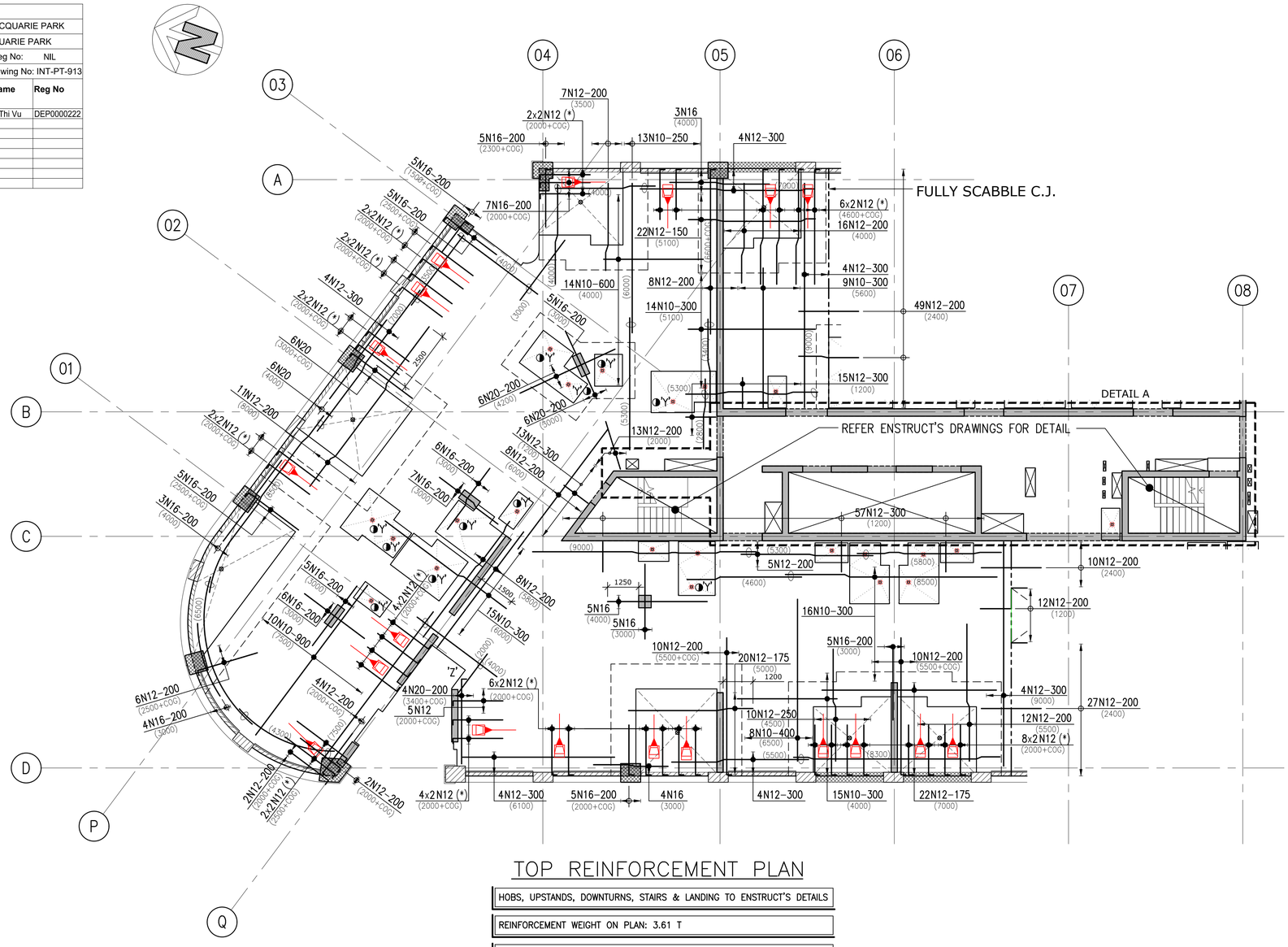
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-912	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-913	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



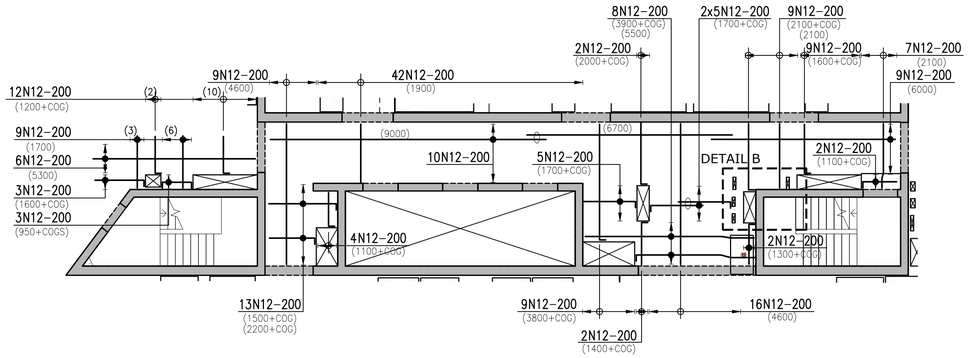
TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

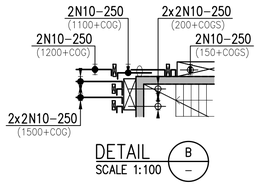
REINFORCEMENT WEIGHT ON PLAN: 3.61 T

◑ BARS ARE NOT TO INTERSPAN GMT

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
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3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-106-00 ST-304-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

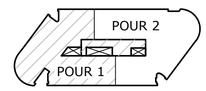
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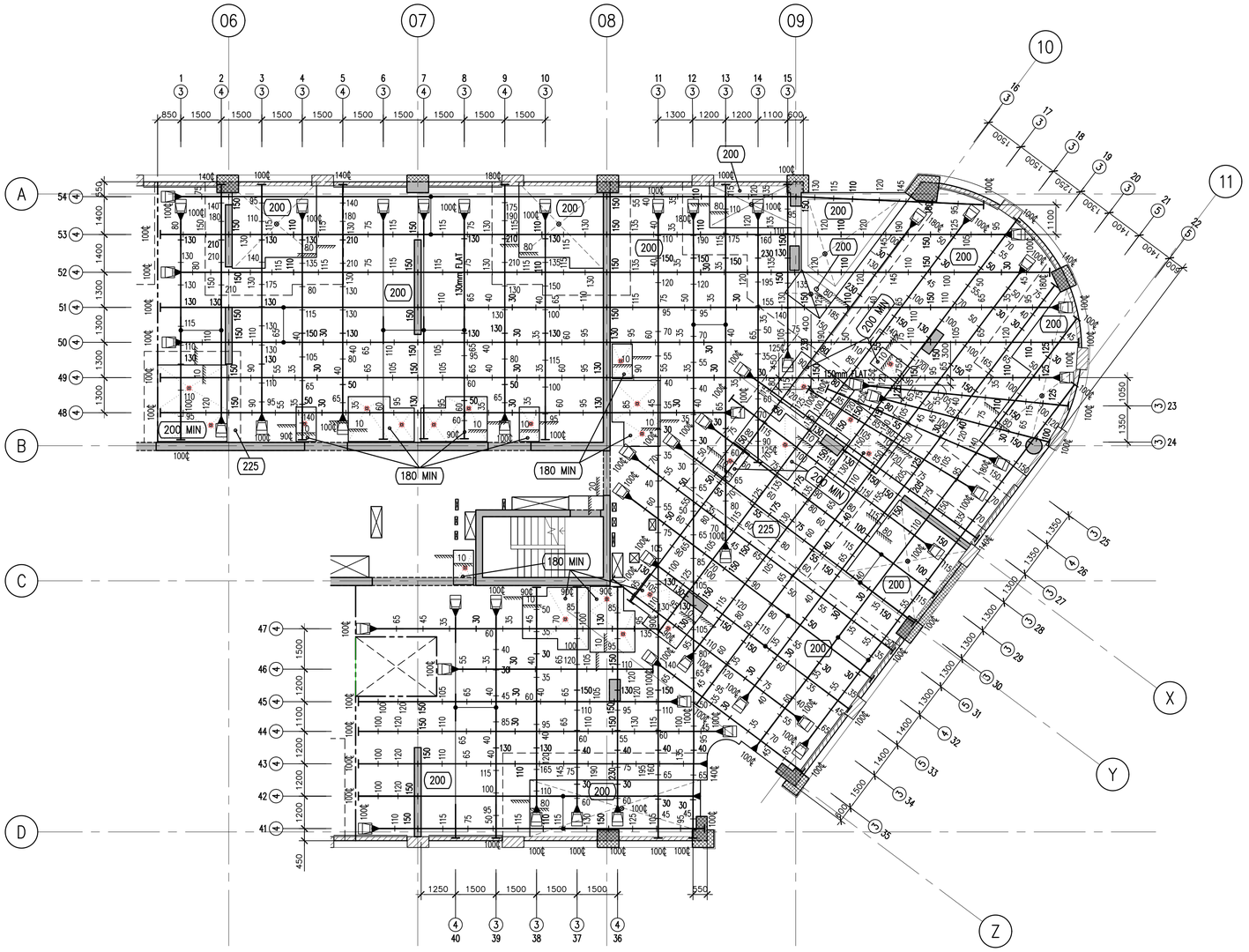
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-913	Revision: 1



KEY PLAN
LEVEL 6

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - POUR 2 - POST TENSIONING PLAN			Drawing No:	INT-PT-921
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



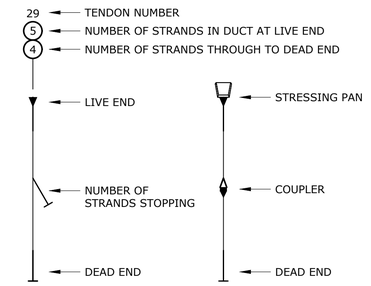
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.34 T

PAN REINFORCEMENT WEIGHT: 0.78 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

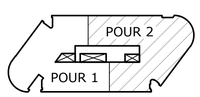


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REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
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KEY PLAN
LEVEL 6

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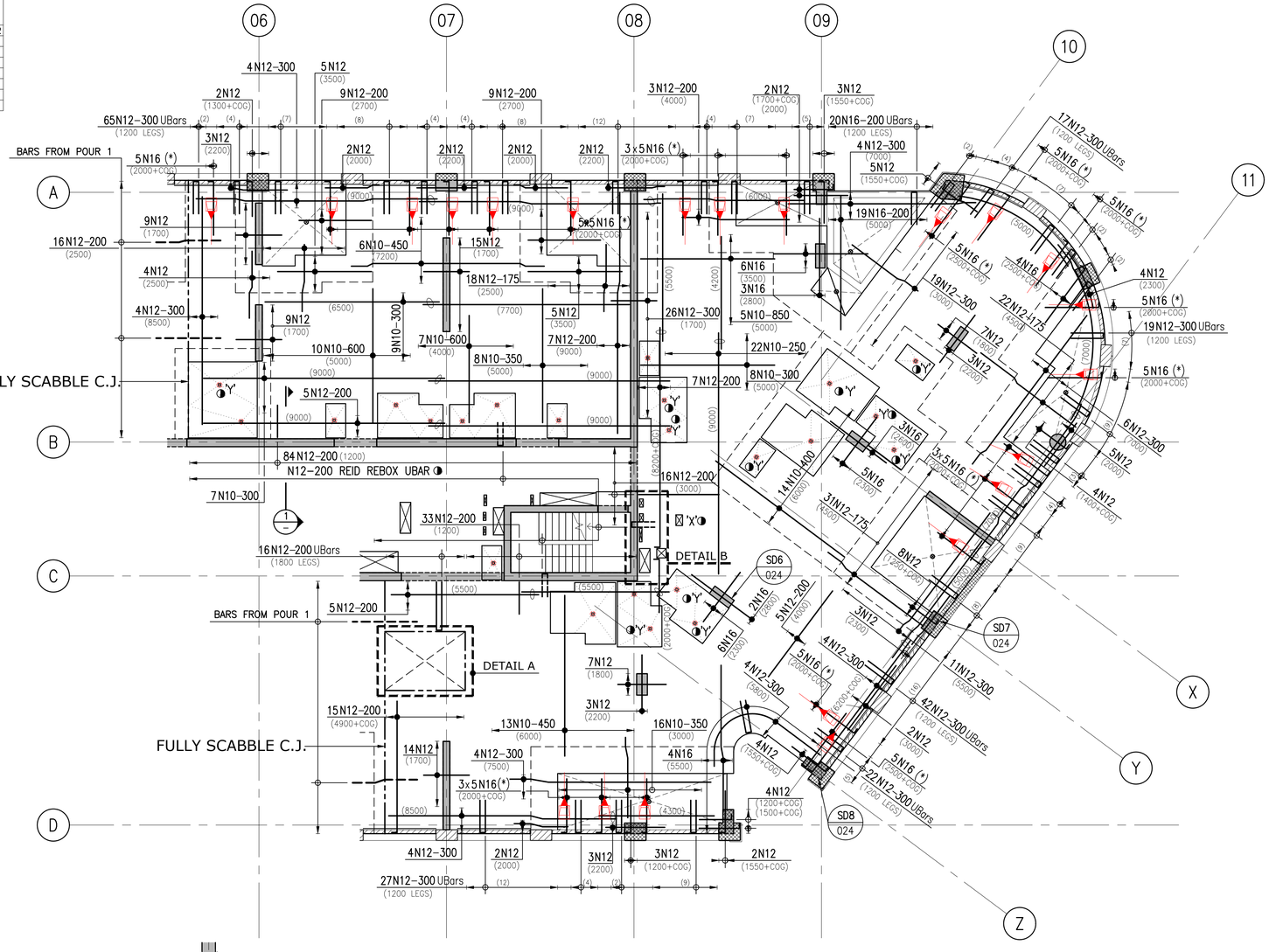
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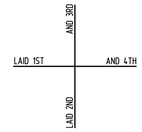
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-921	Revision: 1

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6-POUR 2-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-922
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

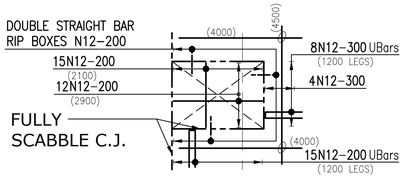
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

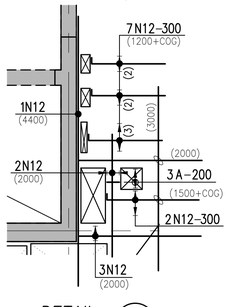
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



DETAIL A SCALE 1:100

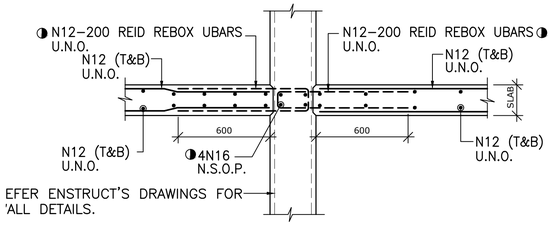


DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.8 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.08 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

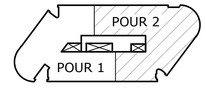
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



KEY PLAN
LEVEL 6

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-106-00 ST-304-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

Rev	Date	Status
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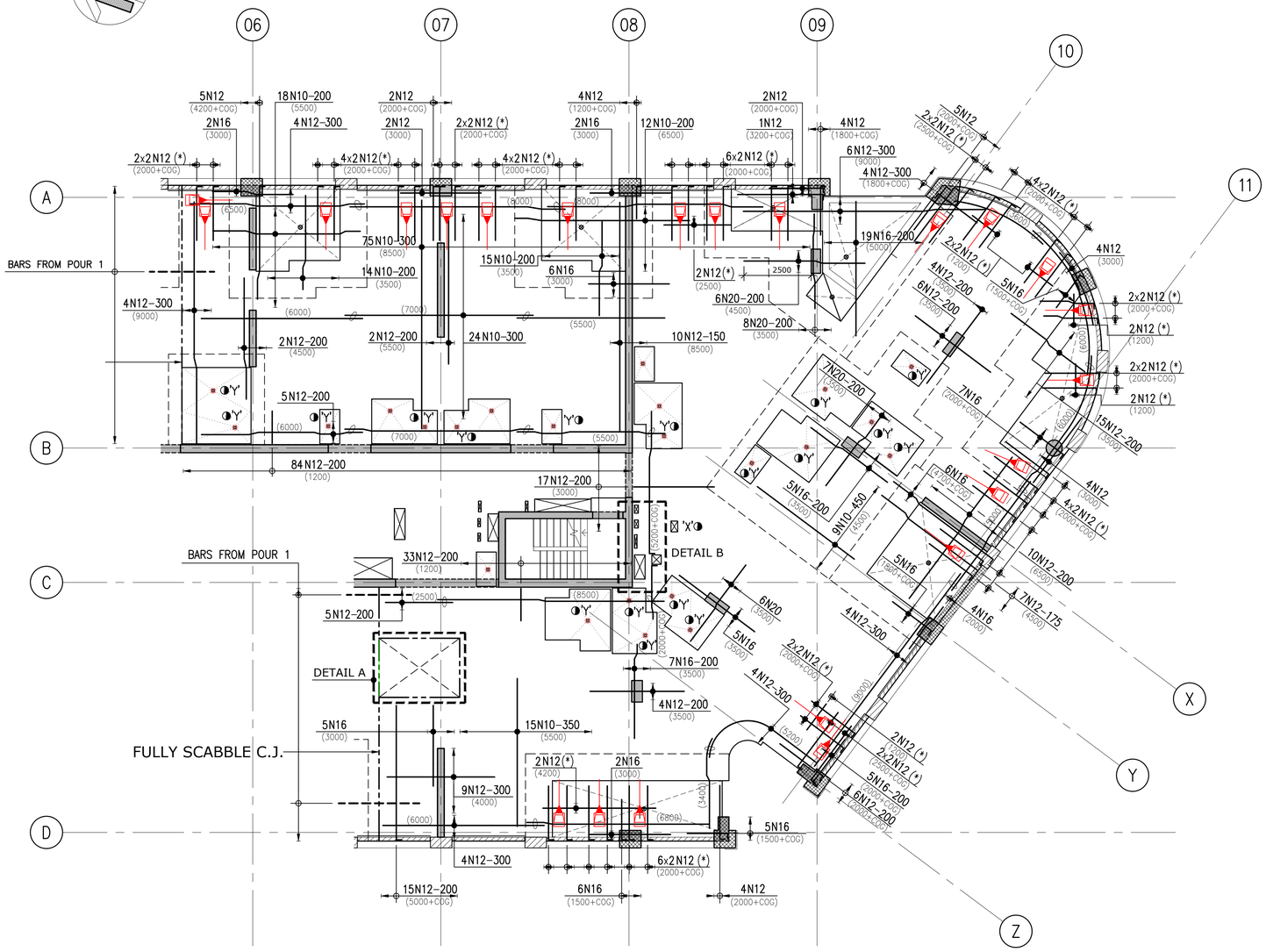
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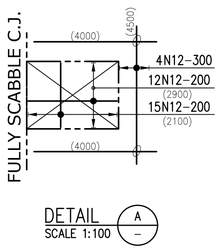
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 6 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-922	Revision: 1

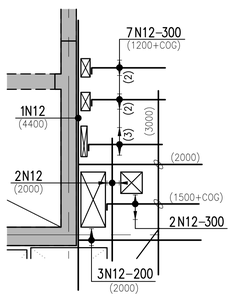
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 6 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-923	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
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DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

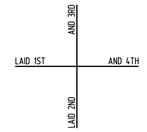
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.25 T

◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

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	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

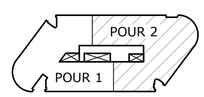
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

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DRAWING NO: ST-106-00 ST-304-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.106
REVISION: C

Rev	Date	Status
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KEY PLAN
LEVEL 6

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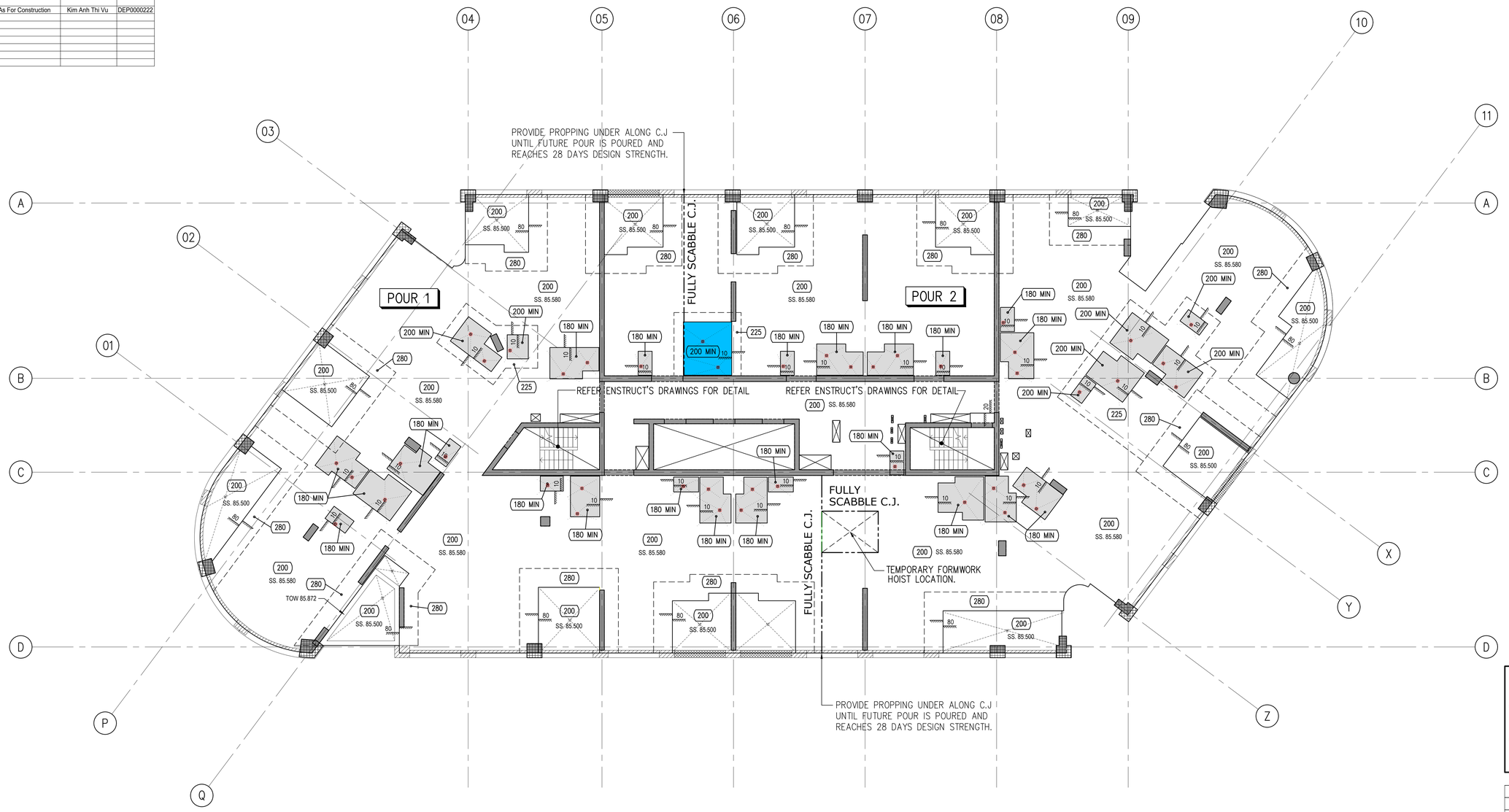
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 6 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-923	Revision: 1

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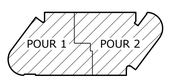
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - GENERAL ARRANGEMENT PLAN			Drawing No:	INT-PT-1000
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

- DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.
- DENOTES WET AREA SET DOWN ZONE. 25mm SETDOWN AT FW.
- DENOTES LOAD–BEARING PRECAST PANEL OVER
- DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER
- DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 7

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DRAWING NO: ST-107-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

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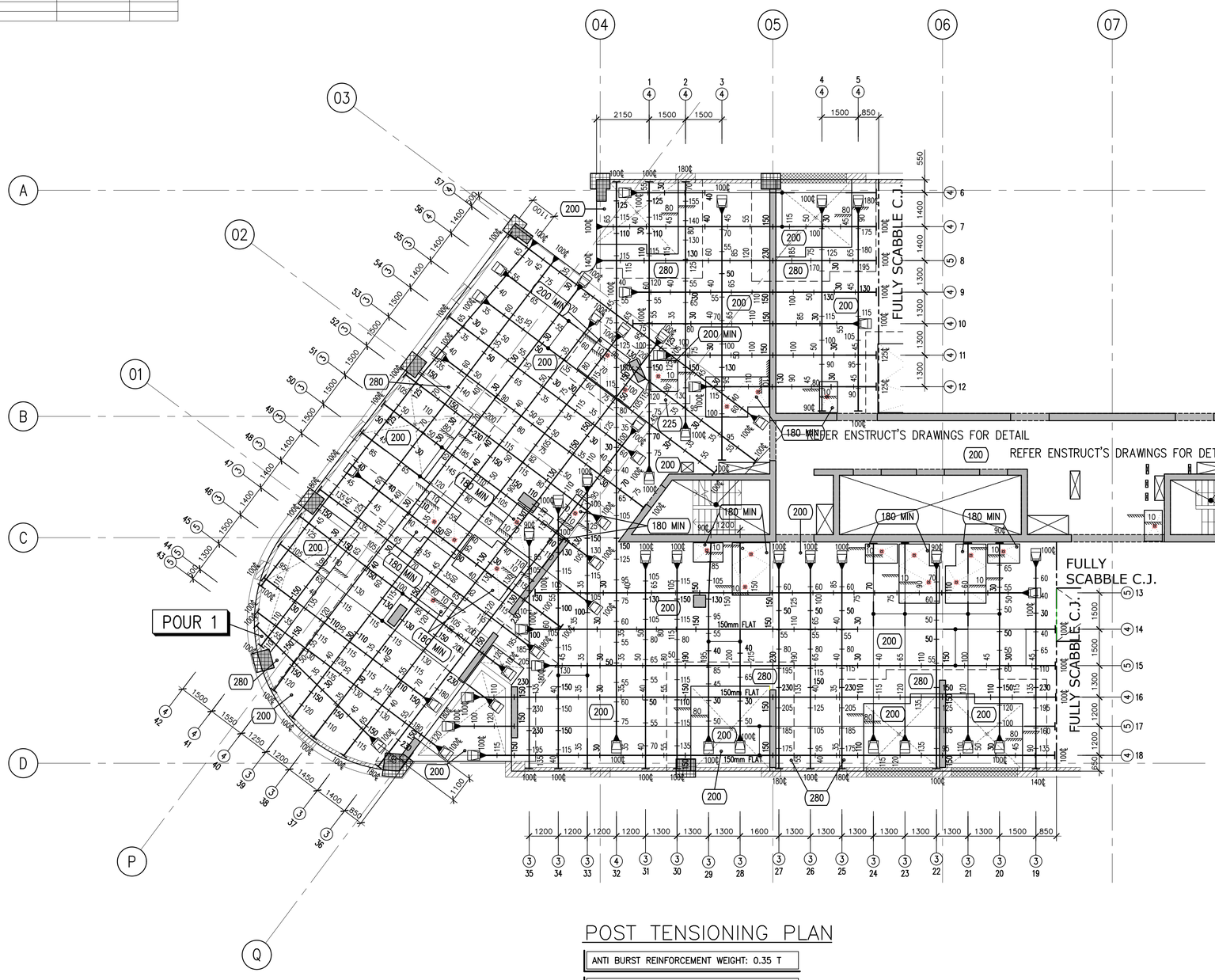
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 7 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1000	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-1011
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



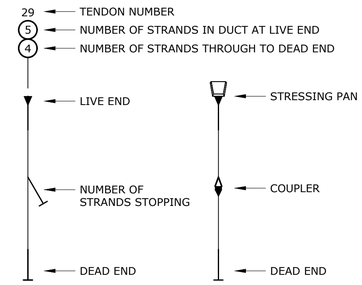
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.35 T

PAN REINFORCEMENT WEIGHT: 1.07 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

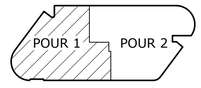


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CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

Rev	Date	Status
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KEY PLAN
LEVEL 7

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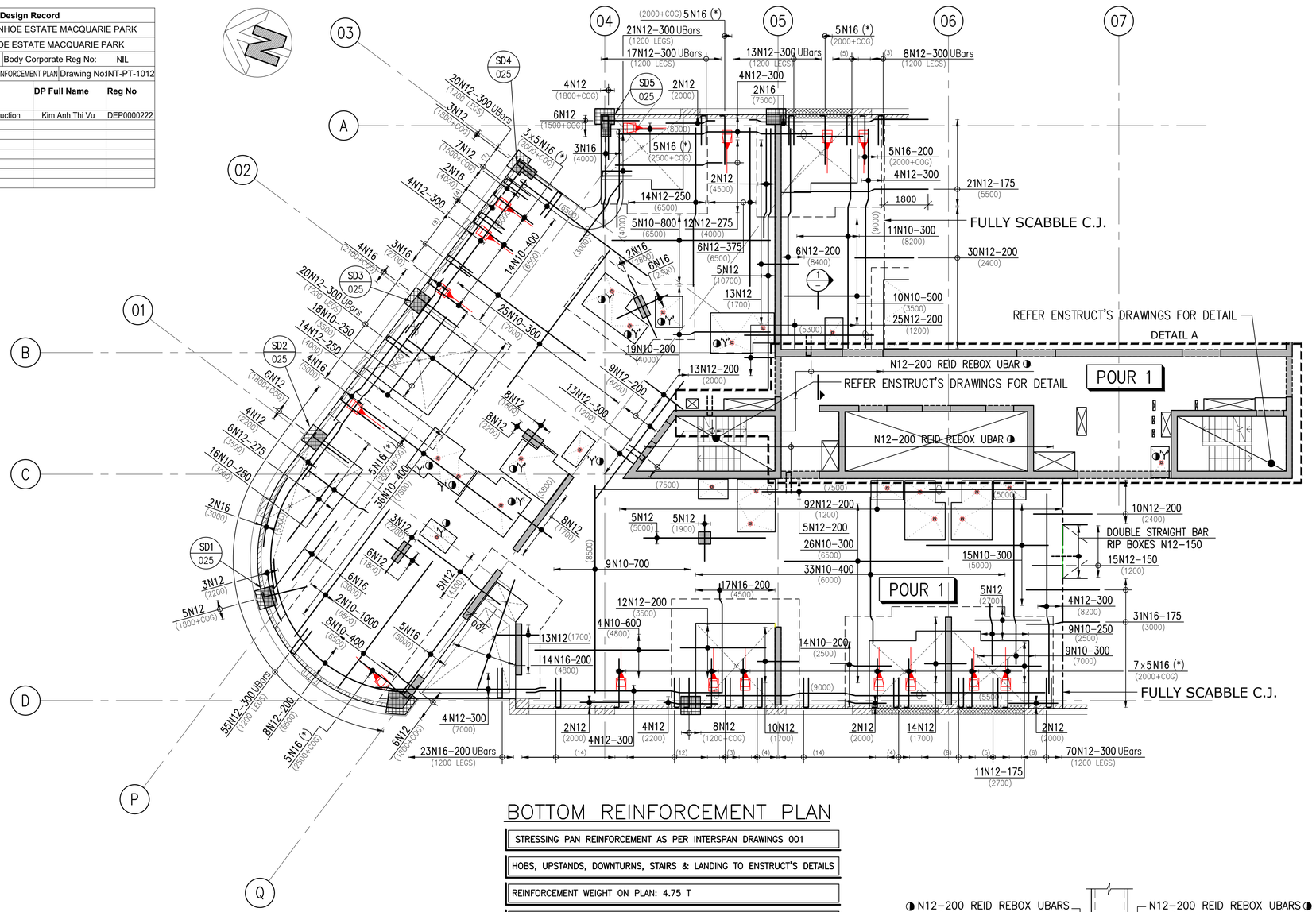
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: TL
	Drawn: PC
Drawing Title: LEVEL 7 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1011	Revision: 1

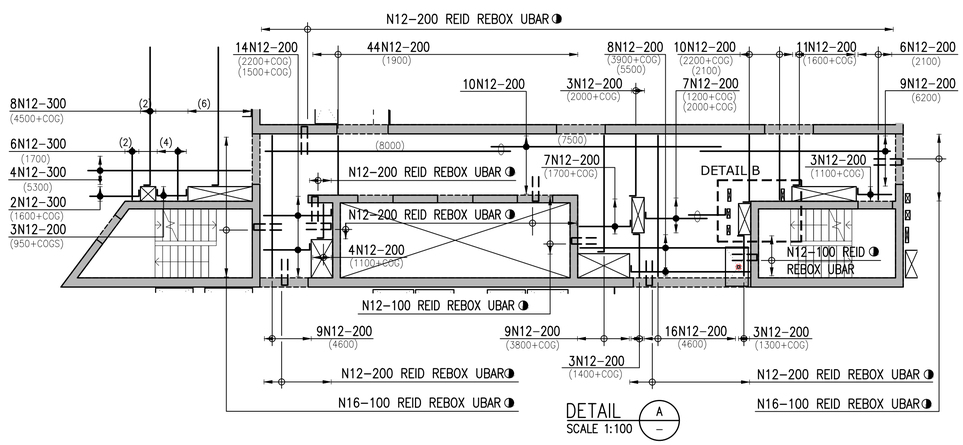
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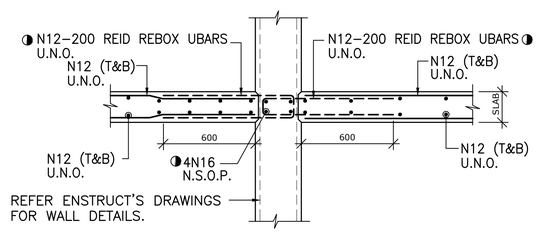
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1012		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



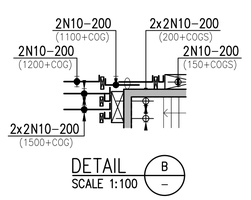
BOTTOM REINFORCEMENT PLAN

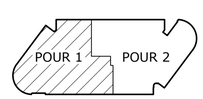
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.75 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER





SECTION 1 / SCALE 1:20





KEY PLAN
LEVEL 7



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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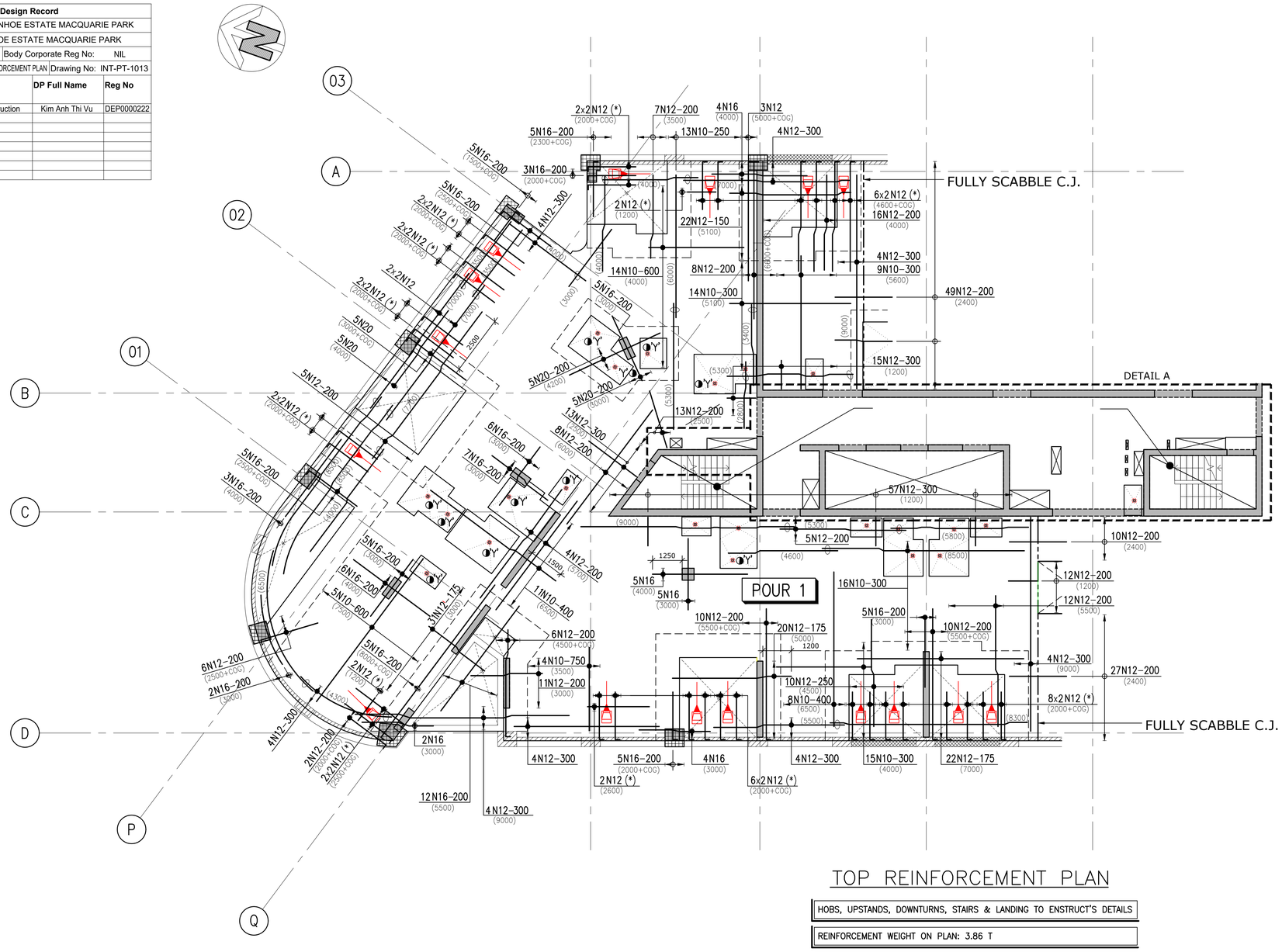
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 7 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1012	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - POUR 1-TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1013	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

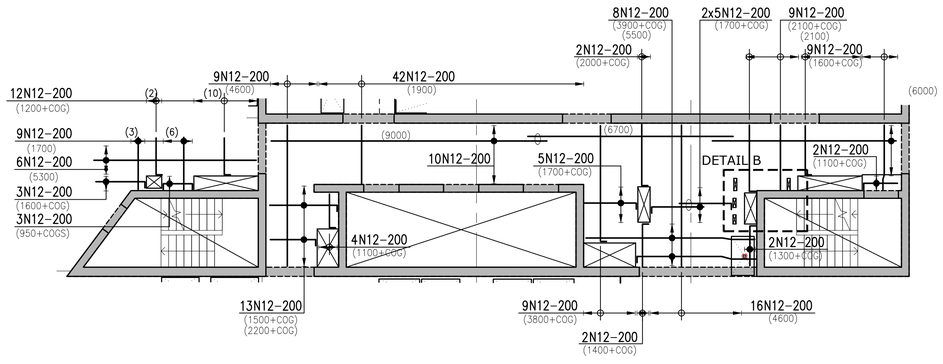
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.86 T

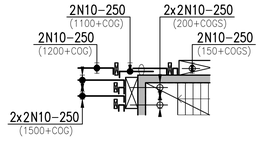
◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

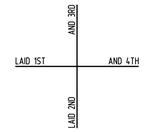
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
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   250 - DENOTES BAR SPACINGS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
   (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
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'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

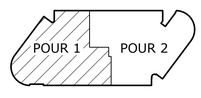
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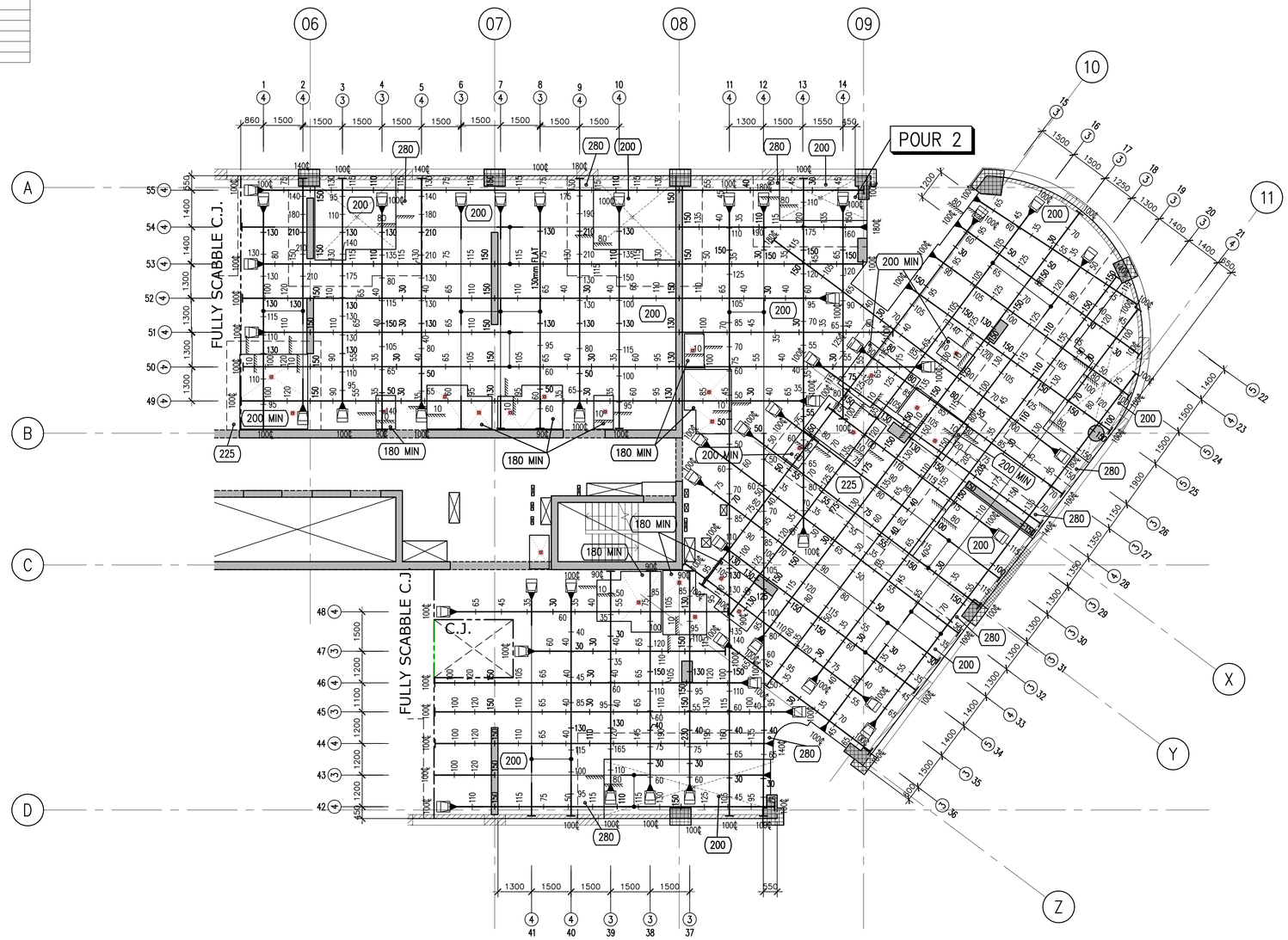
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 7 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1013	Revision: 1



KEY PLAN
LEVEL 7

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-1021	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



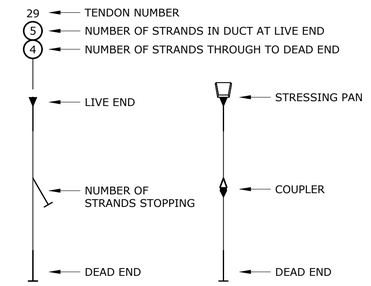
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.34 T

PAN REINFORCEMENT WEIGHT: 0.81 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

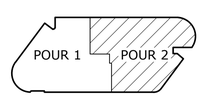
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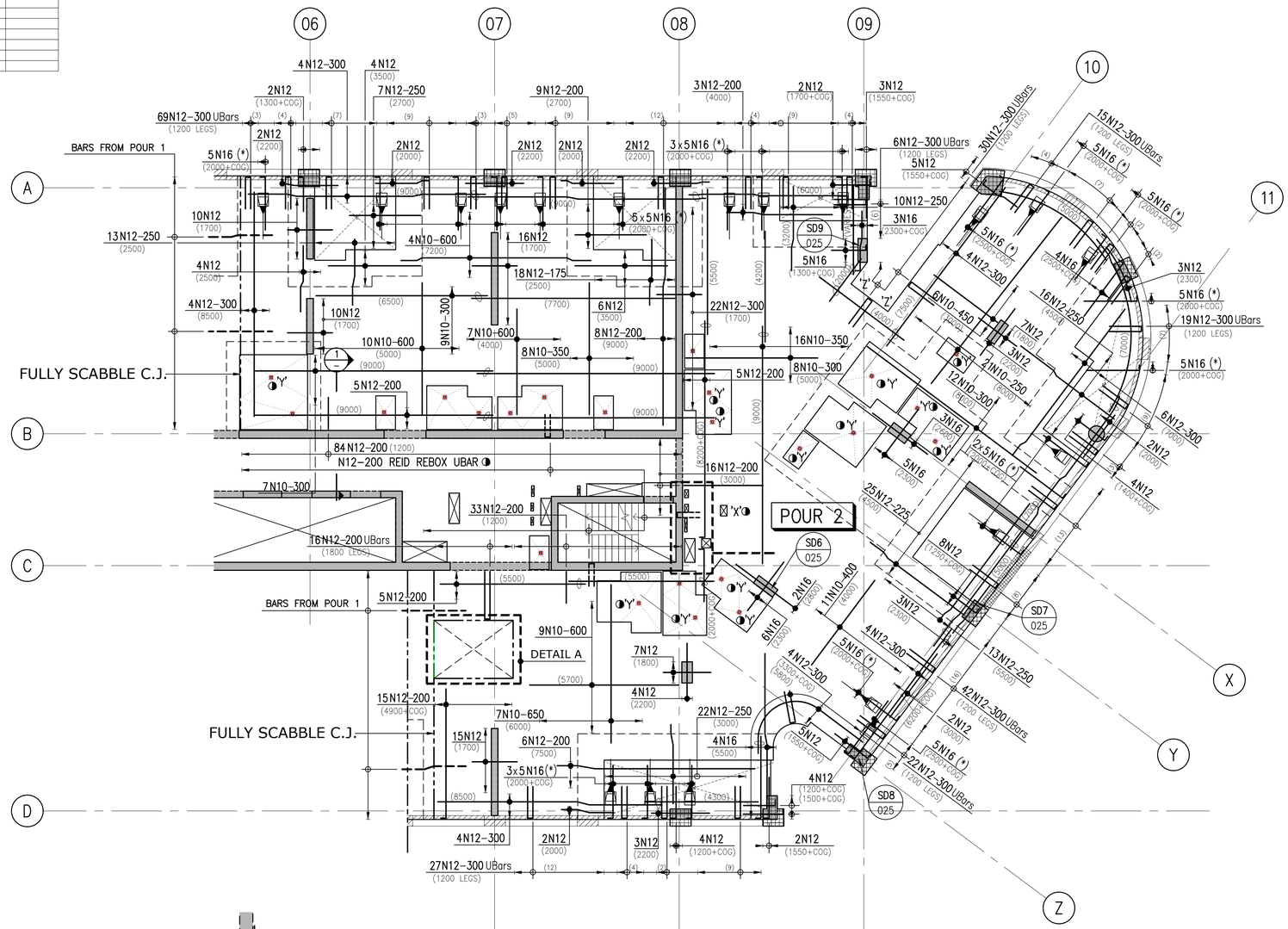
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	Drawn: HN1
Drawing Title: LEVEL 7 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1021	Revision: 1

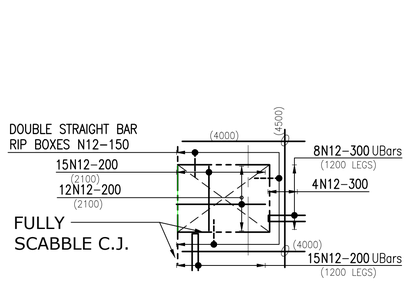


KEY PLAN
LEVEL 7

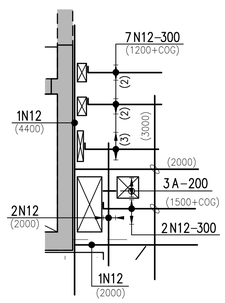
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1022		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





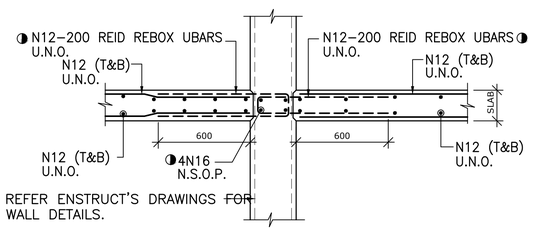
DETAIL A SCALE 1:100



DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.68 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.059 T



SECTION 1 SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

Rev	Date	Status
1	21-12-21	As For Construction

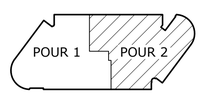
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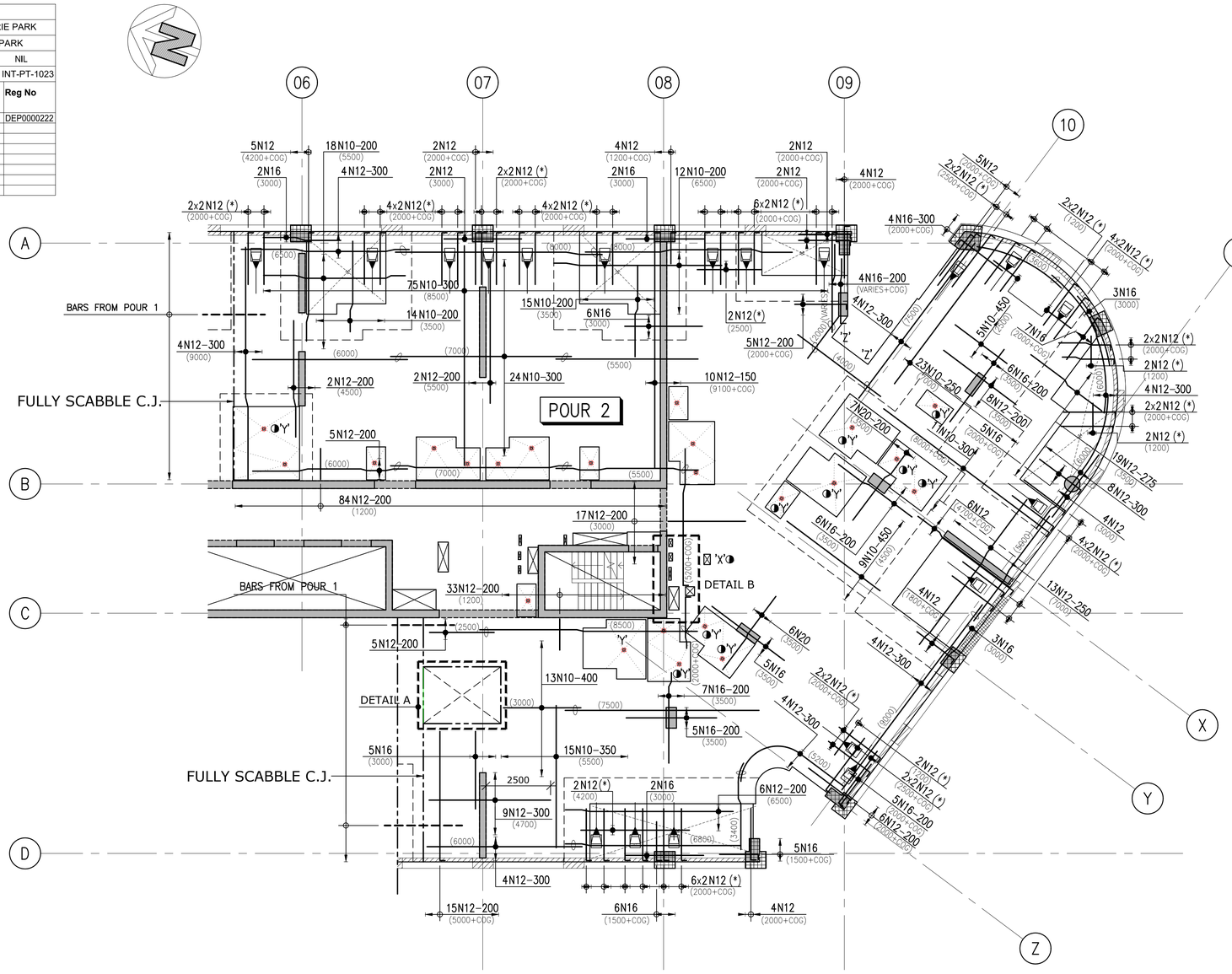
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 7 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1022	Revision: 1

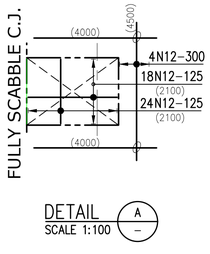


KEY PLAN
LEVEL 7

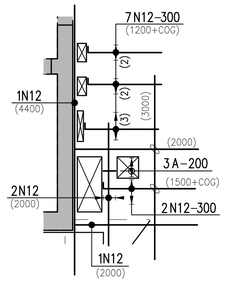
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 7 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-1023
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



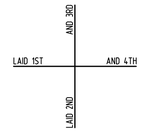
DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.34 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.051 T



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
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	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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BTM	25	40	25	40	25	40
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   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-107-00 ST-305-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.107
REVISION: C

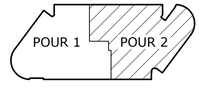
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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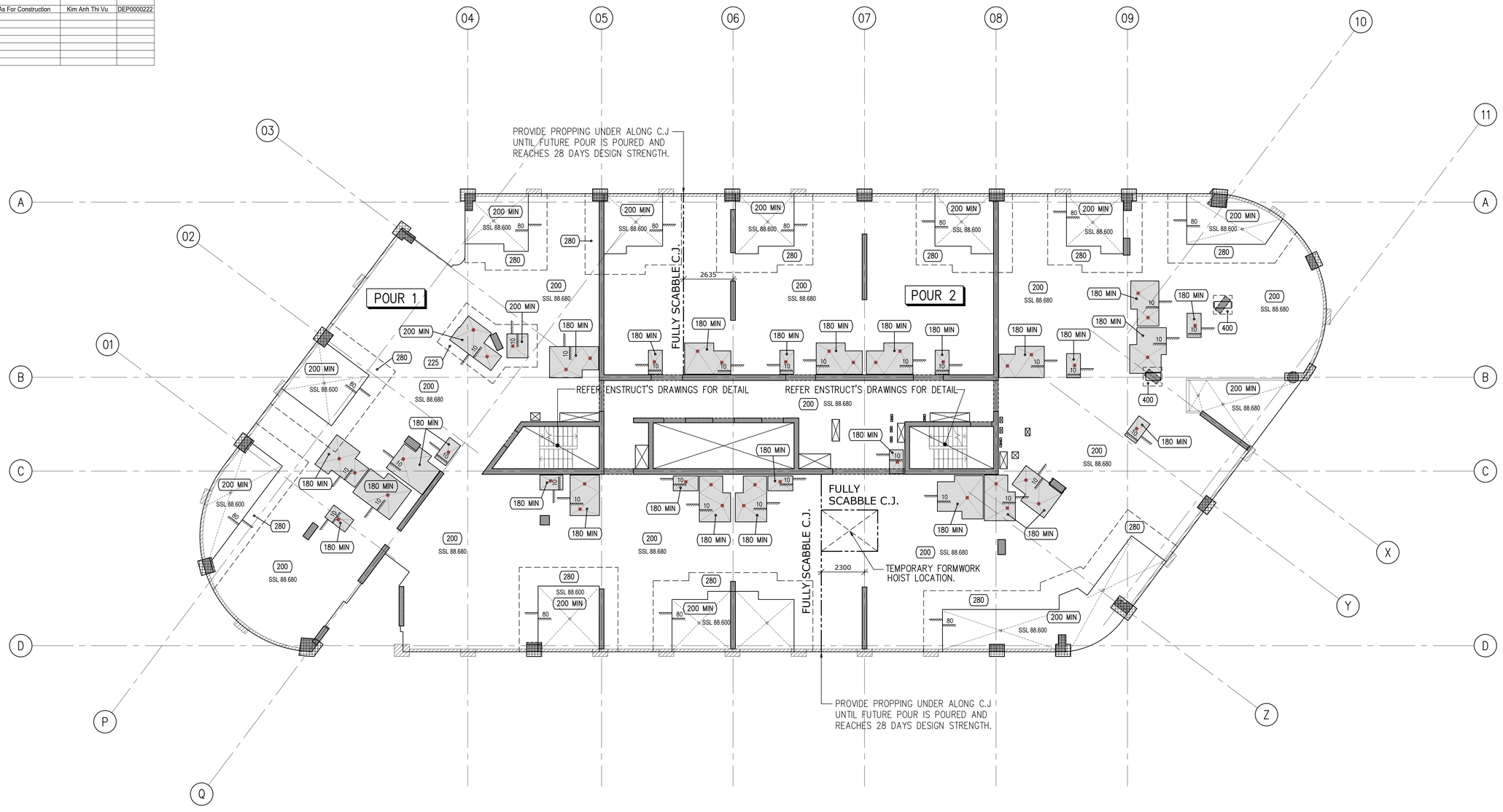
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 7 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1023	Revision: 1



KEY PLAN
LEVEL 7

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-1100	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

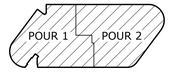
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 8

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 8 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1100	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-1111		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

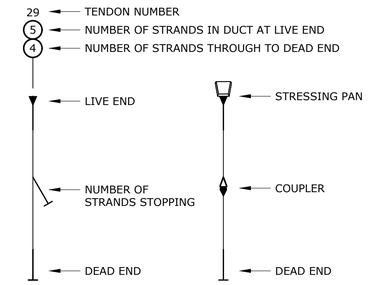
ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 0.89 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

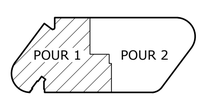


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 8

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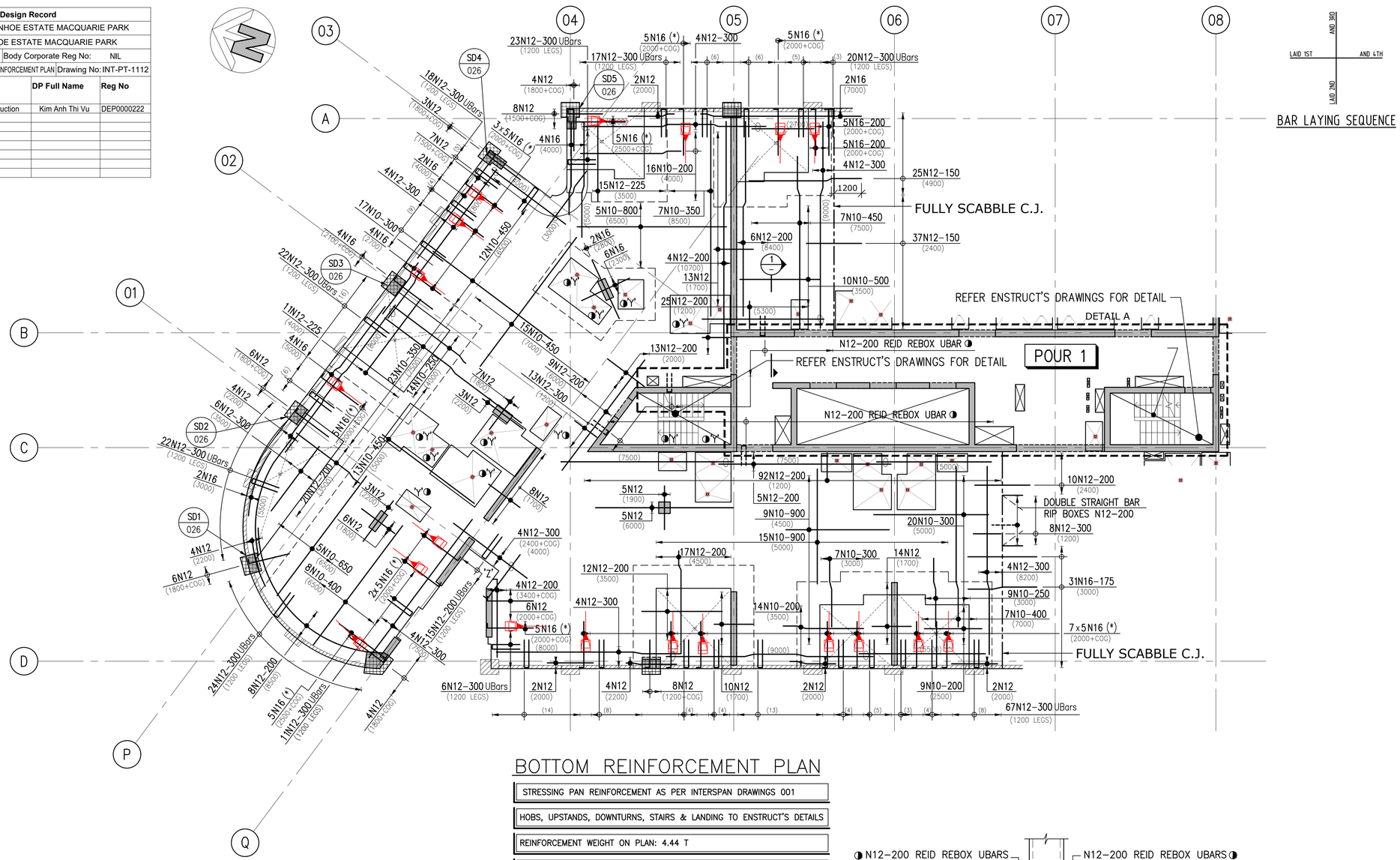
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TH
Drawing Title: LEVEL 8 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1111	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1112		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

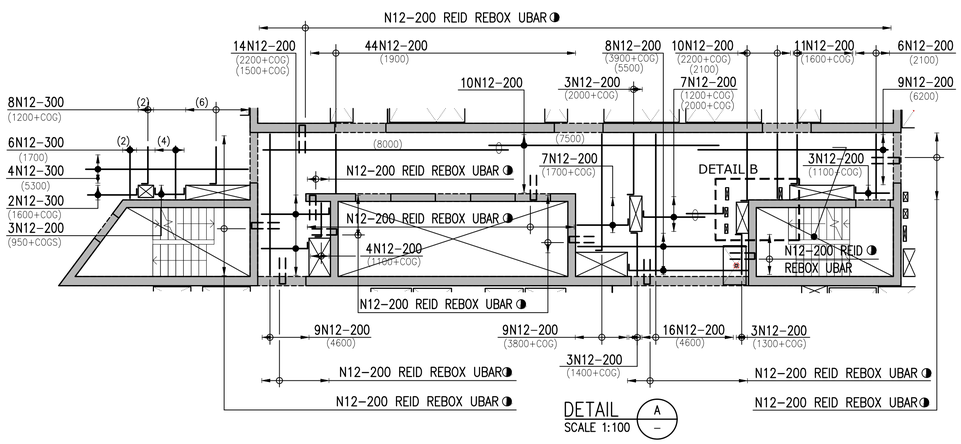
'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

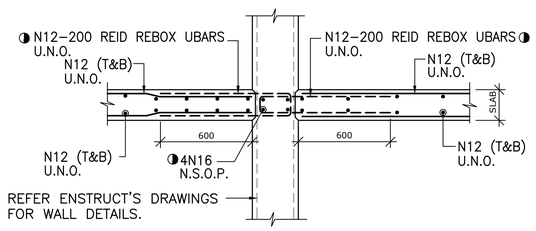
'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

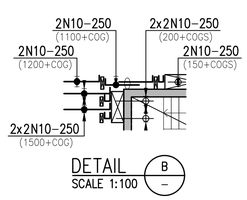
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

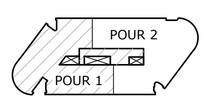
BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.44 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER









KEY PLAN
LEVEL 8

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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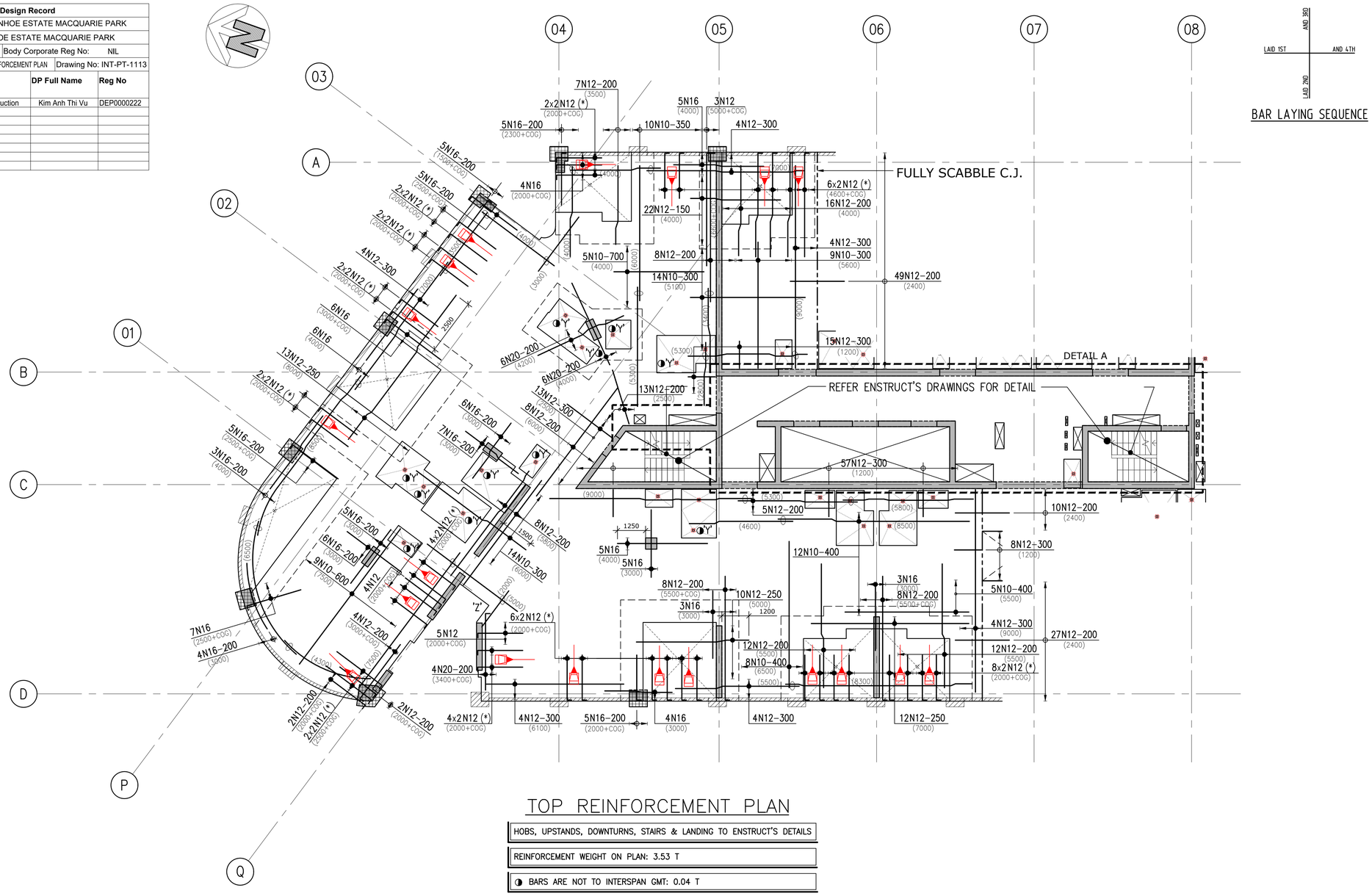
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 8 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1112	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-1113
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

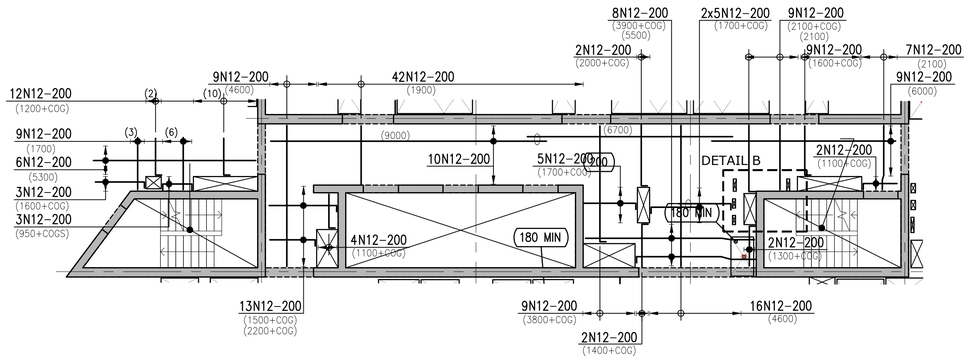


TOP REINFORCEMENT PLAN

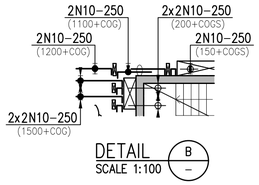
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.53 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

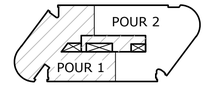
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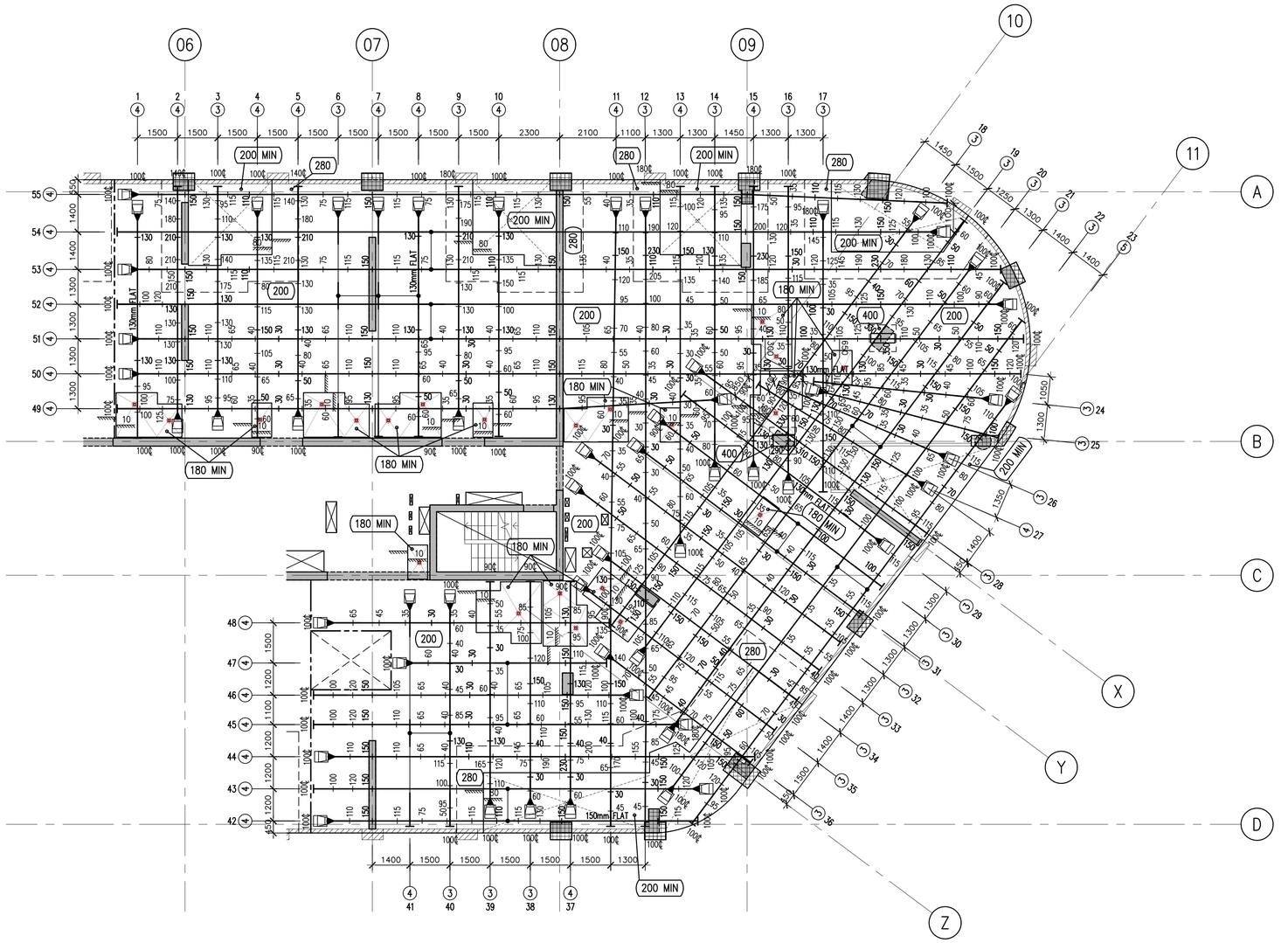
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 8 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1113	Revision: 1



KEY PLAN
LEVEL 8

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-1121	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

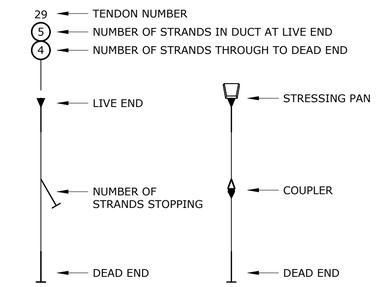
ANTI BURST REINFORCEMENT WEIGHT: 0.34 T

PAN REINFORCEMENT WEIGHT: 0.89 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

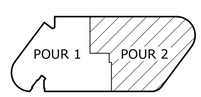
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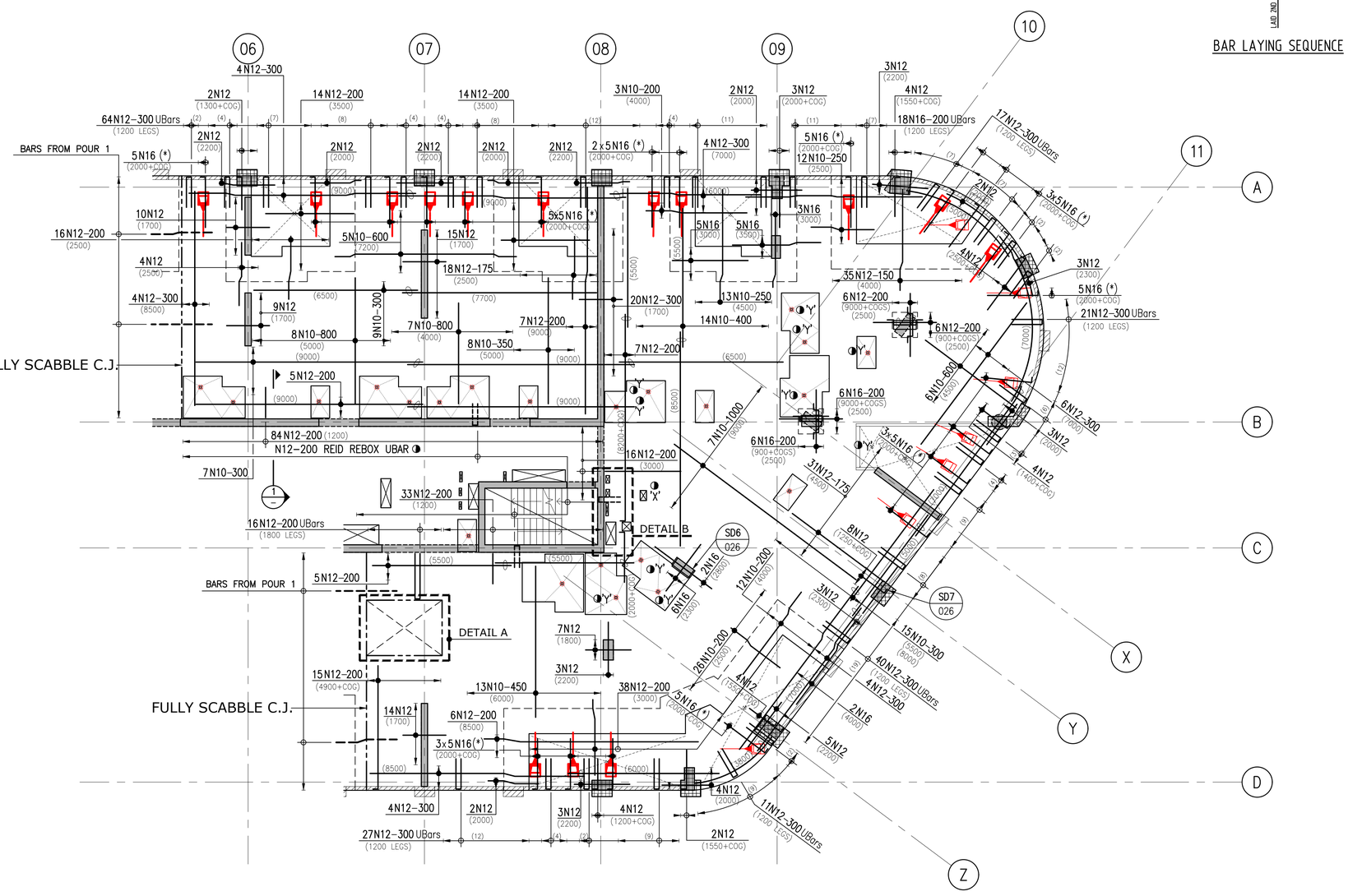
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TH
Drawing Title: LEVEL 8 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1121	Revision: 1



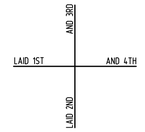
KEY PLAN
LEVEL 8

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1122		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE

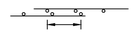


REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

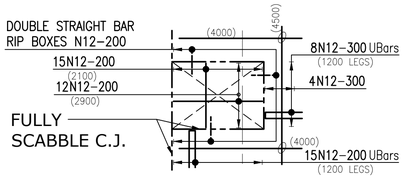


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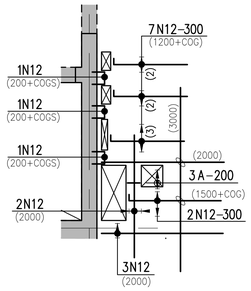
CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



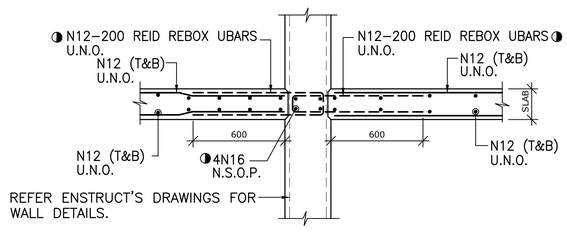
DETAIL A SCALE 1:100



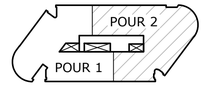
DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.88 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 SCALE 1:20



KEY PLAN
LEVEL 8

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

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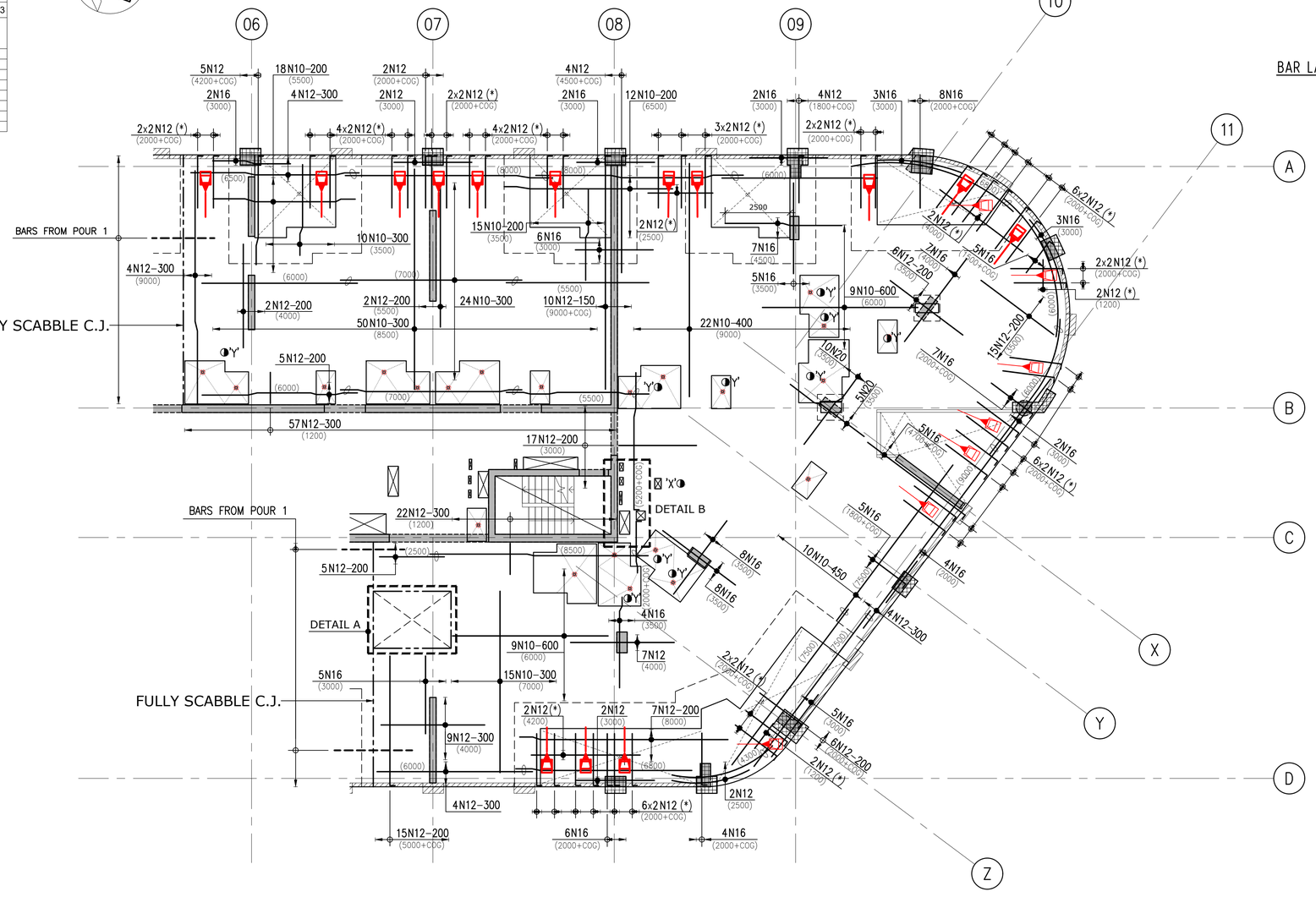
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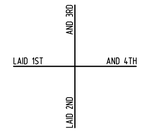
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 8 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1122	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 8 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1123	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

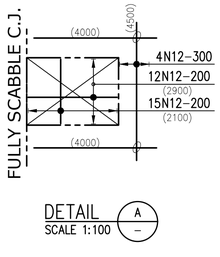
   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

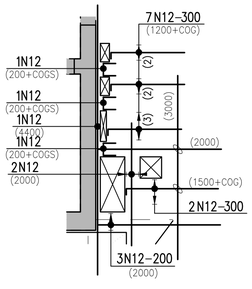
'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

TOP REINFORCEMENT PLAN



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.26 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-108-00 ST-308-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.108
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

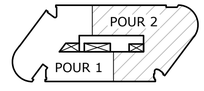
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 8 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1123	Revision: 1

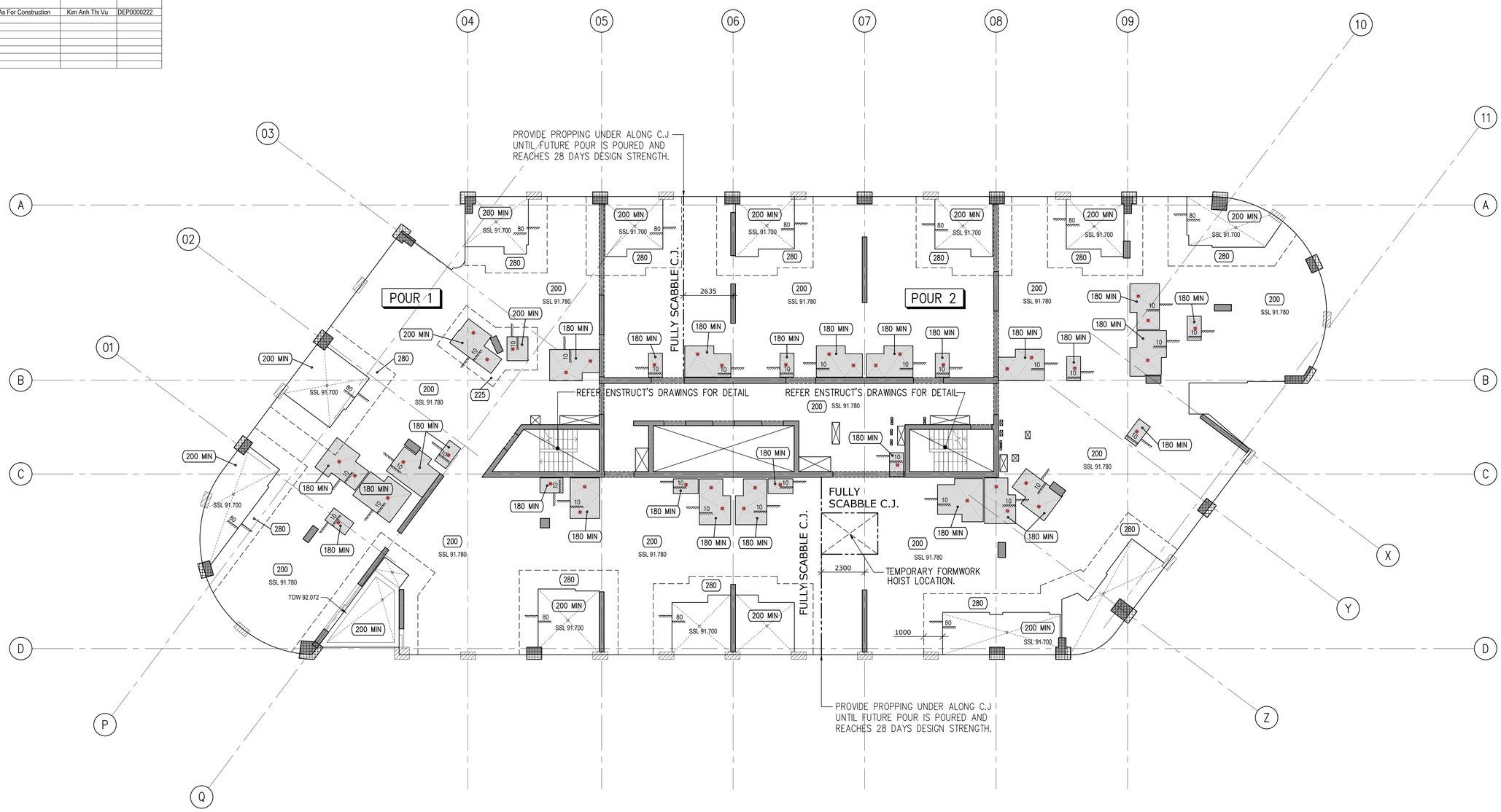


KEY PLAN
LEVEL 8

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9 - GENERAL ARRANGEMENT PLAN	Drawing No: INT-PT-1200		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

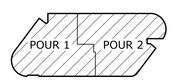
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 9

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 9 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1200	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-1211	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.36 T

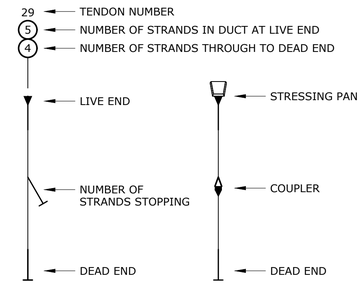
PAN REINFORCEMENT WEIGHT: 1.03 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D

1	21-12-21	As For Construction
Rev	Date	Status

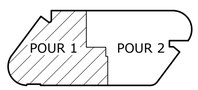
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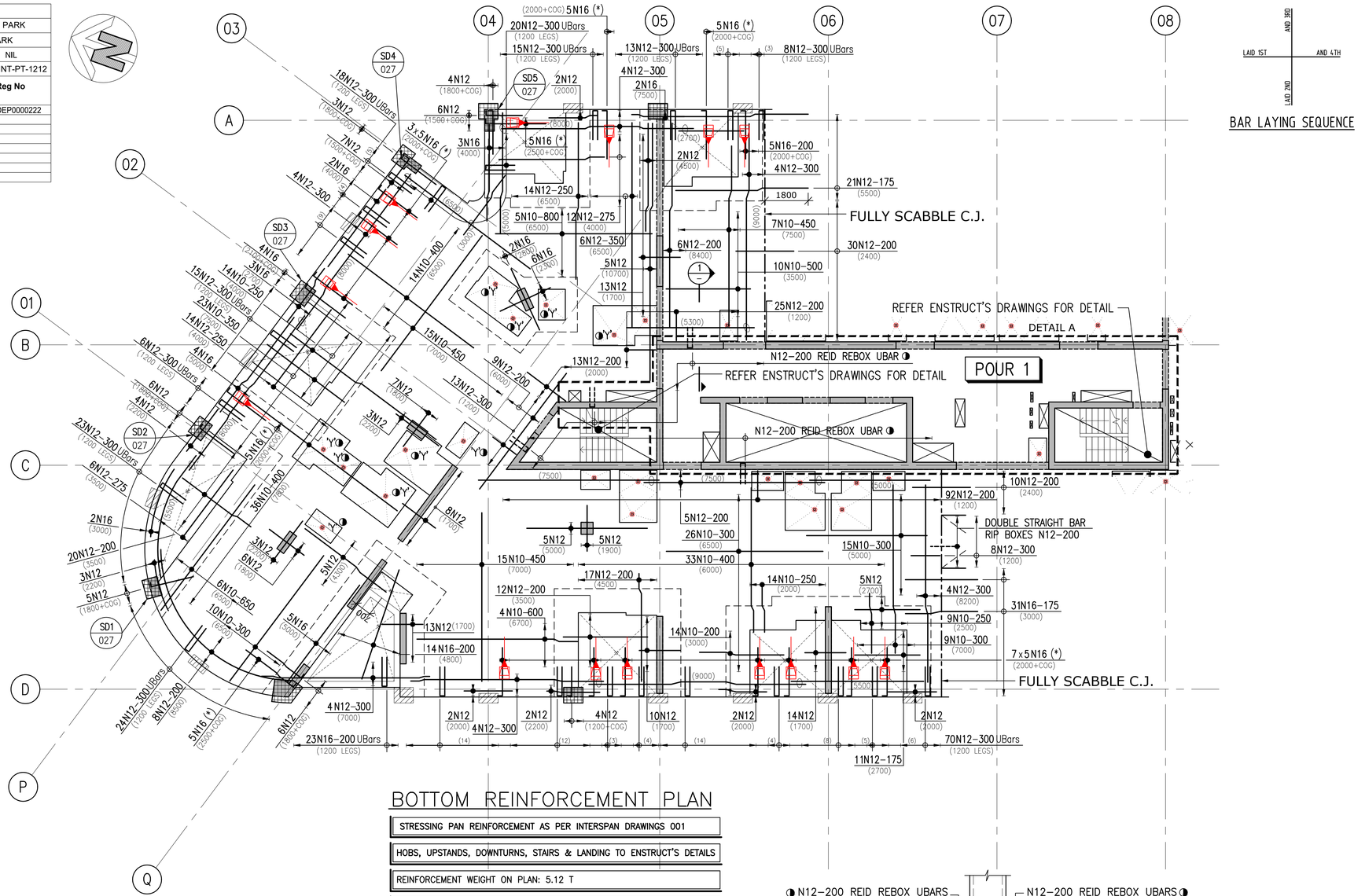
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 9 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 1211	Revision: 1



KEY PLAN
LEVEL 9

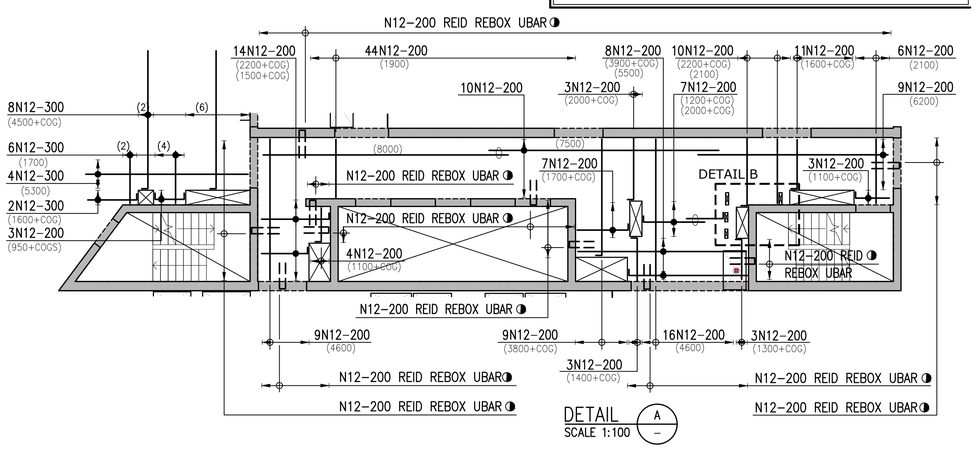
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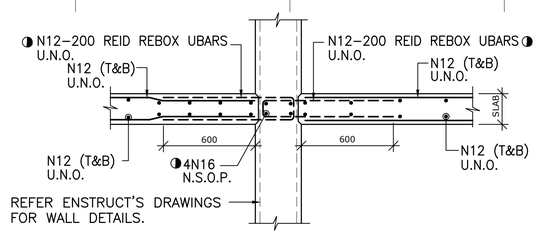
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1212		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



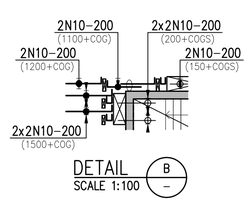
BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 5.12 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.39 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER





SECTION 1 / SCALE 1:20



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
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   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 / 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT:	enstruct	
DRAWING NO:	ST-109-00	ST-309-00
REVISION:	D	C
CONSULTANT:	Bates Smart	
DRAWING NO:	A04.A1.109	
REVISION:	D	

Rev	Date	Status
1	21-12-21	As For Construction

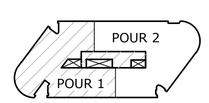
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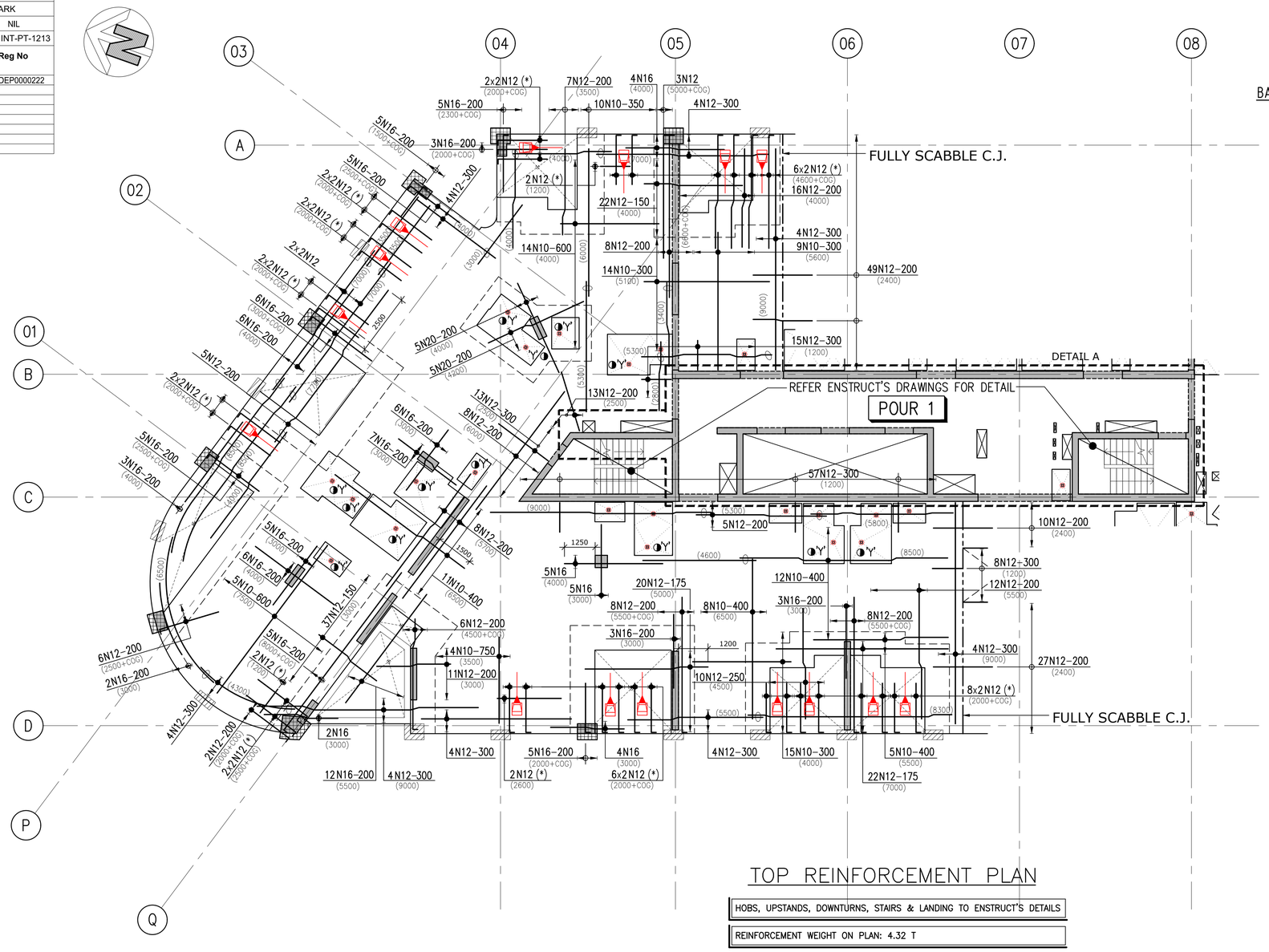
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 9 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1212	Revision: 1

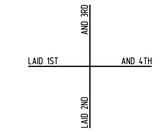


KEY PLAN
LEVEL 9

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1213	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
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   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

TOP REINFORCEMENT PLAN

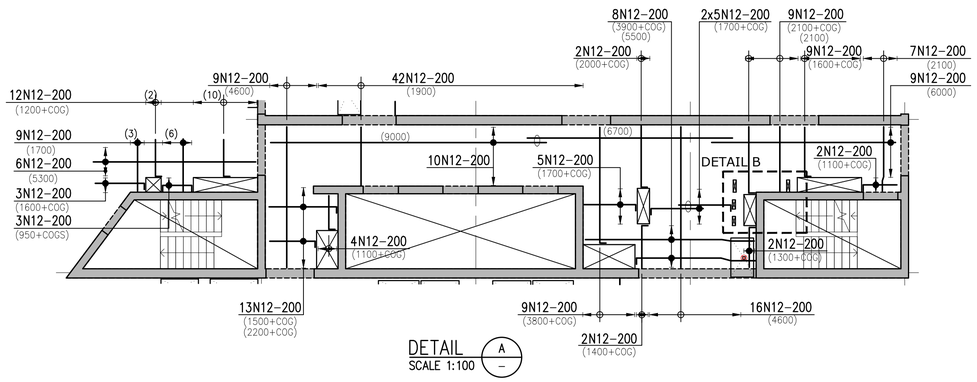
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

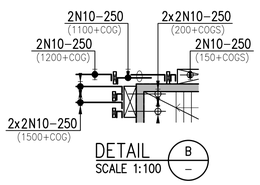
REINFORCEMENT WEIGHT ON PLAN: 4.32 T

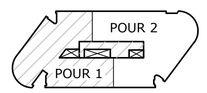
◑ BARS ARE NOT TO INTERSPAN GMT: 0.51 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER







KEY PLAN
LEVEL 9

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D

Rev	Date	Status
1	21-12-21	As For Construction

SYDNEY
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Rosebery, NSW 2018
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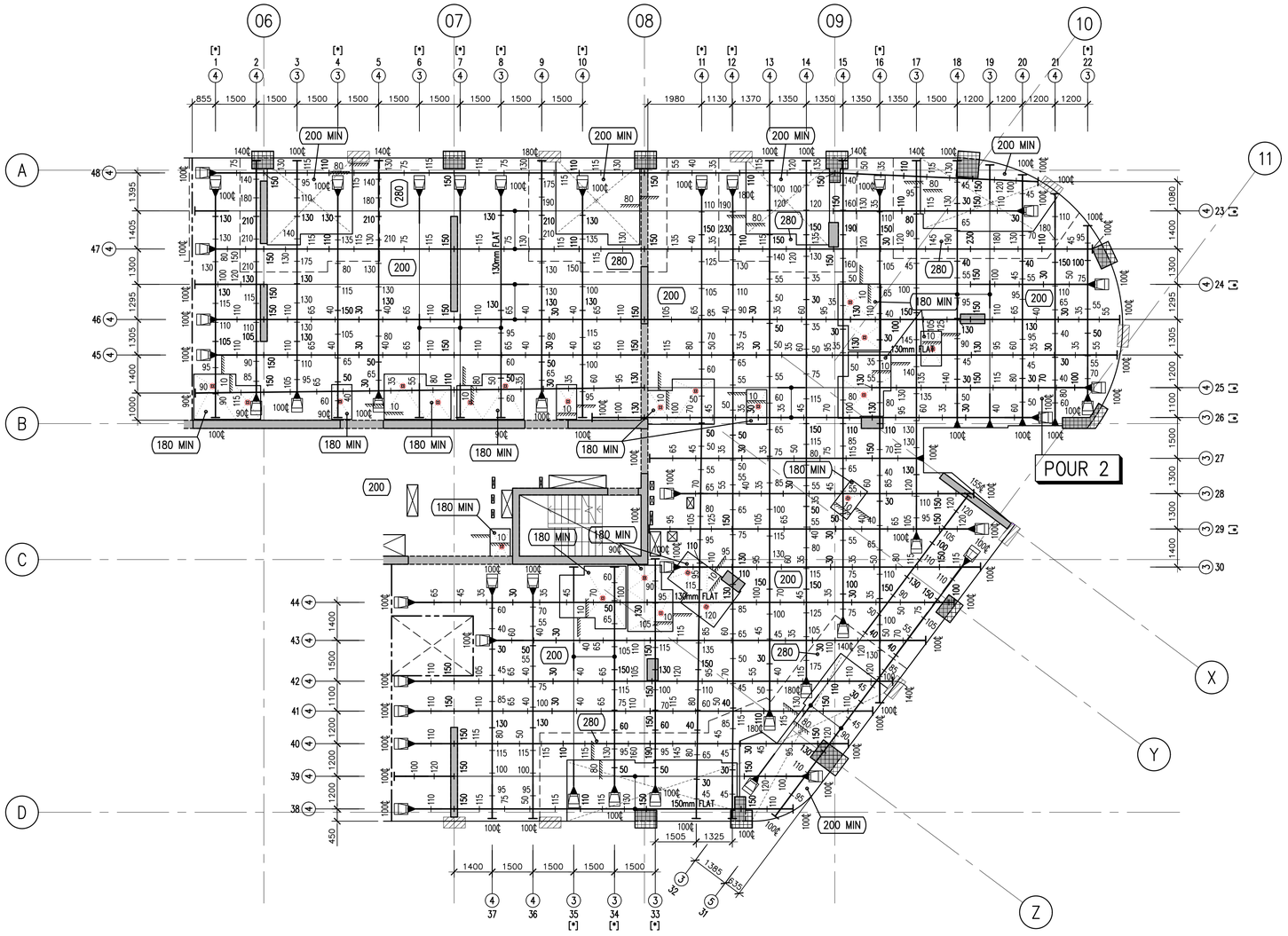
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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 9 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1213	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-1221	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.29 T

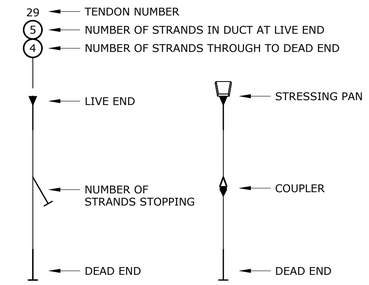
PAN REINFORCEMENT WEIGHT: 0.68 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

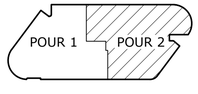


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CO-ORDINATION



KEY PLAN
LEVEL 9

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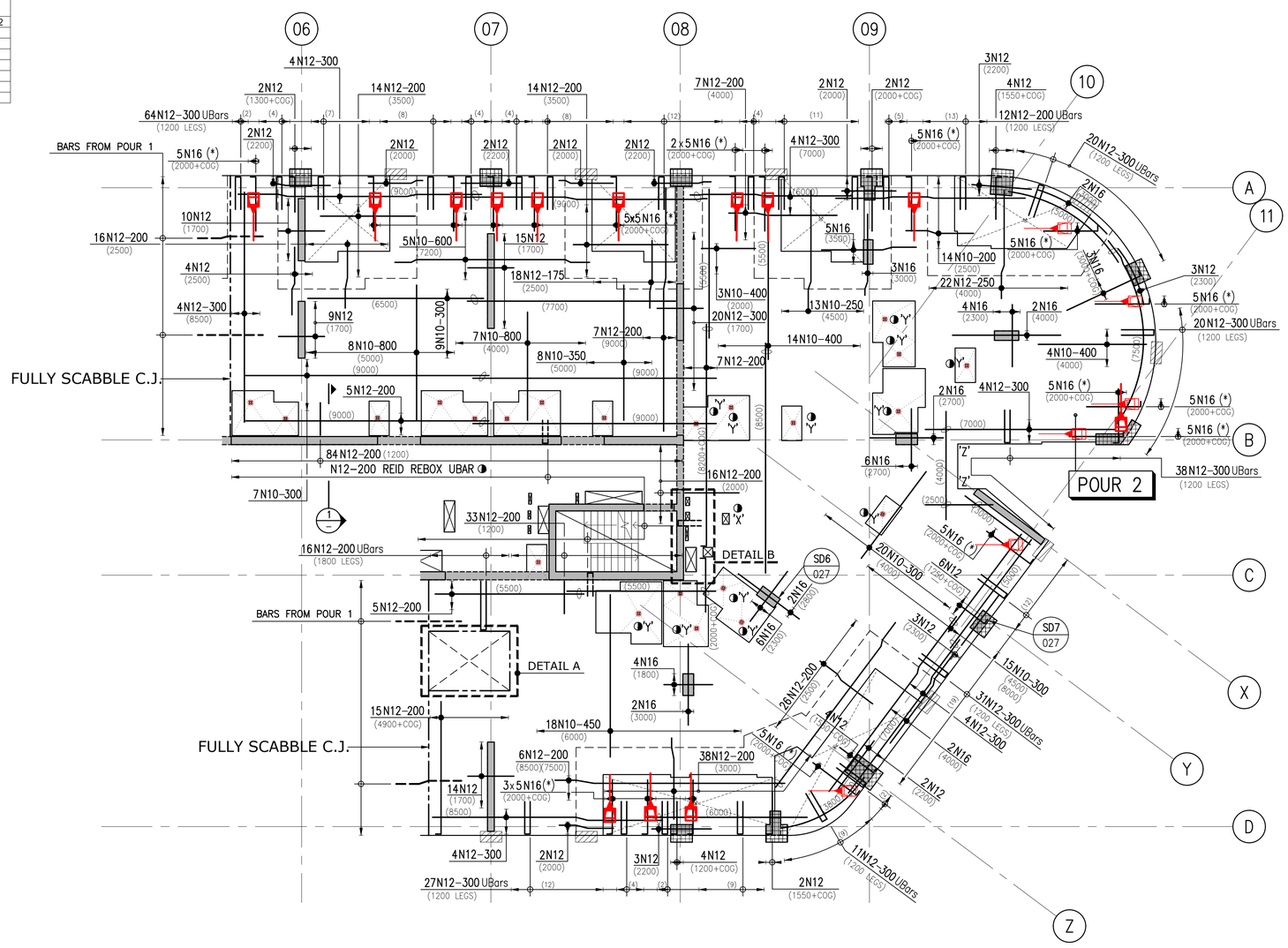
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 9 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1221	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9-POUR 2-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1222		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

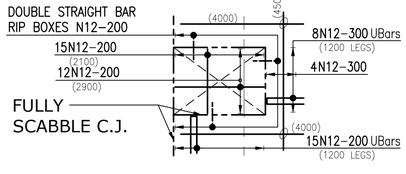
'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

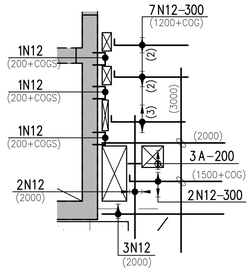
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D



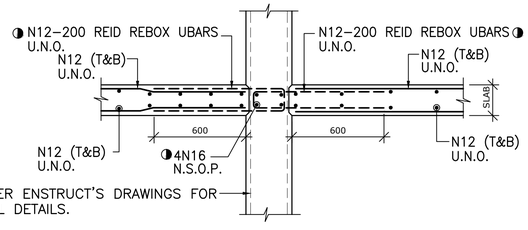
DETAIL A SCALE 1:100



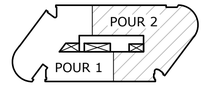
DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.04 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.47 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 SCALE 1:20



KEY PLAN
LEVEL 9

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

Rev	Date	Status
1	21-12-21	As For Construction

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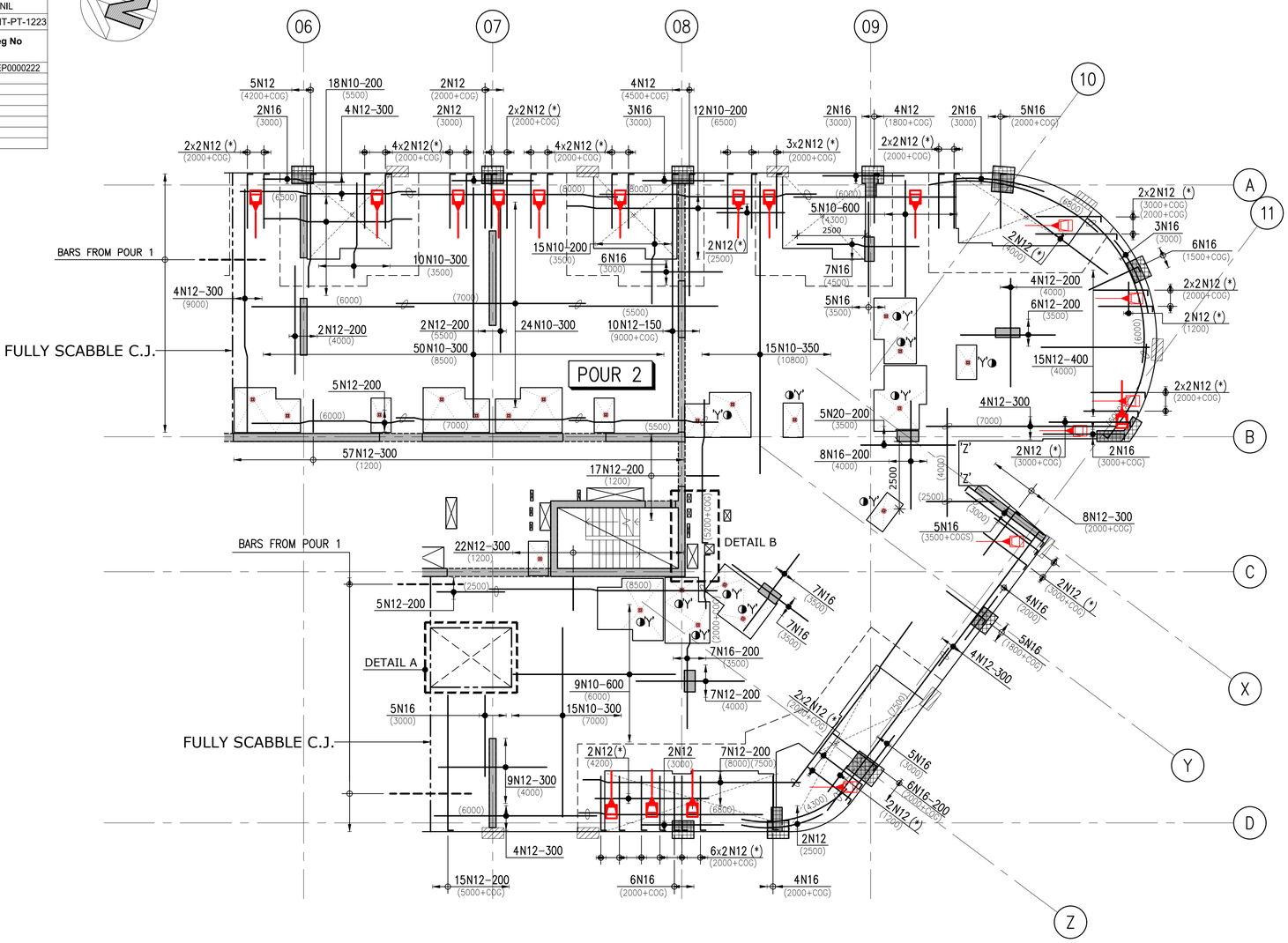
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

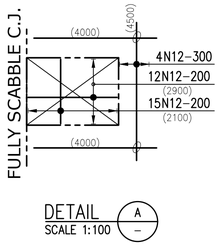
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 9 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1222	Revision: 1

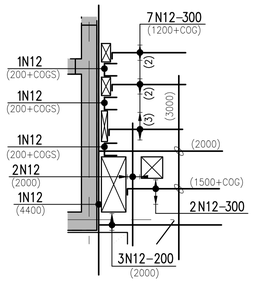
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 9 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1223	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

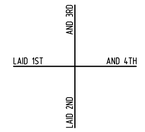
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.29 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.47 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
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	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-109-00 ST-309-00
REVISION: D C
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.109
REVISION: D

1	21-12-21	As For Construction
Rev	Date	Status

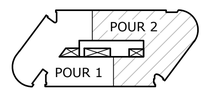
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 9 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1223	Revision: 1

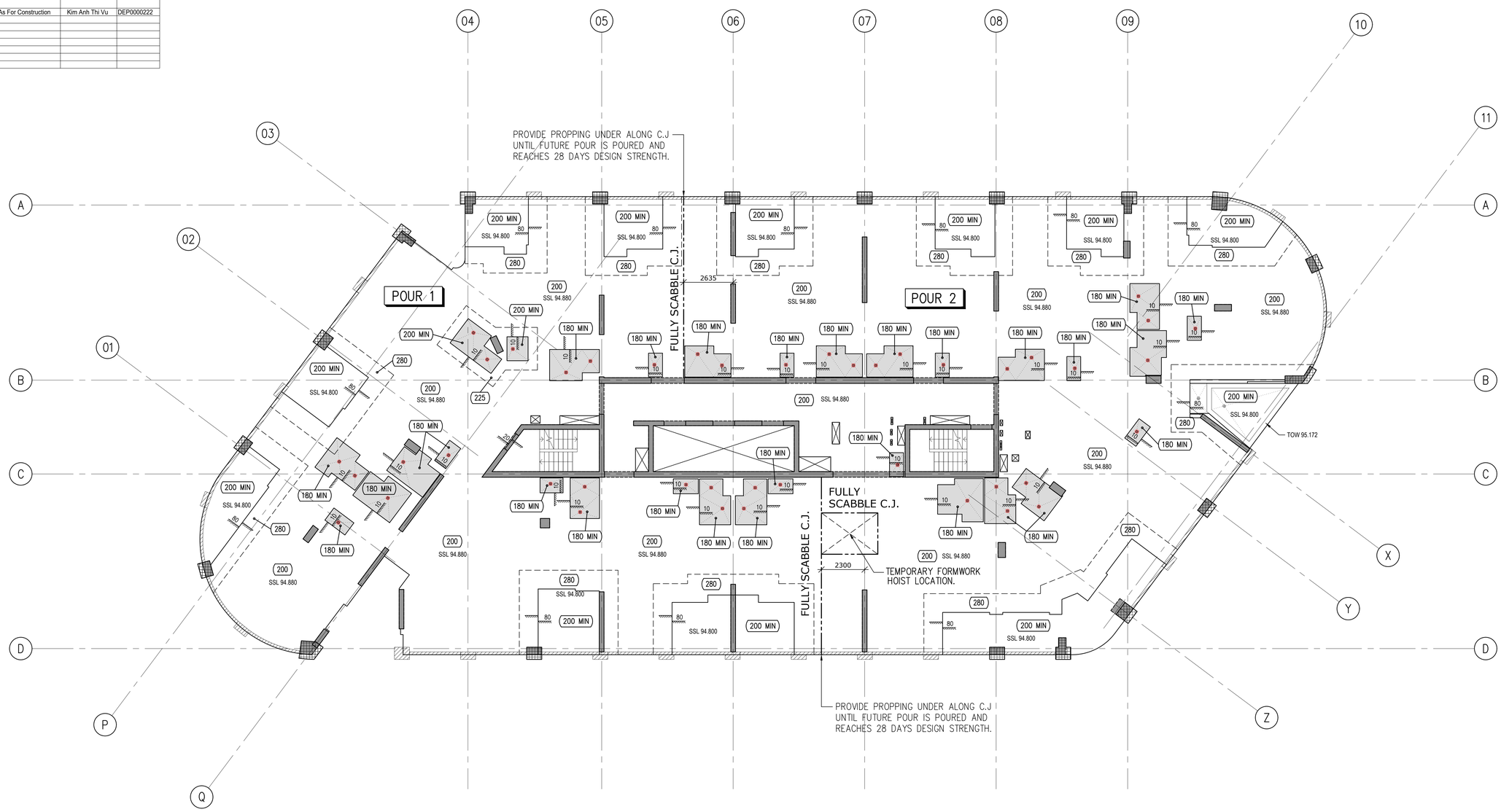


KEY PLAN
LEVEL 9

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 10 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-1300	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

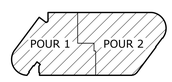
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE - TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 10

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CO-ORDINATION

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F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 10 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1300	Revision: 1

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-1311	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.38 T

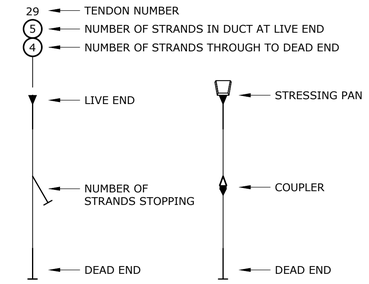
PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CO-ORDINATION

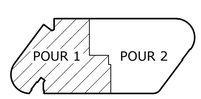
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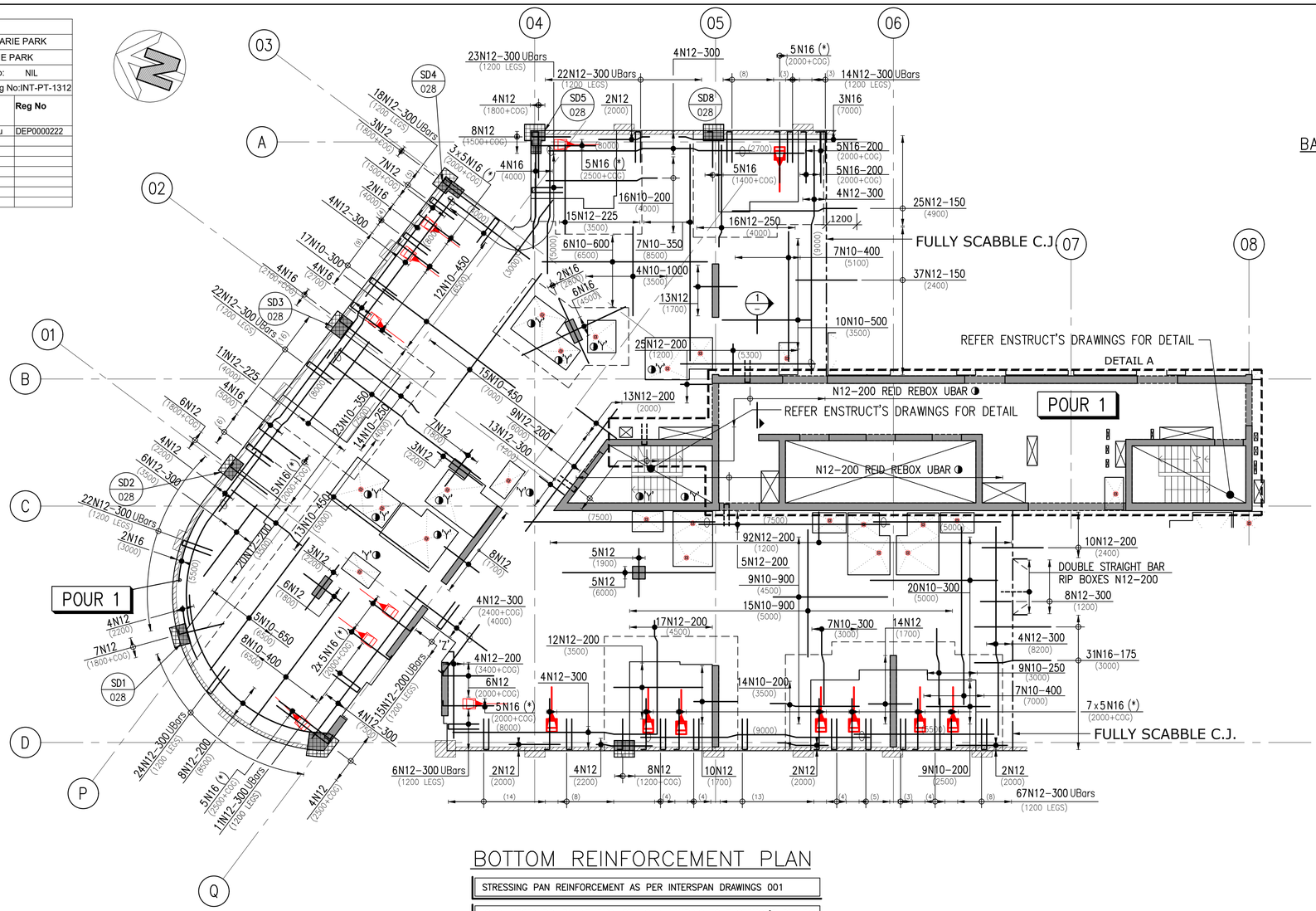
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 10 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1311	Revision: 1



KEY PLAN
LEVEL 10

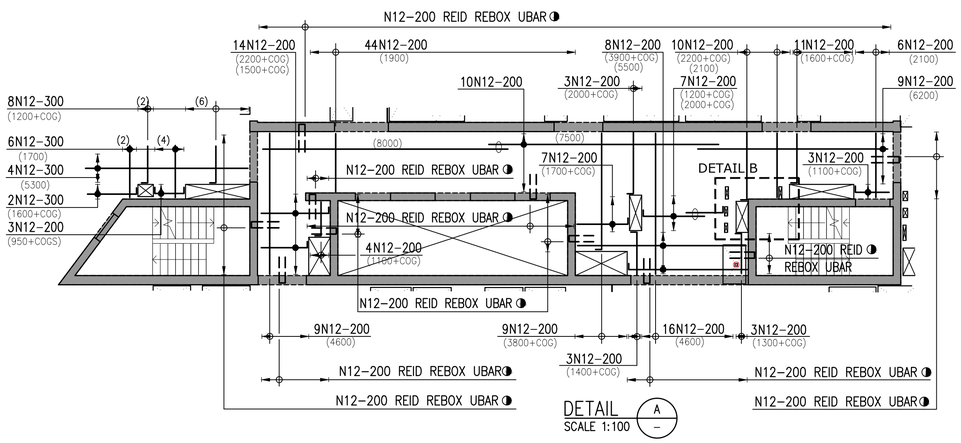
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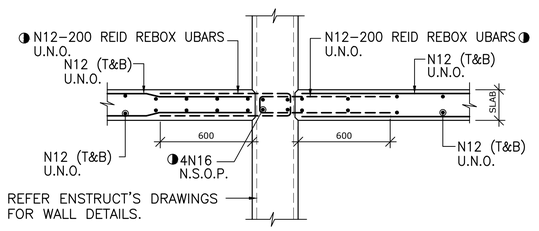
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10-POUR 1-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-1312
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



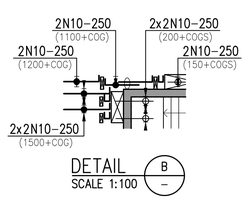
BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.44 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

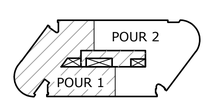




SECTION 1 / SCALE 1:20



DETAIL B / SCALE 1:100



KEY PLAN
LEVEL 10

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

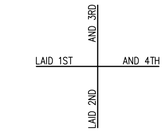
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 / 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



BAR LAYING SEQUENCE

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

Interspan

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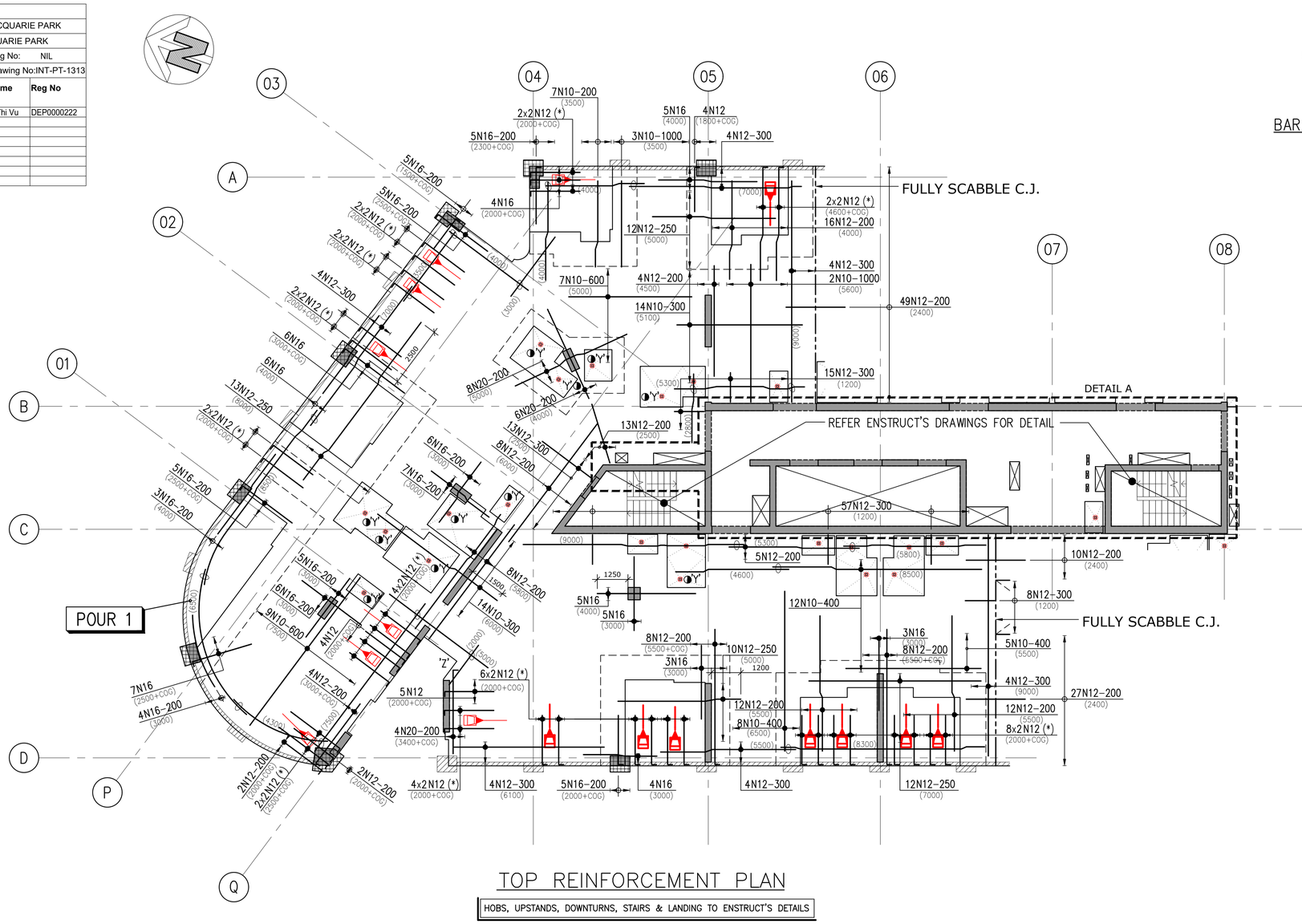
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 10 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1312	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 1 - TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-1313
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

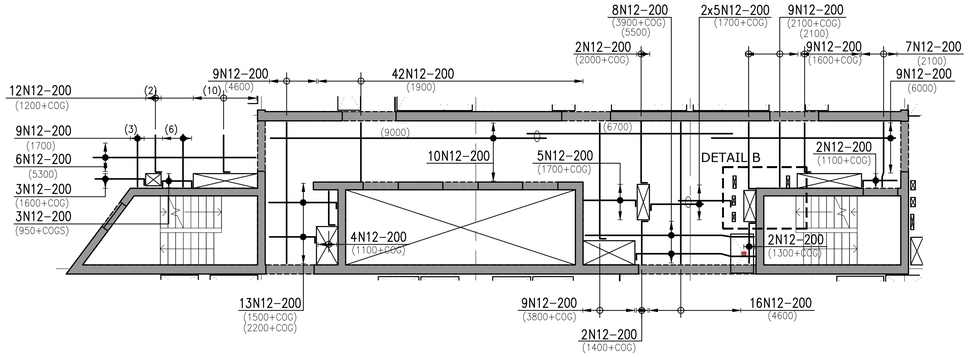


TOP REINFORCEMENT PLAN

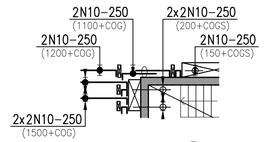
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.36 T

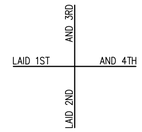
◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

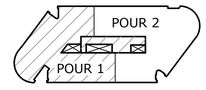
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 10

SYDNEY
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Rosebery, NSW 2018
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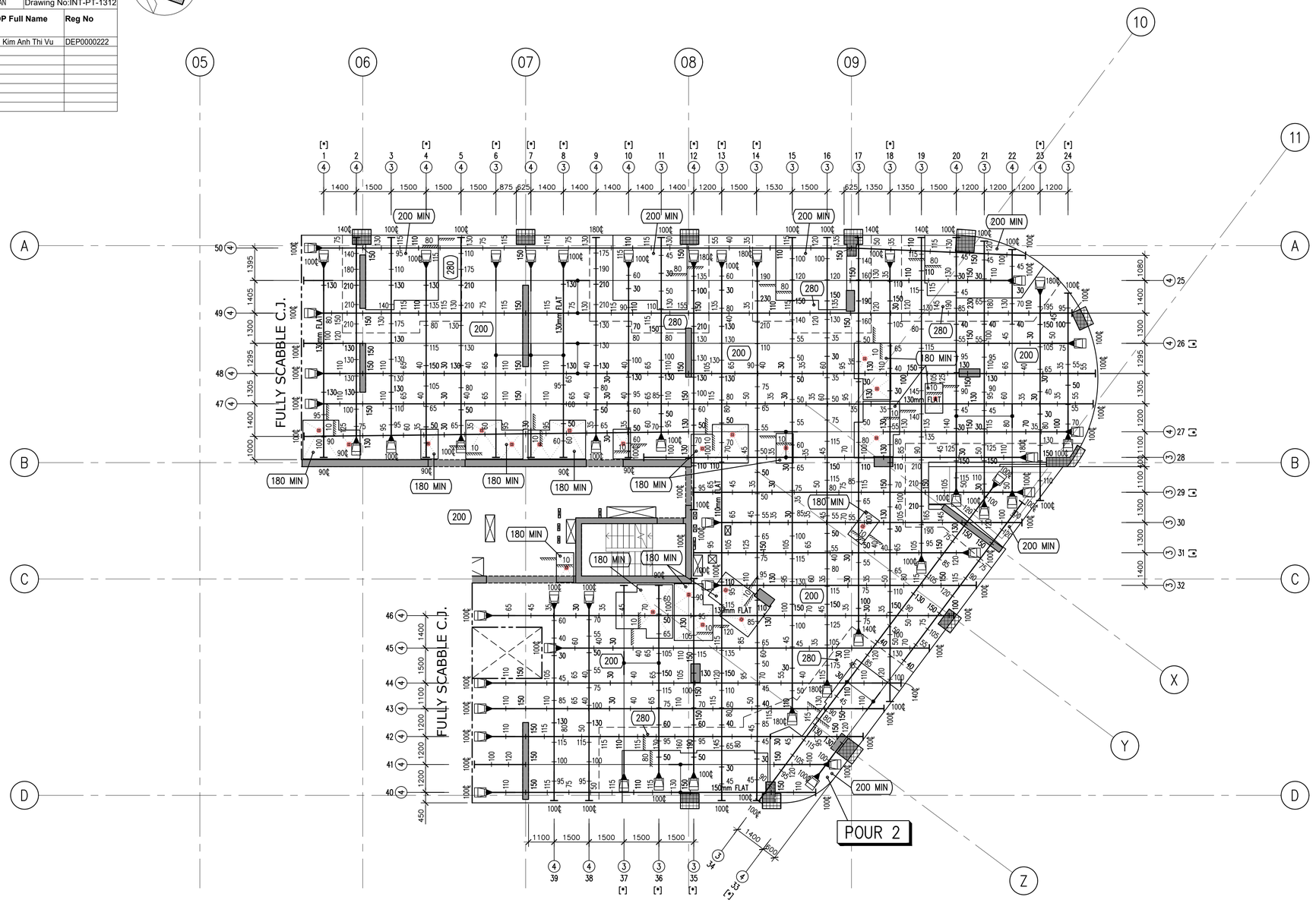
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 10 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1313	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 2 - POST TENSIONING PLAN			Drawing No:	INT-PT-1312
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

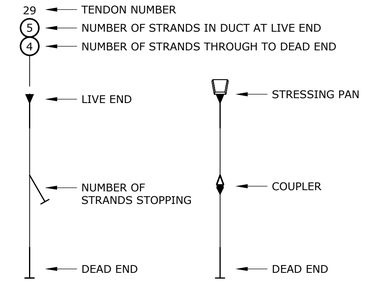
PAN REINFORCEMENT WEIGHT: 0.81 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

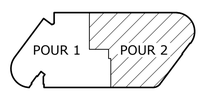
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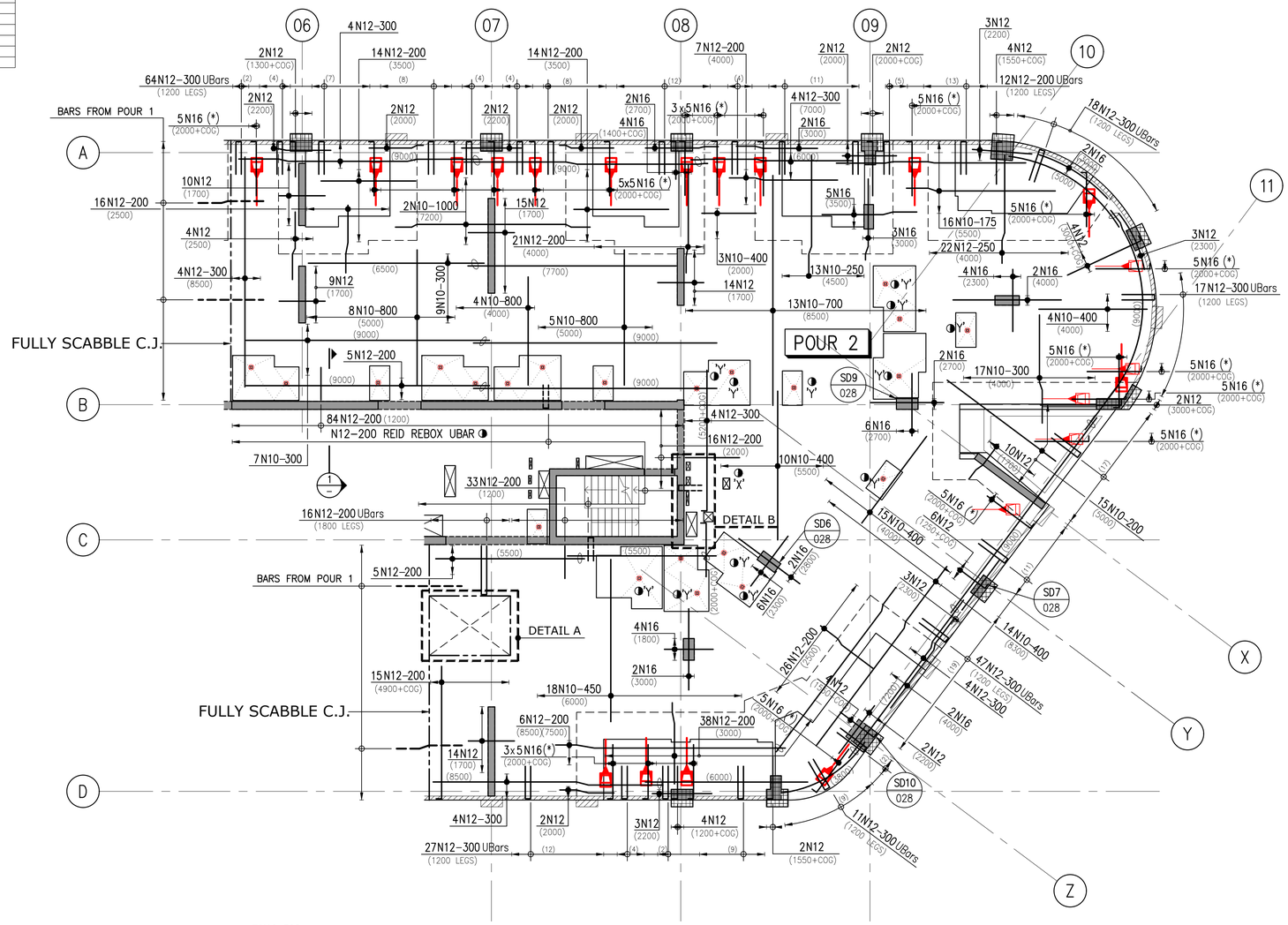
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 10 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1321	Revision: 1



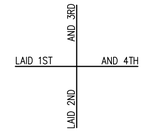
KEY PLAN
LEVEL 10

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10-POUR 2-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-1322
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

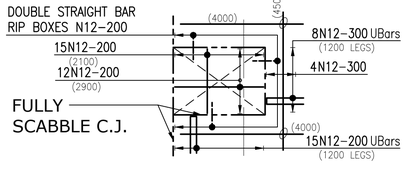
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

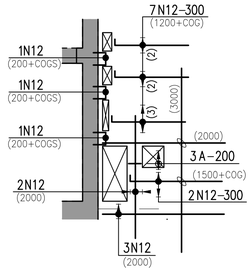
'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



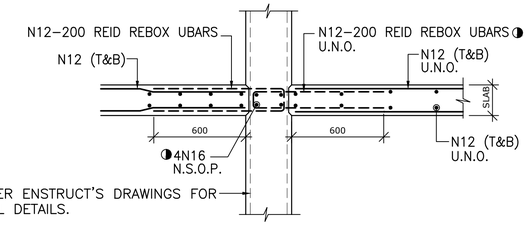
DETAIL A / SCALE 1:100



DETAIL B / SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.45 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 / SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

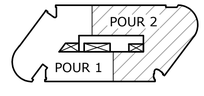
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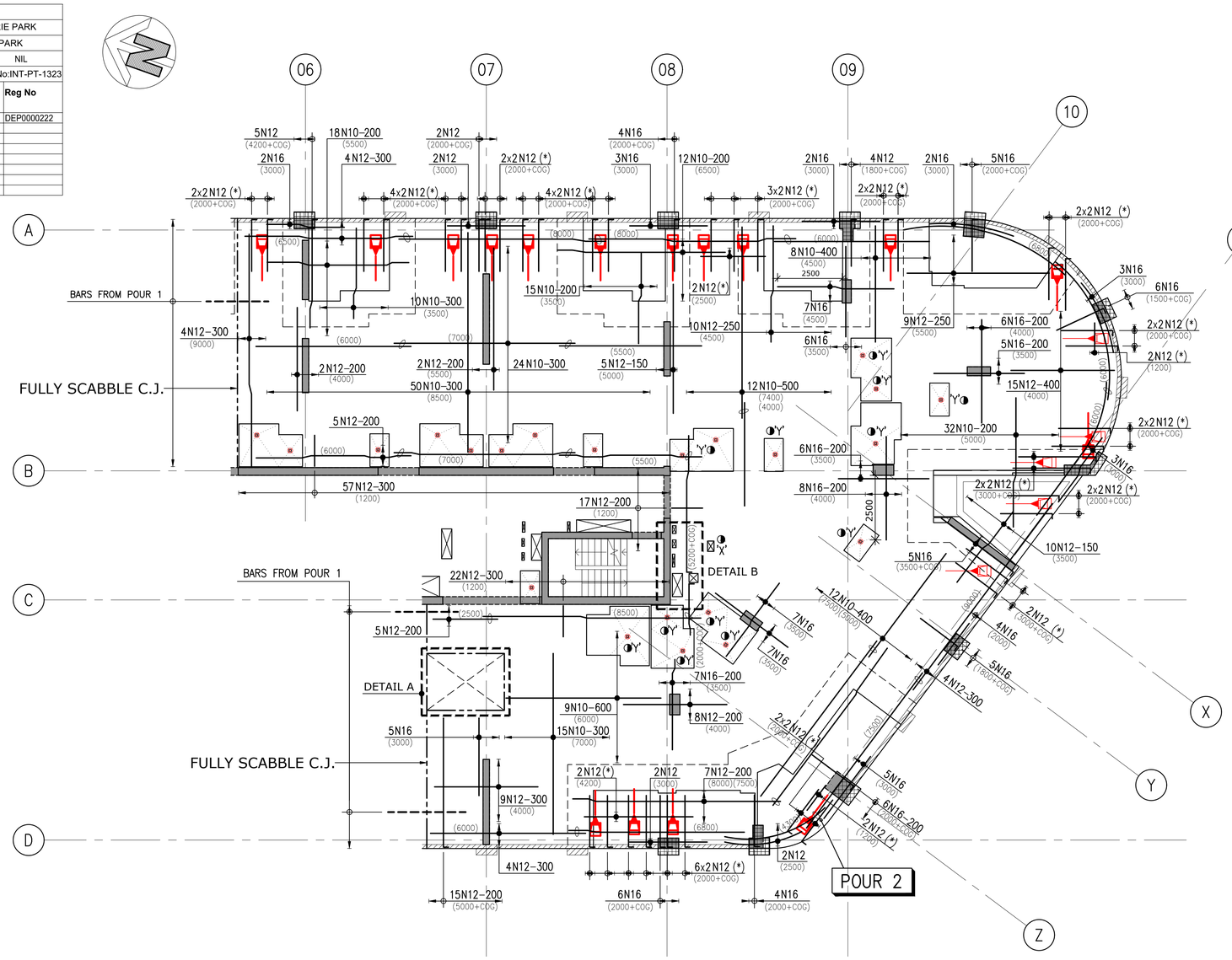
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 10 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1322	Revision: 1

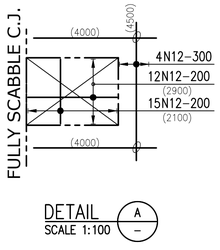


KEY PLAN
LEVEL 10

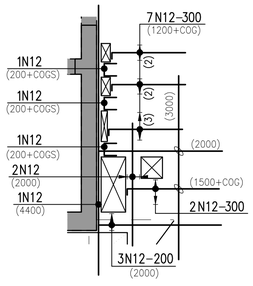
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 10 - POUR 2 - TOP REINFORCEMENT PLAN			Drawing No:	INT-PT-1323
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

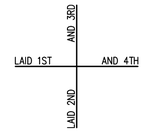
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.05 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: ST-110-00 ST-308-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.110
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

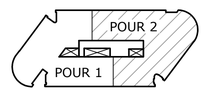
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 10 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1323	Revision: 1

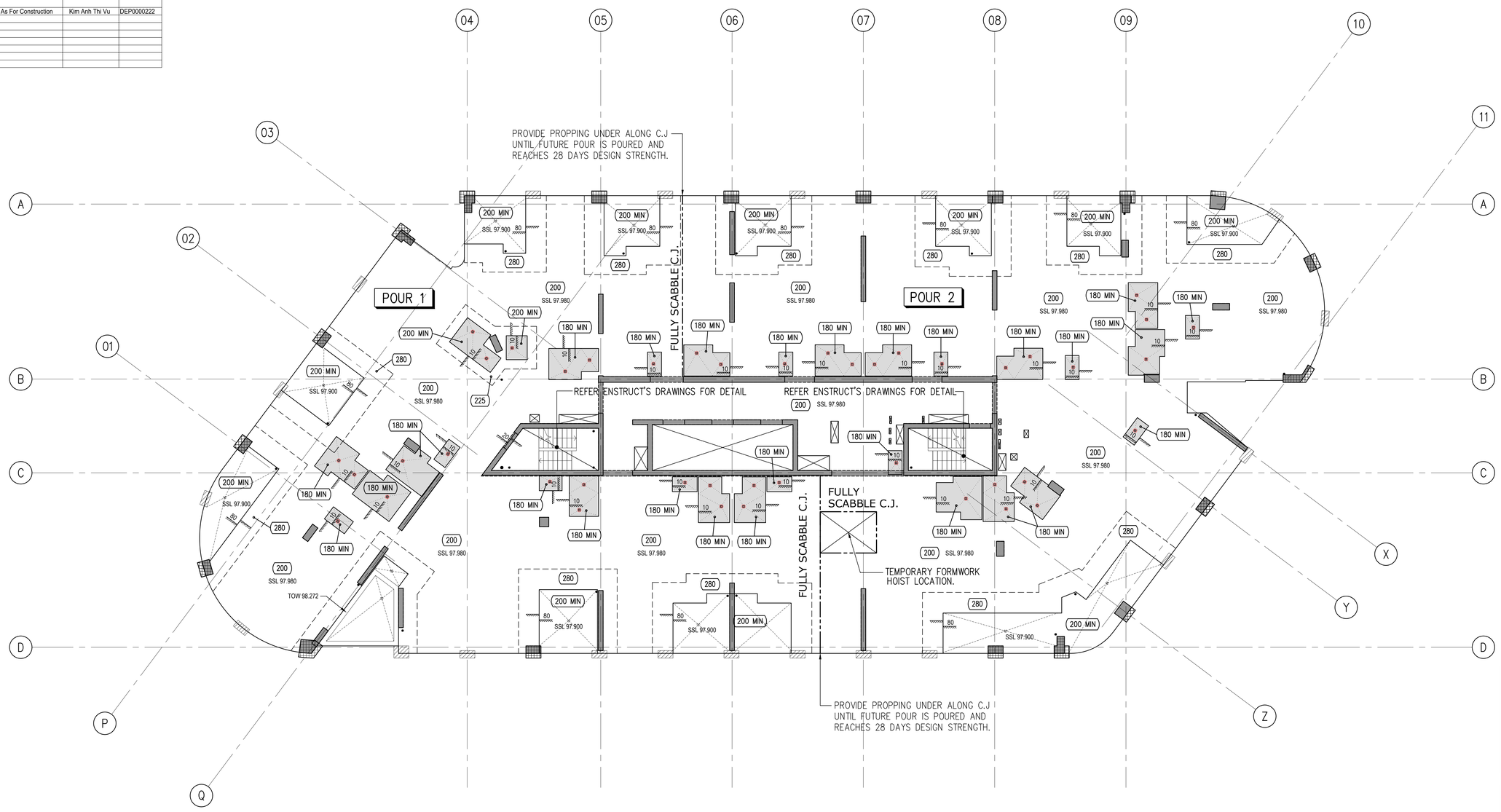


KEY PLAN
LEVEL 10

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 11 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-1400

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

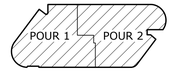
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD–BEARING PRECAST PANEL OVER

DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER

DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 11

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

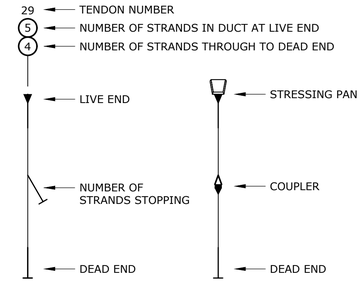
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 11 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1400	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-1411	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 1.13 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

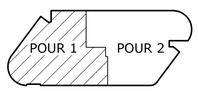
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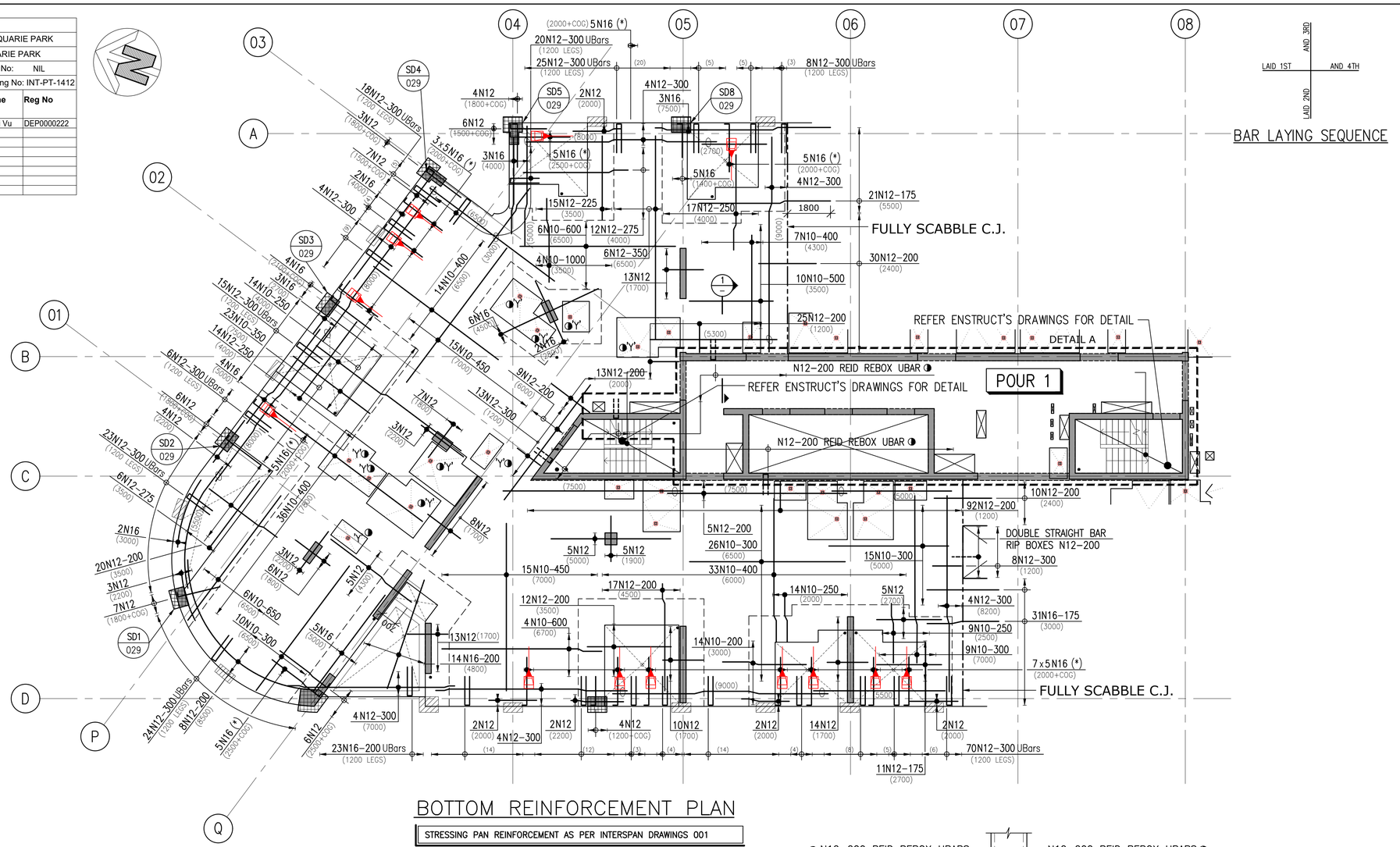
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 11 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1411	Revision: 1



KEY PLAN
LEVEL 11

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11-POUR 1-BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1412		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



LAID 1ST AND 3RD
LAID 2ND AND 4TH

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

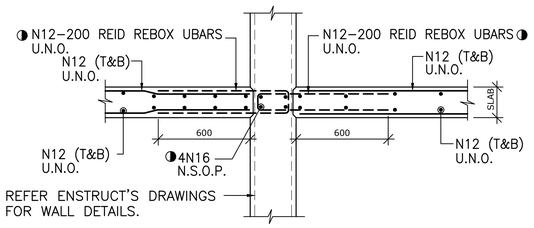
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

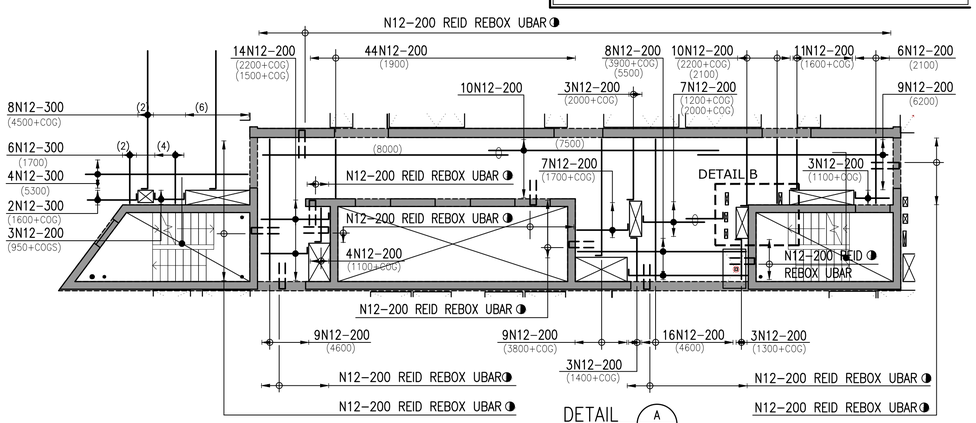
CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

BOTTOM REINFORCEMENT PLAN

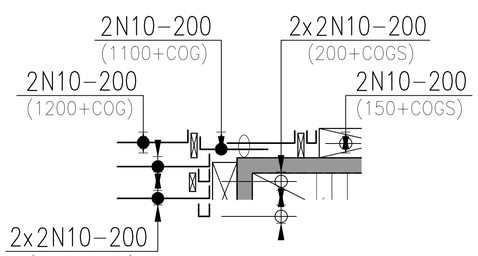
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 5.05 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.39 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



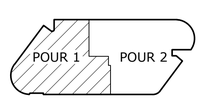
SECTION 1 SCALE 1:20



DETAIL A SCALE 1:100



DETAIL B SCALE 1:50



KEY PLAN
LEVEL 11

Rev	Date	Status
1	21-12-21	AS FOR CO-ORDINATION

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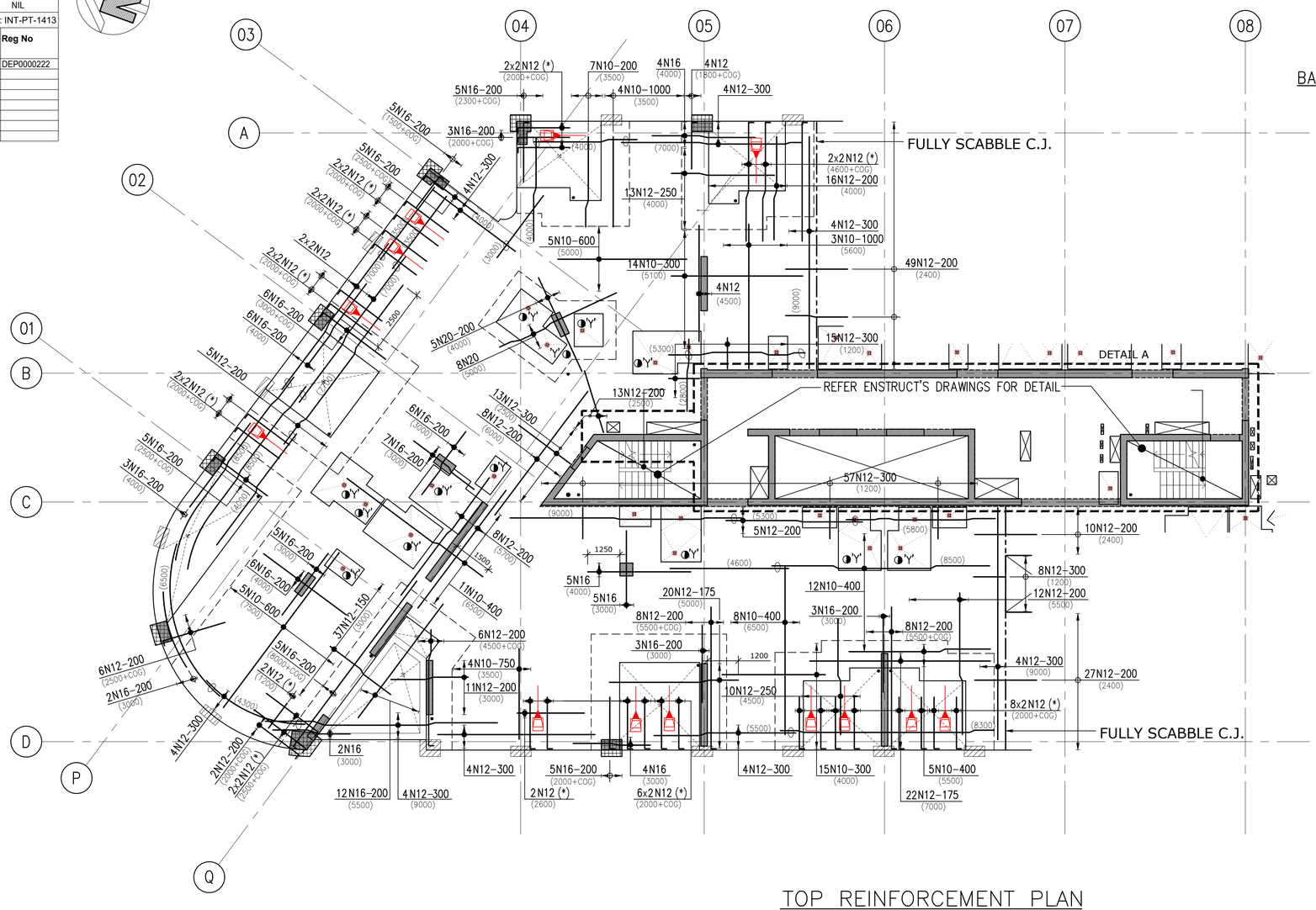
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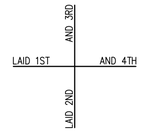
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 11 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1412	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11-POUR 1-TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1413	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

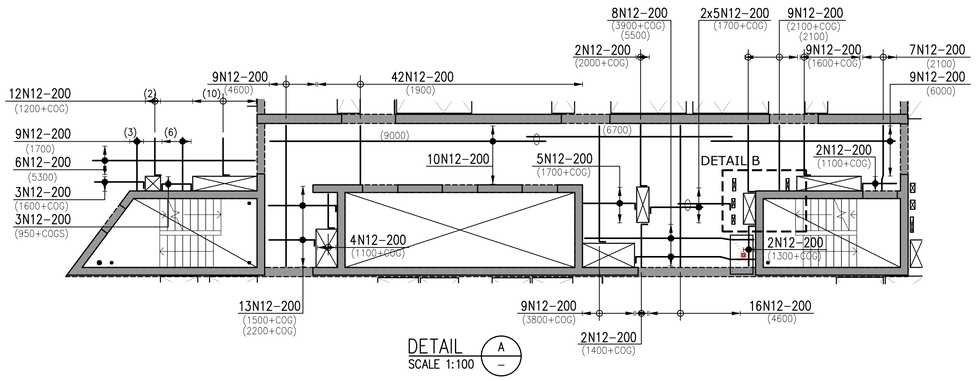


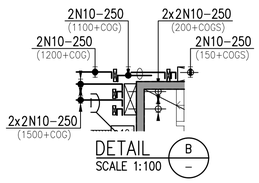
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

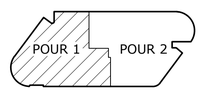


TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
REINFORCEMENT WEIGHT ON PLAN: 3.70 T
◑ BARS ARE NOT TO INTERSPAN GMT: 0.51 T
(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER







KEY PLAN
LEVEL 11

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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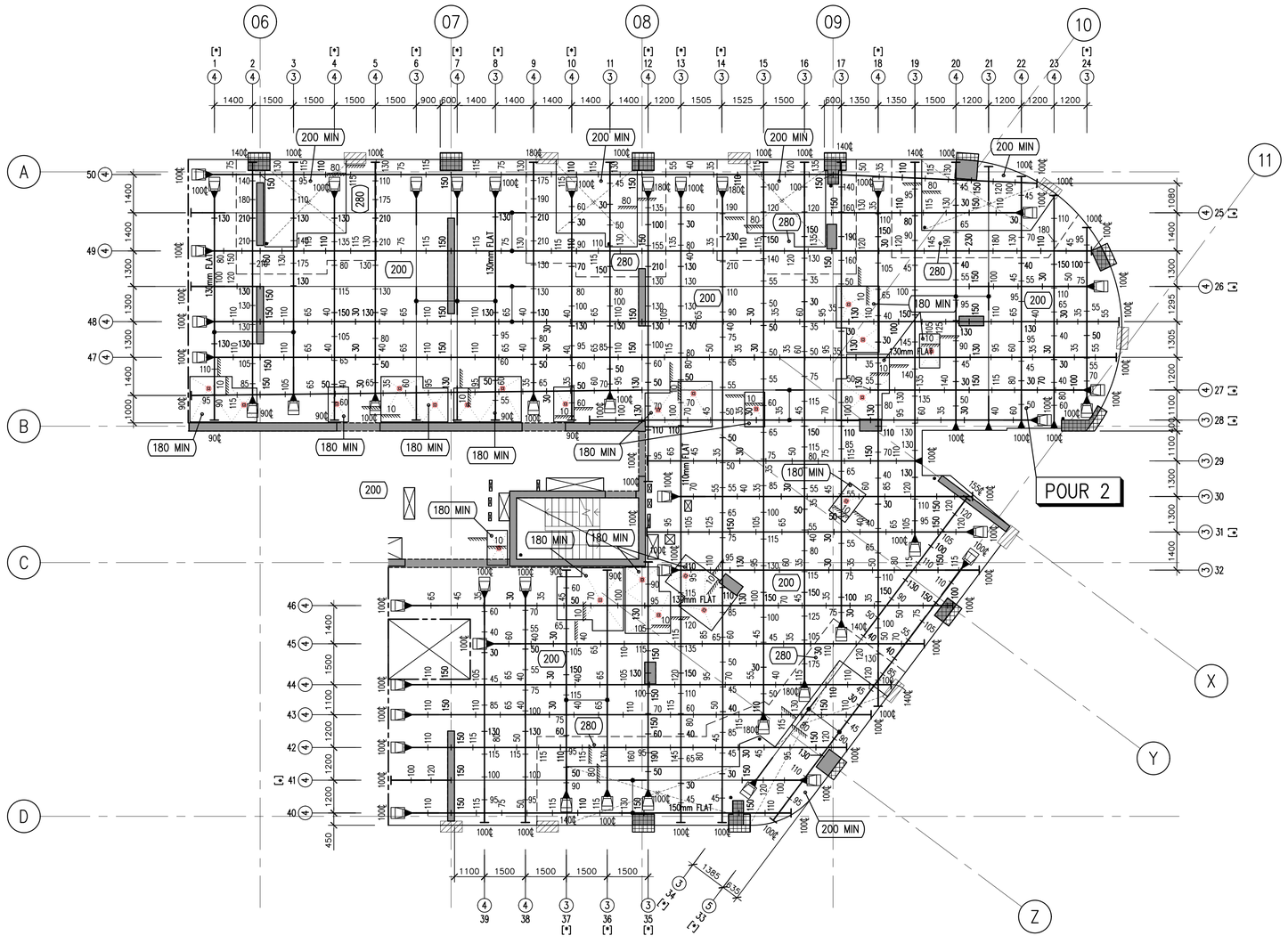
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 11 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1413	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11 - POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-1421	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

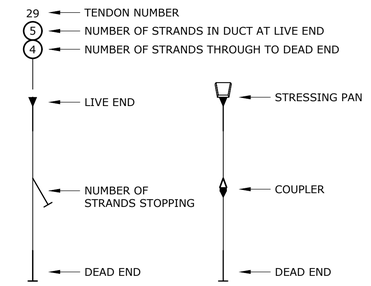
PAN REINFORCEMENT WEIGHT: 0.65 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

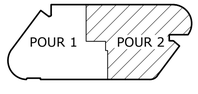
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 11

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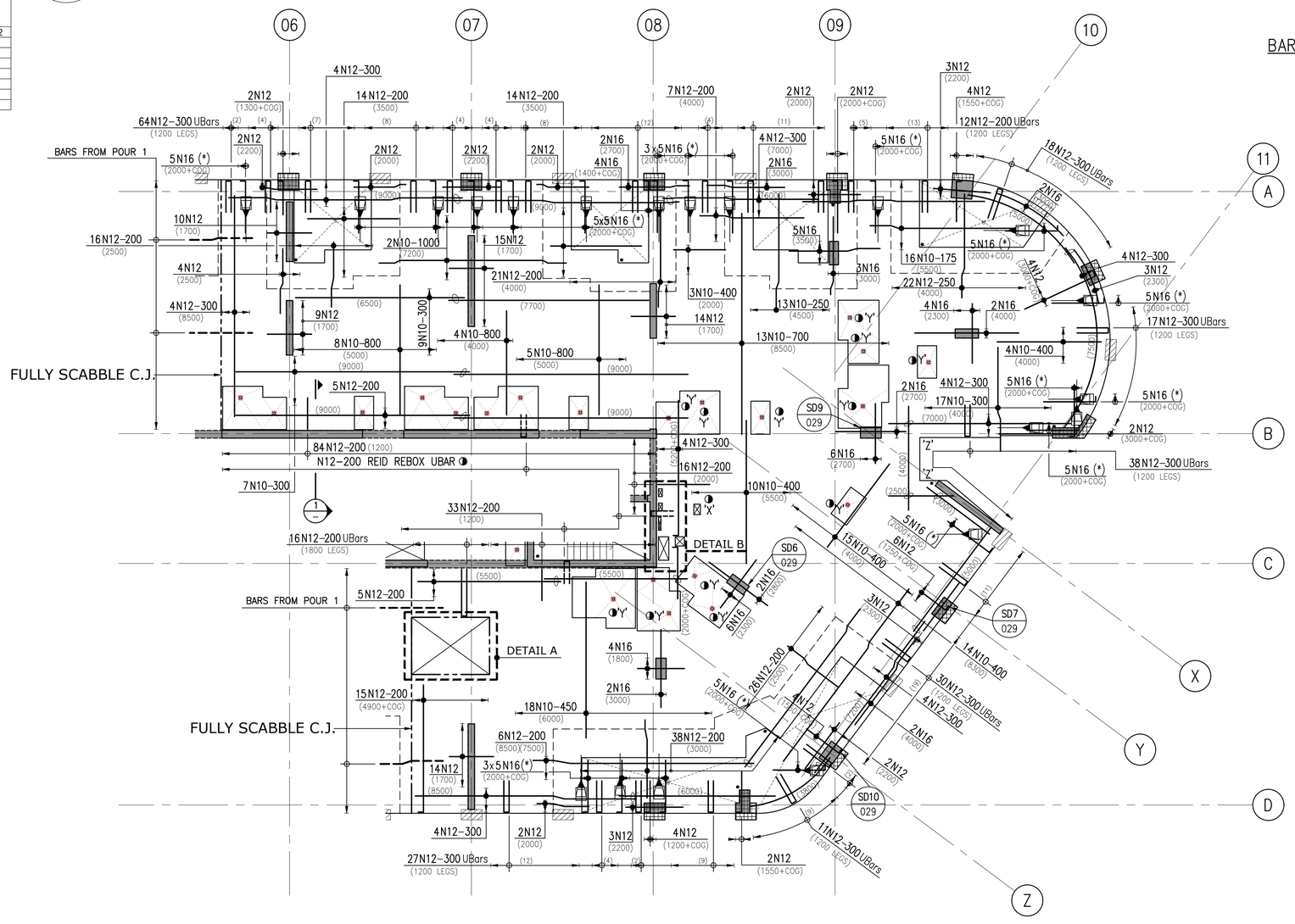
MELBOURNE
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F: +61 3 8396 9640

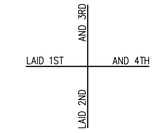
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 11 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1421	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11-POUR 2-BOTTOM REINFORCEMENT PLAN			Drawing No:	INT-PT-1422
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

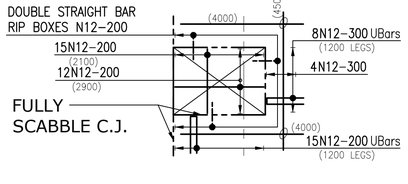
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

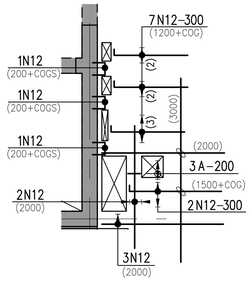
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



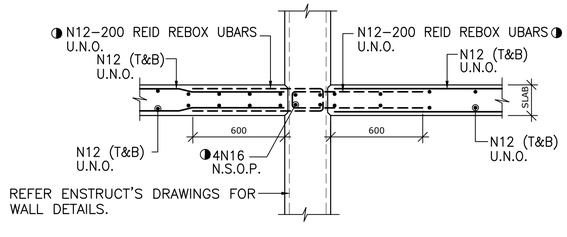
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

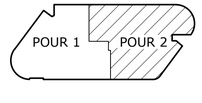
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.47 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1
SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



KEY PLAN
LEVEL 11

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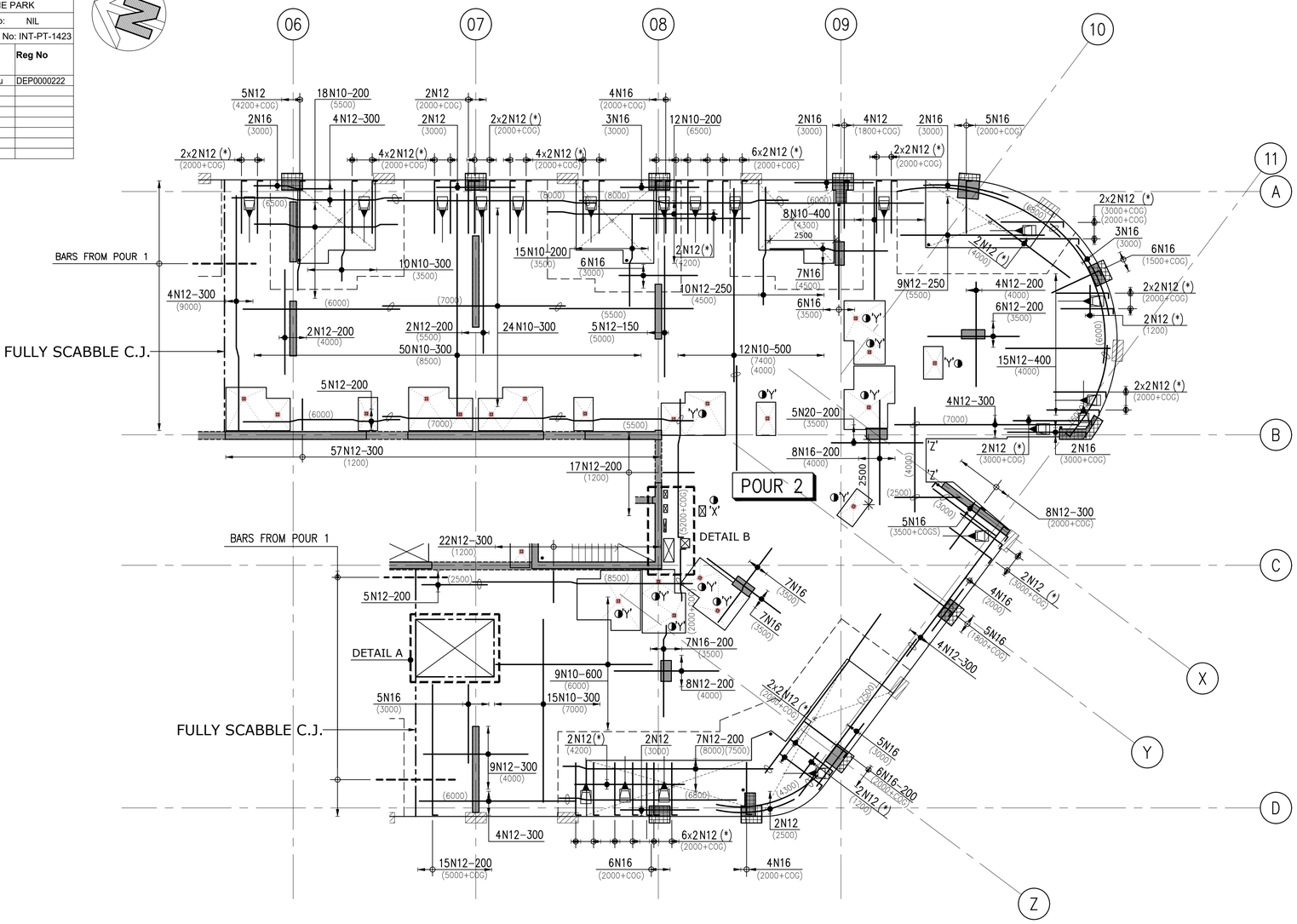
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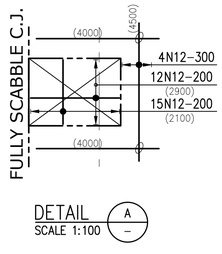
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 11- POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1422	Revision: 1

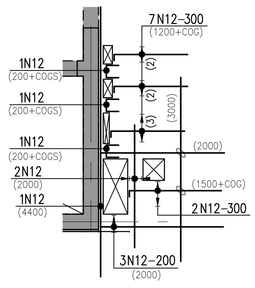
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 11-POUR 2-TOP REINFORCEMENT PLAN		Drawing No: INT-PT-1423		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

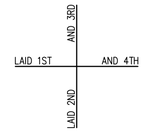
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.90 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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   - 250 - DENOTES BAR SPACINGS (mm)
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   - (2000) - DENOTES BAR LENGTH
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-111-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.111
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

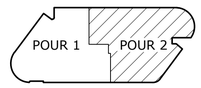
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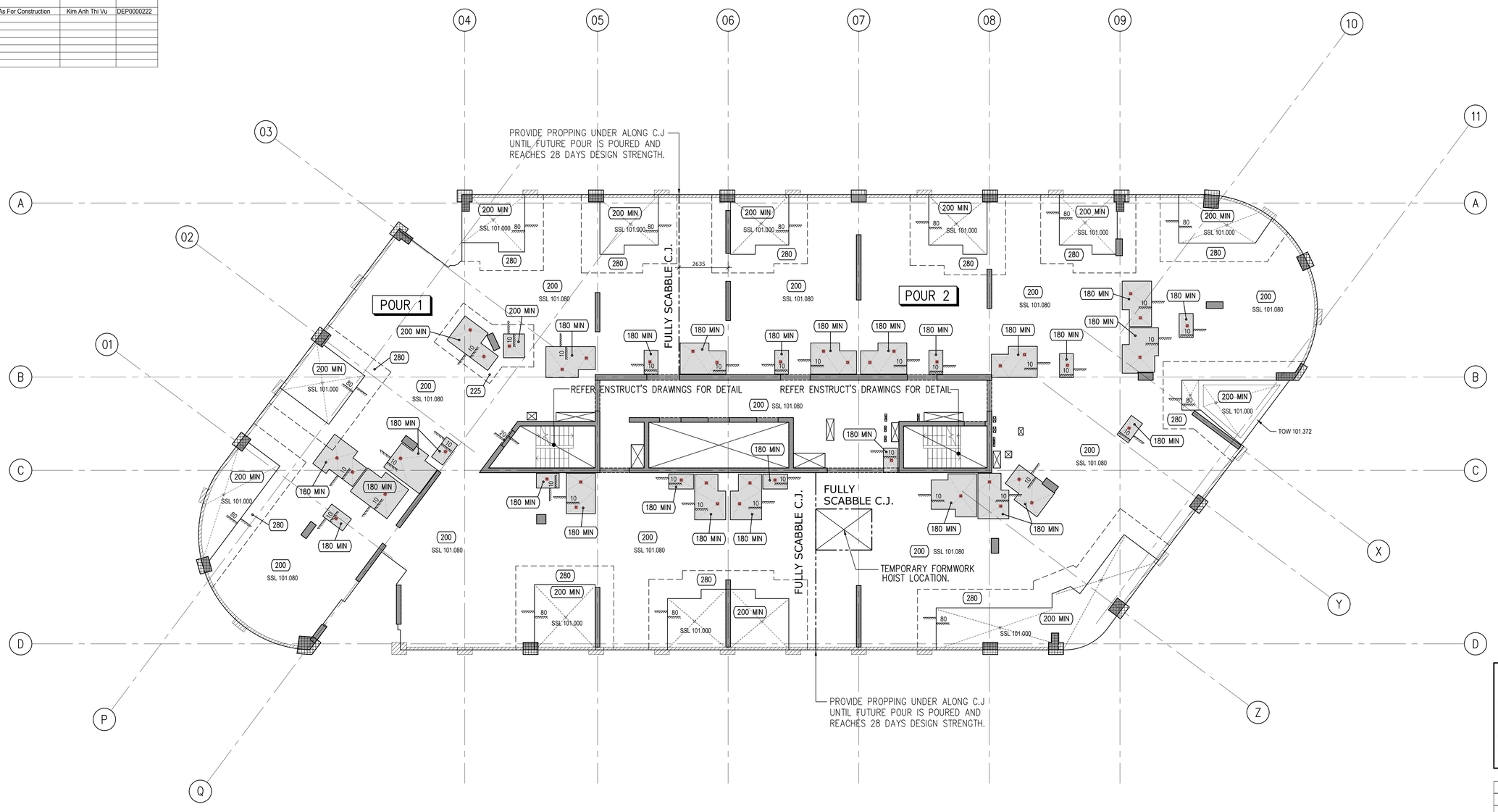
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 11 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1423	Revision: 1



KEY PLAN
LEVEL 11

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-1500	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

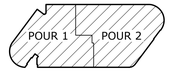
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 12

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 12 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1500	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-1511
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.38 T

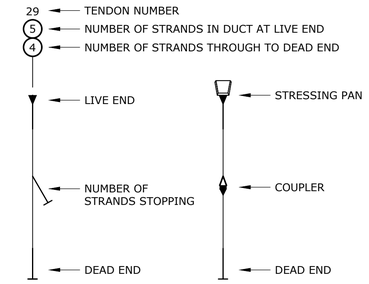
PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

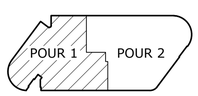


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
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KEY PLAN
LEVEL 12

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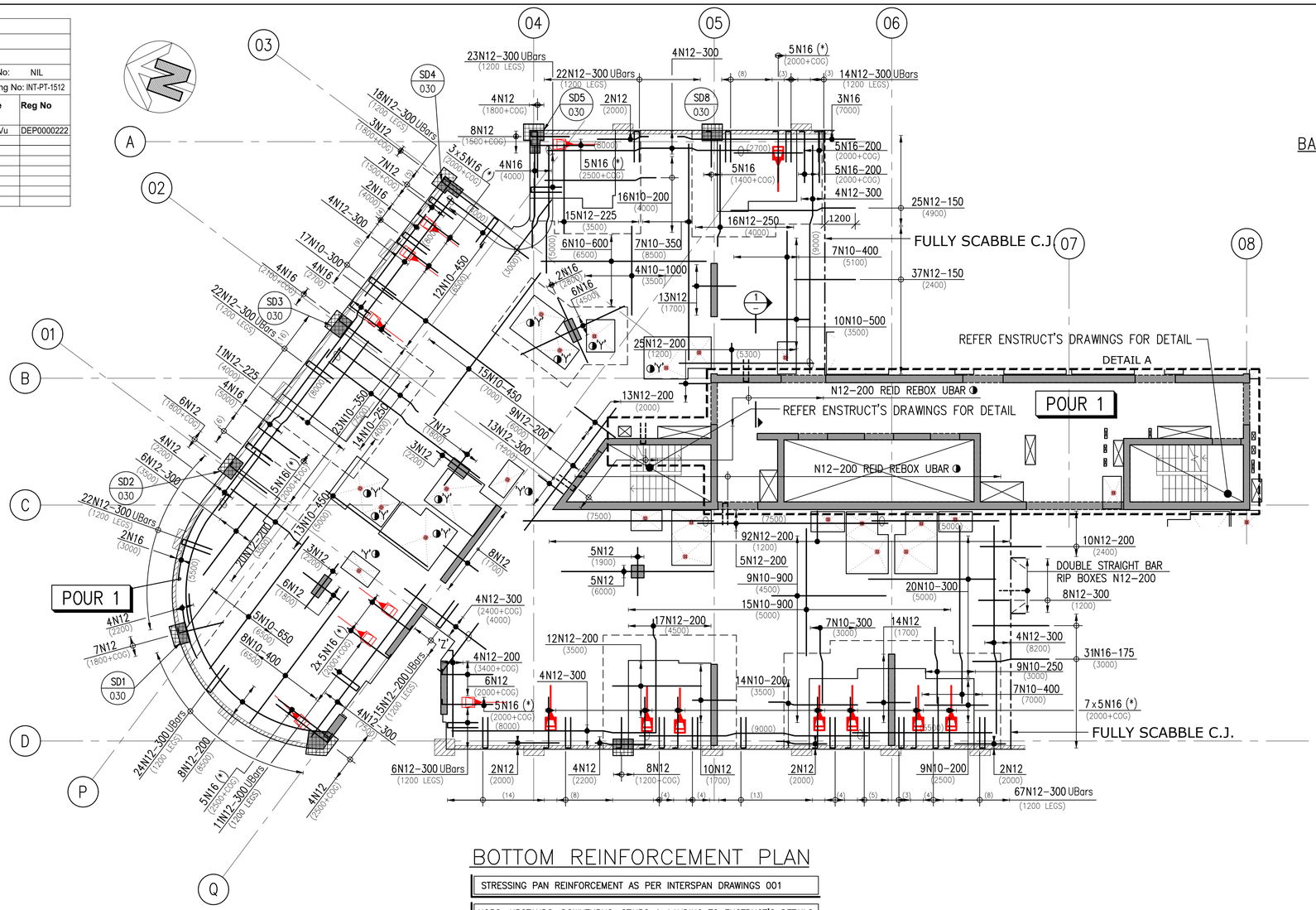
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 12 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1511	Revision: 1

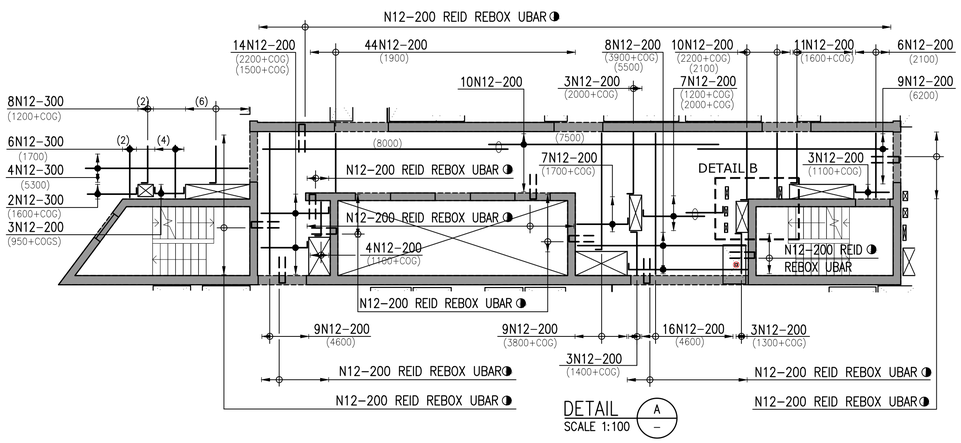
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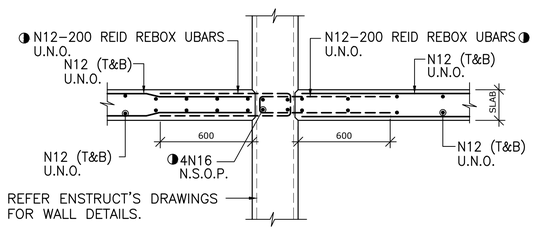
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 12 POUR 1 BOTTOM REINFORCEMENT PLAN		Drawing No:	INT-PT-1512	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



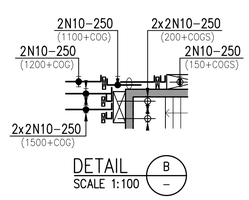
BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.44 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

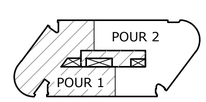




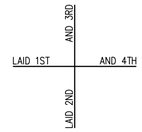
SECTION 1 / SCALE 1:20



DETAIL B / SCALE 1:100



KEY PLAN
LEVEL 12



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 / 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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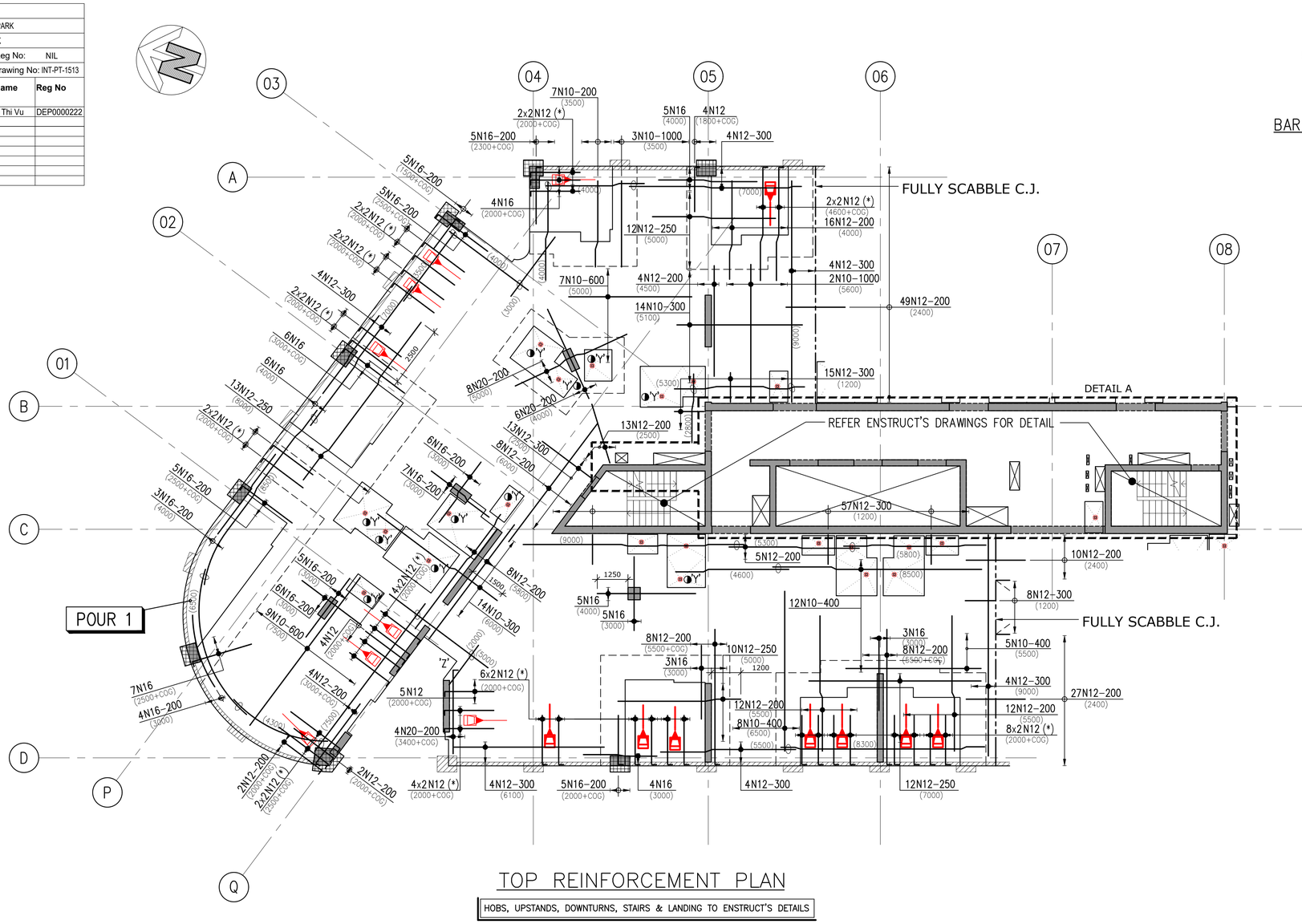
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 12 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1512	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 POUR 1 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1513	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

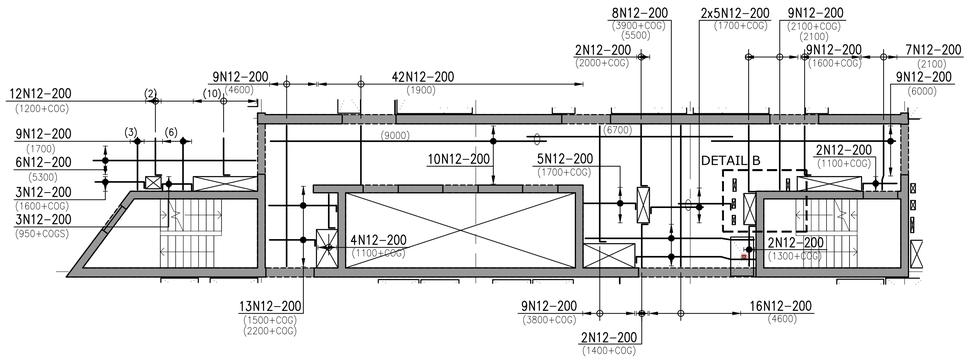


TOP REINFORCEMENT PLAN

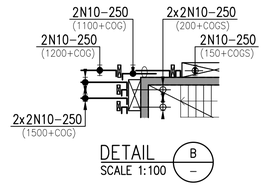
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.36 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T

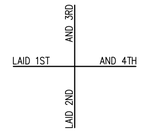


DETAIL A / SCALE 1:100



DETAIL B / SCALE 1:100

BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

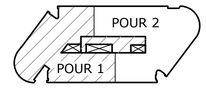
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Website: www.interspan.com.au

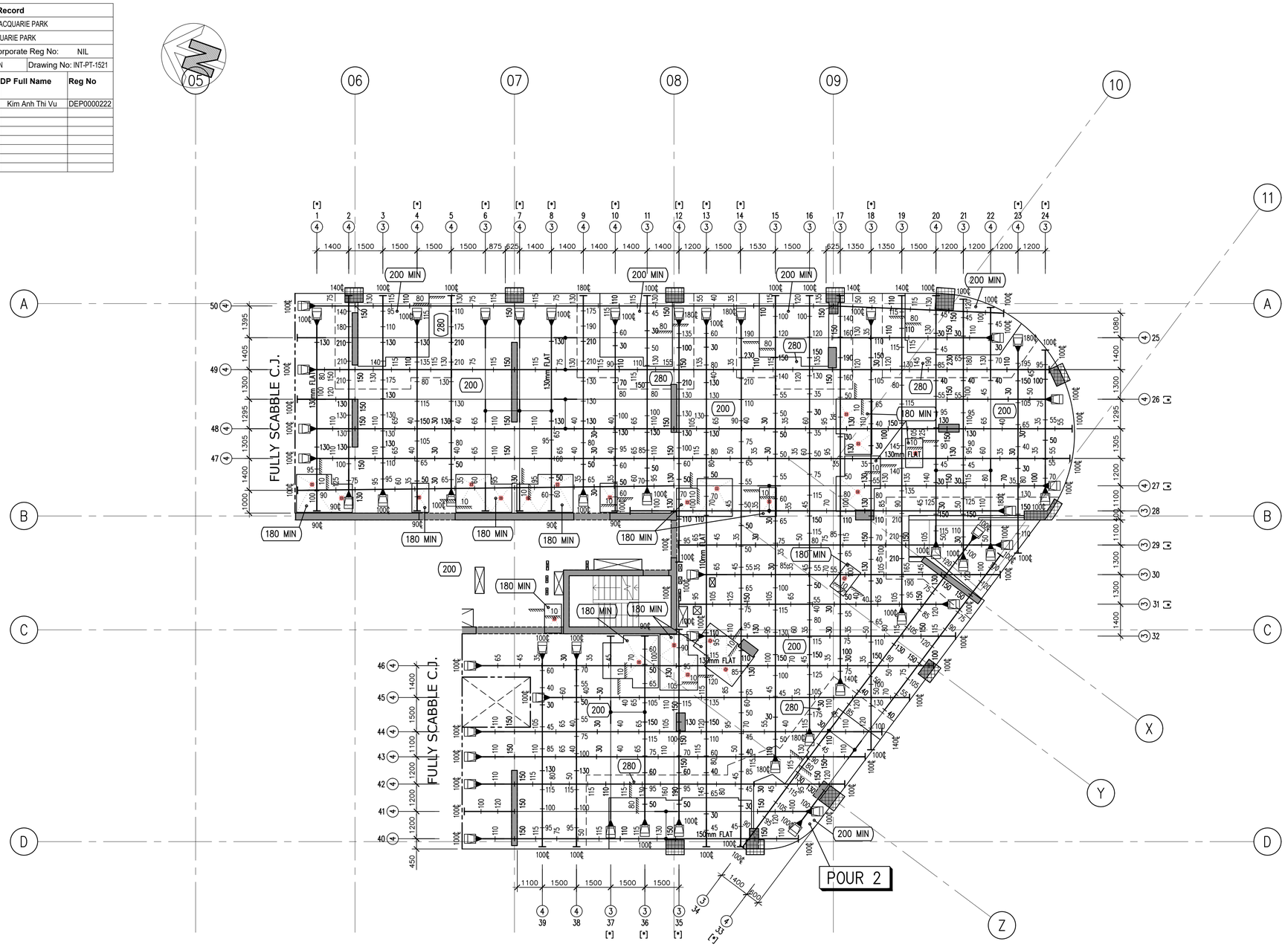
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 12 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1513	Revision: 1



KEY PLAN
LEVEL 12

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 POUR 2 POST TENSIONING PLAN			Drawing No: INT-PT-1521	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

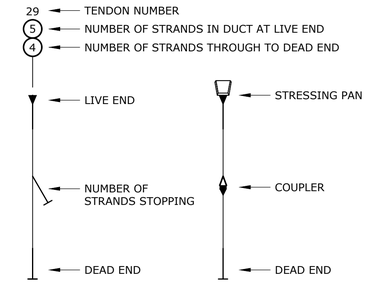
PAN REINFORCEMENT WEIGHT: 0.81 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

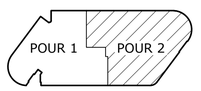


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 12

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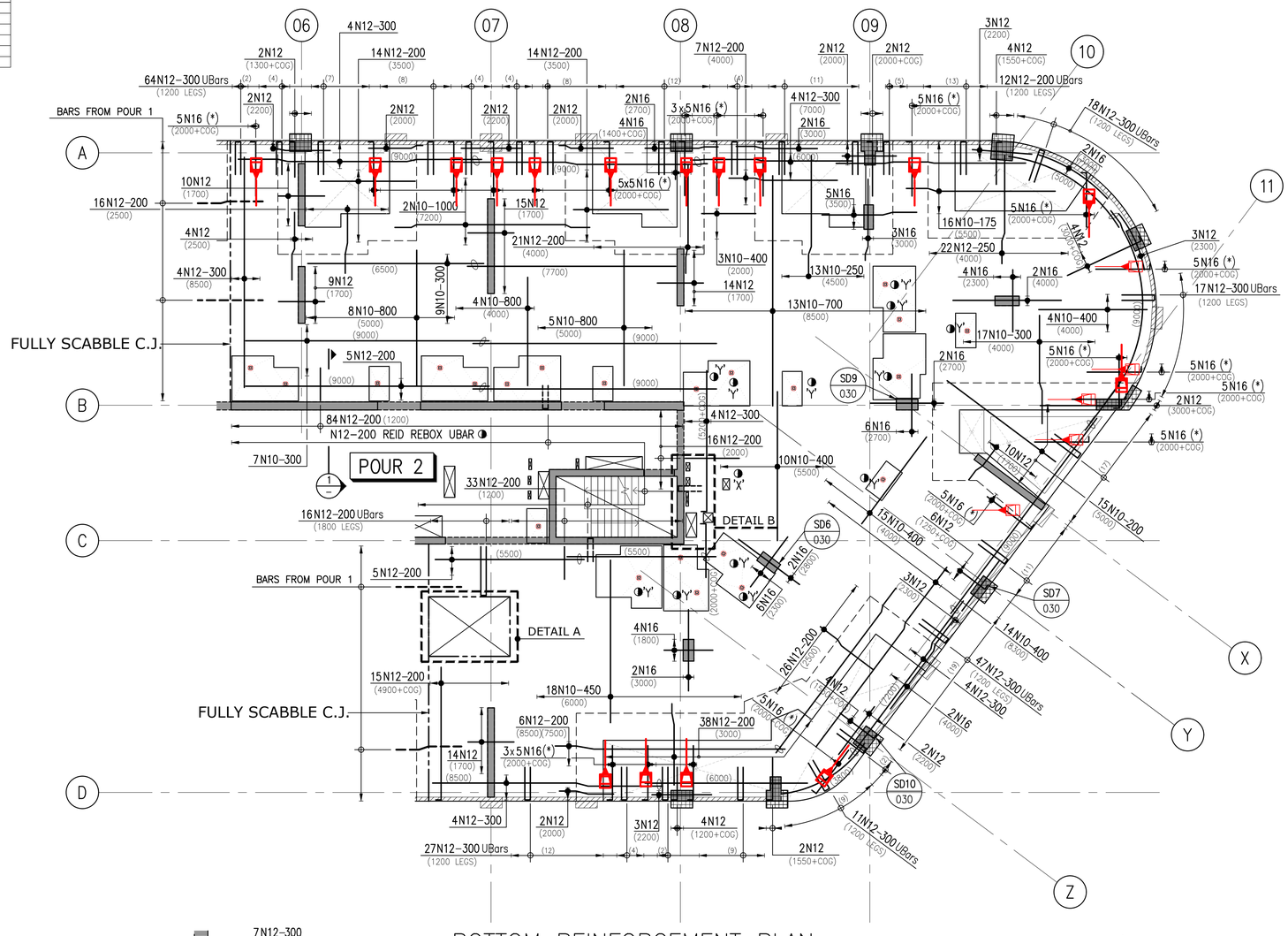
MELBOURNE
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Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

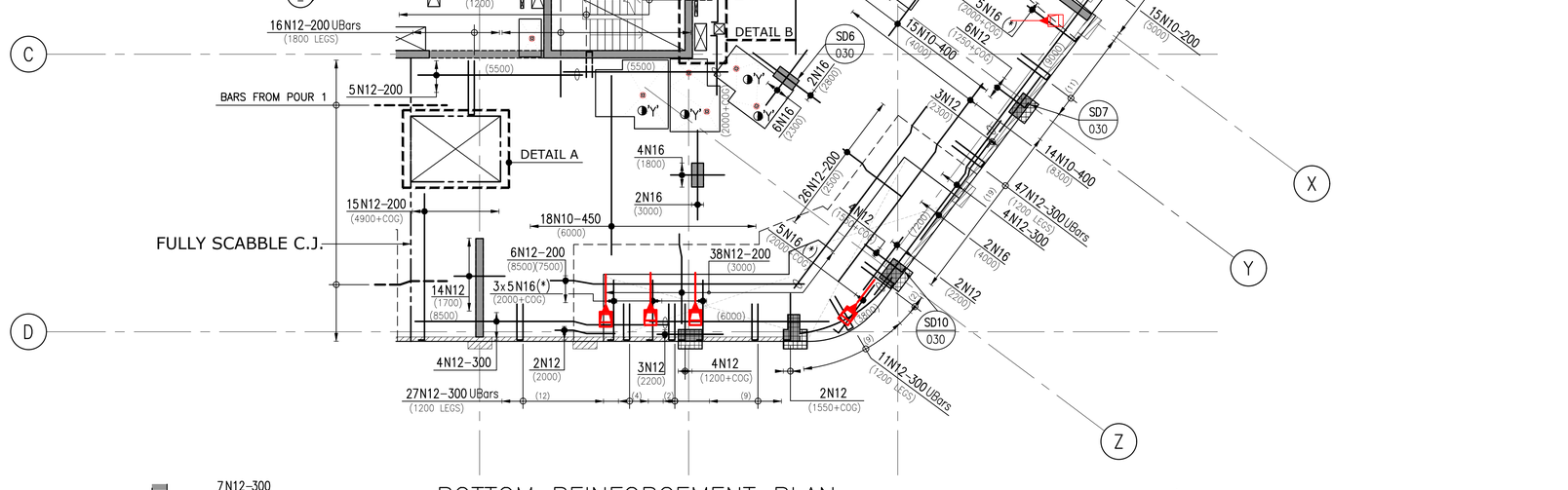
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 12 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1521	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 POUR 2 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1522		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

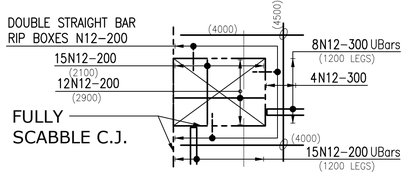
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

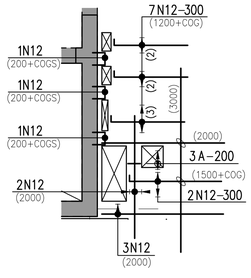
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



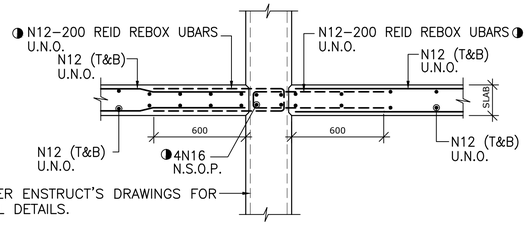
DETAIL A / SCALE 1:100



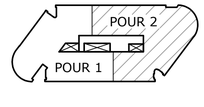
DETAIL B / SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.45 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 / SCALE 1:20



KEY PLAN
LEVEL 12

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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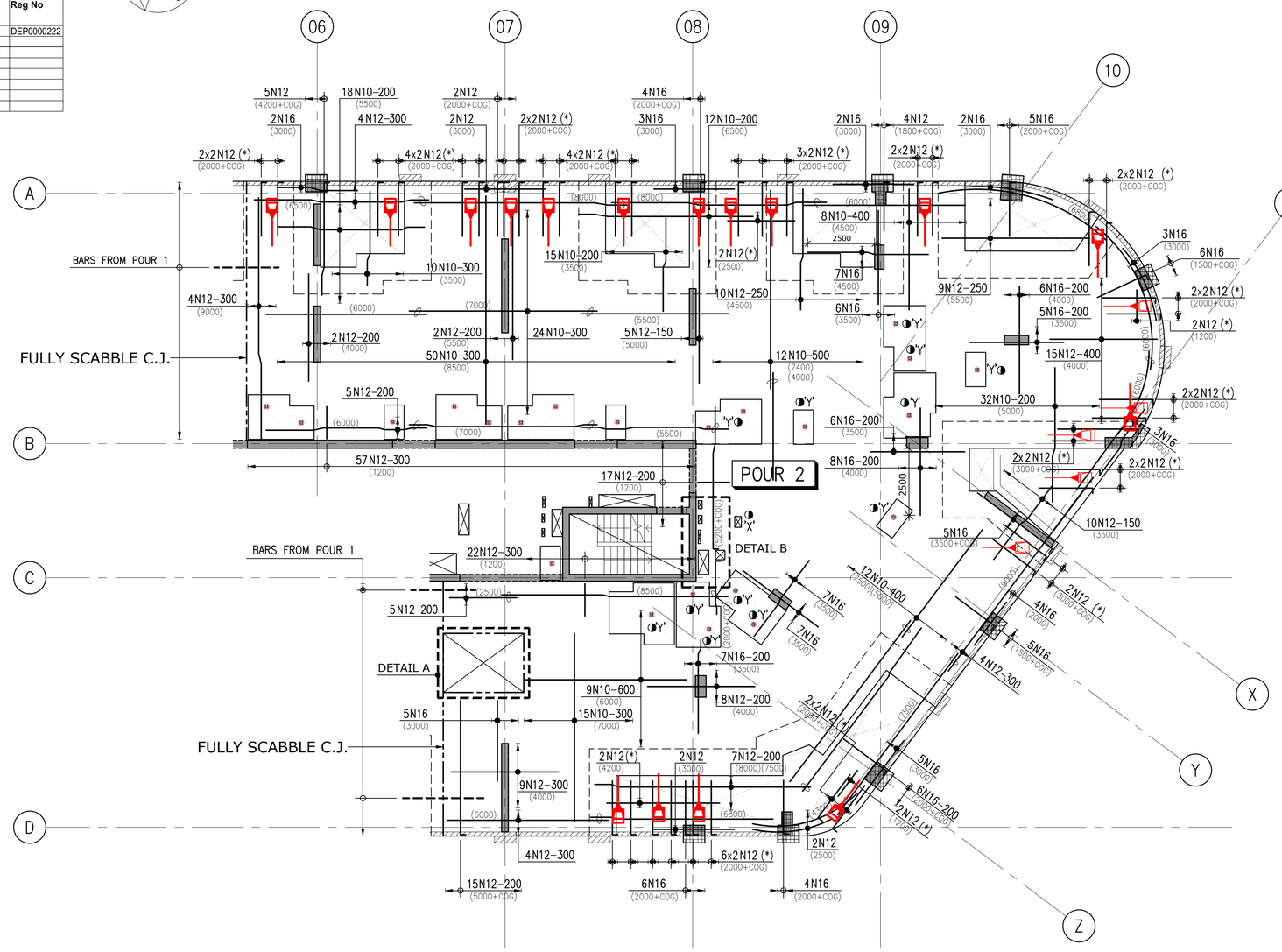
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6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

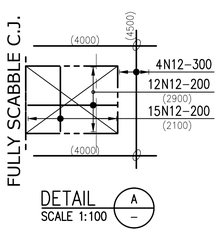
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 12 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1522	Revision: 1

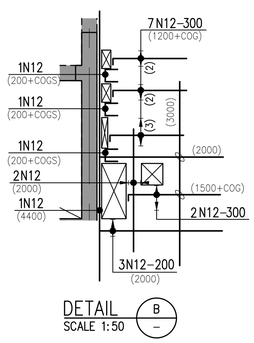
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 12 POUR 2 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1523	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

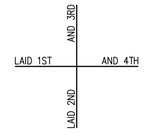
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.05 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-112-00 A1-ST-308-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.112
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

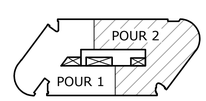
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 12 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1523	Revision: 1

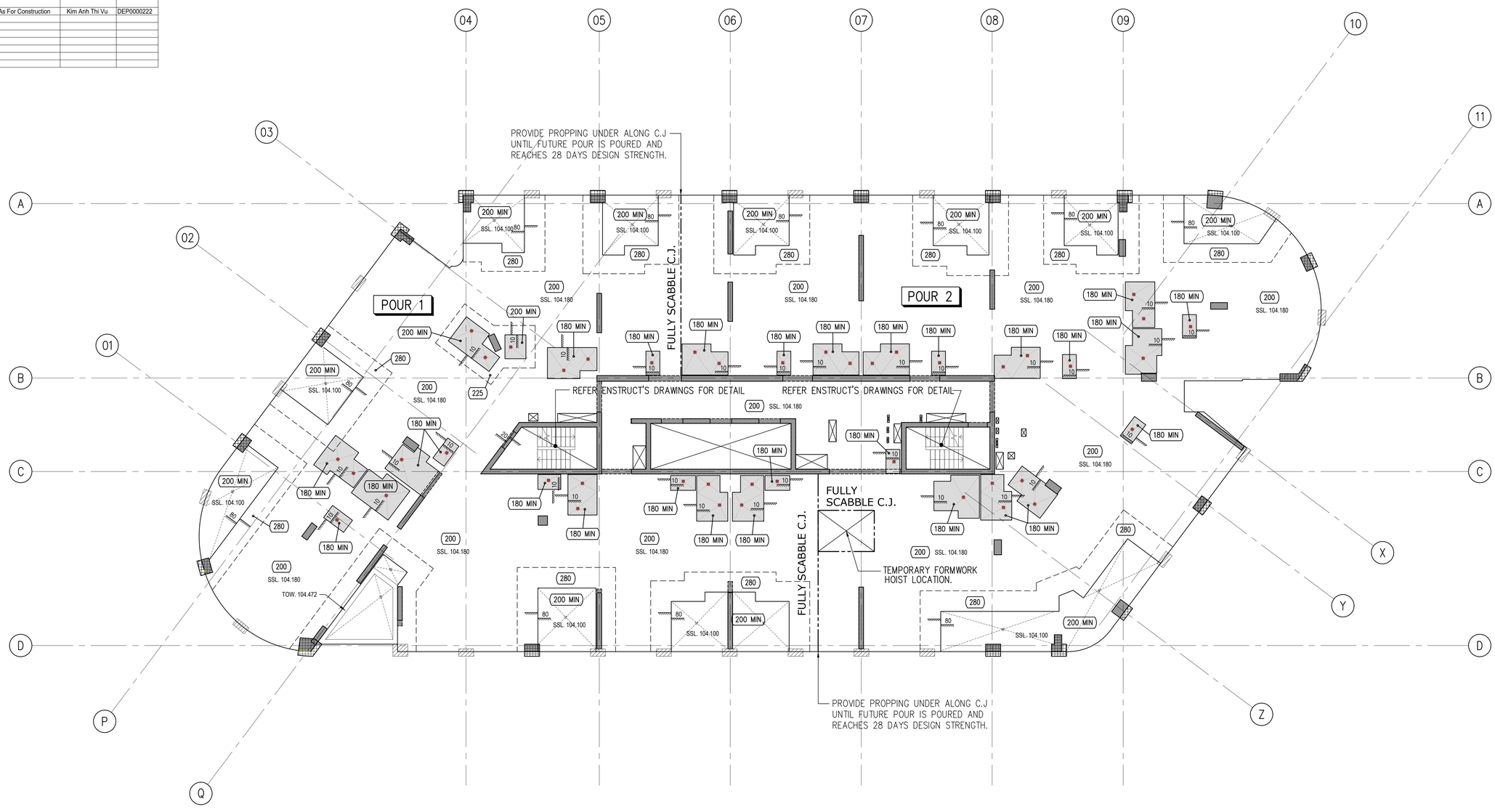


KEY PLAN
LEVEL 12

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 13 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-1600	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

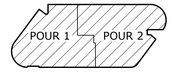
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD–BEARING PRECAST PANEL OVER

DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER

DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 13

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 13 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1600	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 - POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-1611	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

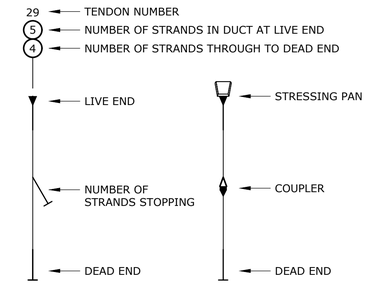
PAN REINFORCEMENT WEIGHT: 1.13 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

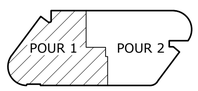
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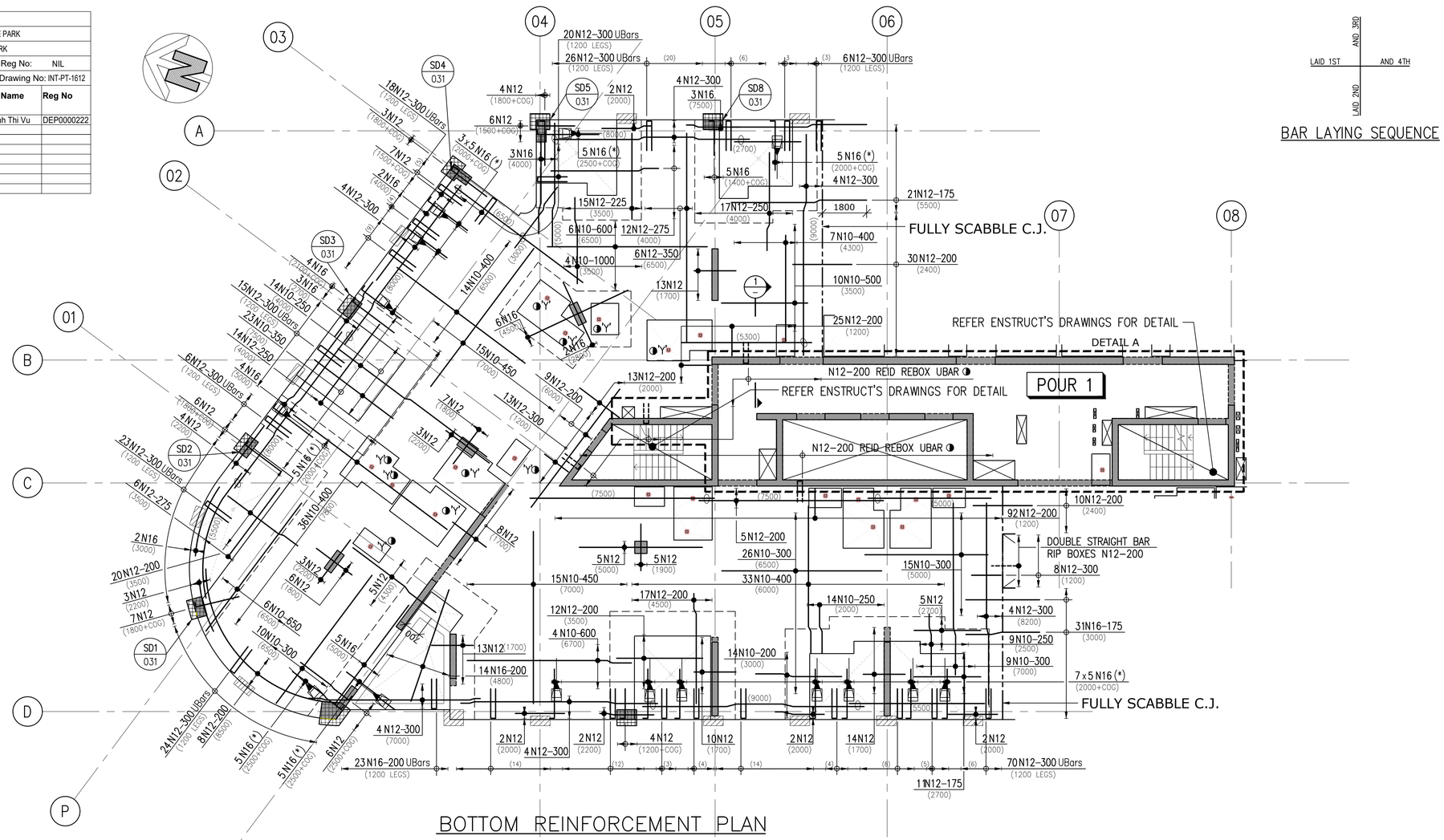
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 13 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1611	Revision: 1



KEY PLAN
LEVEL 13

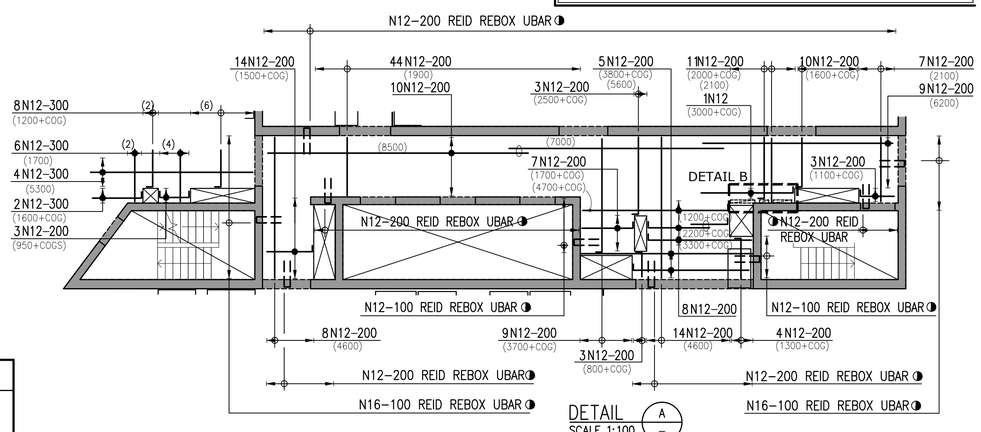
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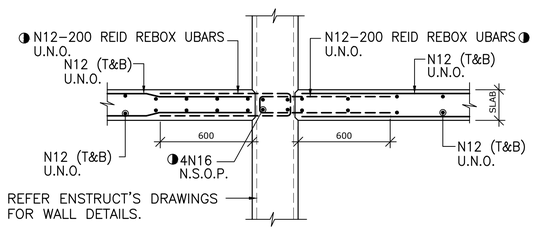
Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 13 POUR 1 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1612		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

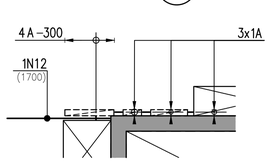


BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.98 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.39 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER







STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

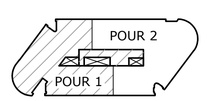
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 13

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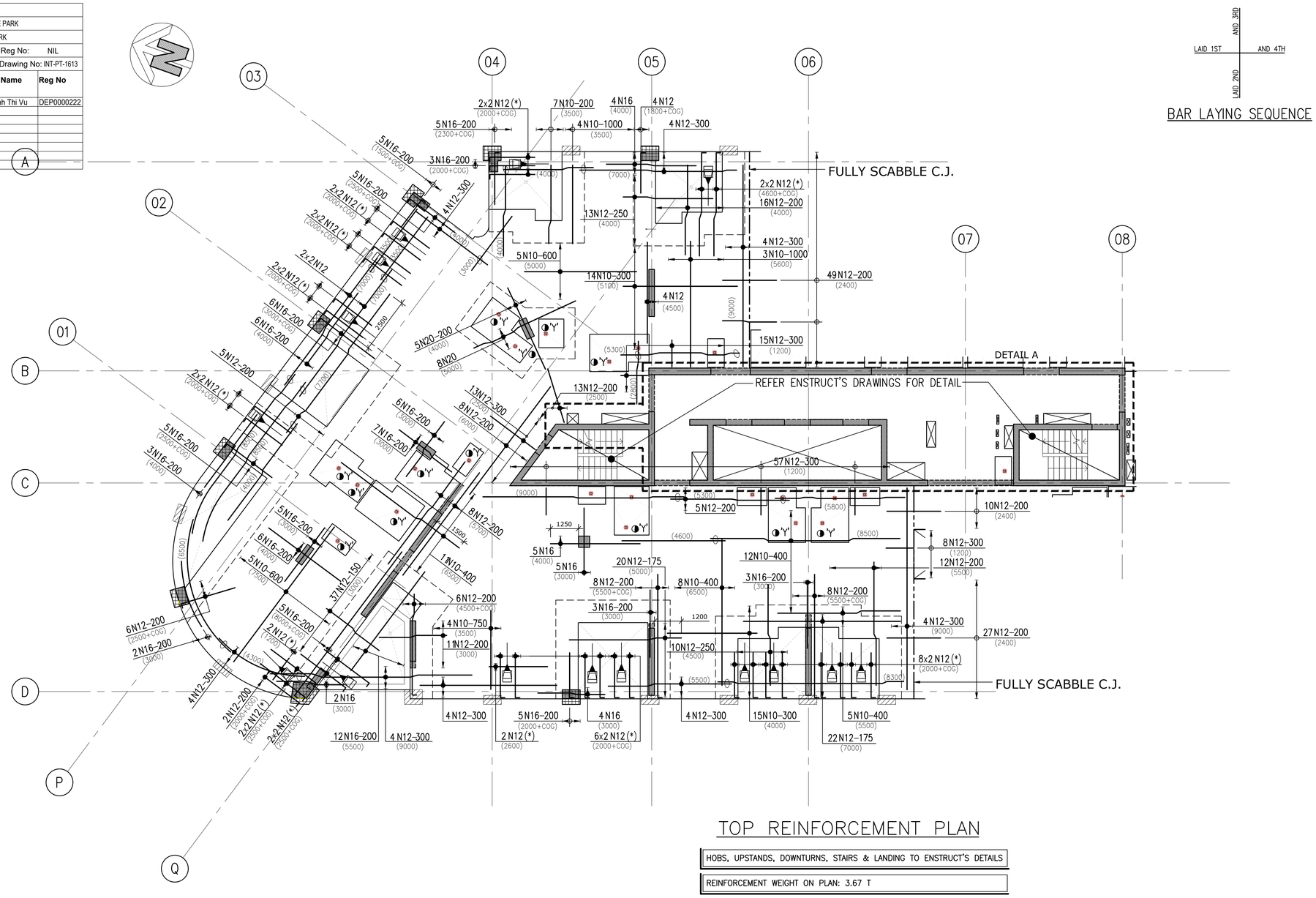
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 13 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1612	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 POUR 1 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1613	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



LAID 1ST, AND 3RD, AND 4TH, LAID 2ND

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

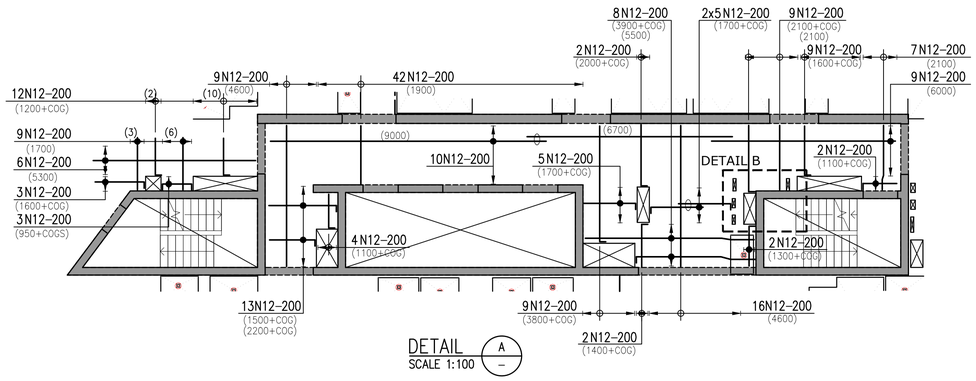
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

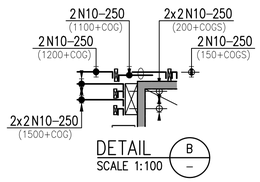
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

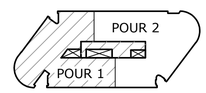
'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
REINFORCEMENT WEIGHT ON PLAN: 3.67 T
◑ BARS ARE NOT TO INTERSPAN GMT: 0.51 T
(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER







KEY PLAN
LEVEL 13

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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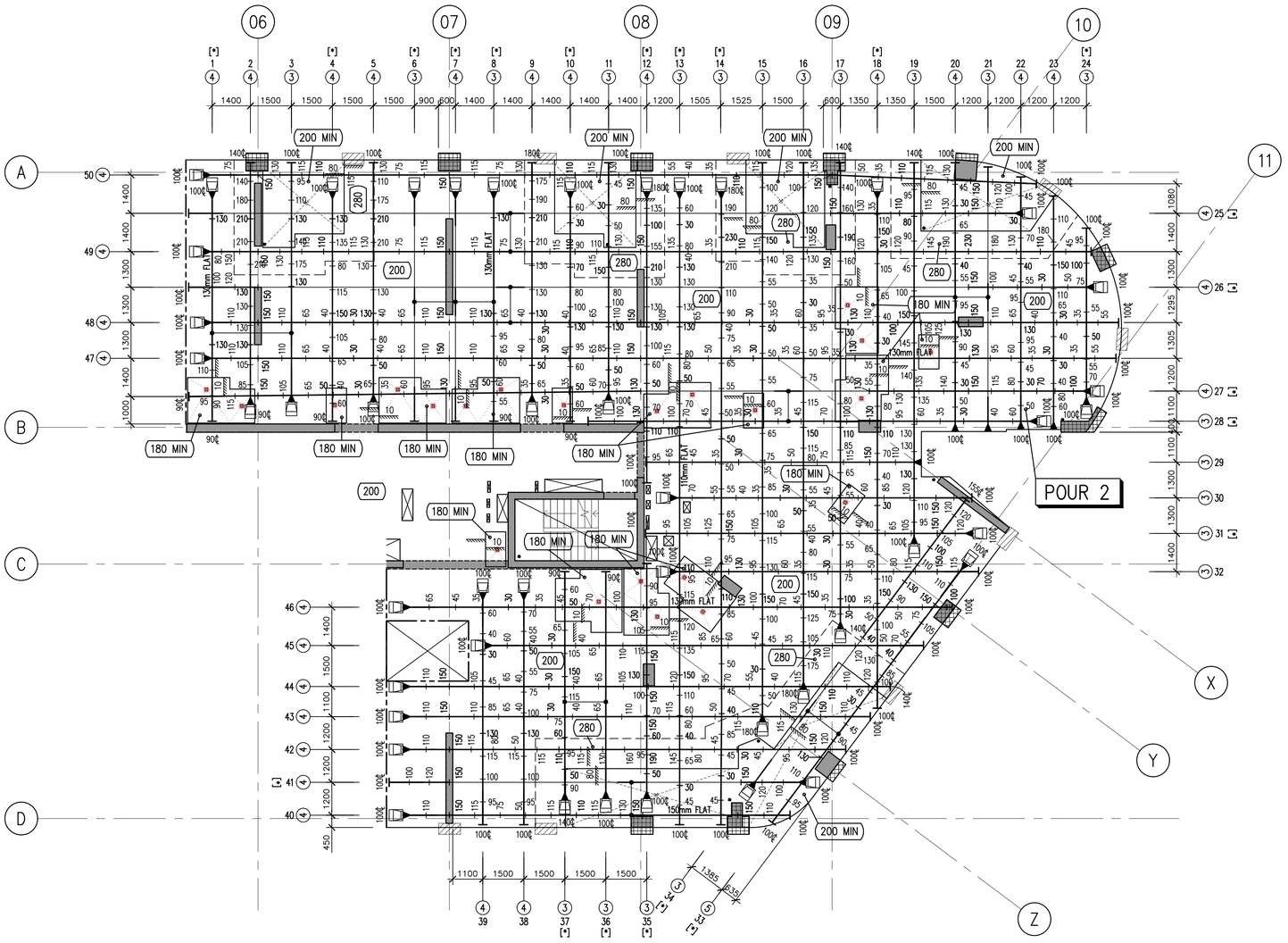
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 13 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1613	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 POUR 2 POST TENSIONING PLAN		Drawing No: INT-PT-1621	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

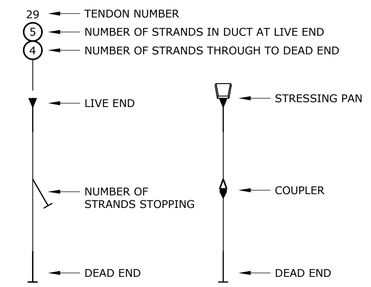
PAN REINFORCEMENT WEIGHT: 0.65 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

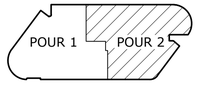
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
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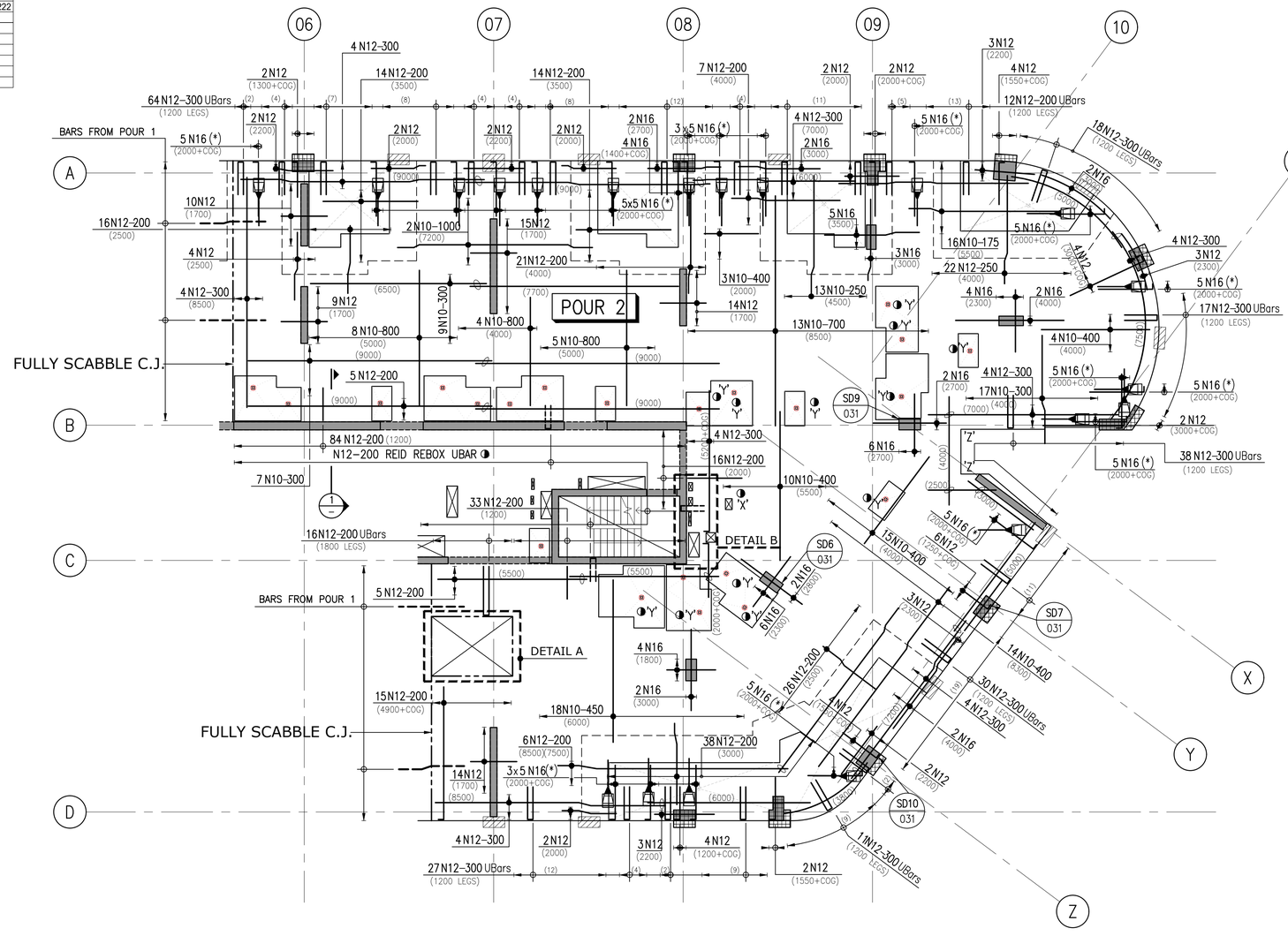
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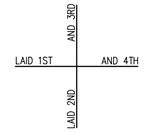
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 13 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1621	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 POUR 2 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1622		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE



REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

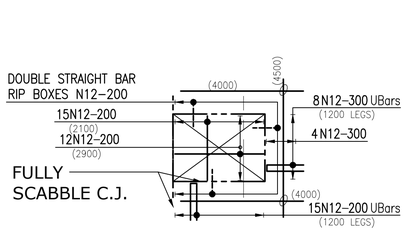
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 / 1
9. TRIMMER BARS TO PENETRATIONS.

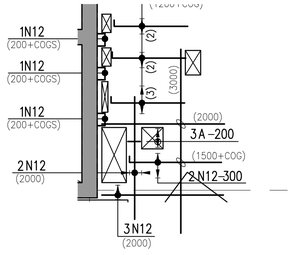
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



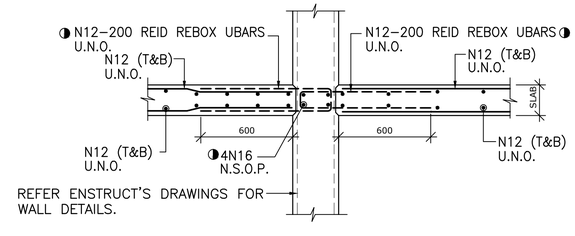
DETAIL A SCALE 1:100



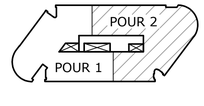
DETAIL B SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.47 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 SCALE 1:20



KEY PLAN
LEVEL 13

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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F: +61 2 8307 0297

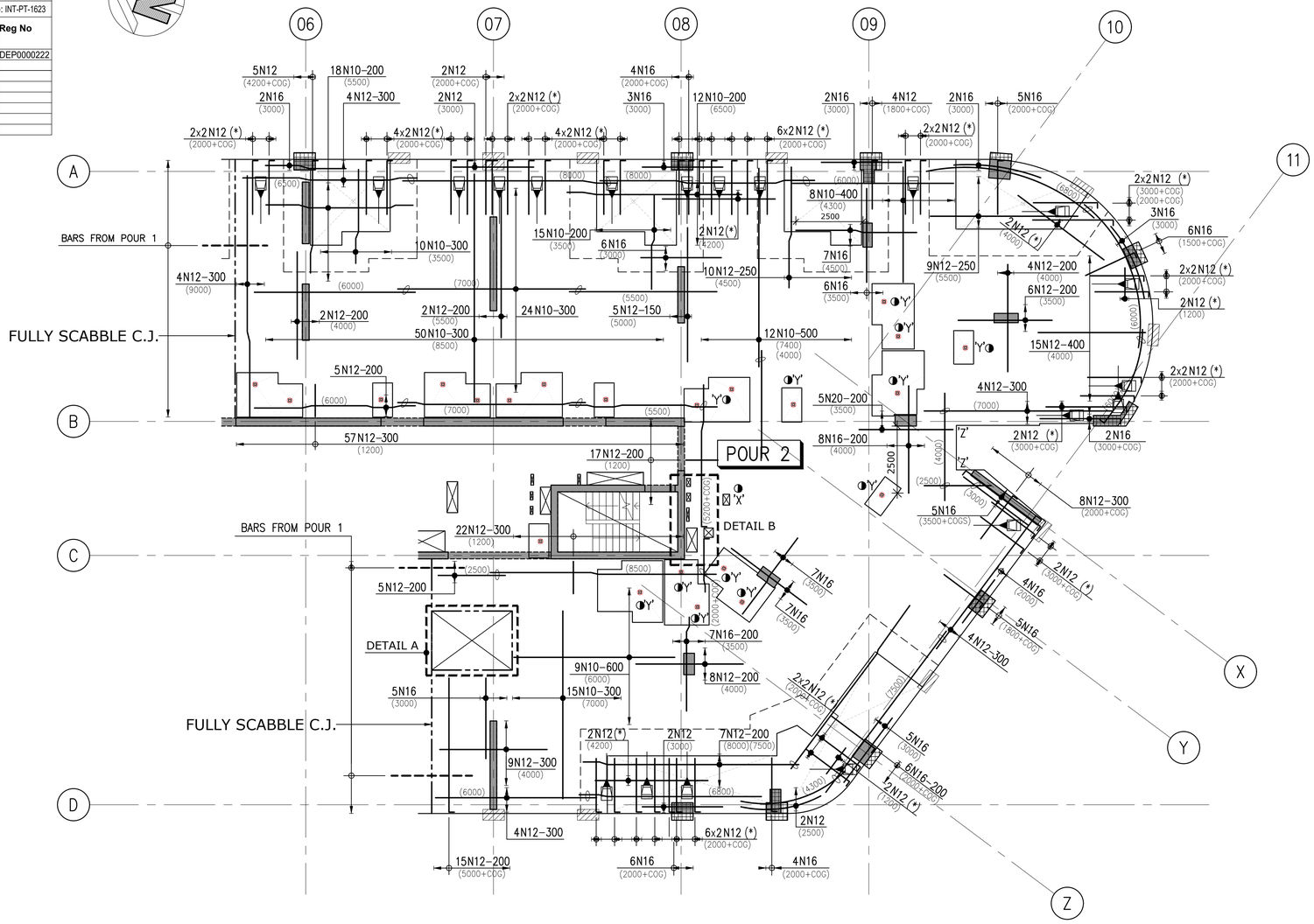
MELBOURNE
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Port Melbourne, VIC 3207
P: +61 3 8396 9600
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 13 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1622	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 13 POUR 2 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1623	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

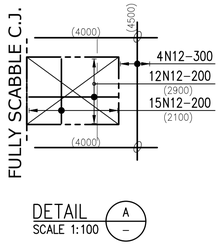
'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

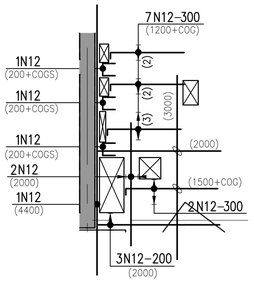
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-113-00 A1-ST-309-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.113
REVISION: C



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

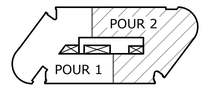
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.90 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 13

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

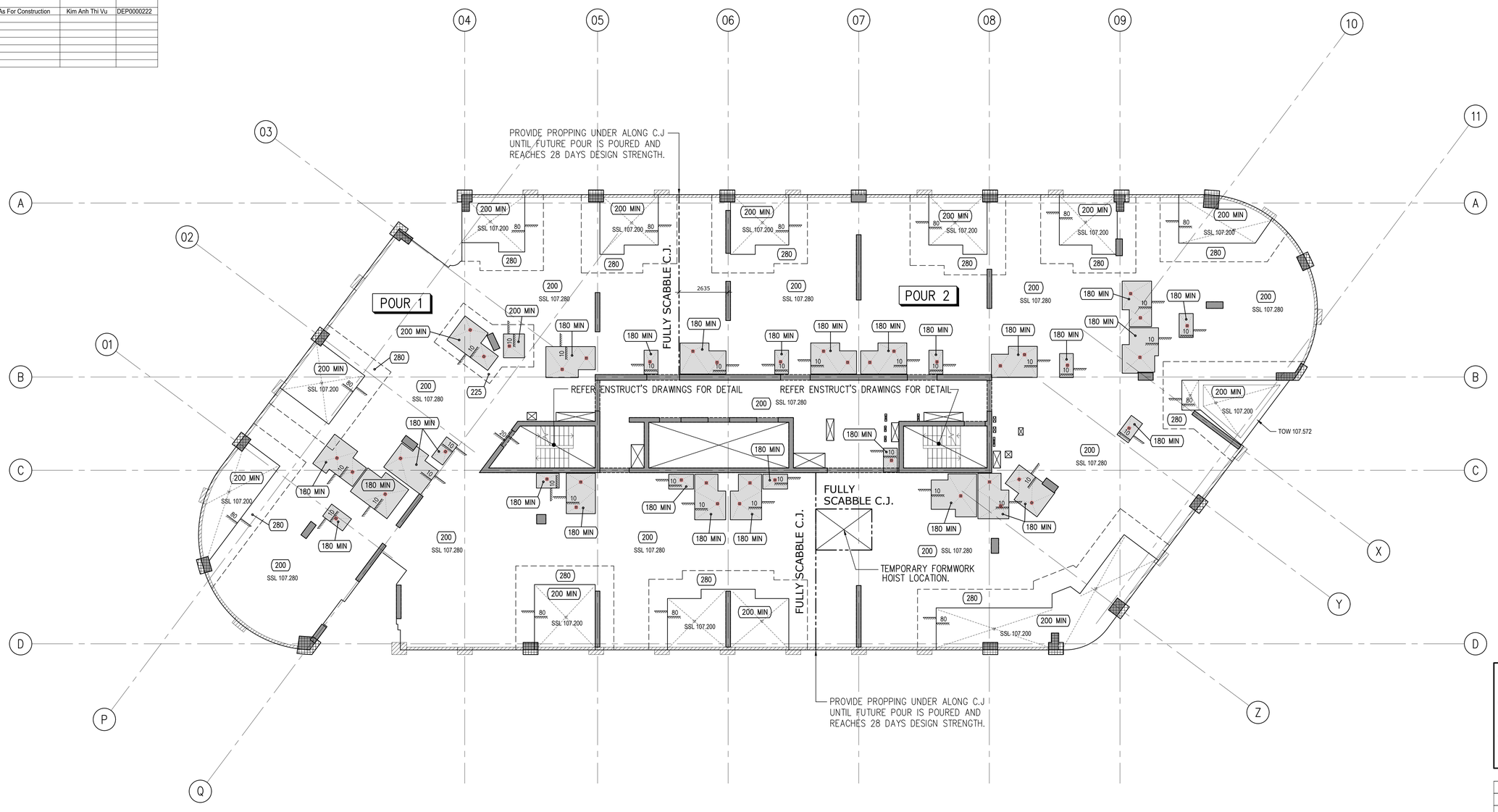
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 13 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1623	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 14 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-1700	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

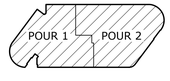
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 14

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

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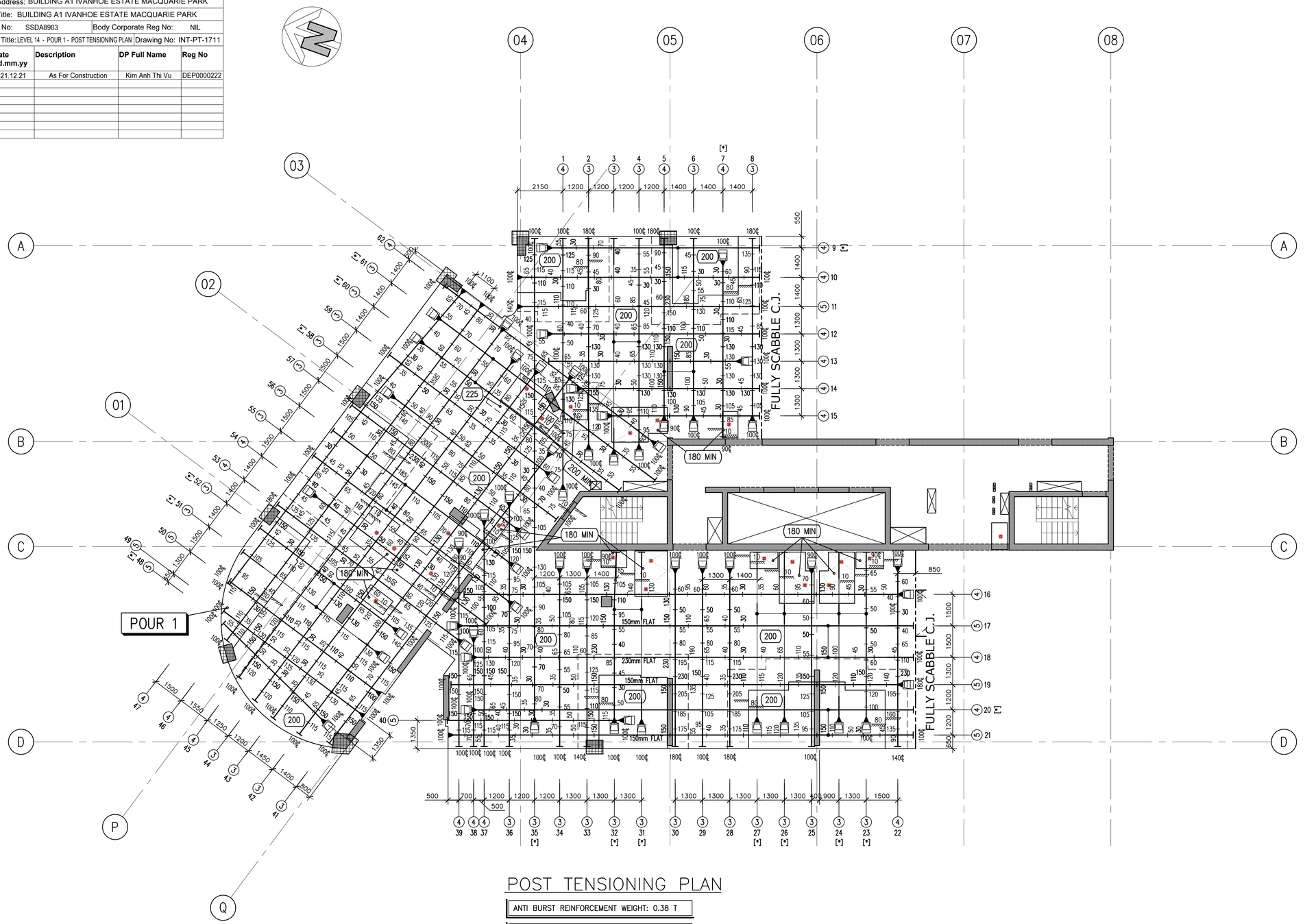
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 14 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1700	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 14 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-1711
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.38 T

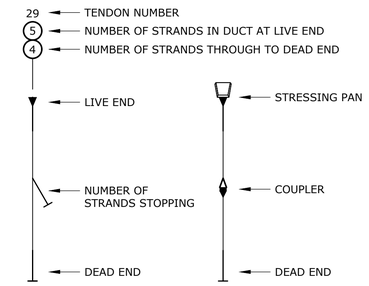
PAN REINFORCEMENT WEIGHT: 1.05 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

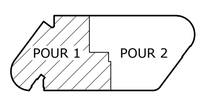


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 14

SYDNEY
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Rosebery, NSW 2018
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F: +61 2 8307 0297

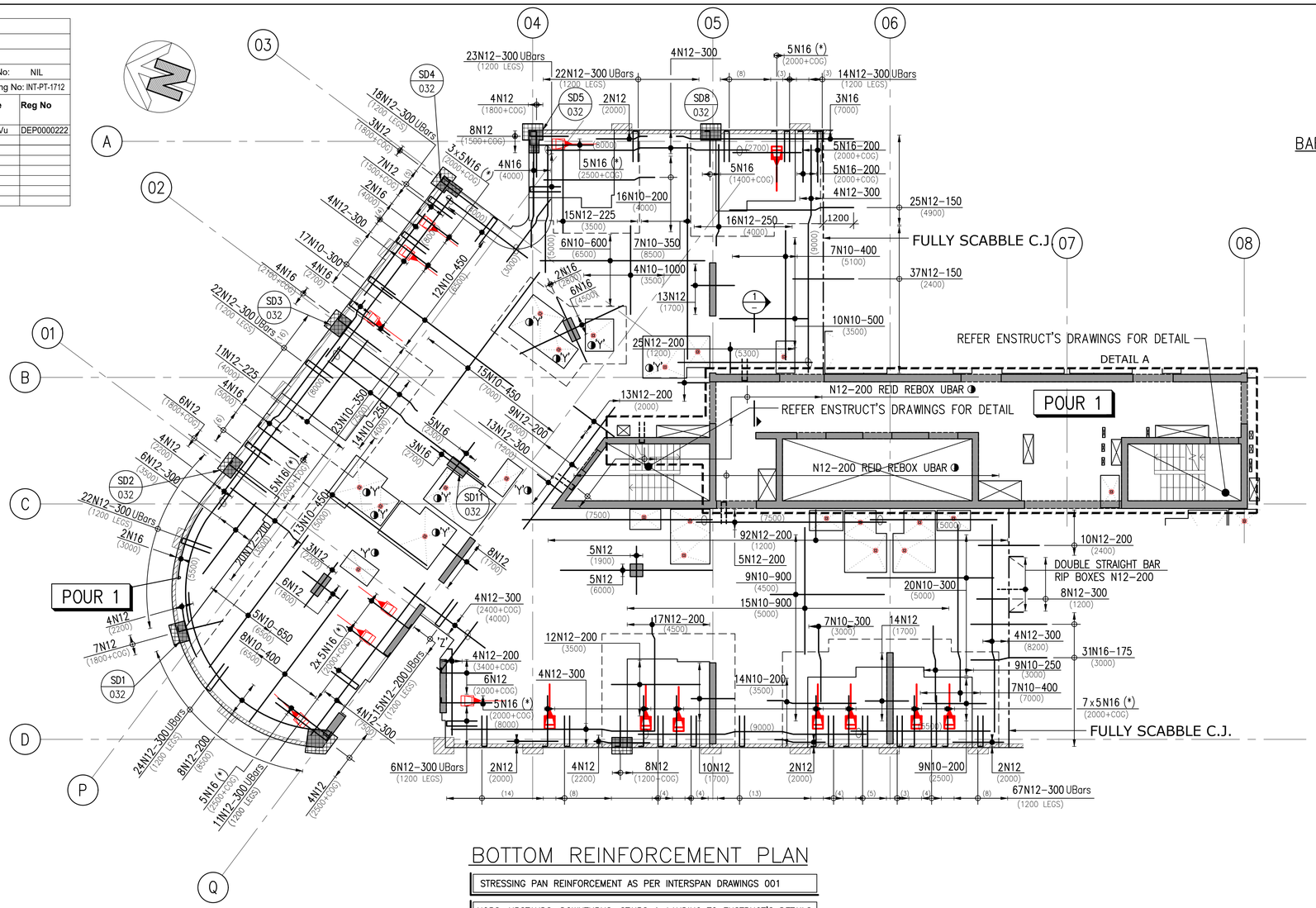
MELBOURNE
6/20 - 26 Sabre Drive
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P: +61 3 8396 9600
F: +61 3 8396 9640

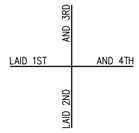
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 14 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1711	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 14 POUR 1 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1712		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

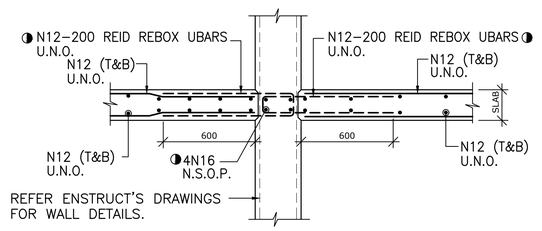
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

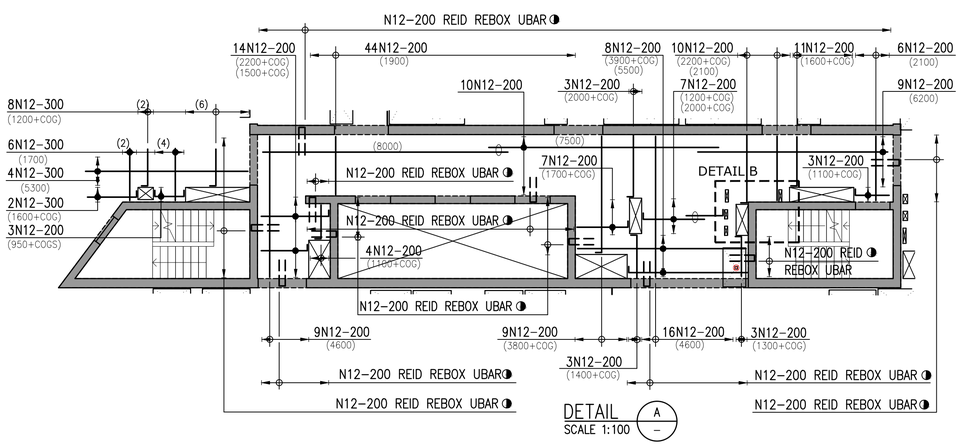
THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

BOTTOM REINFORCEMENT PLAN

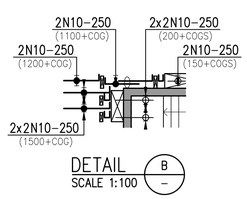
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.45 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



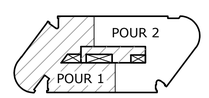


DETAIL A SCALE 1:100

SECTION 1 SCALE 1:20



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 14

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

SYDNEY
5.04/77 Dunning Avenue
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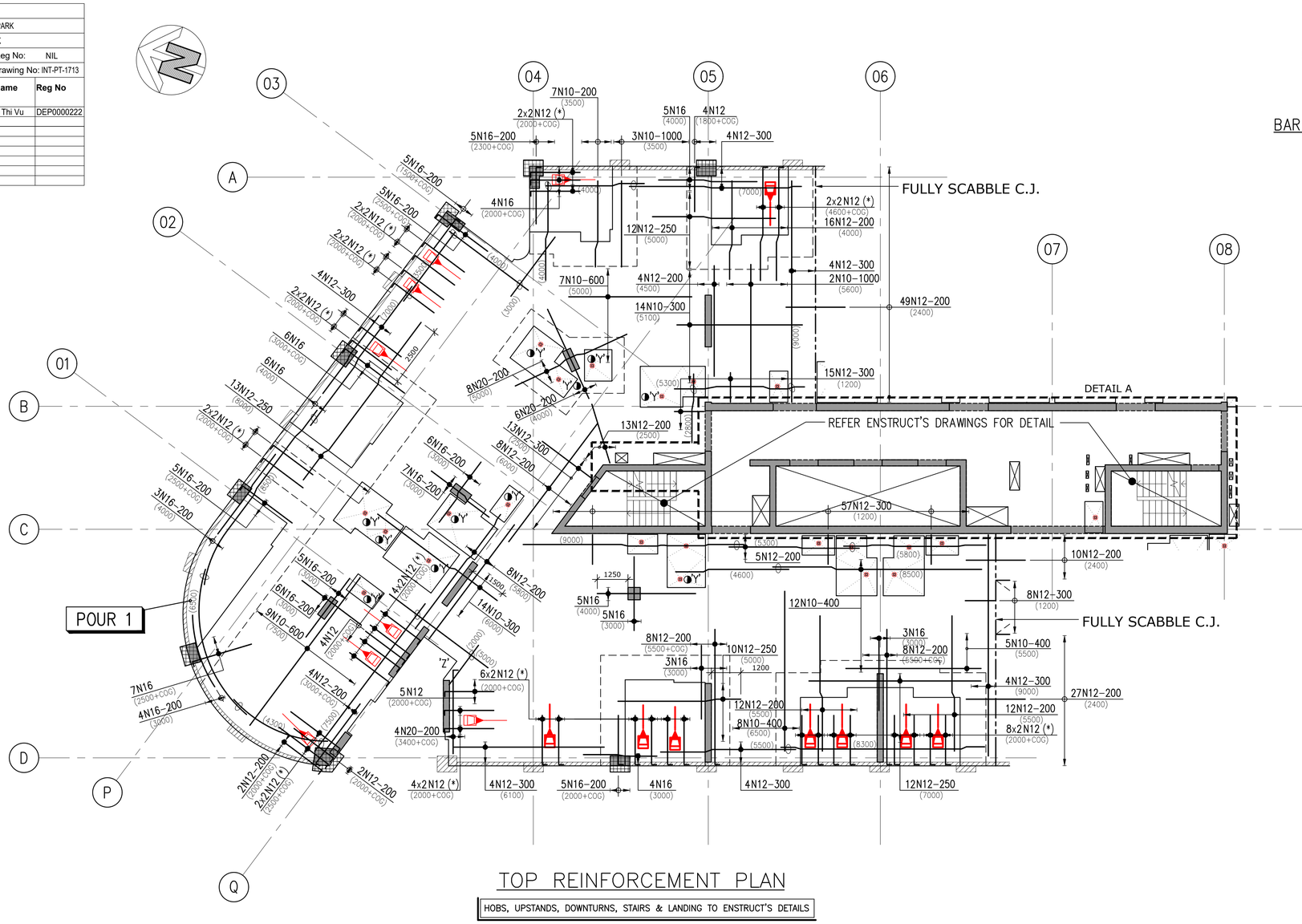
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Port Melbourne, VIC 3207
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 14 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1712	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 14 POUR 1 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1713	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

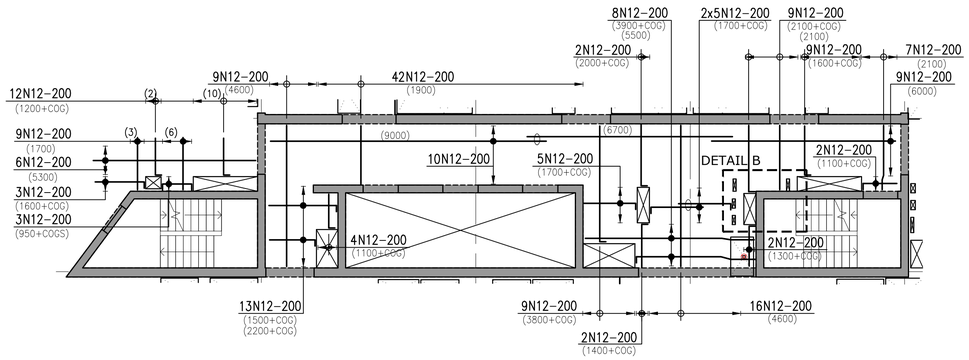


TOP REINFORCEMENT PLAN

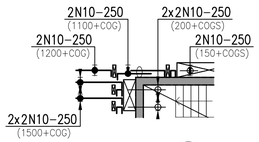
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.36 T

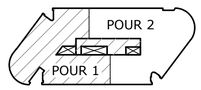
◑ BARS ARE NOT TO INTERSPAN GMT: 0.04 T



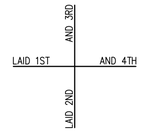
DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 14



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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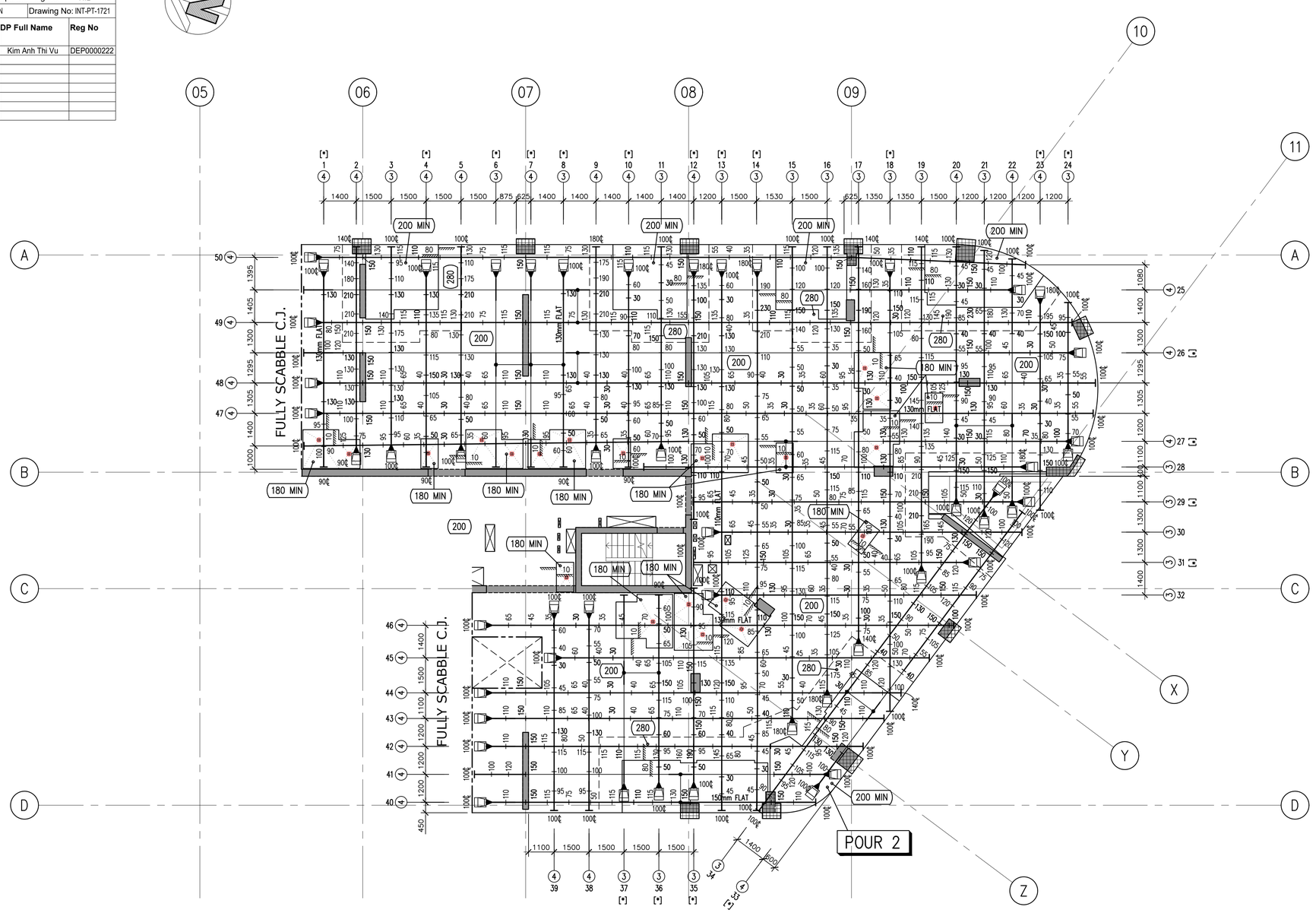
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 14 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1713	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 14 POUR 2 POST TENSIONING PLAN		Drawing No: INT-PT-1721	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

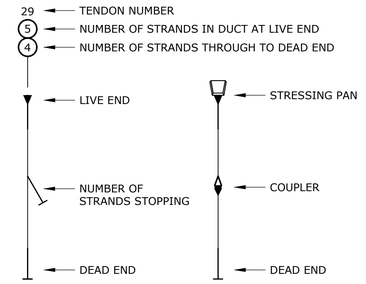
PAN REINFORCEMENT WEIGHT: 0.81 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

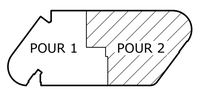


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 14

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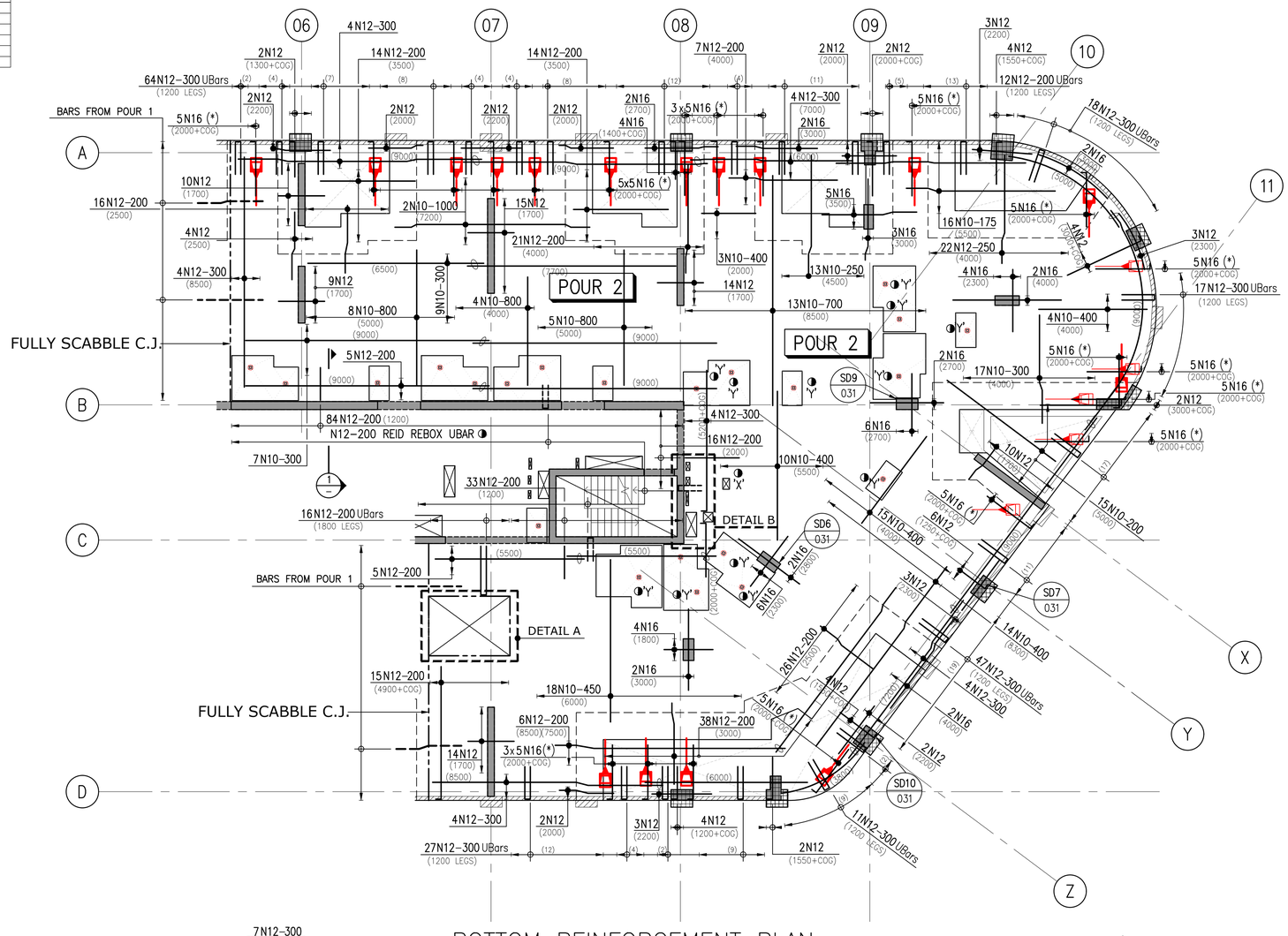
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F: +61 3 8396 9640

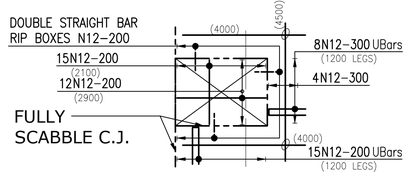
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 14 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1721	Revision: 1

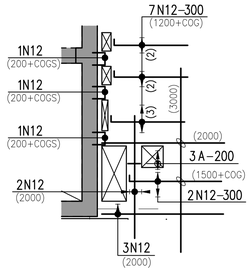
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 14 POUR 2 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1722		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





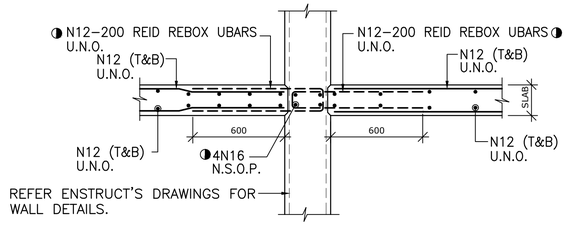
DETAIL A
SCALE 1:100



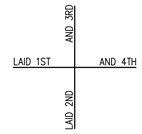
DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.45 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1
SCALE 1:20



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

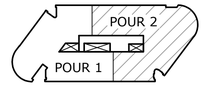
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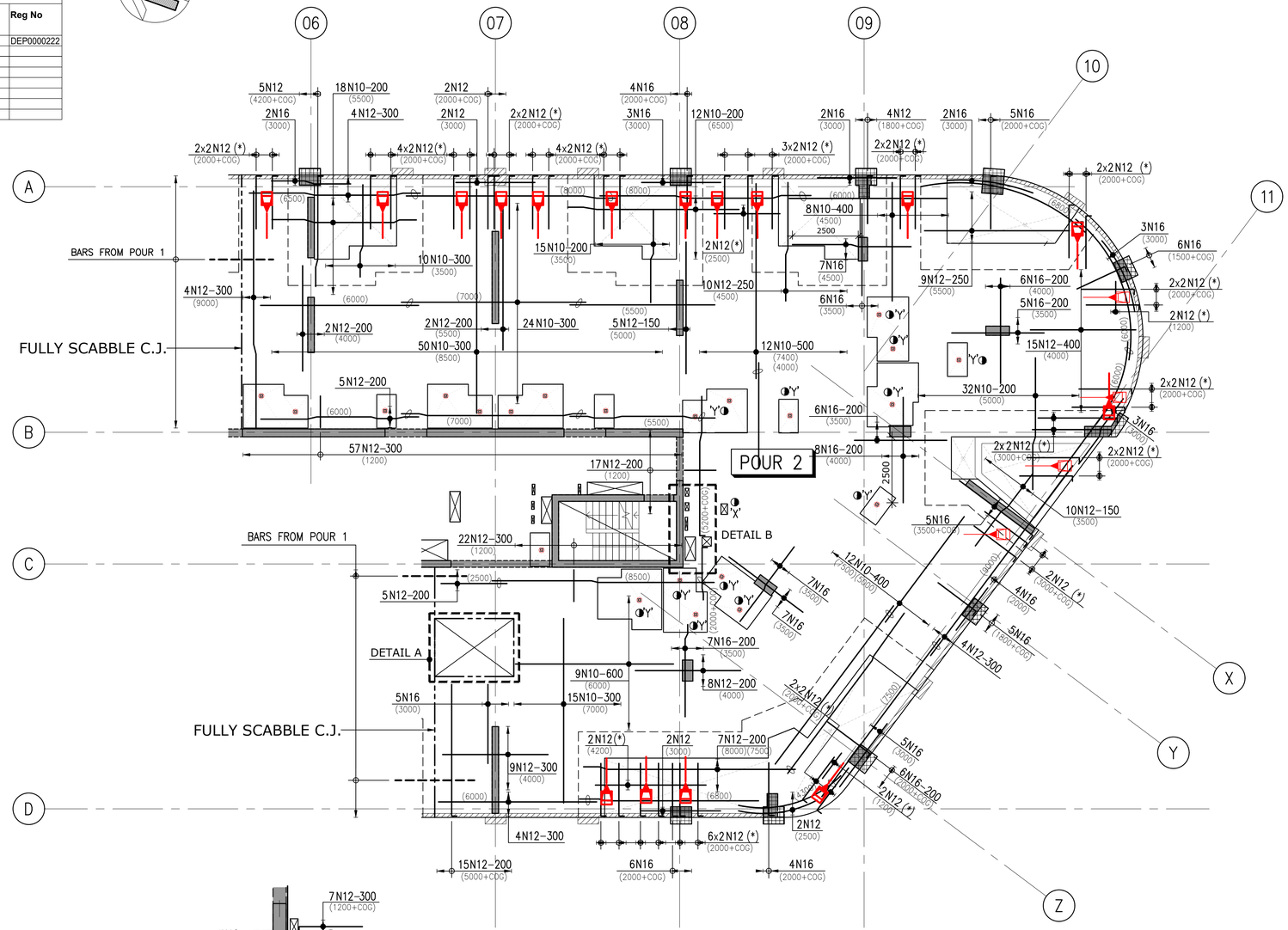
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 14 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1722	Revision: 1

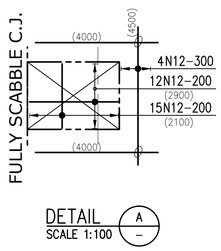


KEY PLAN
LEVEL 14

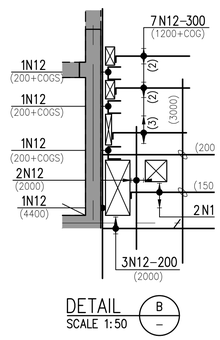
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 14 POUR 2 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1723	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

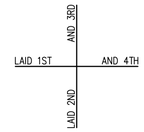
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.05 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-114-00 A1-ST-308-00
REVISION: C B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.114
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

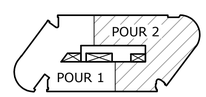
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F: +61 3 8396 9640

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 14 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1723	Revision: 1

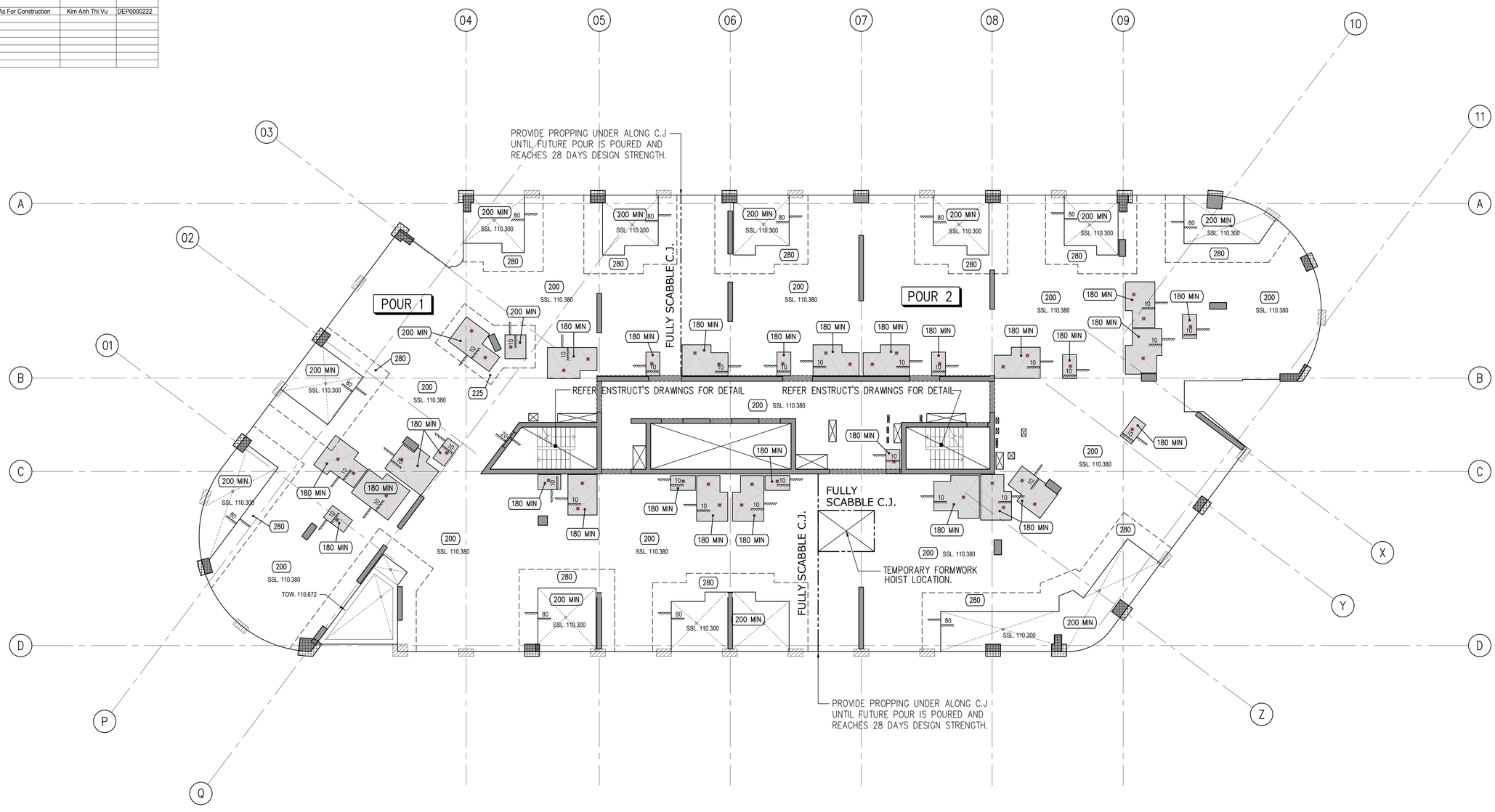


KEY PLAN
LEVEL 14

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 15 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-1800	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

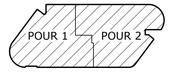
DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 15

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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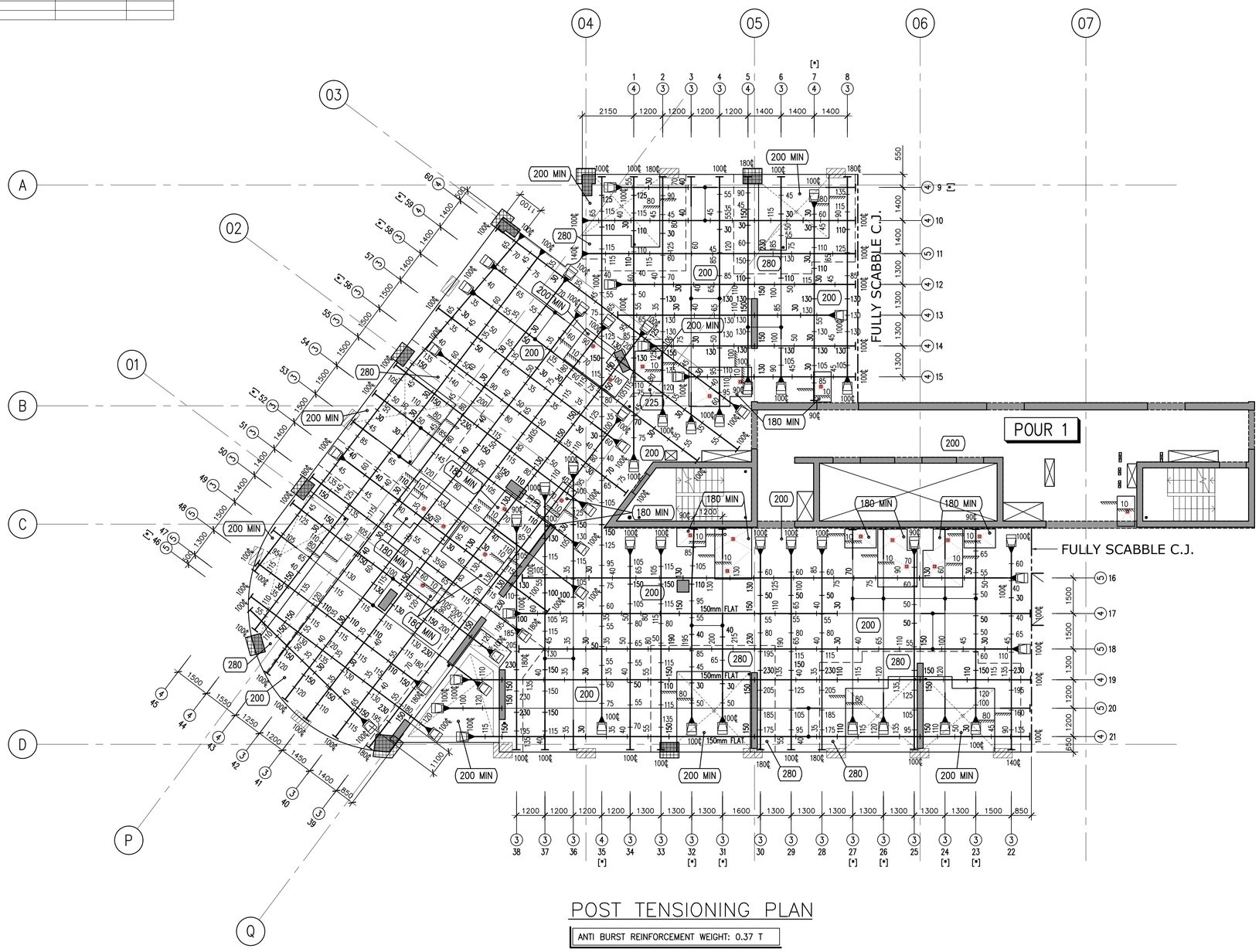
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TT3
Drawing Title: LEVEL 15 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1800	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 15 - POUR 1 - POST TENSIONING PLAN			Drawing No:	INT-PT-1811
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

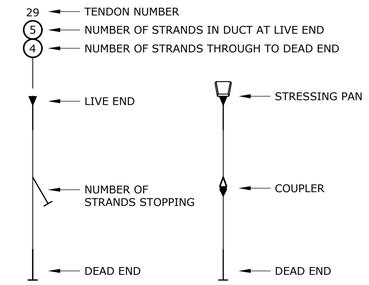
PAN REINFORCEMENT WEIGHT: 1.13 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

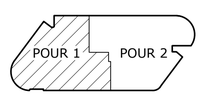
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 15 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1811	Revision: 1

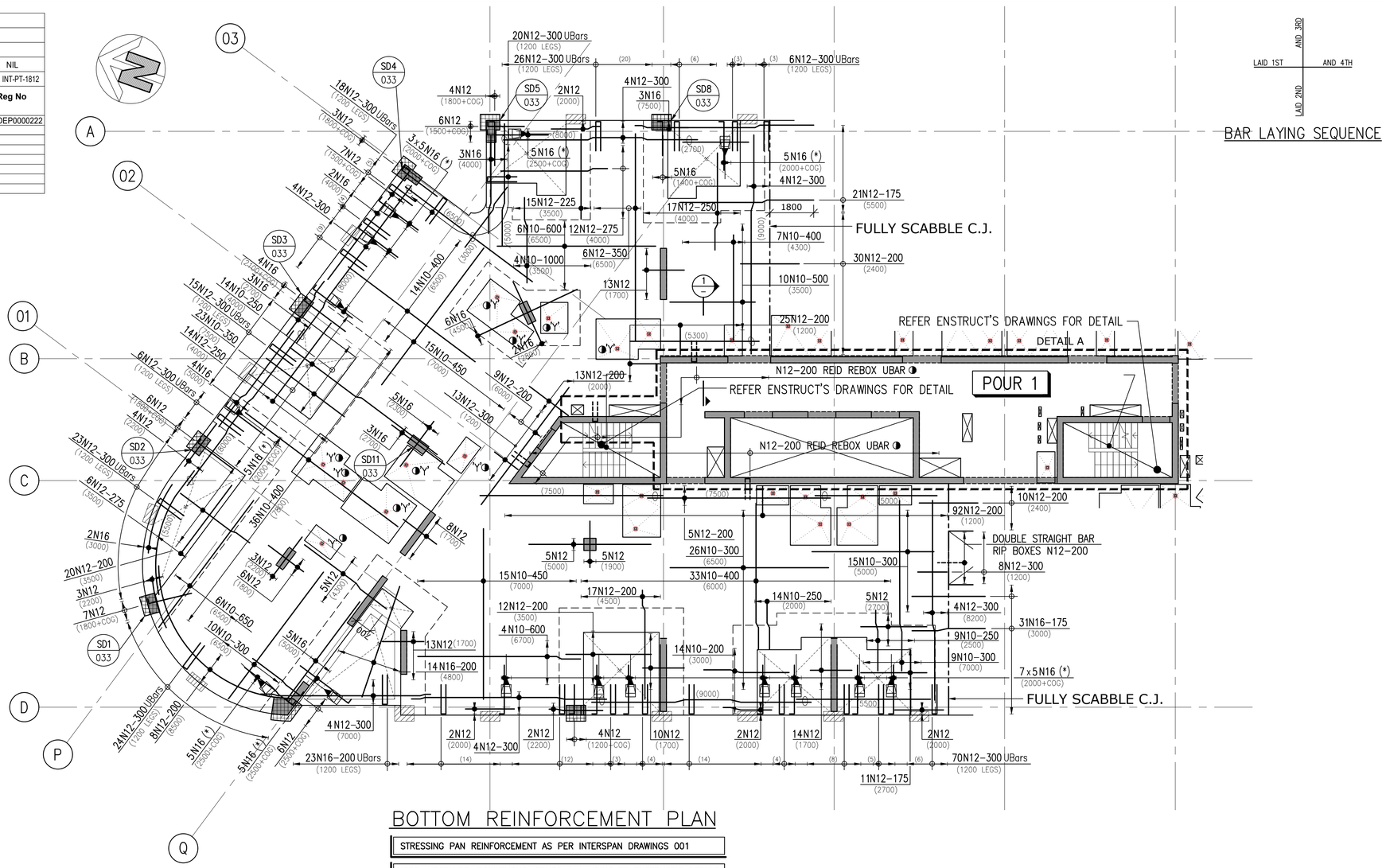


KEY PLAN
LEVEL 15

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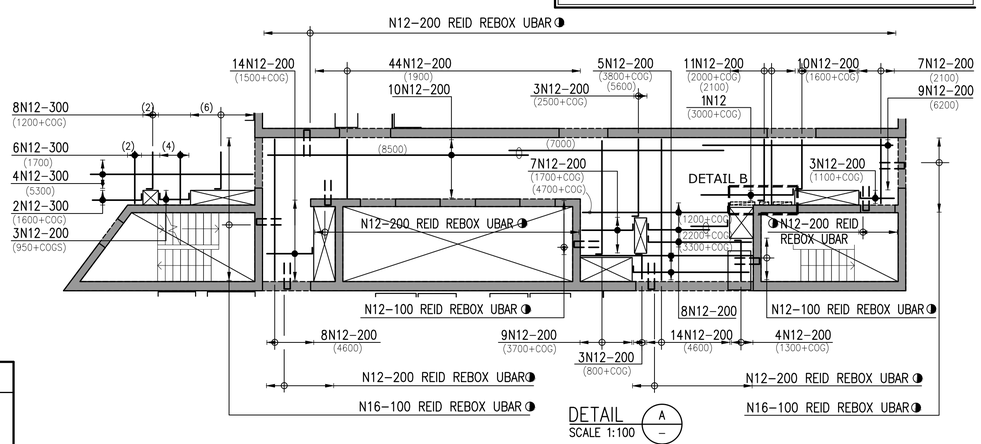
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No:	NIL
Drawing Title: LEVEL 15 POUR 1 BOTTOM REINFORCEMENT PLAN		Drawing No:	INT-PT-1812

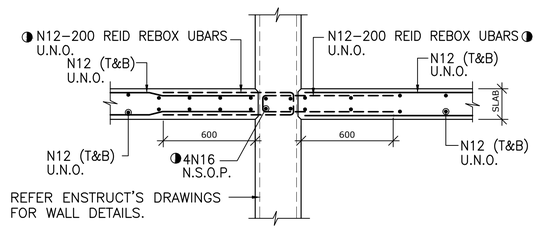
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

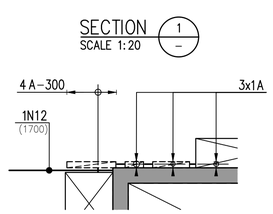


BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 5.00 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.39 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER







STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

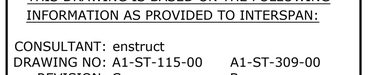
   'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
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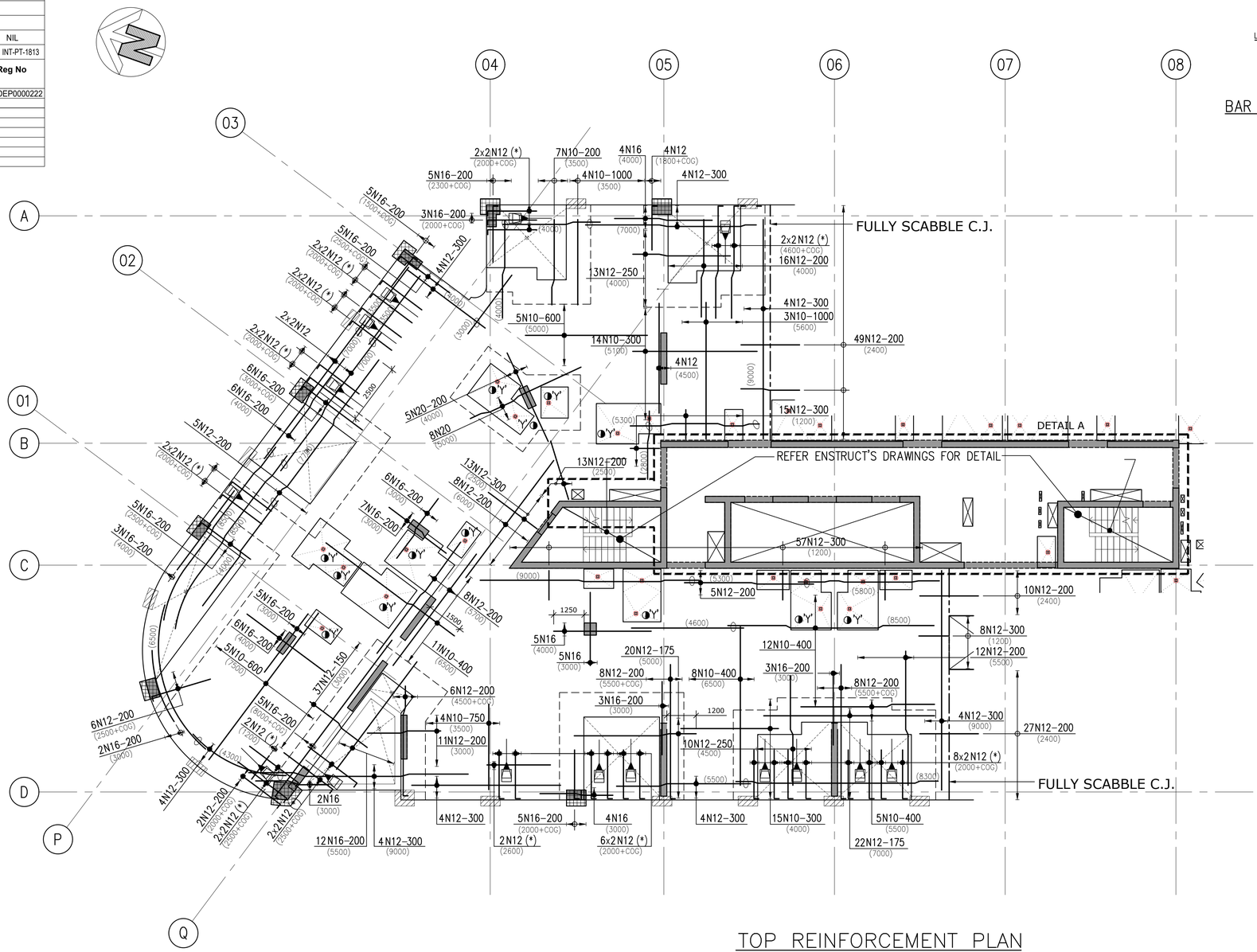
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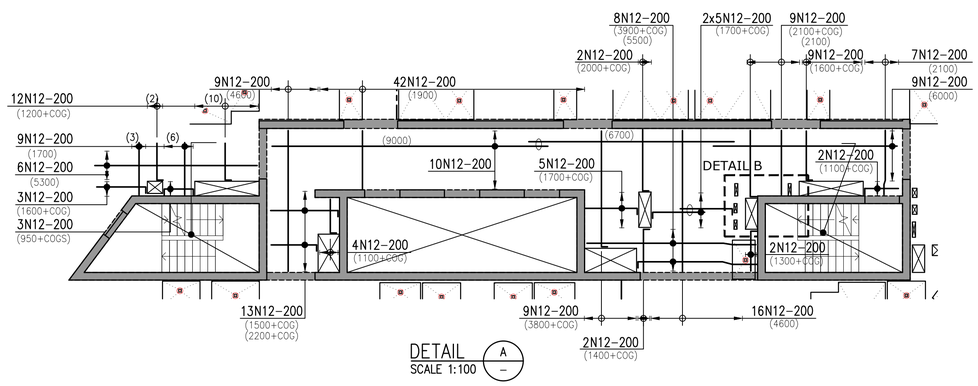
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 15 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1812	Revision: 1

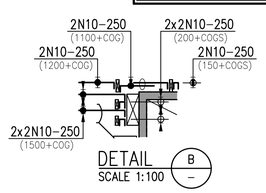
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 15 POUR 1 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1813	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A SCALE 1:100



DETAIL B SCALE 1:100

TOP REINFORCEMENT PLAN

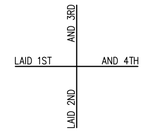
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.67 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.51 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

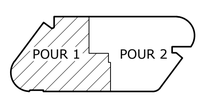
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 15 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1813	Revision: 1

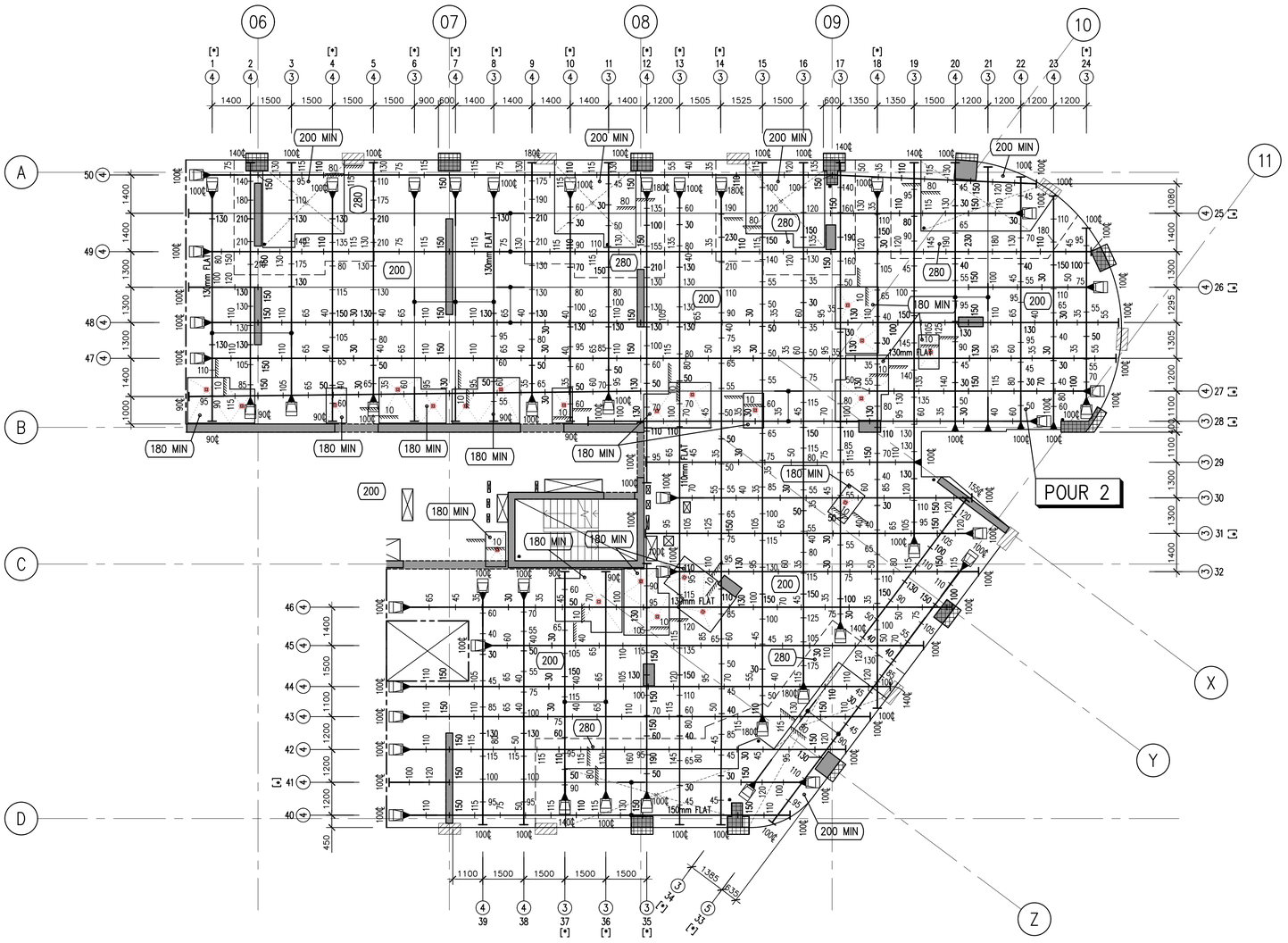


KEY PLAN
LEVEL 15

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 15 POUR 2 POST TENSIONING PLAN			Drawing No: INT-PT-1821

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

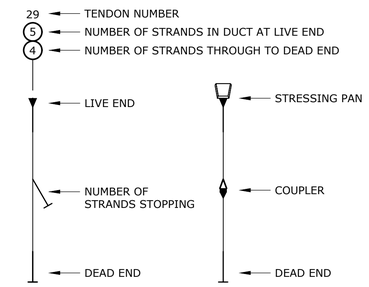
PAN REINFORCEMENT WEIGHT: 0.65 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

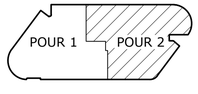
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

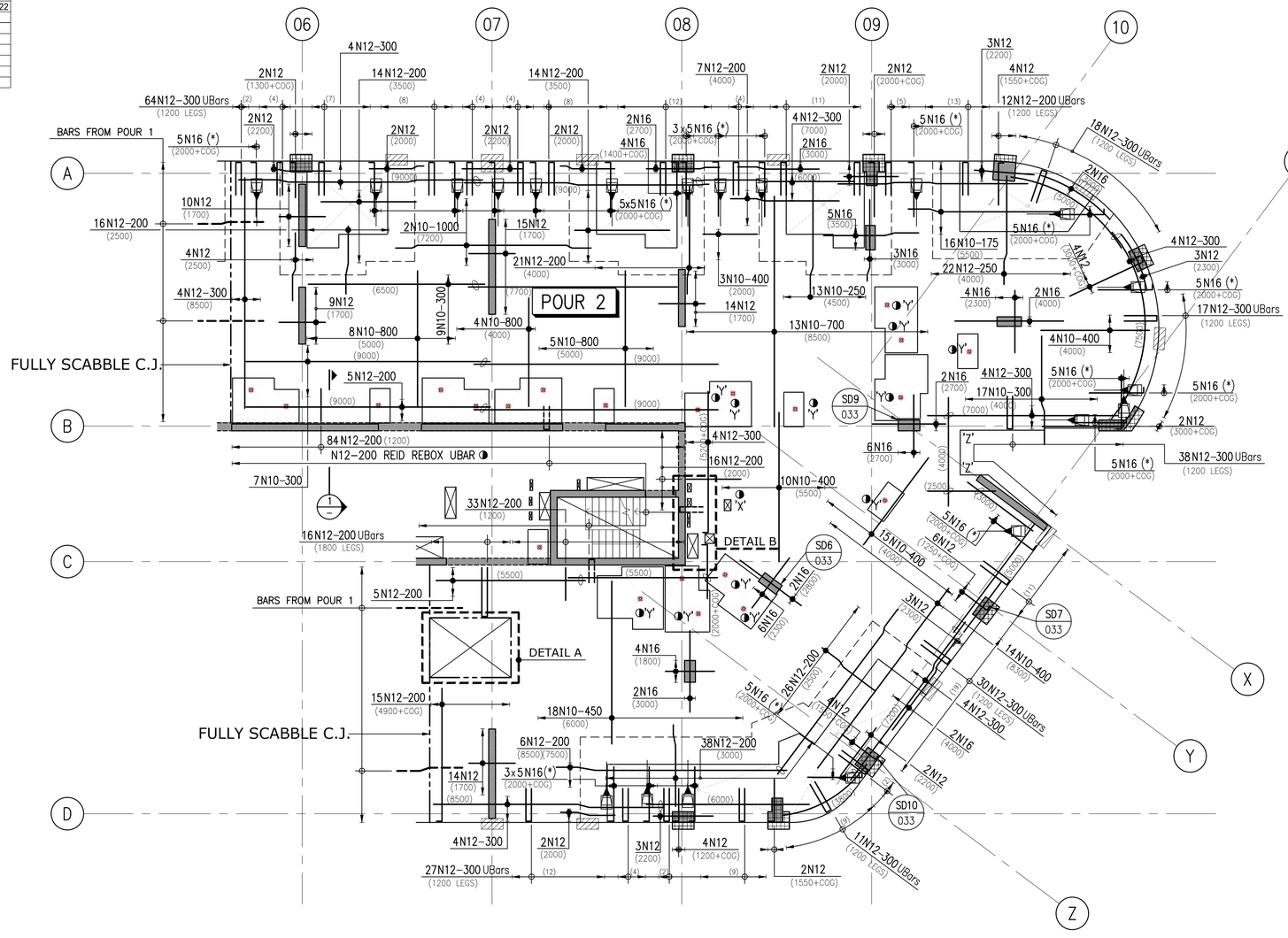
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	Drawn: TX
Drawing Title: LEVEL 15 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1821	Revision: 1

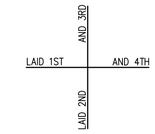


KEY PLAN
LEVEL 15

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 15 POUR 2 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1822		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

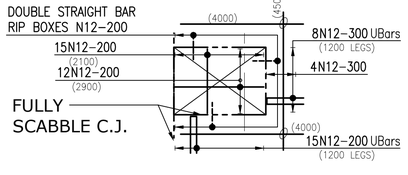
4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

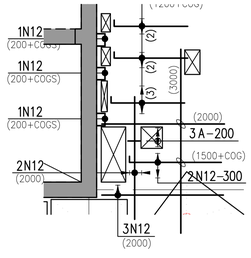
'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



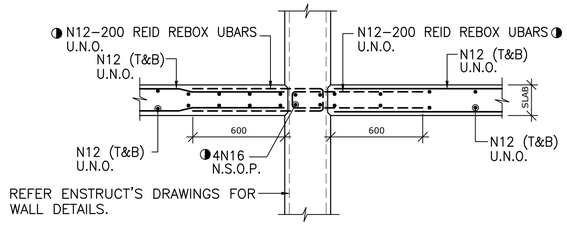
DETAIL A
SCALE 1:100



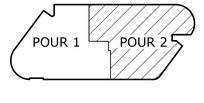
DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.47 T
- ◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1
SCALE 1:20



KEY PLAN
LEVEL 15

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

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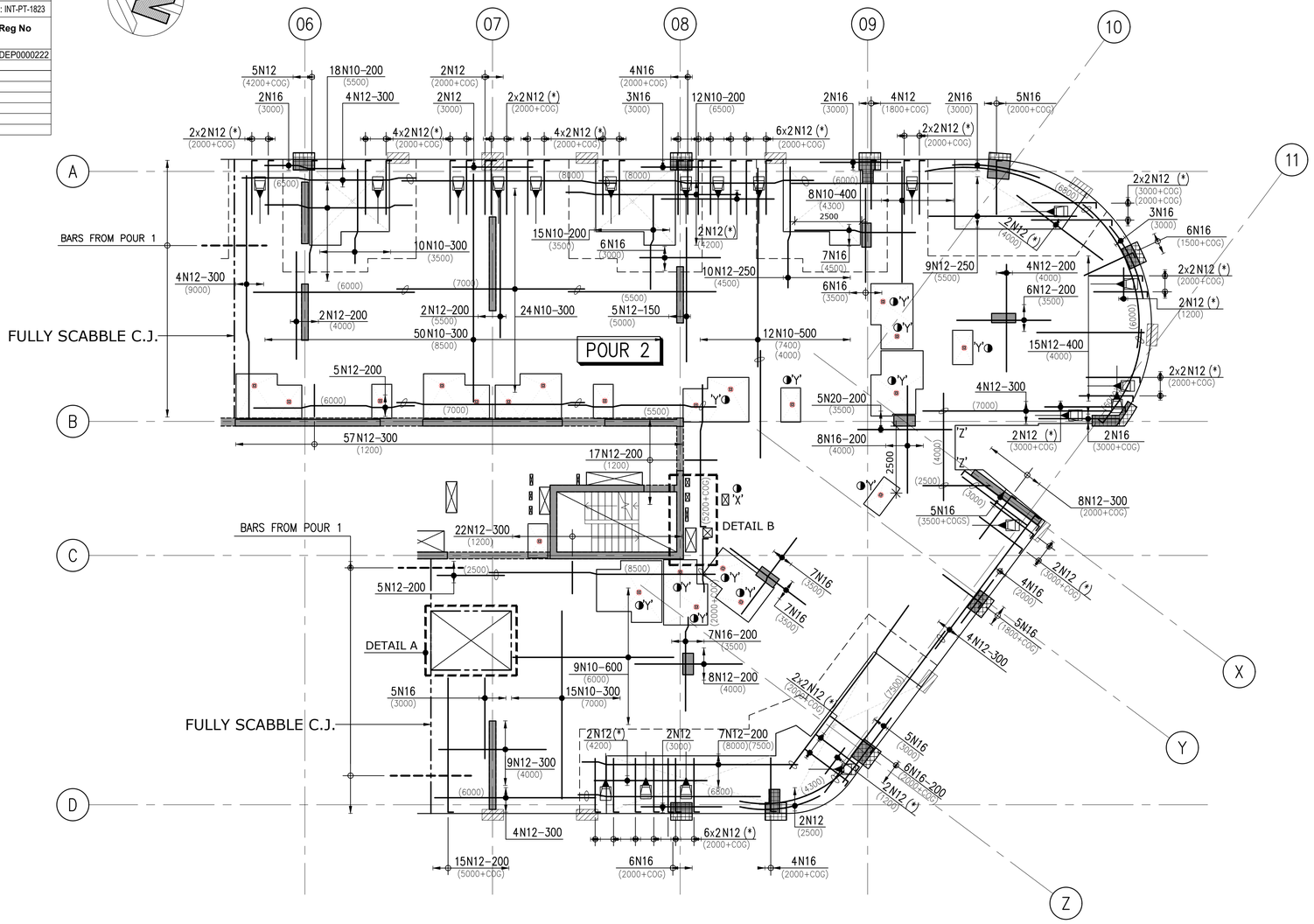
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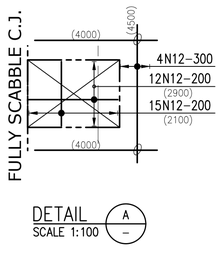
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 15 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1822	Revision: 1

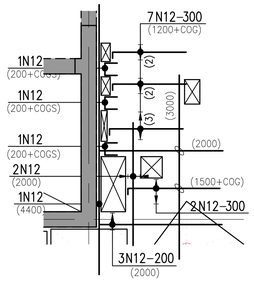
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 15 POUR 2 TOP REINFORCEMENT PLAN		Drawing No: INT-PT-1823		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

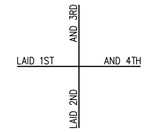
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.90 T

◑ BARS ARE NOT TO INTERSPAN GMT: 0.05 T

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 in 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N12 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N12 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N12 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-115-00 A1-ST-309-00
REVISION: C B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.115
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

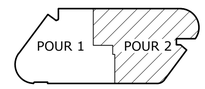
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: HN1
Drawing Title: LEVEL 15 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1823	Revision: 1

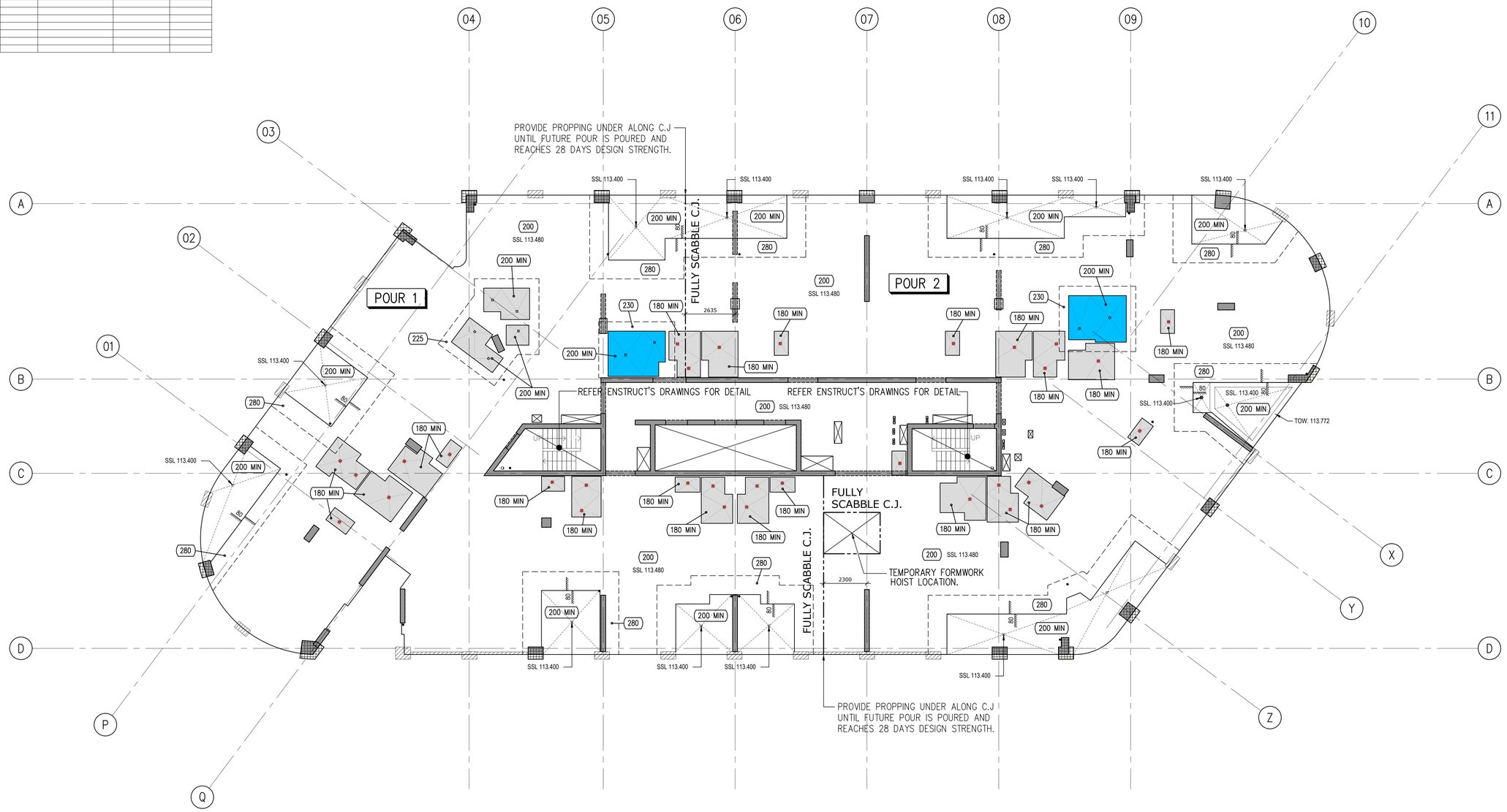


KEY PLAN
LEVEL 15

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-1900	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

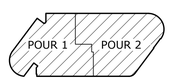
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 16

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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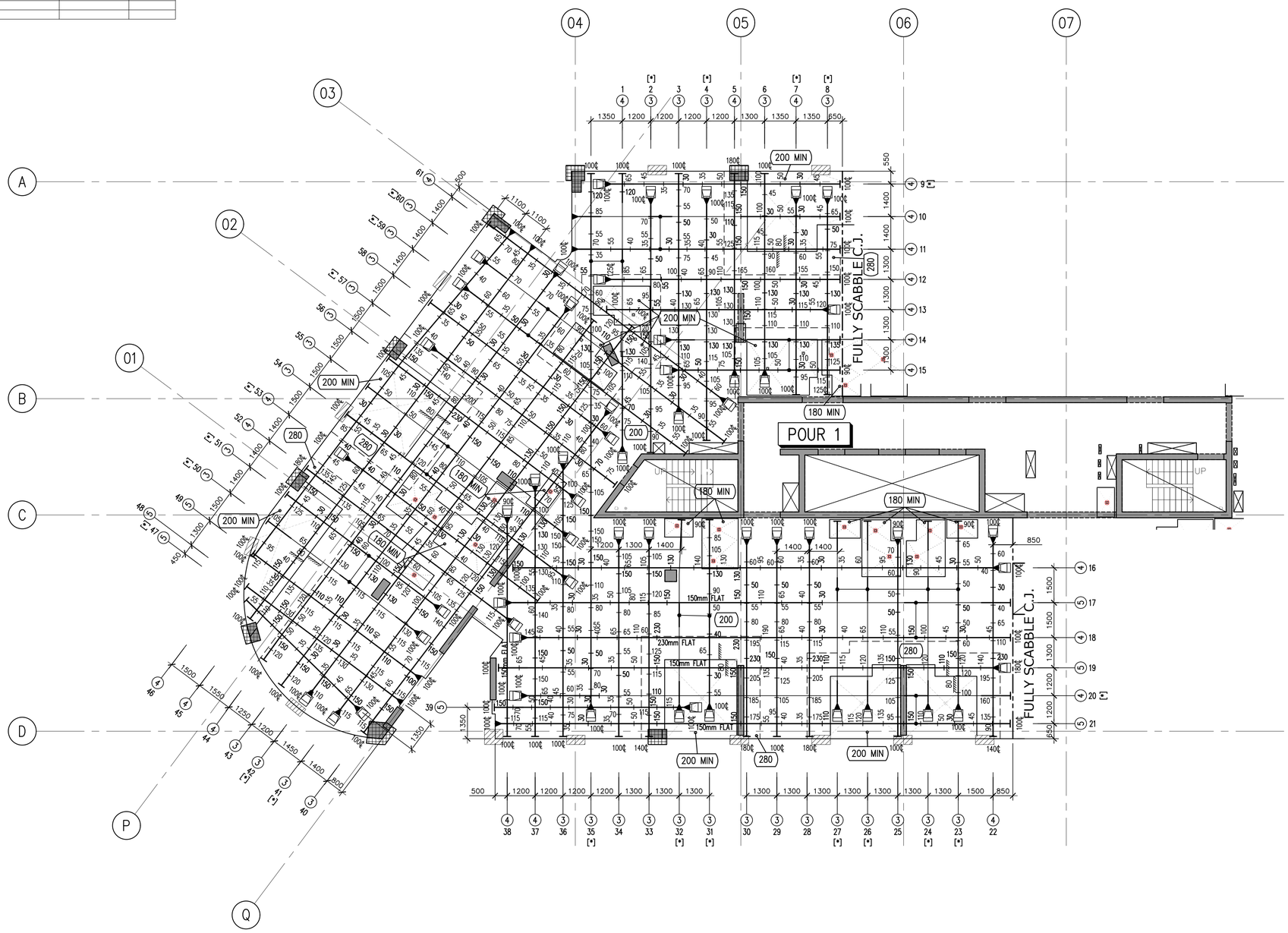
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 16 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1900	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16 POUR 1 POST TENSIONING PLAN			Drawing No: INT-PT-1911	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.38 T

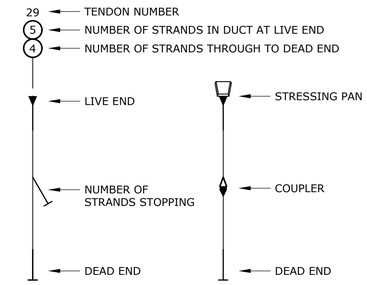
PAN REINFORCEMENT WEIGHT: 0.86 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

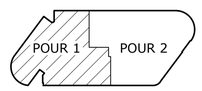
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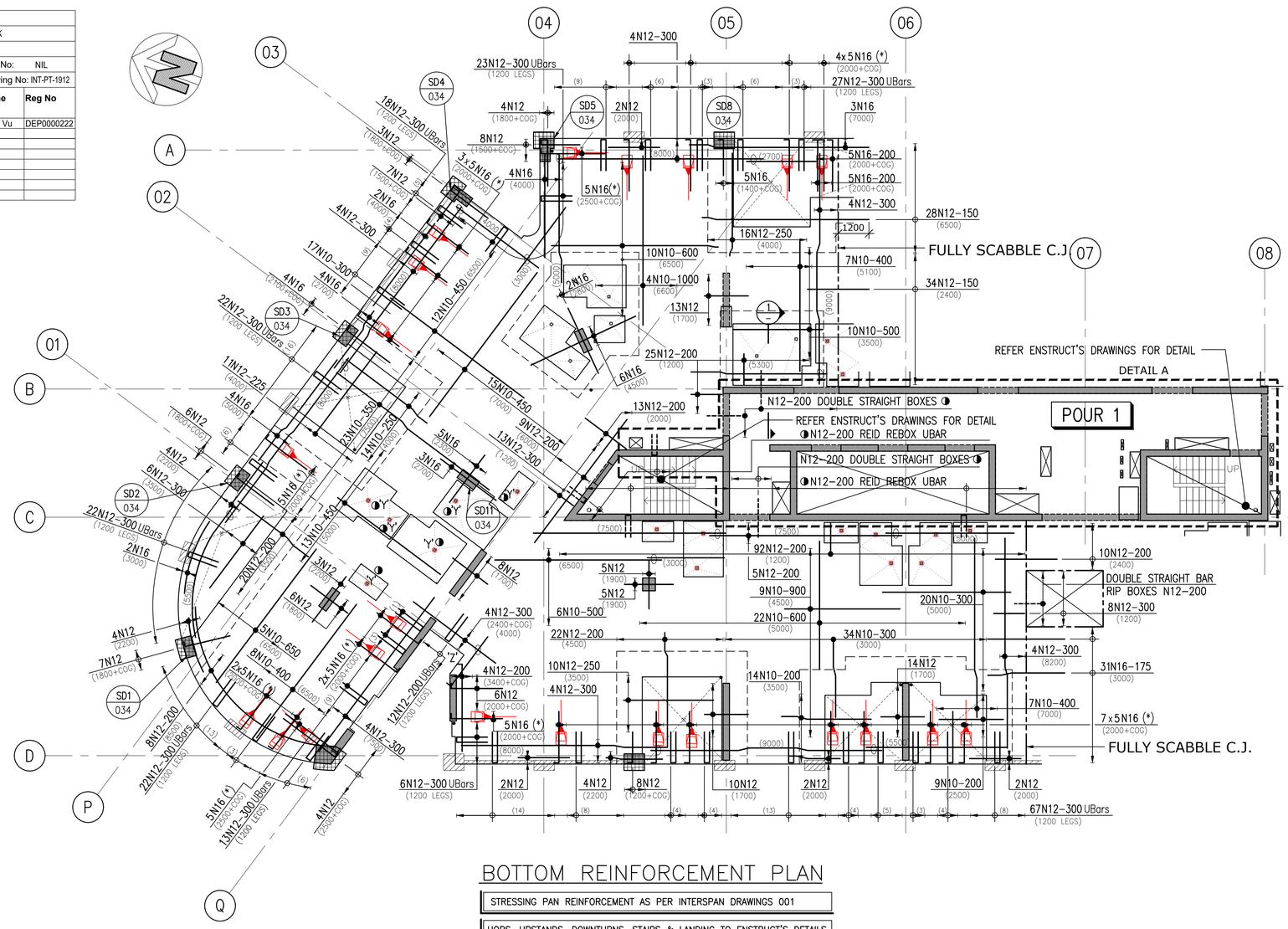
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 16 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1911	Revision: 1



KEY PLAN
LEVEL 16

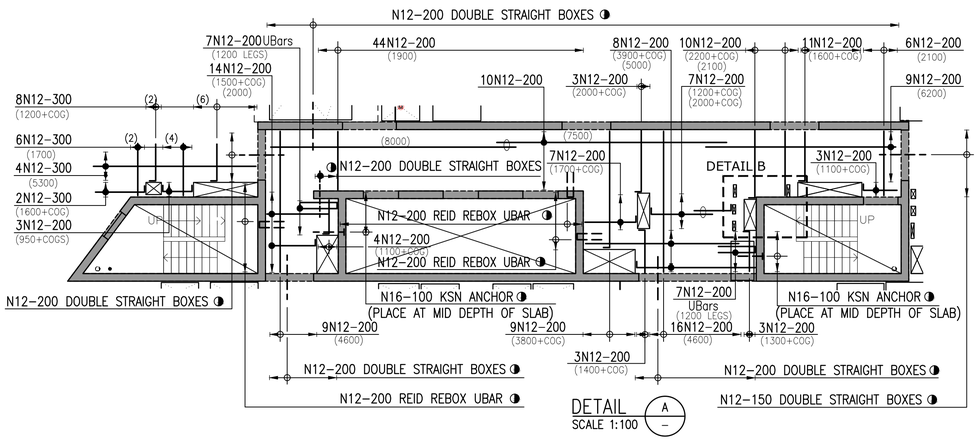
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 16 POUR 1 BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1912		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

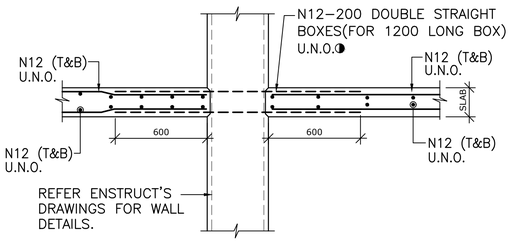


BOTTOM REINFORCEMENT PLAN

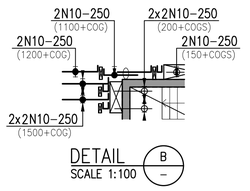
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.64 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



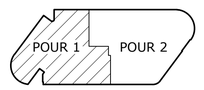
DETAIL A / SCALE 1:100



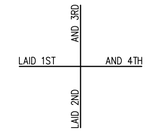
SECTION 1 / SCALE 1:20



DETAIL B / SCALE 1:100



KEY PLAN
LEVEL 16



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

   'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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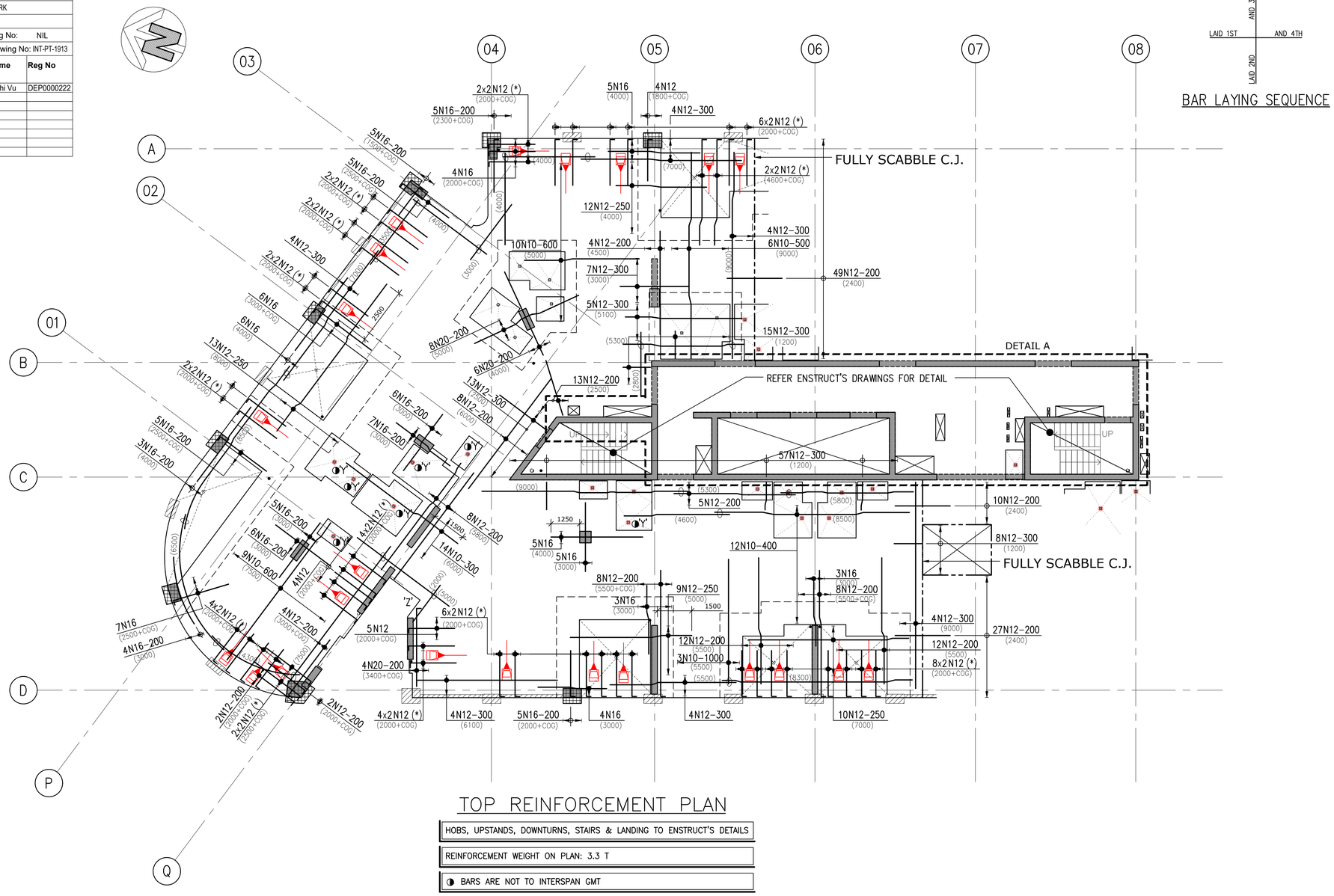
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 16 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1912	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16 POUR 1 TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1913	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

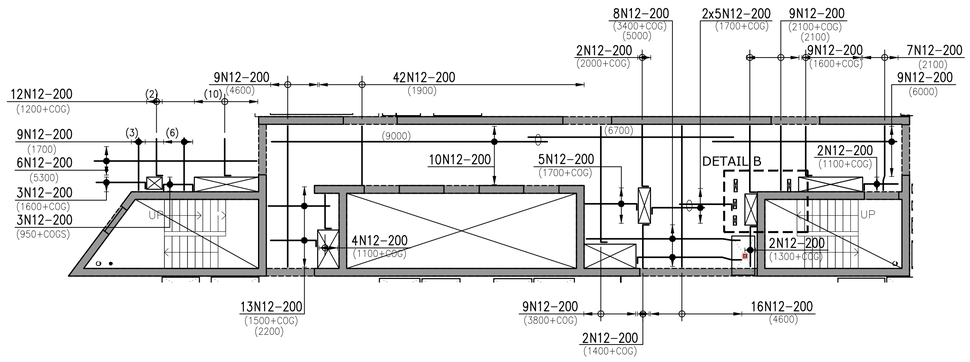


TOP REINFORCEMENT PLAN

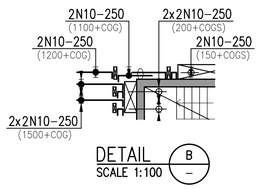
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.3 T

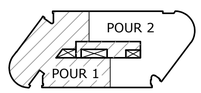
◑ BARS ARE NOT TO INTERSPAN GMT



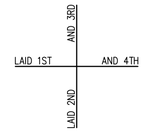
DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 16



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

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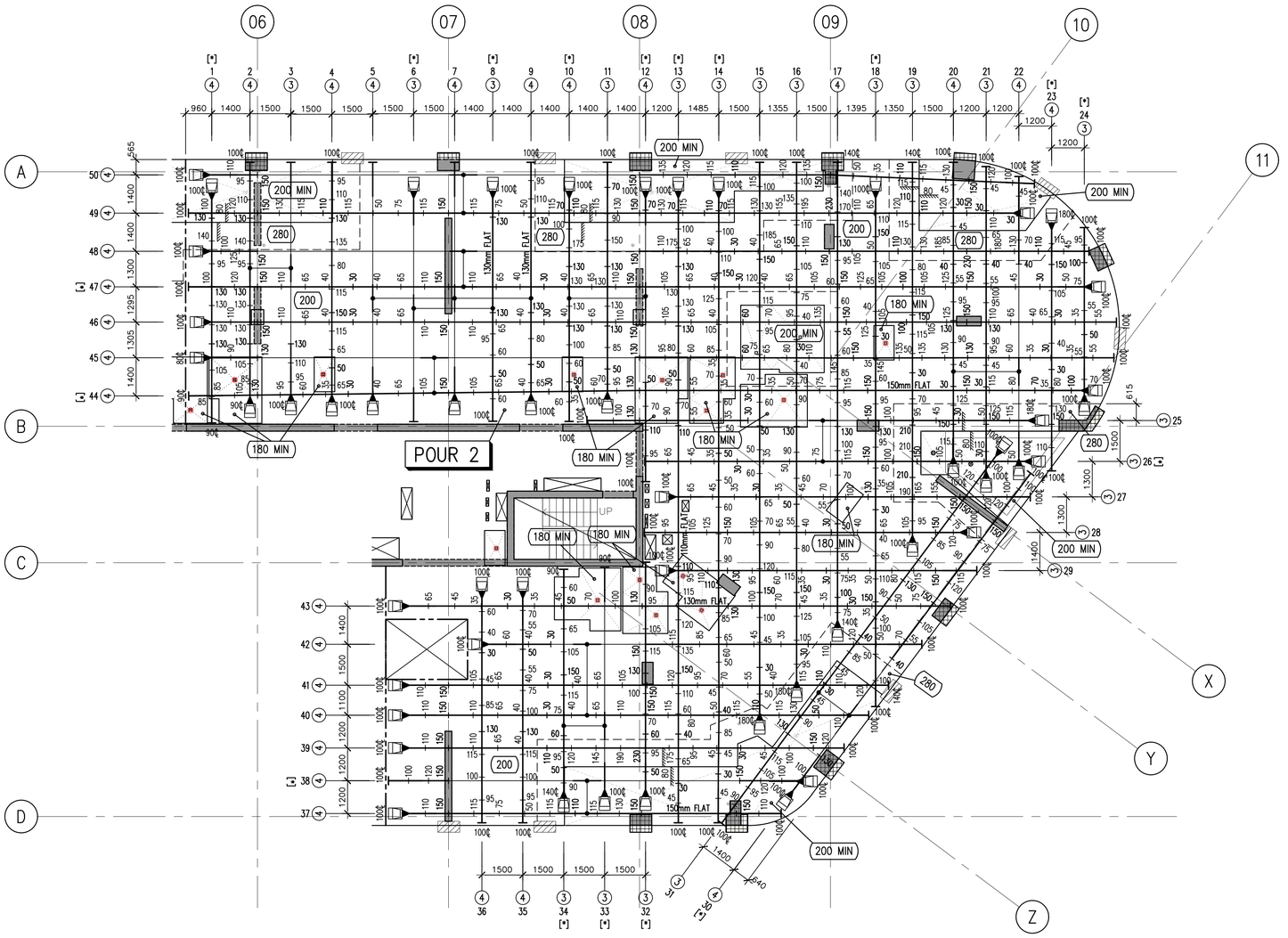
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 16 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 21-12-21
Drawing No.: INT-PT-1913	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16-POUR 2- POST TENSIONING PLAN	Drawing No: INT-PT-1921		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

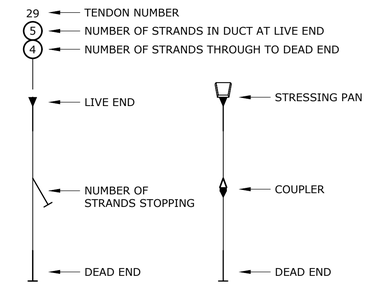
PAN REINFORCEMENT WEIGHT: 0.86 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

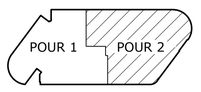
1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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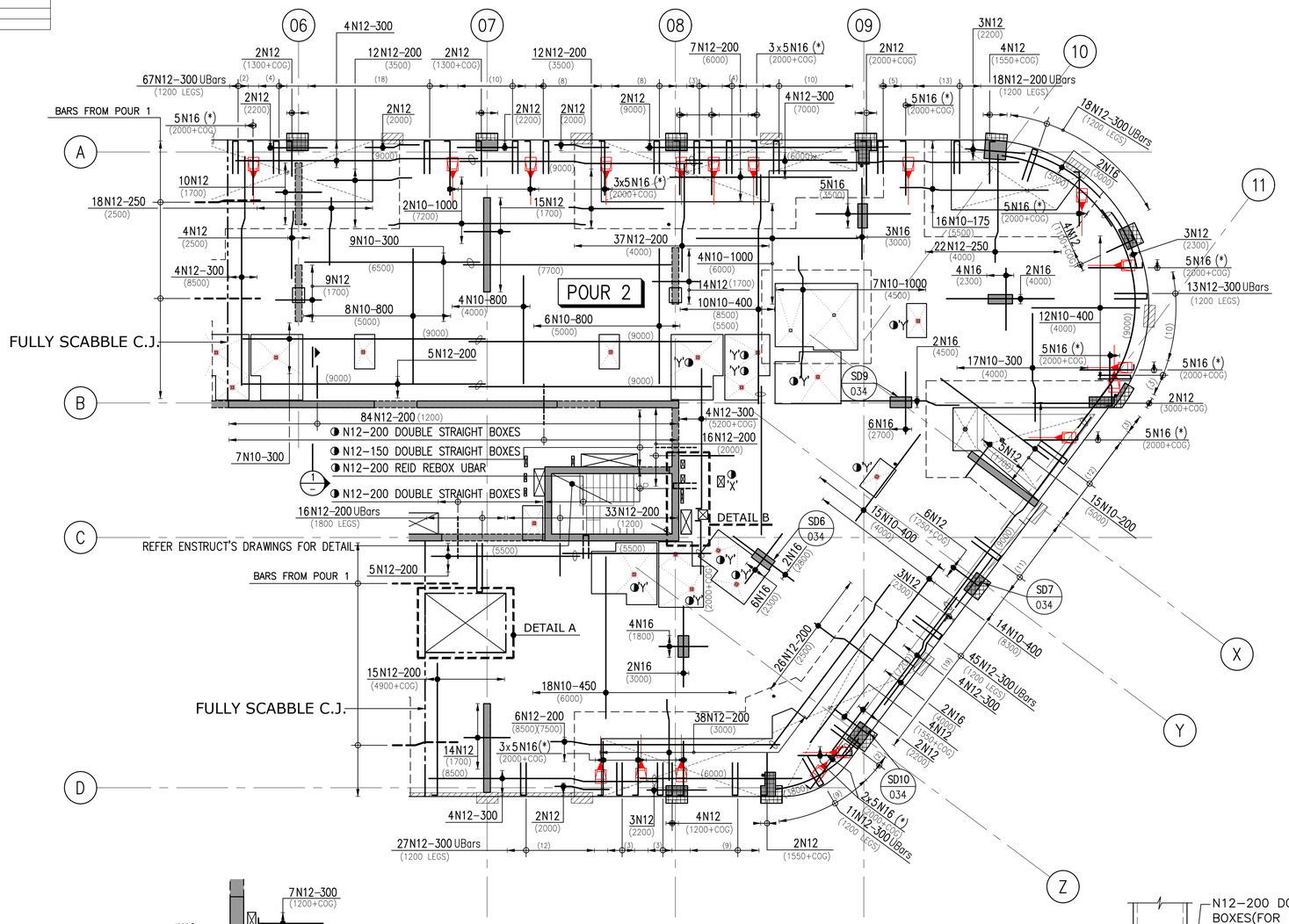


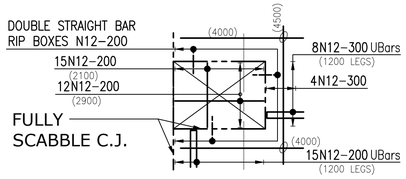
KEY PLAN
LEVEL 16

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 16 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1921	Revision: 1

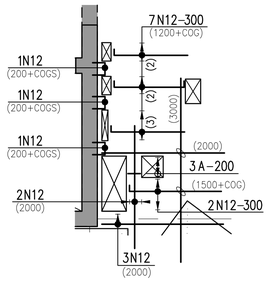
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16-POUR 2- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-1922		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





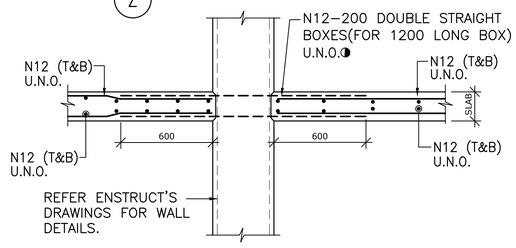
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

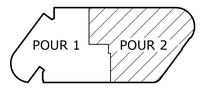
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.45 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



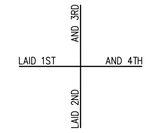
SECTION 1
SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



KEY PLAN
LEVEL 16



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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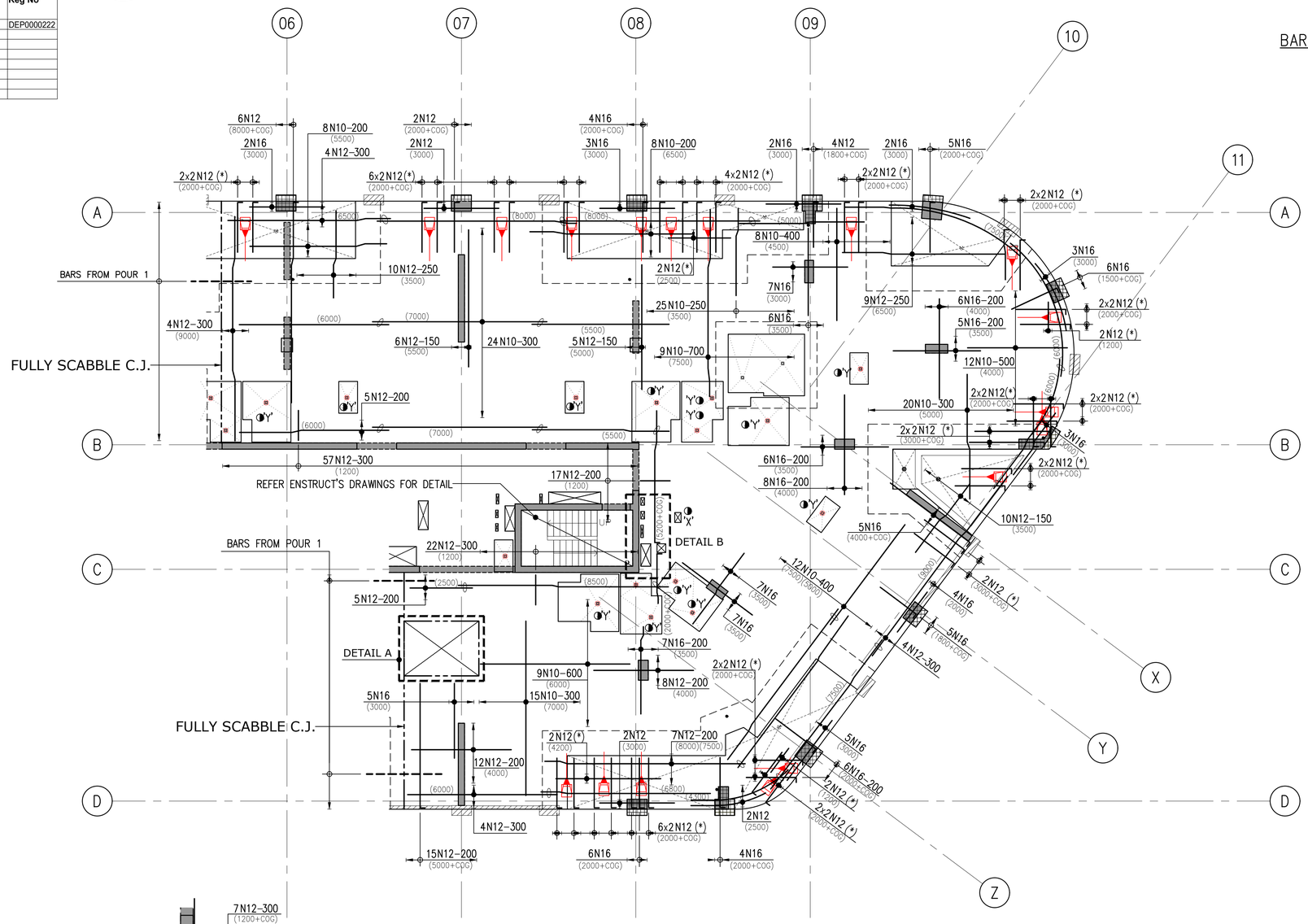
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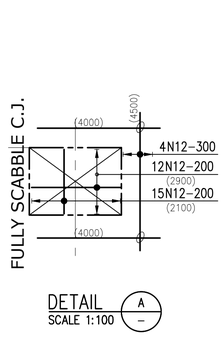
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 16 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-1922	Revision: 1

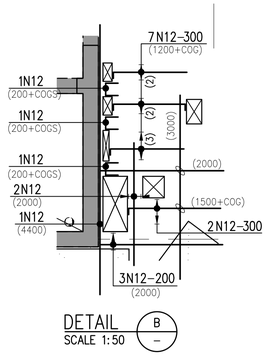
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 16-POUR 2- TOP REINFORCEMENT PLAN			Drawing No: INT-PT-1923	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





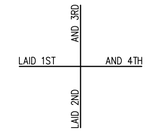
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 2.7 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
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	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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BTM	25	40	25	40	25	40
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4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

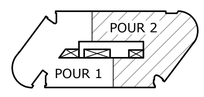
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-116-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.116
REVISION: H

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 16

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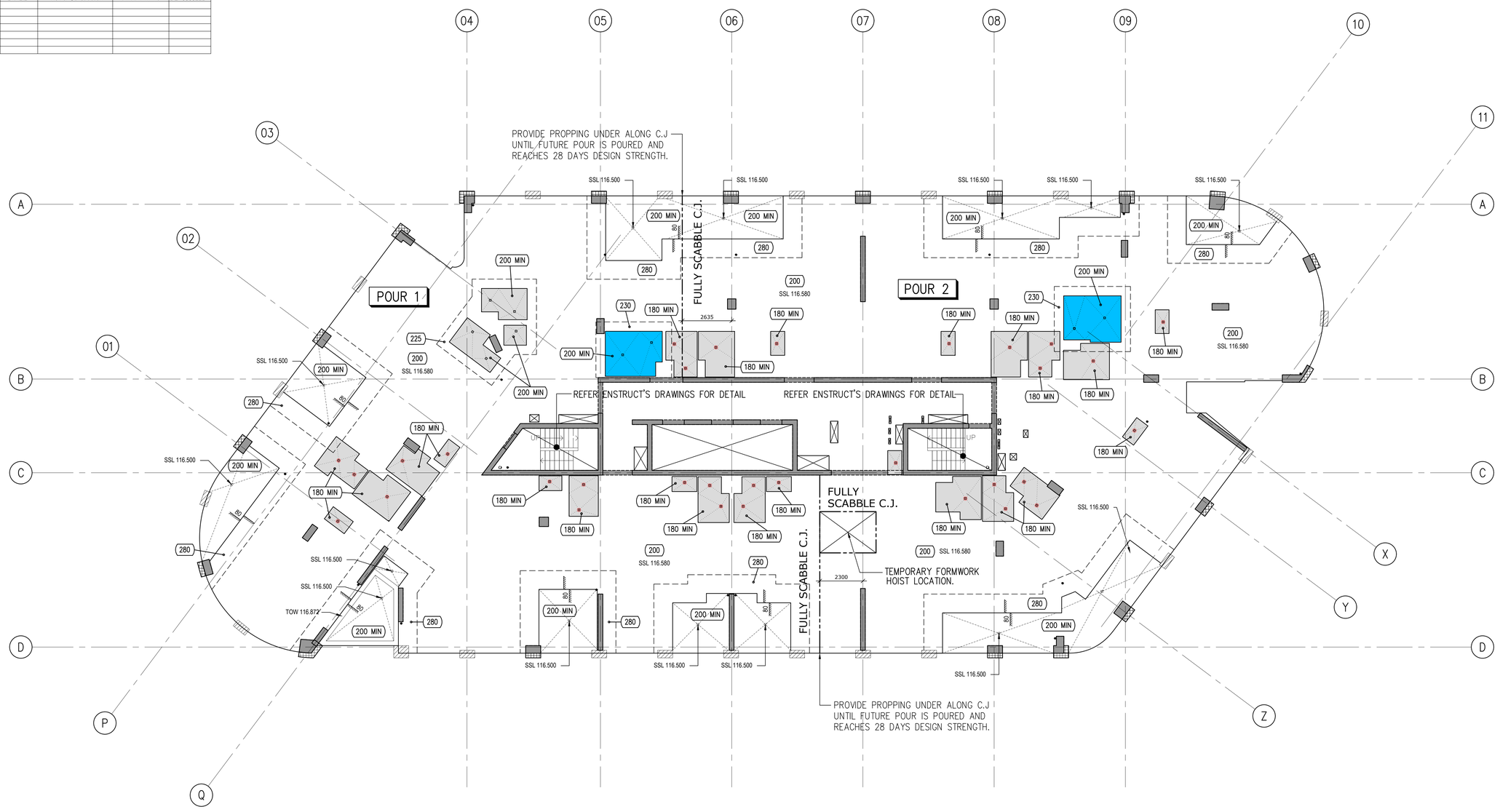
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Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	LT
	Drawn: PC
Drawing Title LEVEL 16 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No. INPT20373	Date: 20-12-21
Drawing No. INT-PT-1923	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-2000	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

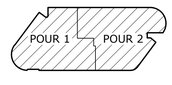
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD–BEARING PRECAST PANEL OVER

DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER

DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 17

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

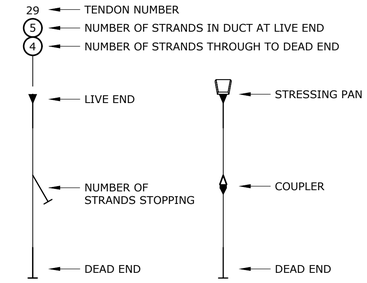
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 17 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 2000	Revision: 1

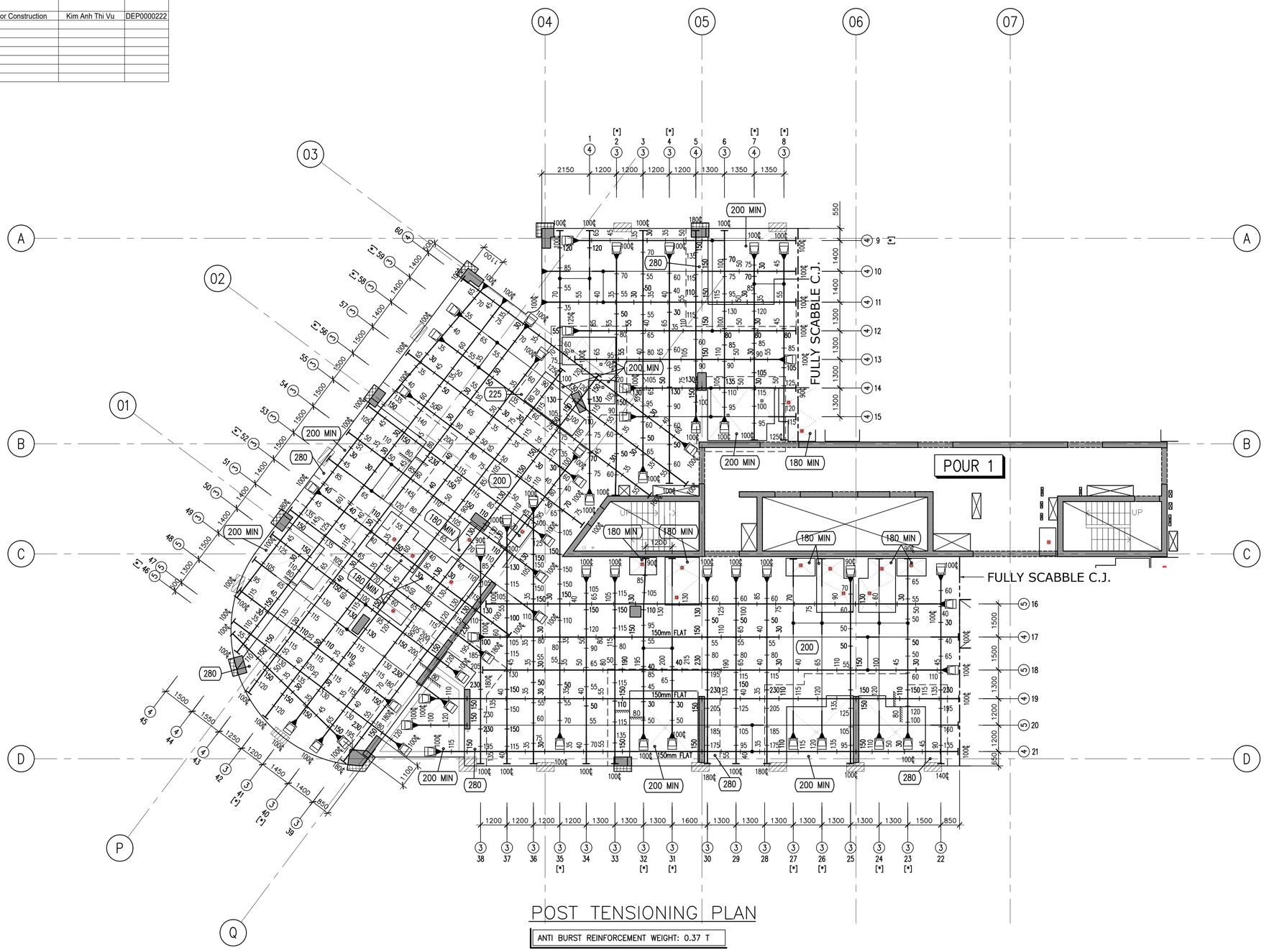
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 1- POST TENSIONING PLAN			Drawing No: INT-PT-2011	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





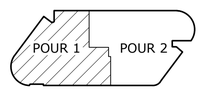
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 1.0 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.



KEY PLAN
LEVEL 17

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

SYDNEY
5.04/77 Dunning Avenue
Rosebery, NSW 2018
P: +61 2 9313 1700
F: +61 2 8307 0297

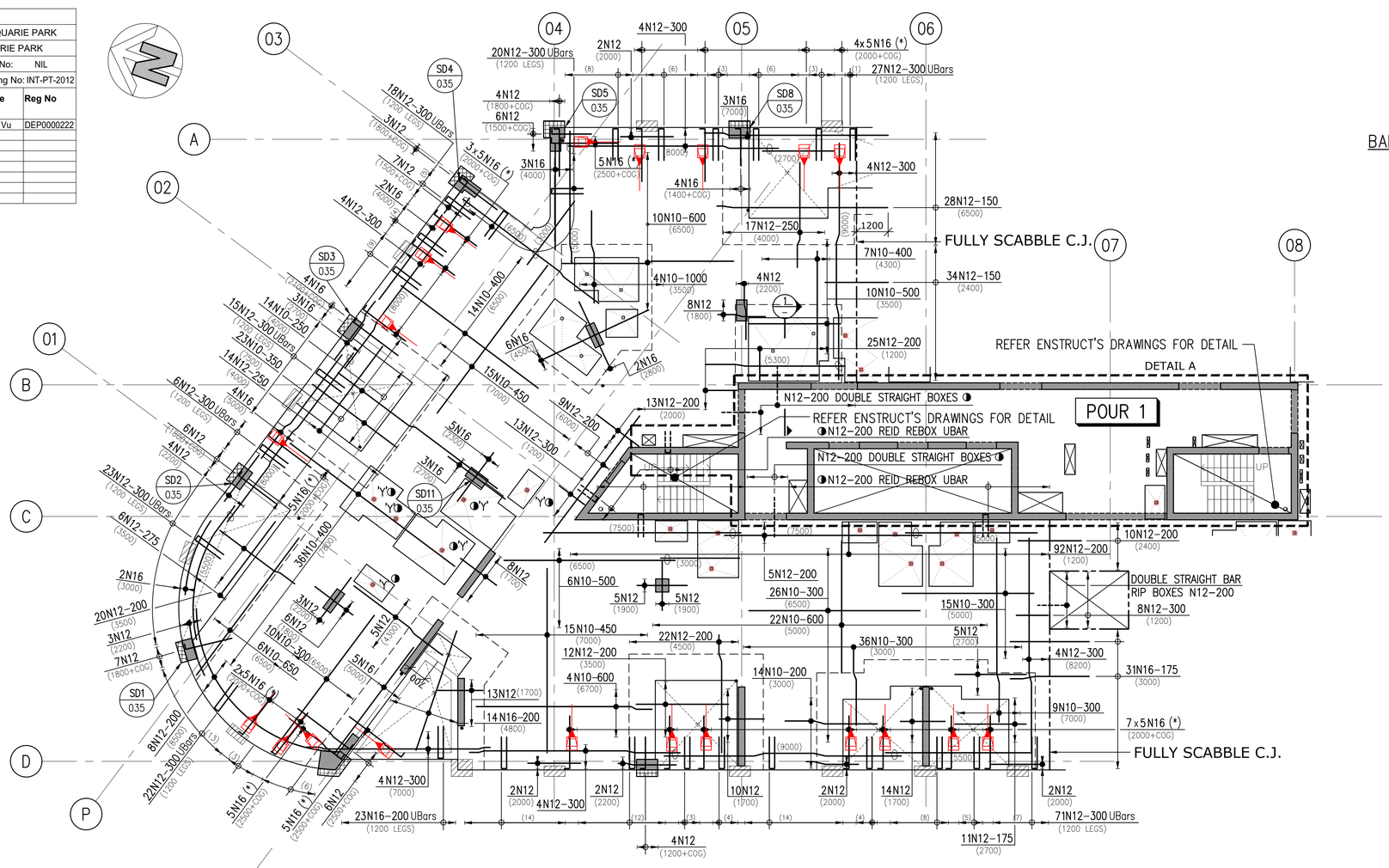
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 17 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2011	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 1- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2012		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



BOTTOM REINFORCEMENT PLAN

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001

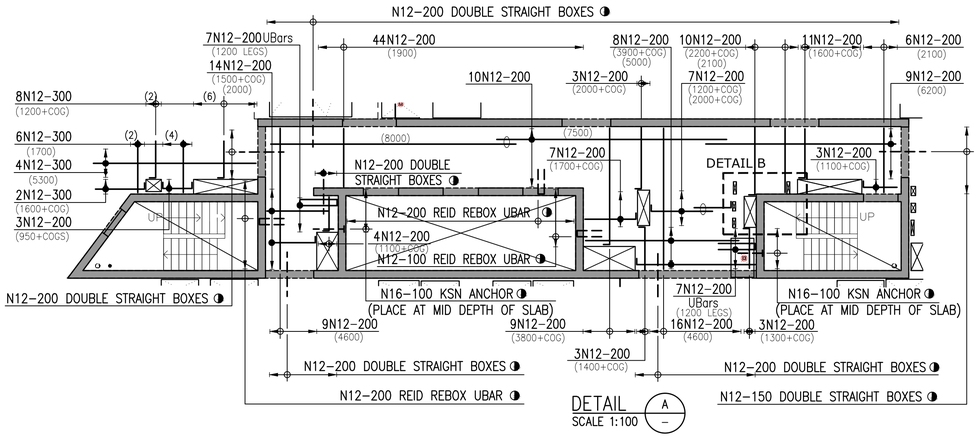
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 4.9 T

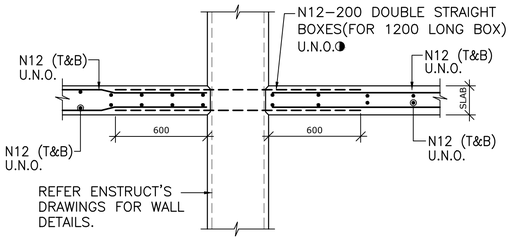
◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

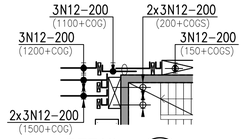
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



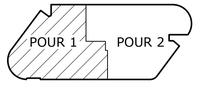
DETAIL A / SCALE 1:100



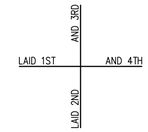
SECTION 1 / SCALE 1:20



DETAIL B / SCALE 1:100



KEY PLAN
LEVEL 17



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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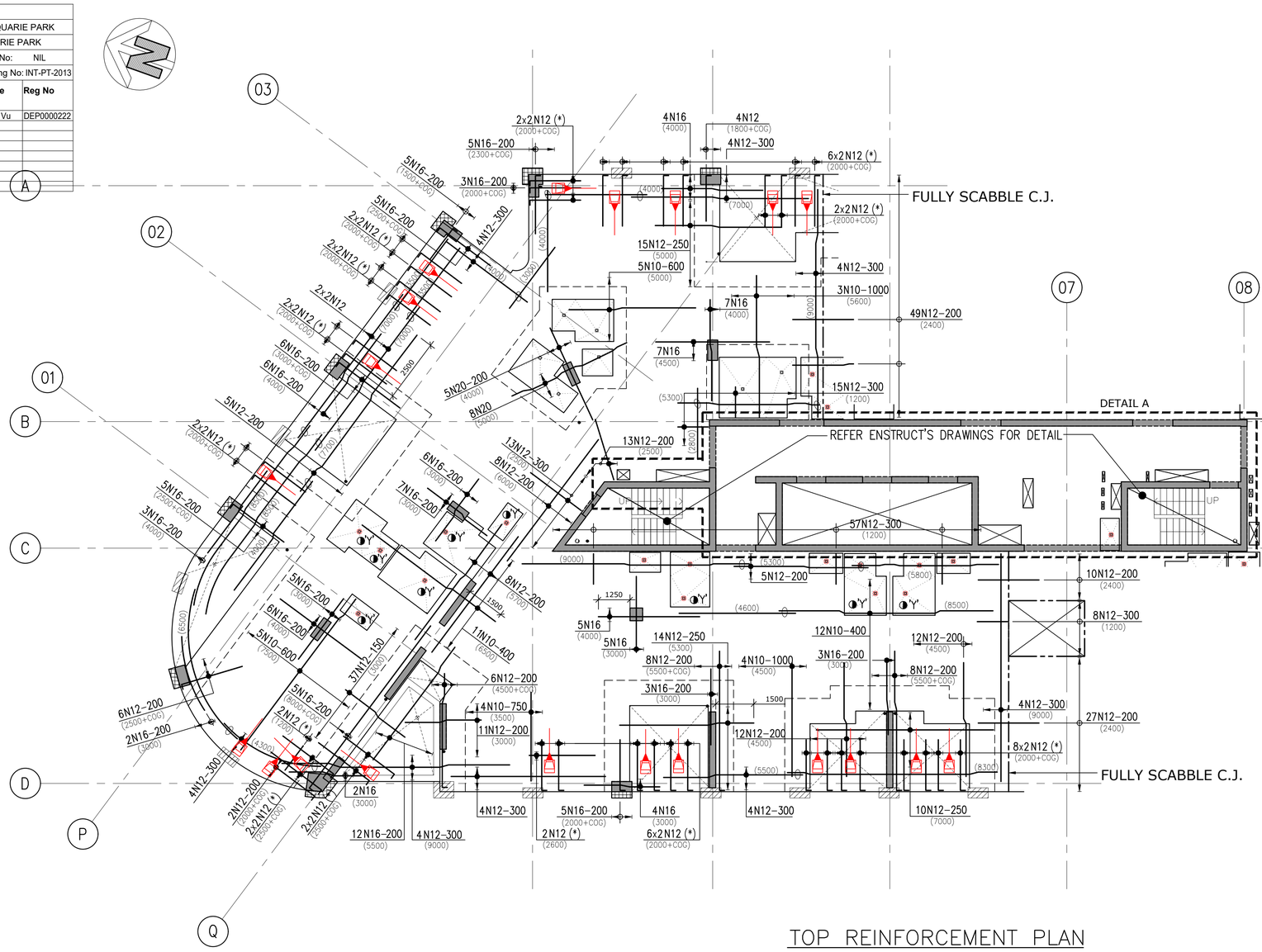
MELBOURNE
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Website: www.interspan.com.au

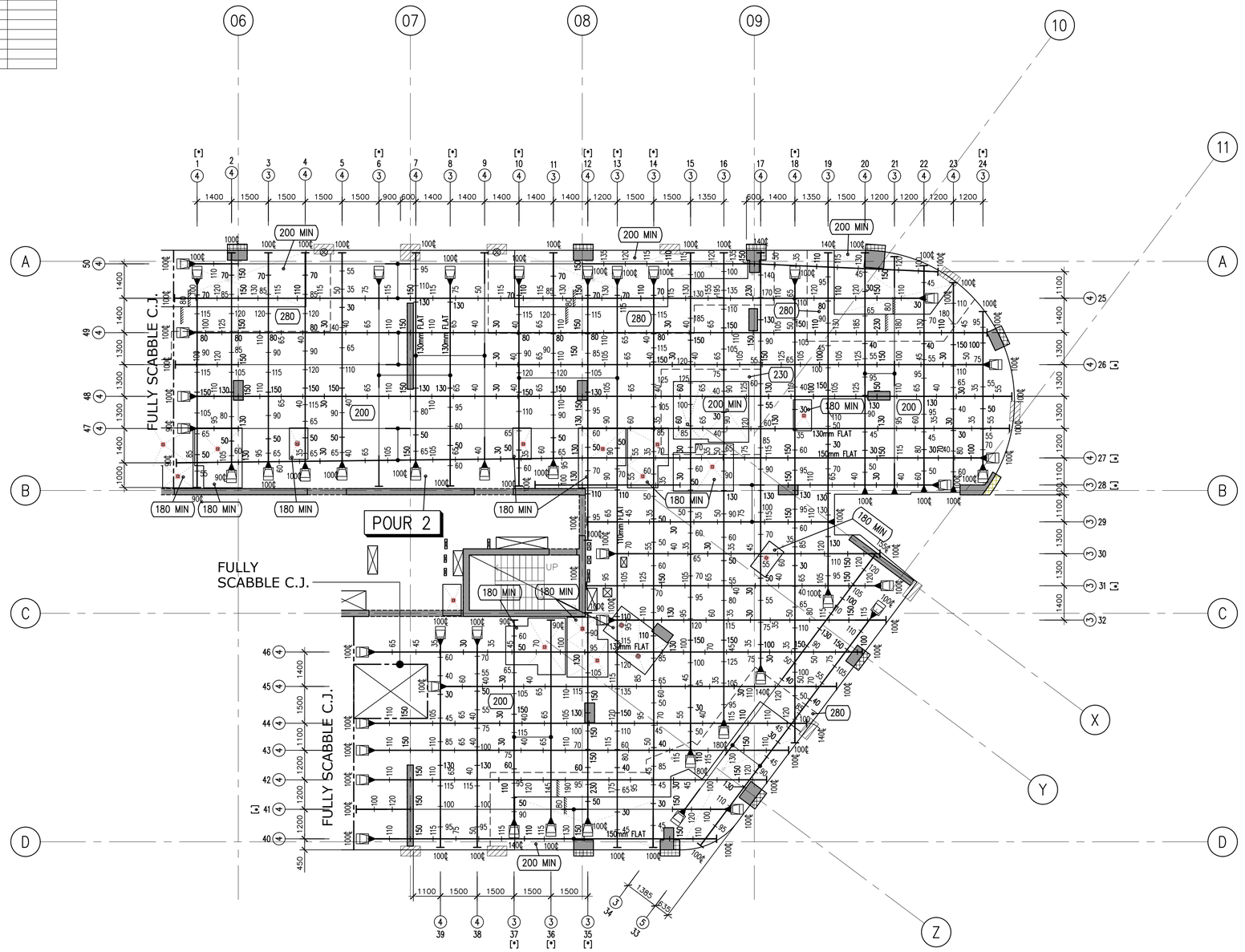
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 17 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2012	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 1- TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2013		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222


03
02
01
A
B
C
D
P
Q
07
08
FULLY SCABBLE C.J.
FULLY SCABBLE C.J.
DETAIL A
REFER ENSTRUCT'S DRAWINGS FOR DETAIL
UP
2x2N12 (*) (2000+COG)
5N16-200 (2300+COG)
3N16-200 (2000+COG)
4N16 (4000)
4N12 (1800+COG)
4N12-300
6x2N12 (*) (2000+COG)
15N12-250 (5000)
5N10-600 (5000)
7N16 (4000)
3N10-1000 (5600)
49N12-200 (2400)
7N16 (4500)
15N12-300 (1200)
5N20-200 (4000)
8N20 (5000)
13N12-200 (2500)
57N12-300 (1200)
5N12-200
10N12-200 (2400)
8N12-300 (1200)
12N10-400
12N12-200 (4500)
14N12-250 (5300)
8N12-200 (5500+COG)
4N10-1000 (4500)
3N16-200 (3000)
4N10-750 (3500)
11N12-200 (3000)
4N12-300 (9000)
27N12-200 (2400)
8x2N12 (*) (2000+COG)
10N12-250 (7000)
4N12-300
5N16-200 (3000)
4N16 (3000)
6x2N12 (*) (2000+COG)
2N12 (*) (2600)
12N16-200 (5500)
2N16 (3000)
6N12-200 (4500+COG)
11N10-400 (6500)
37N12-150 (5000)
6N12-200 (2500+COG)
2N16-200 (3000)
4N12-300
2N12-200 (2400+COG)
2x2N12 (*) (2500+COG)
2x2N12 (*) (2500+COG)
6N16-200 (3000+COG)
6N16-200 (4000)
5N12-200
5N16-200 (2500+COG)
3N16-200 (4000)
6N16-200 (3000)
7N16-200 (3000)
13N12-300 (4500)
8N12-200 (4000)
8N12-200 (6700)
5N16-200 (3000)
6N16-200 (4000)
5N10-600 (7500)
5N16-200 (6000+COG)
12N12 (*) (1000)
2x2N12 (*) (2500+COG)
2x2N12 (*) (2500+COG)
2x2N12 (*) (2000+COG)
6N16-200 (4000)
5N12-200 (7200)
2x2N12 (*) (2000+COG)
2x2N12 (*) (2000+COG)
2x2N12 (*) (2000+COG)
4N12-300 (4000)
3N16-200 (2000+COG)
5N16-200 (1900+COG)
5N16-200 (2300+COG)
2x2N12 (*) (2000+COG)
4N12-300
(6500)
(4300)
(2500)
(7000)
(4000)
(5000)
(2800)
(9000)
(5300)
(4600)
(5800)
(8500)
(8300)
1250
1500
1500
(4000)
(3000)
(5500)
(4500)
(3500)
(3000)
(2600)
(5500)
(9000)
(3000)
(2000+COG)
(3000)
(2000+COG)
(1000)
(2500+COG)
(3000)
(2500+COG)
(2000+COG)
(2000+COG)
(2000

Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 2- POST TENSIONING PLAN		Drawing No: INT-PT-2021		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

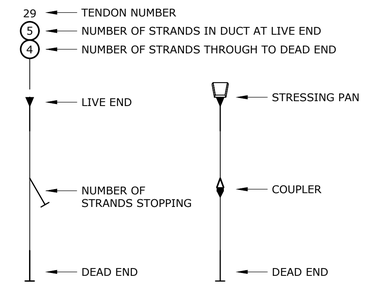
PAN REINFORCEMENT WEIGHT: 0.75 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

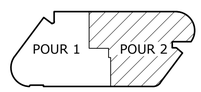
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 17

Interspan

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F: +61 3 8396 9640

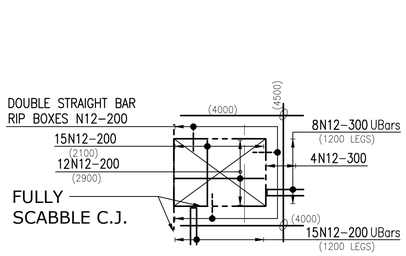
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 17 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2021	Revision: 1

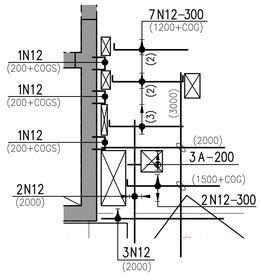
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 2- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2022		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





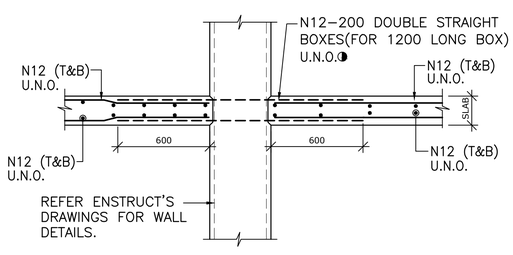
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

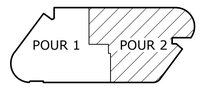
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.7 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



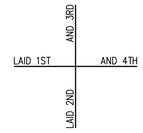
SECTION 1 / SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



KEY PLAN
LEVEL 17



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Rosebery, NSW 2018
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F: +61 2 8307 0297

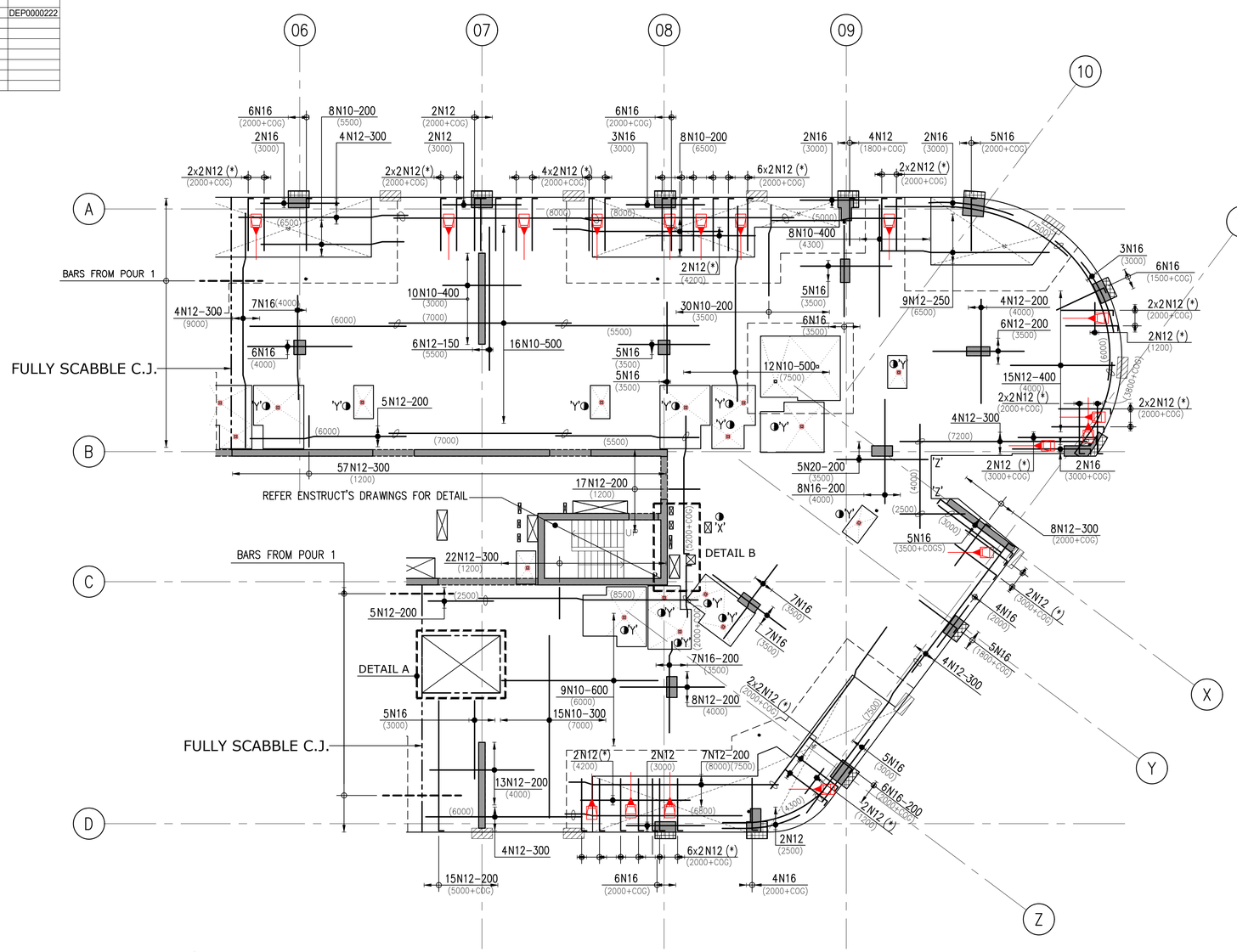
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 17 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2022	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 17-POUR 2- TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2023		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

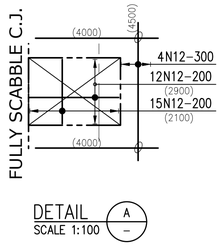
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.64 T

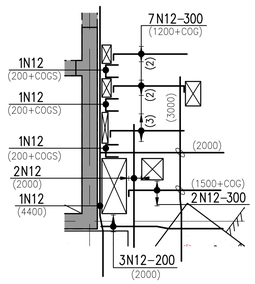
◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

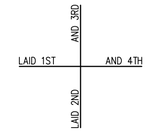
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-117-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.117
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

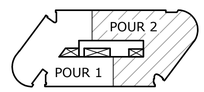
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: PC
Drawing Title: LEVEL 17 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2023	Revision: 1

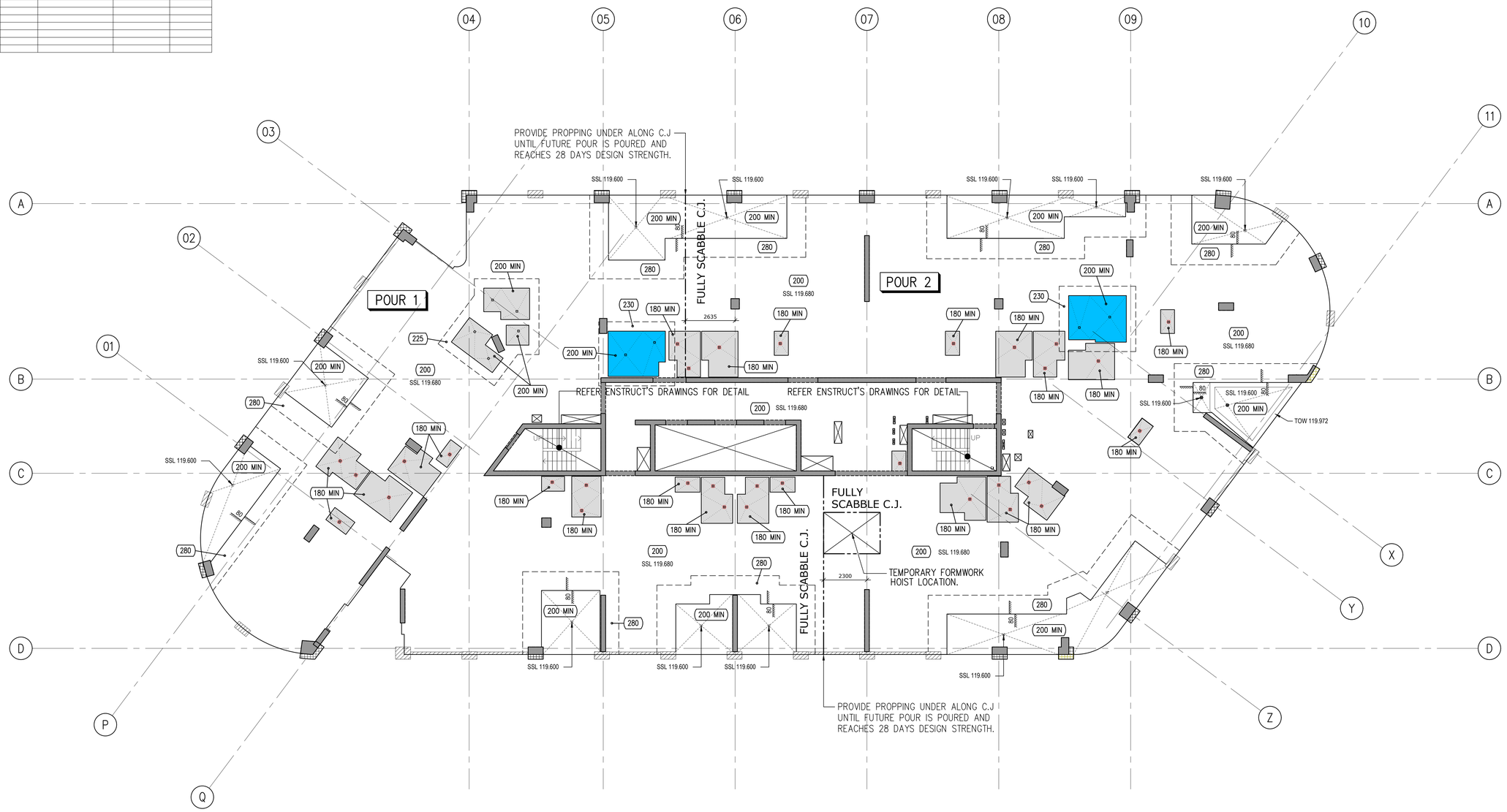


KEY PLAN
LEVEL 17

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18 - GENERAL ARRANGEMENT PLAN	Drawing No: INT-PT-2100		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

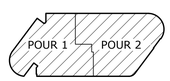
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE - TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 18

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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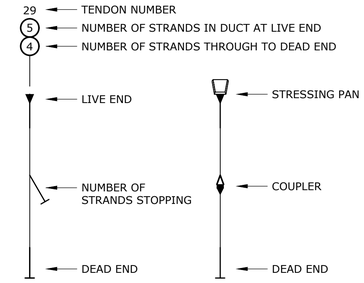
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 18 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2100	Revision: 1

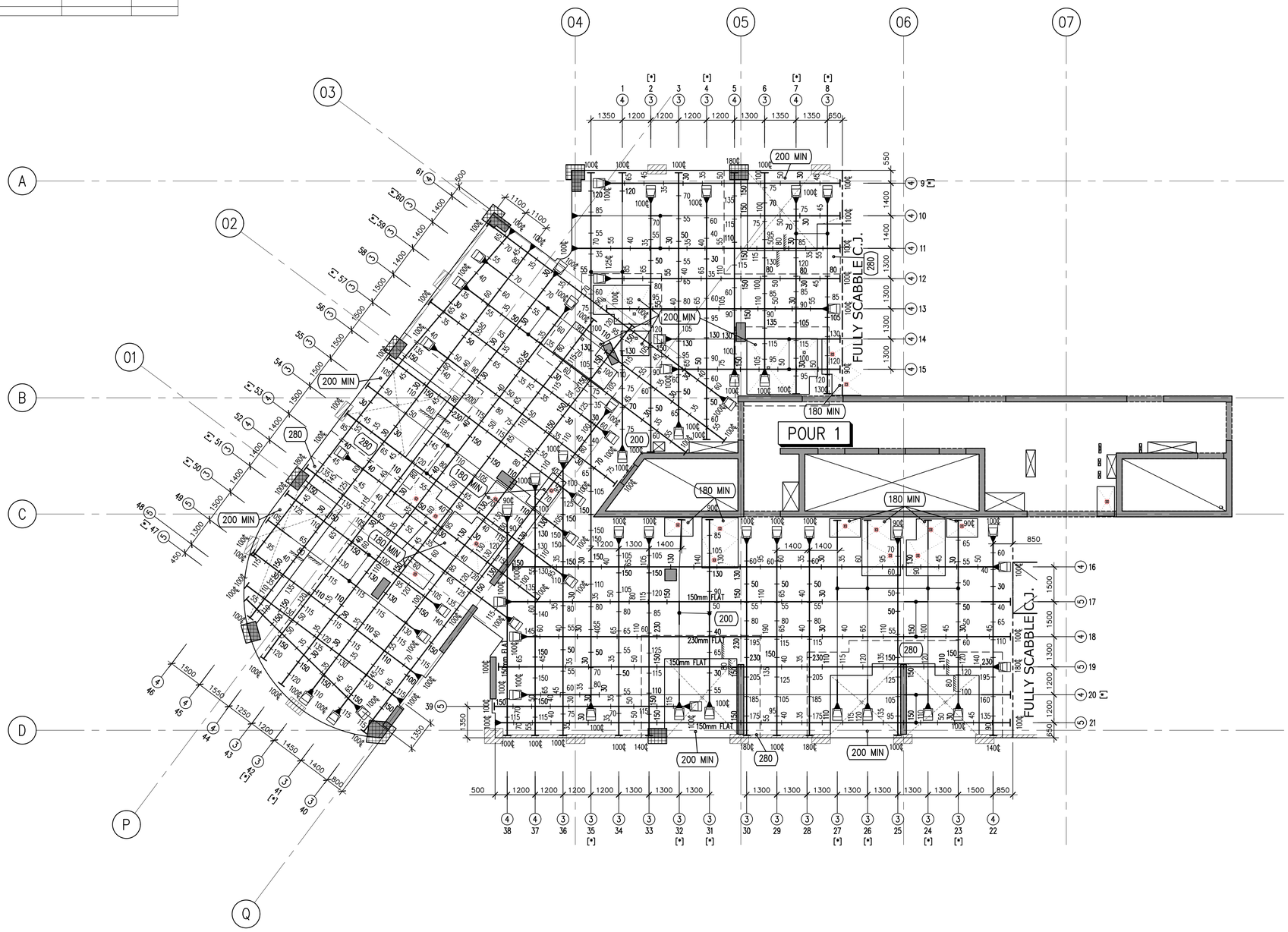
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18-POUR 1- POST TENSIONING PLAN		Drawing No: INT-PT-2111		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





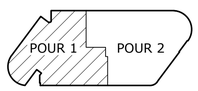
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.38 T

PAN REINFORCEMENT WEIGHT: 0.86 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.



KEY PLAN
LEVEL 18

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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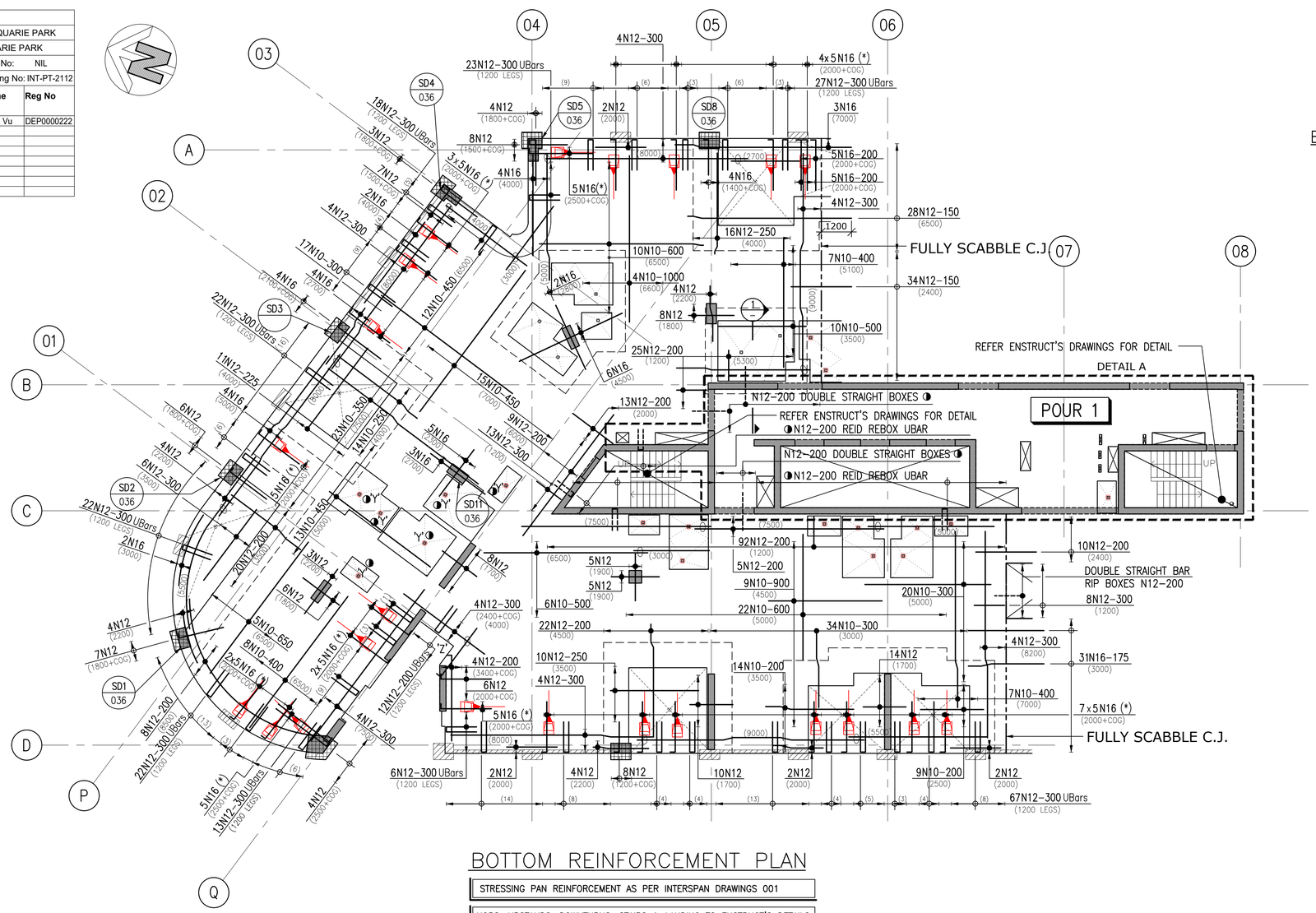
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 18 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2111	Revision: 1

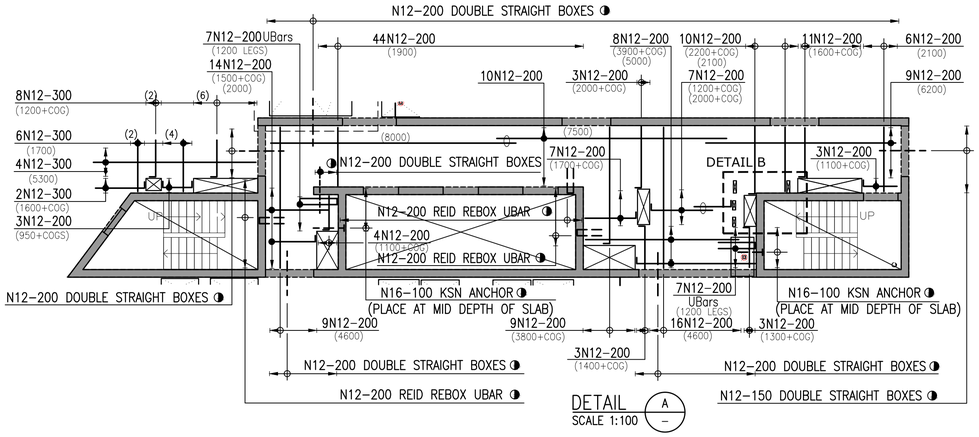
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18-POUR 1- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2112		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

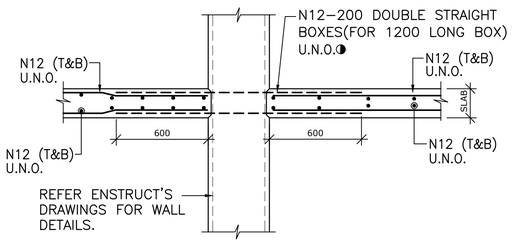


BOTTOM REINFORCEMENT PLAN

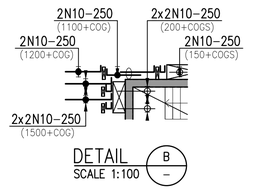
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.6 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



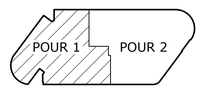
DETAIL A
SCALE 1:100



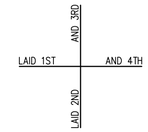
SECTION 1 – SCALE 1:20



DETAIL B – SCALE 1:100



KEY PLAN
LEVEL 18



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

   'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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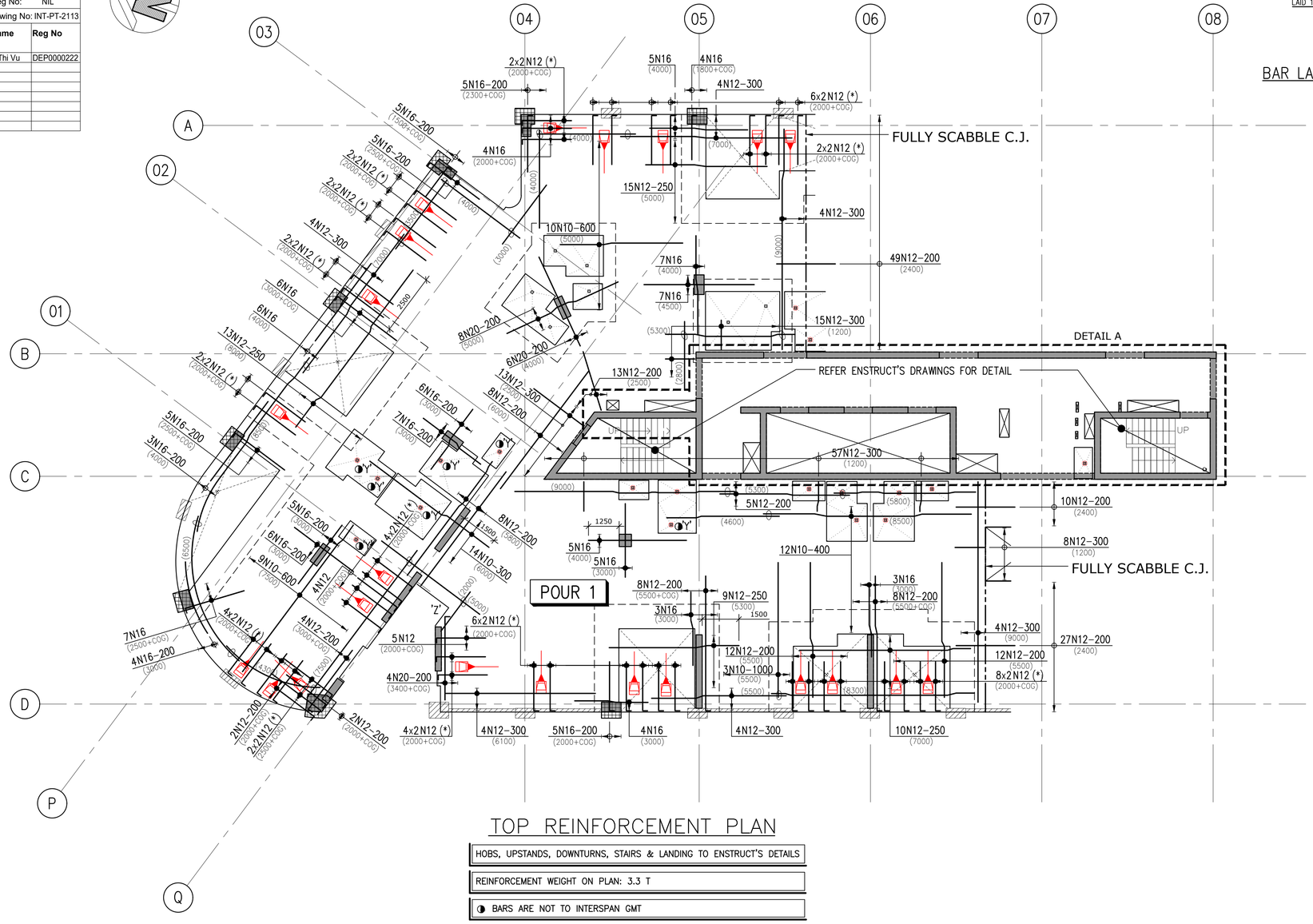
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 18 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2112	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18-POUR 1- TOP REINFORCEMENT PLAN	Drawing No: INT-PT-2113		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

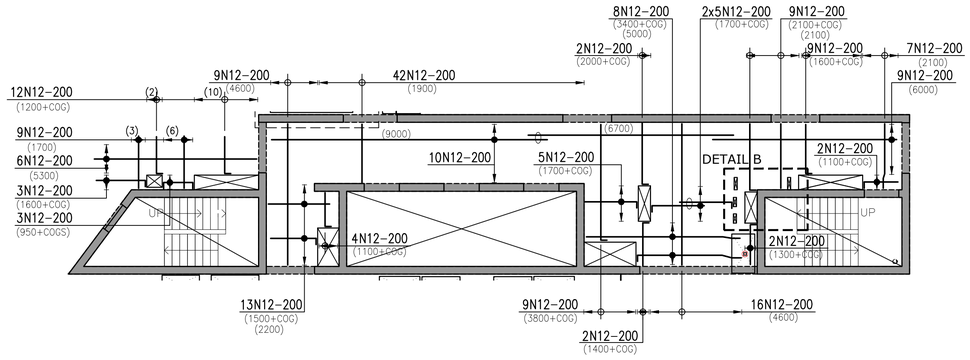


TOP REINFORCEMENT PLAN

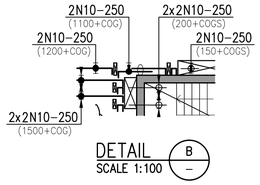
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.3 T

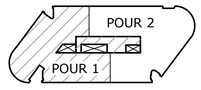
◑ BARS ARE NOT TO INTERSPAN GMT



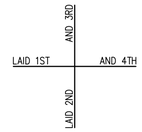
DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 18



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
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9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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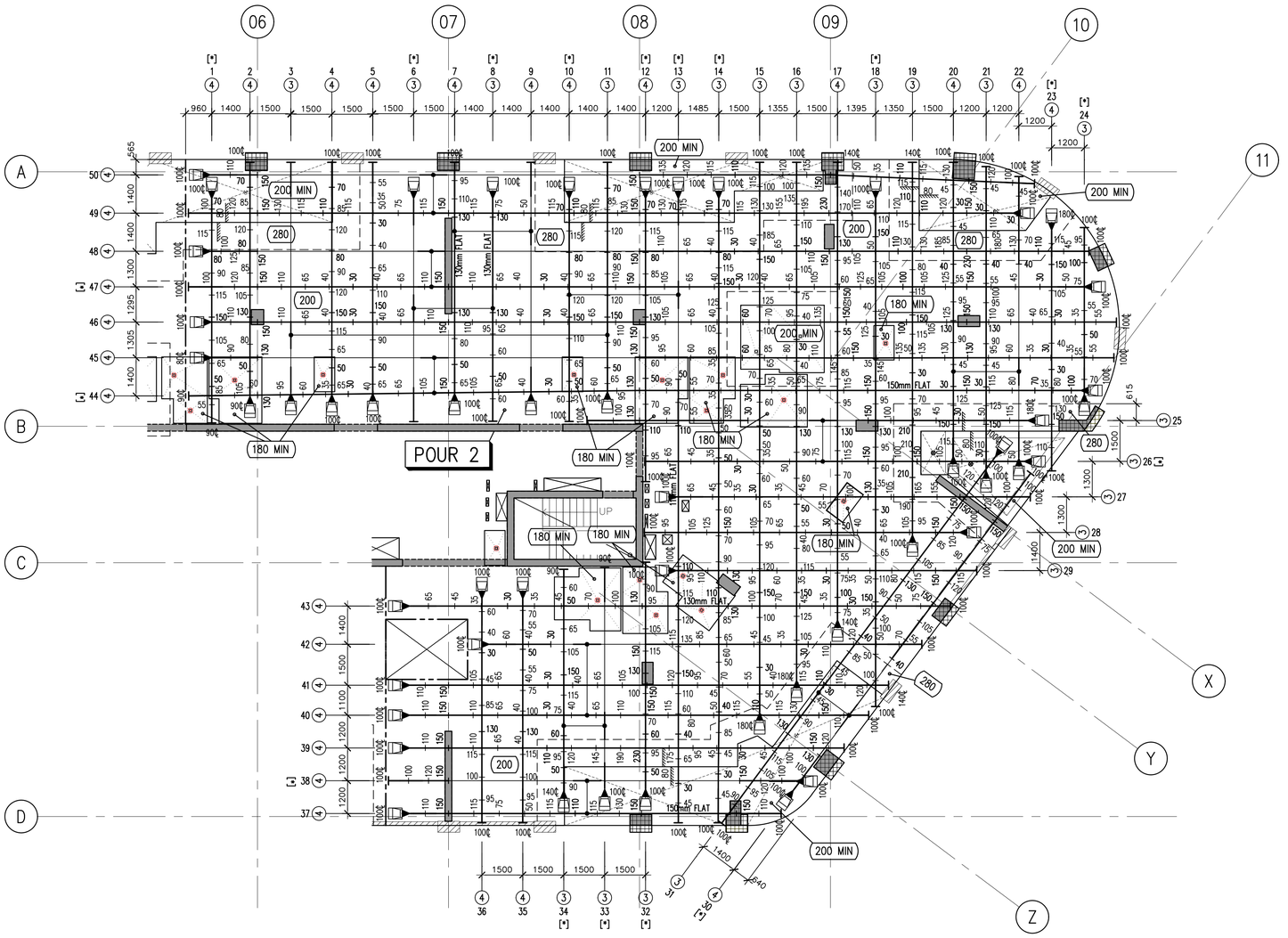
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 18 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2113	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18-POUR 2- POST TENSIONING PLAN		Drawing No: INT-PT-2121		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

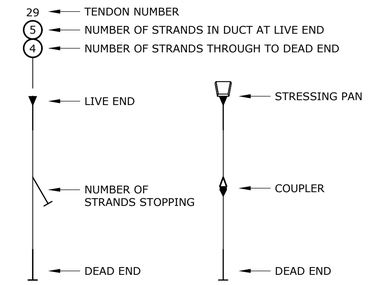
PAN REINFORCEMENT WEIGHT: 0.86 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

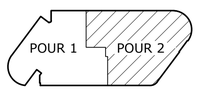


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 18

Interspan

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Rosebery, NSW 2018
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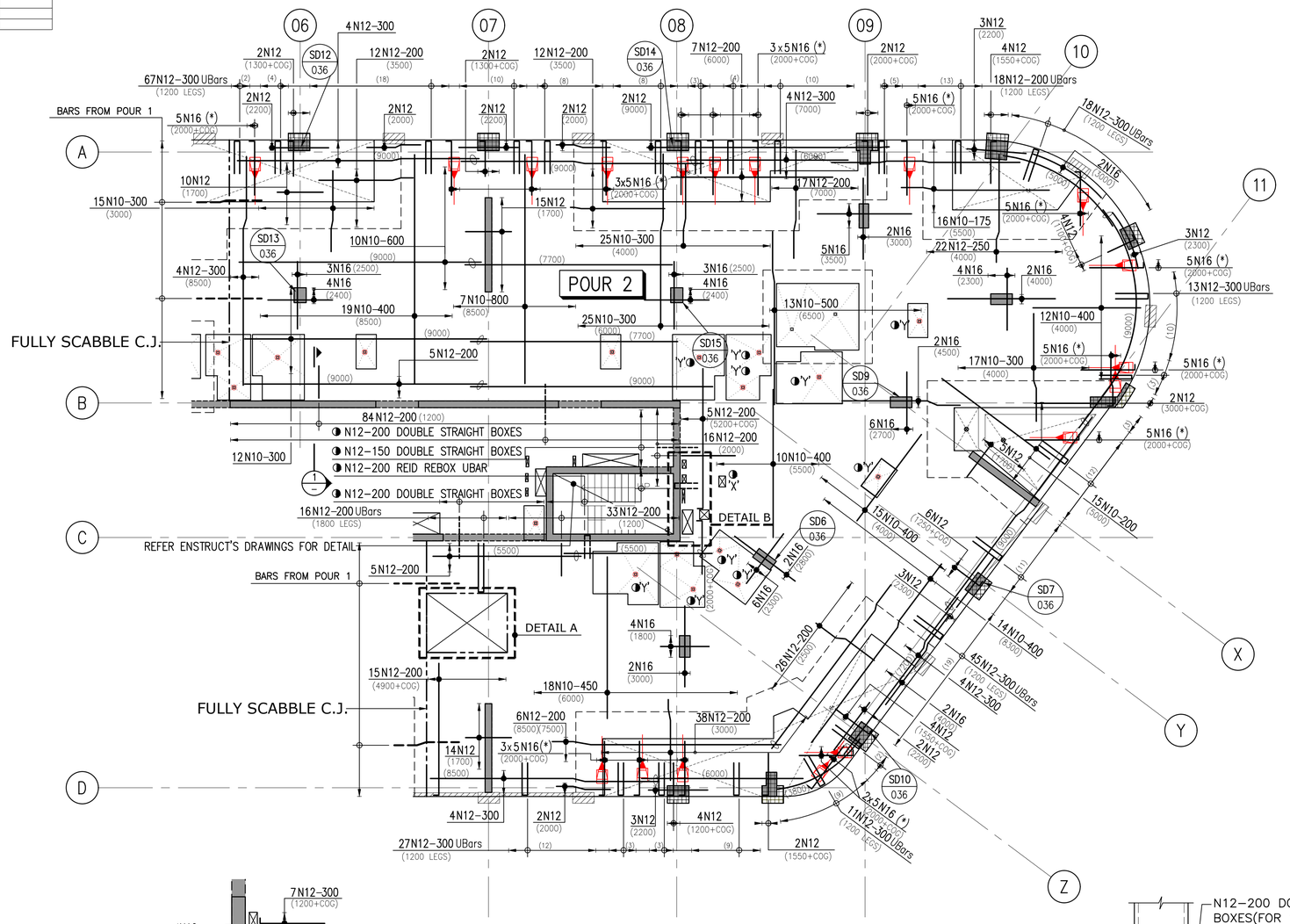
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 18 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2121	Revision: 1

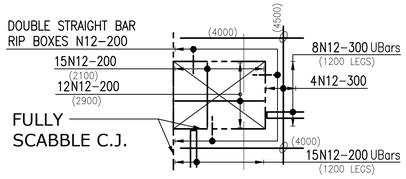
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 18-POUR 2- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2122		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

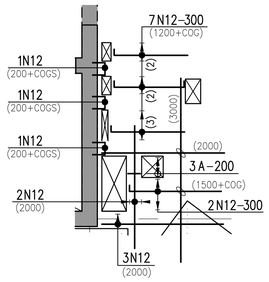


BOTTOM REINFORCEMENT PLAN

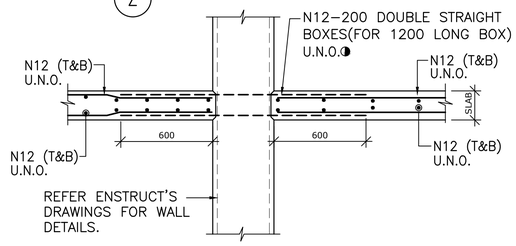
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.6 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100



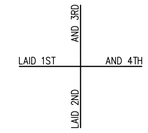
DETAIL B SCALE 1:50



SECTION 1 SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

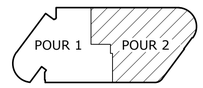
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 18

Interspan

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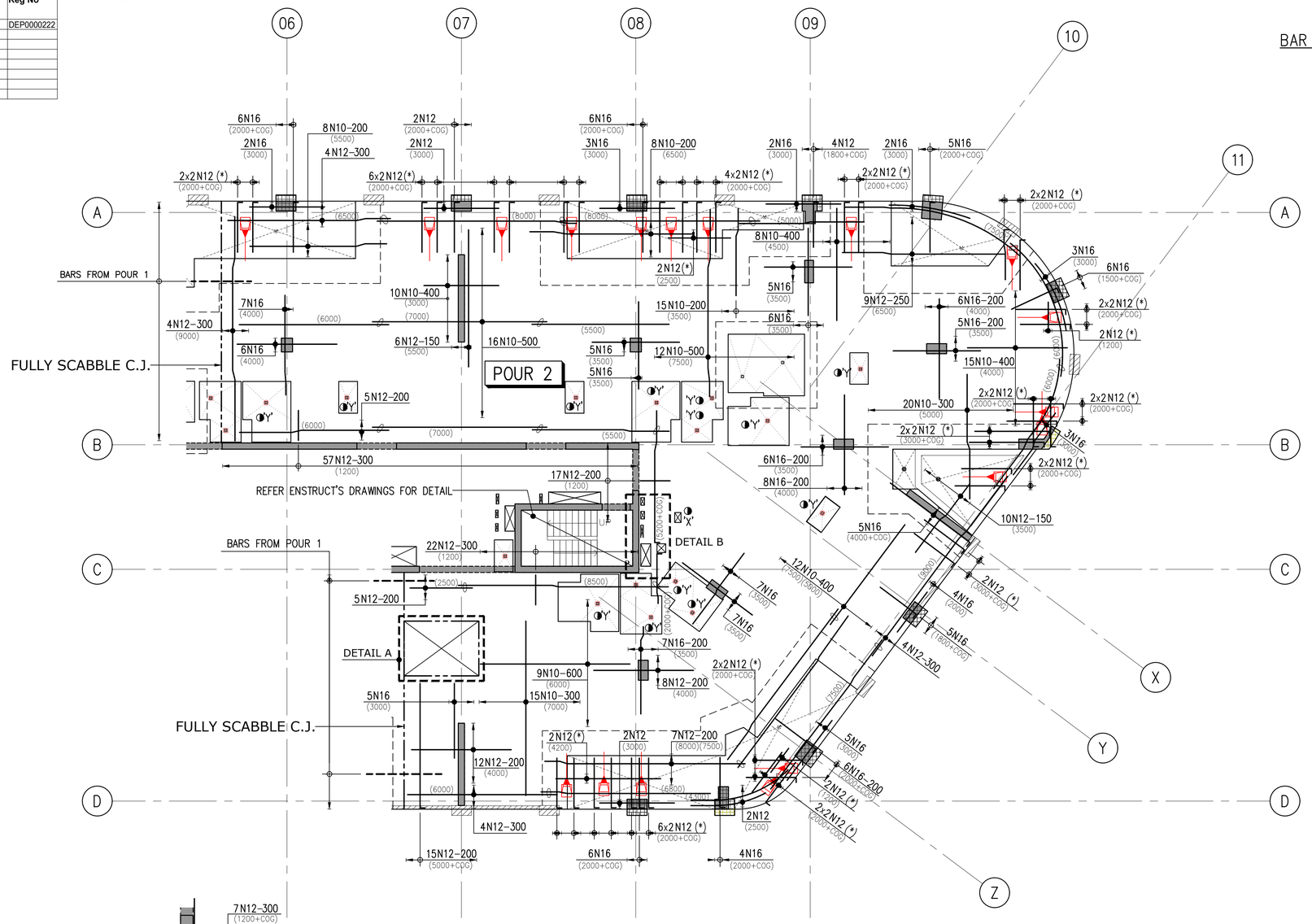
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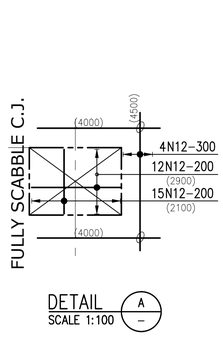
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 18 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2122	Revision: 1

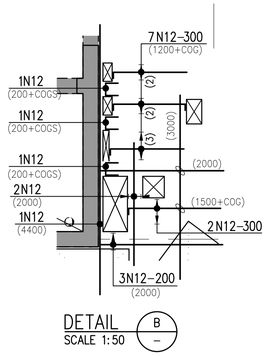
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL18-POUR 2- TOP REINFORCEMENT PLAN			Drawing No: INT-PT-2123	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

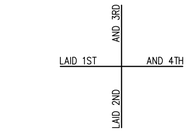
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.72 T

◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
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3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

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'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-118-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.118
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

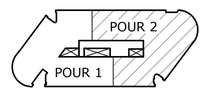
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: PC
Drawing Title: LEVEL 18 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2123	Revision: 1

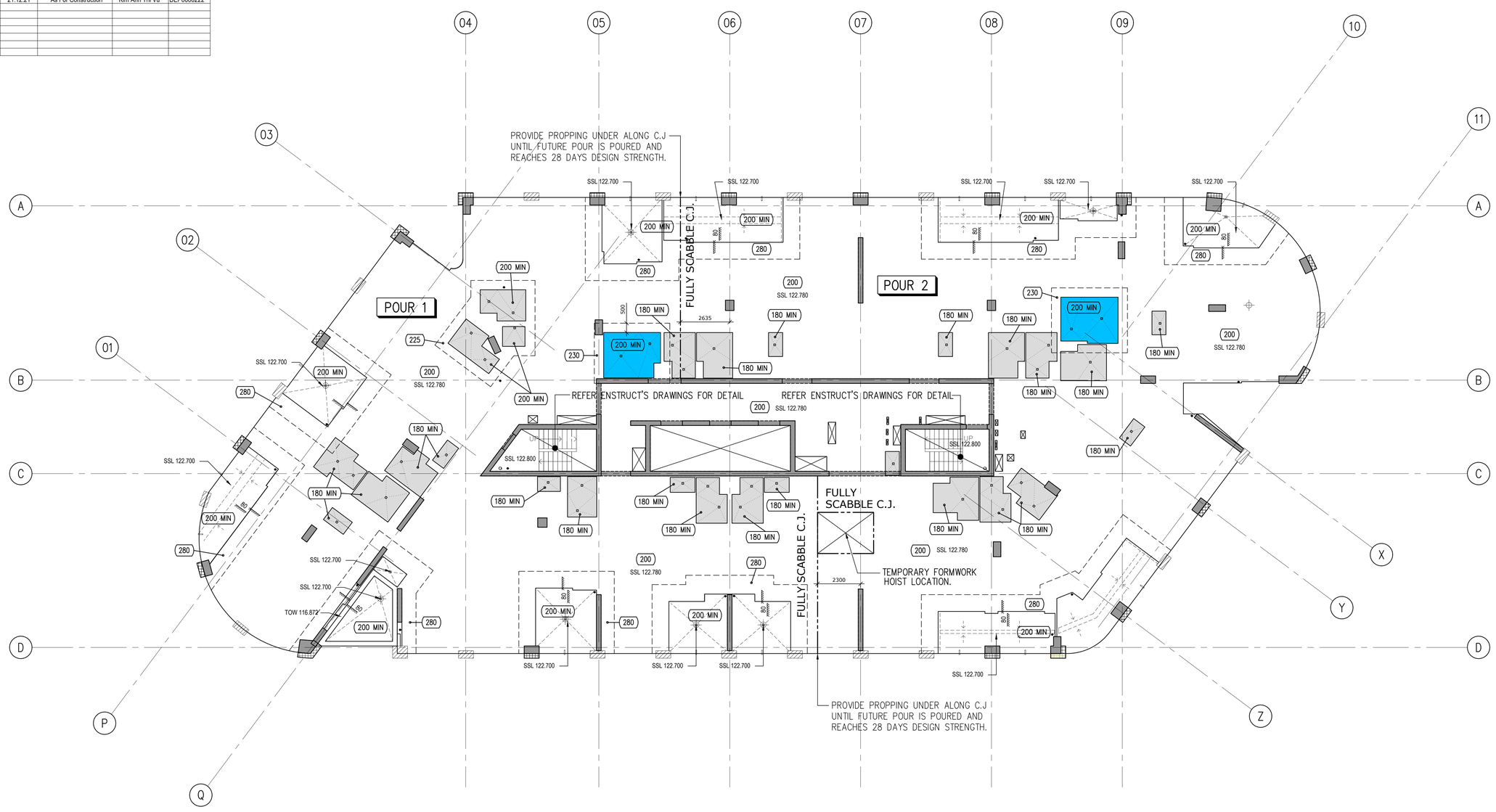


KEY PLAN
LEVEL 18

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19 - GENERAL ARRANGEMENT PLAN	Drawing No: INT-PT-2200		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

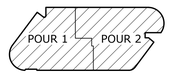
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 19

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

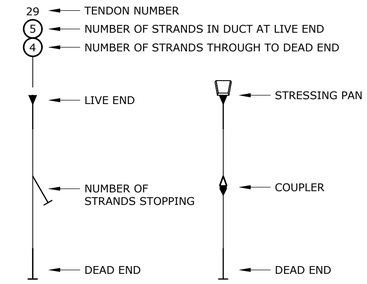
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 19 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 2200	Revision: 1

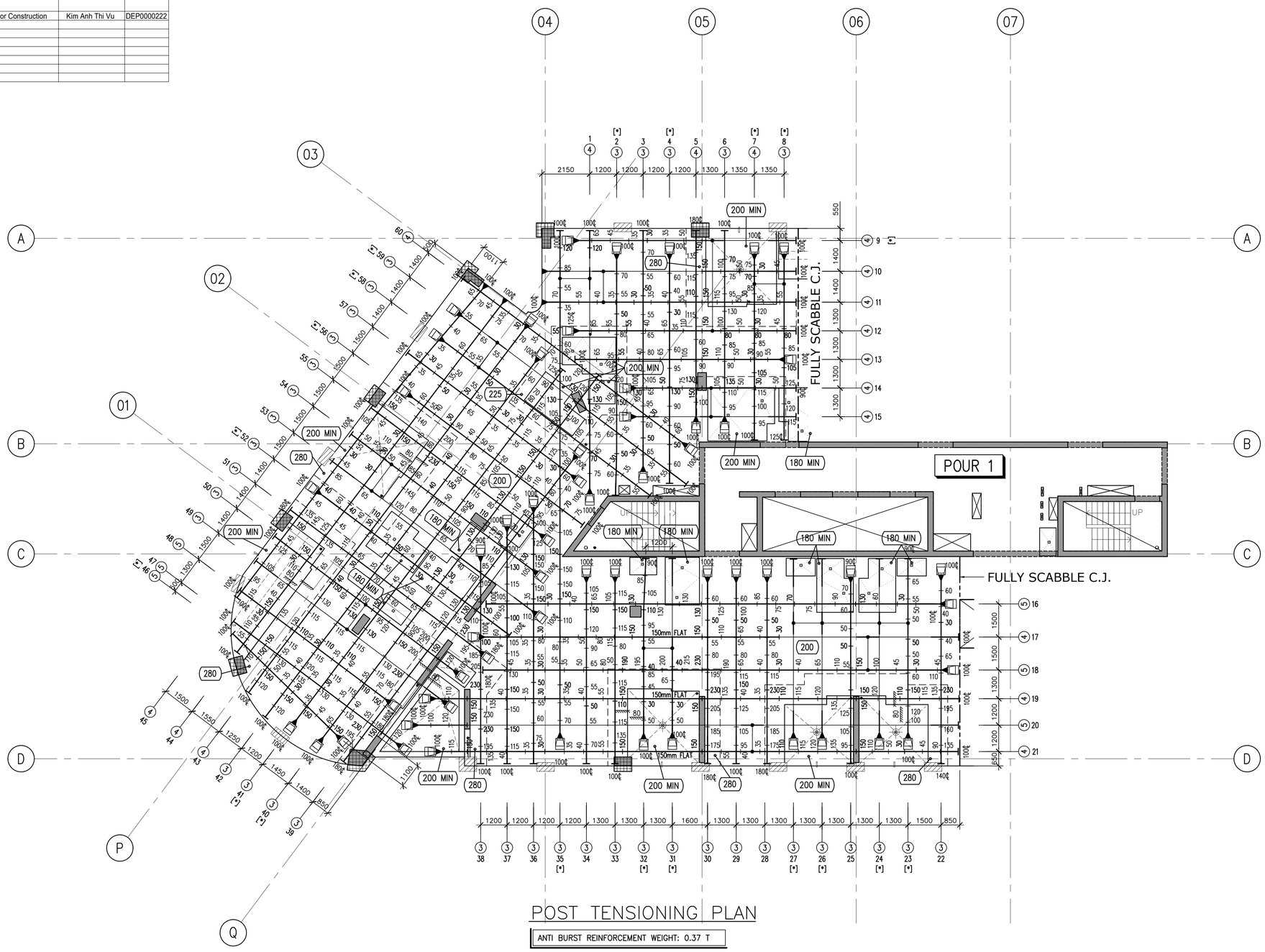
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 1- POST TENSIONING PLAN		Drawing No: INT-PT-2211		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 1.0 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

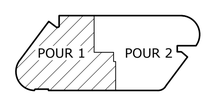
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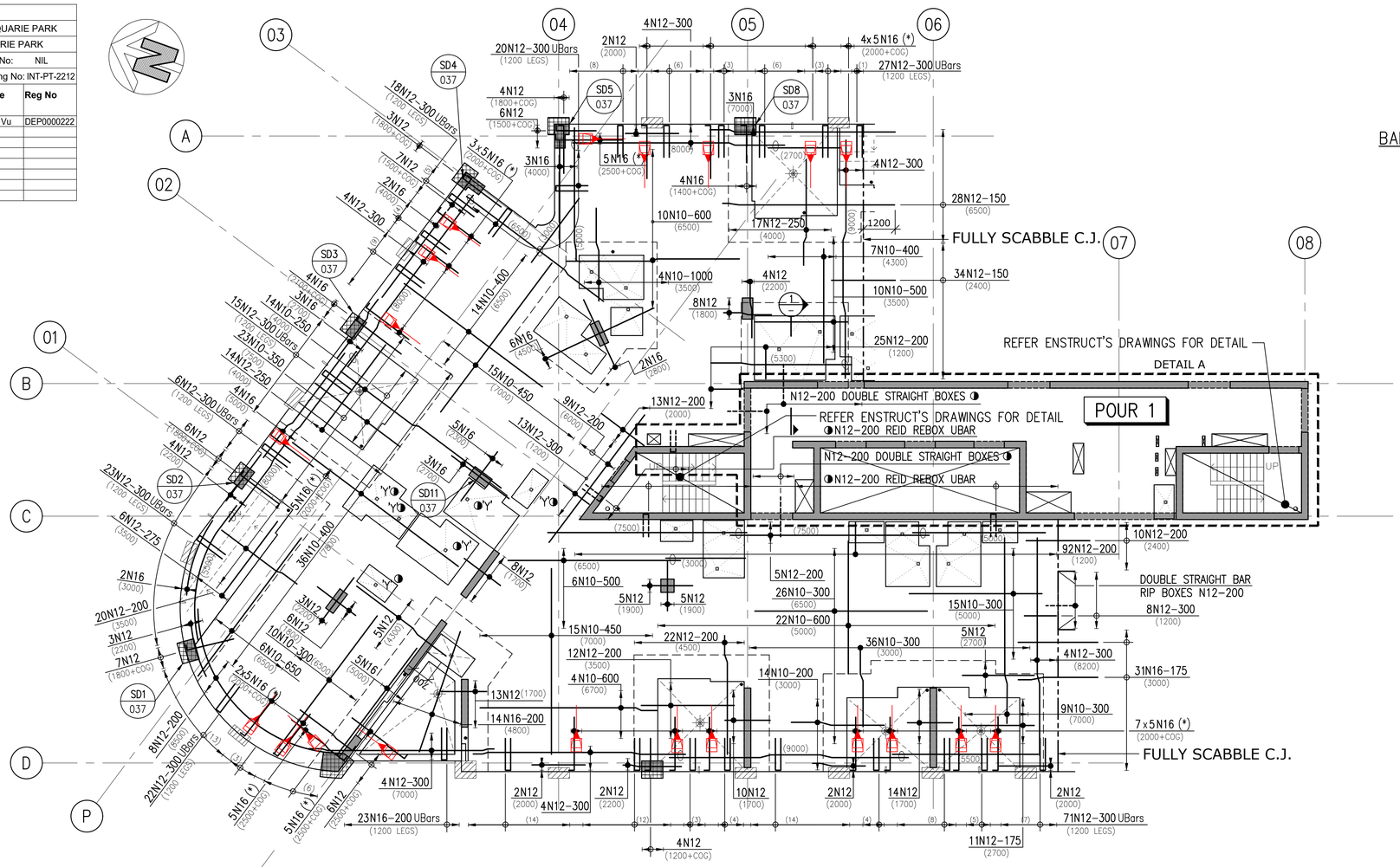
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 19 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2211	Revision: 1



KEY PLAN
LEVEL 19

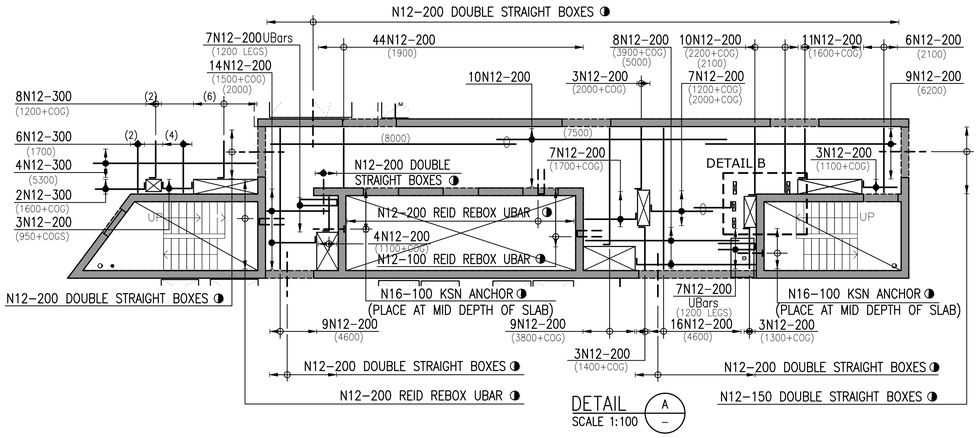
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 1- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2212		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

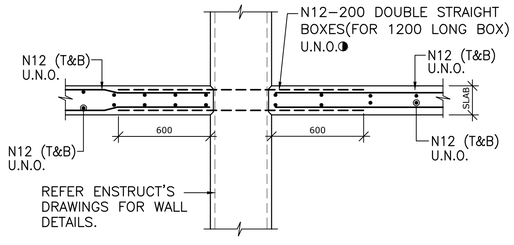


BOTTOM REINFORCEMENT PLAN

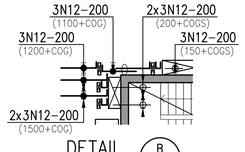
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.9 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



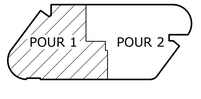
DETAIL A SCALE 1:100



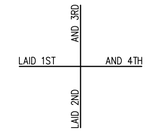
SECTION 1 SCALE 1:20



DETAIL B SCALE 1:100



KEY PLAN
LEVEL 19



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

Interspan

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Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

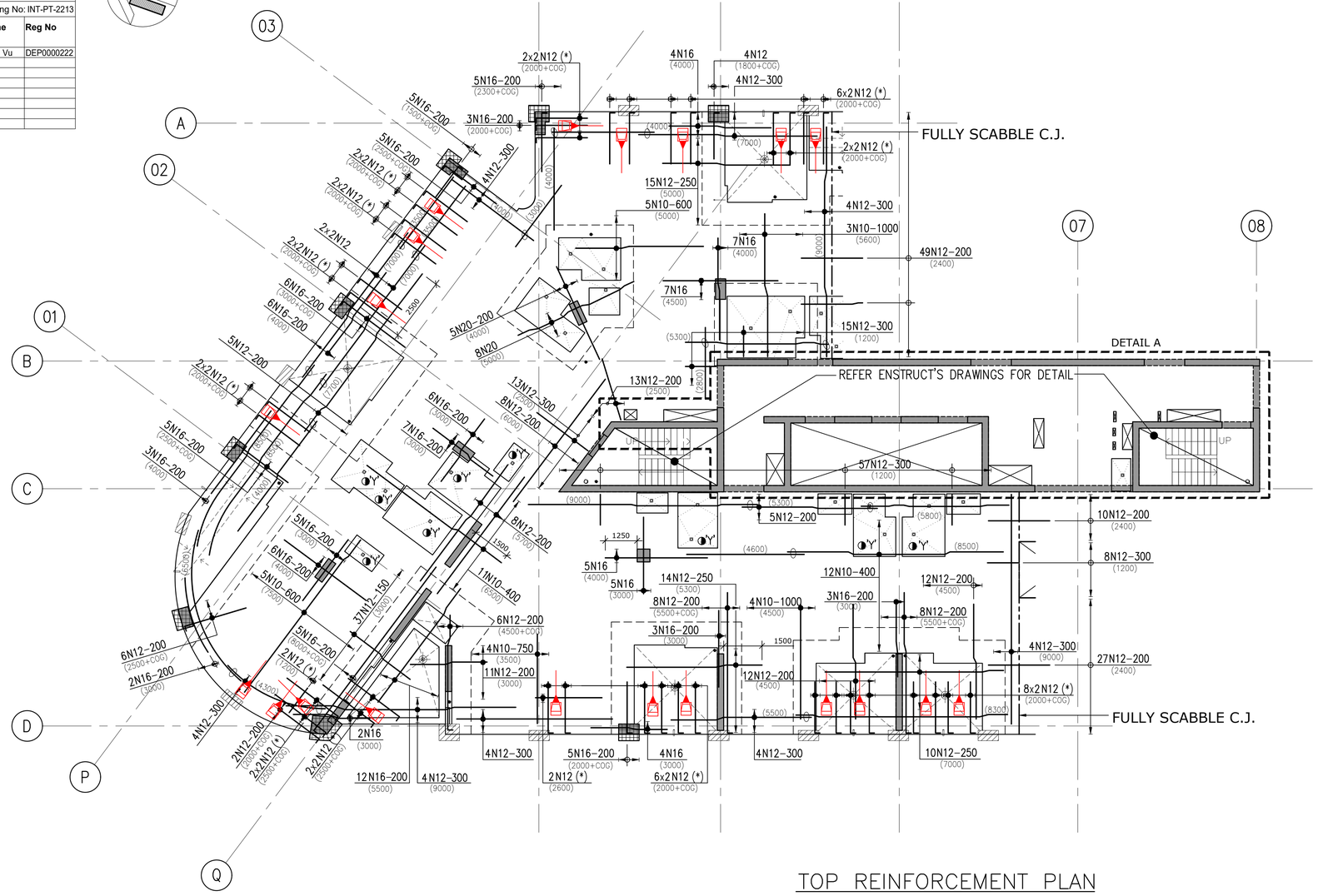
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 19 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2212	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 1- TOP REINFORCEMENT PLAN	Drawing No: INT-PT-2213		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

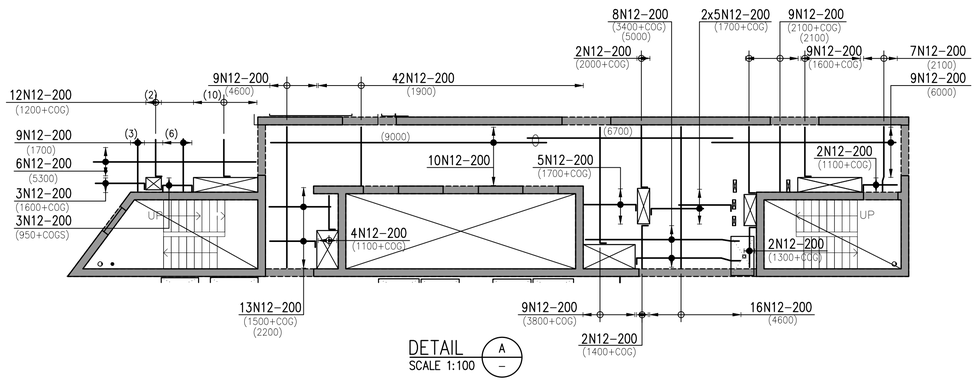
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.5 T

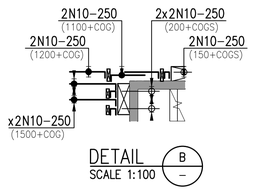
◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

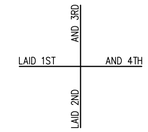
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100



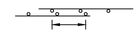
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

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2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
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	Int.	Ext.	Int.	Ext.	Int.	Ext.
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SIDES	25	40	25	40	25	40

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MINIMUM 1 WIRE SPACING PLUS 25mm
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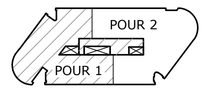


'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG





KEY PLAN
LEVEL 19

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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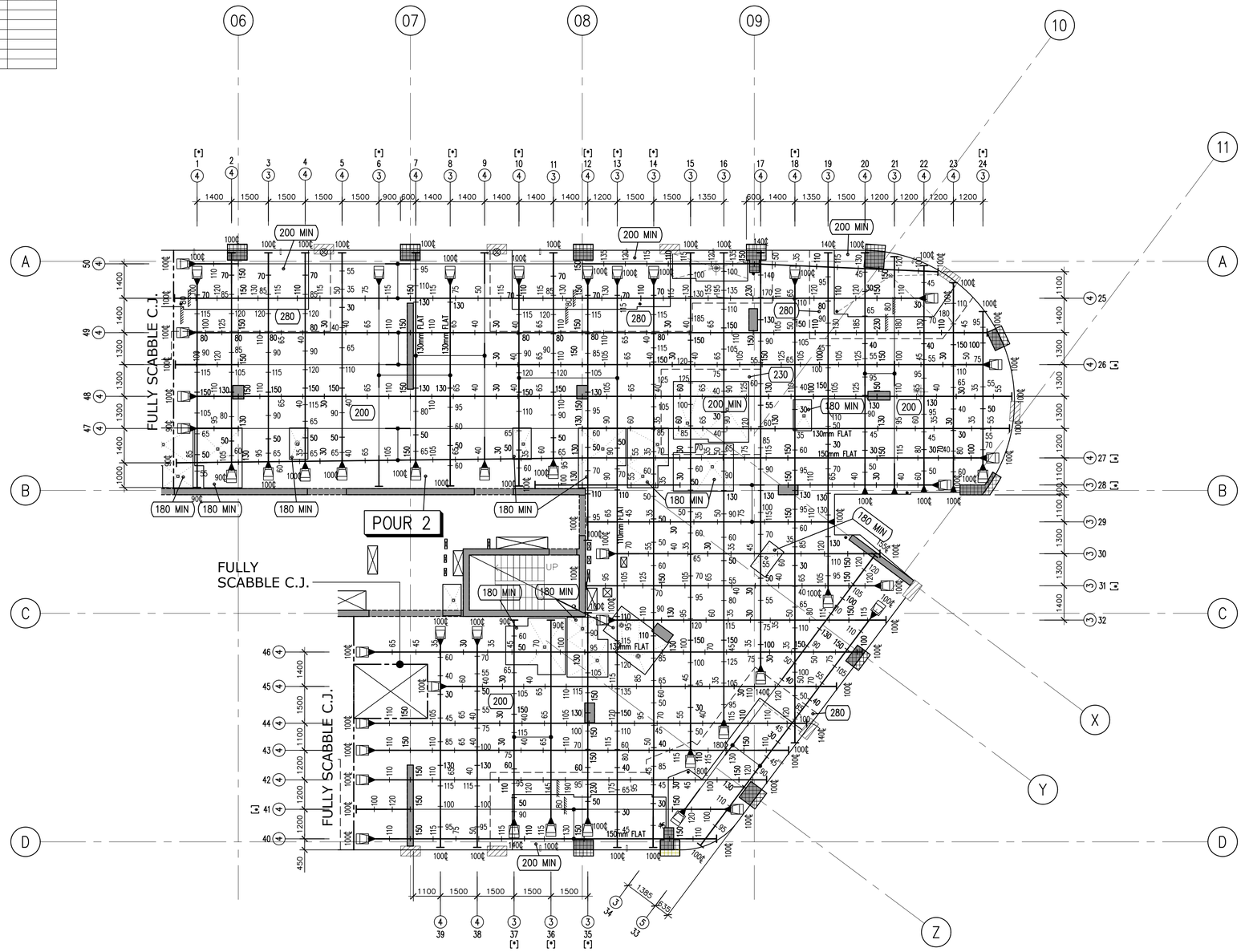
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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 19 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2213	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 2- POST TENSIONING PLAN			Drawing No: INT-PT-2221	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

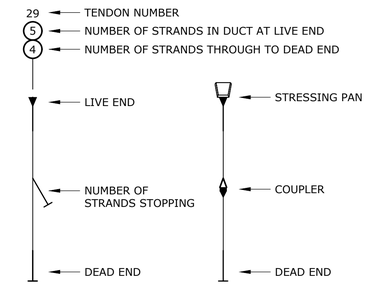
PAN REINFORCEMENT WEIGHT: 0.75 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

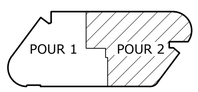
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F: +61 3 8396 9640

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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 19 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2221	Revision: 1

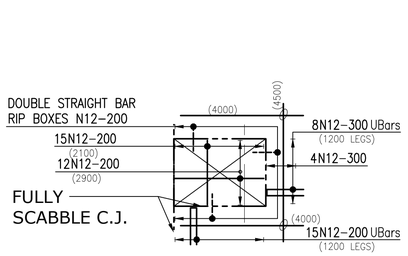


KEY PLAN
LEVEL 19

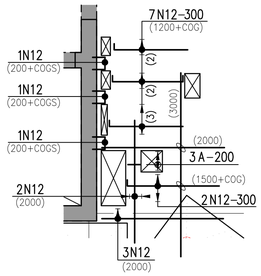
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 2- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2222		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





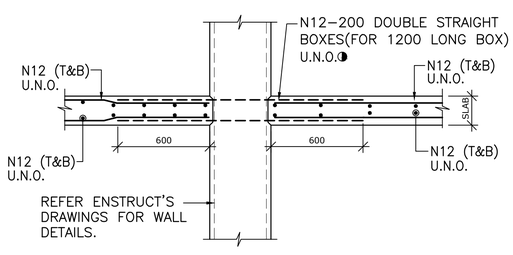
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

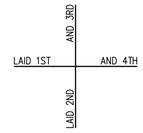
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.7 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1 / SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
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7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

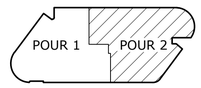
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 19

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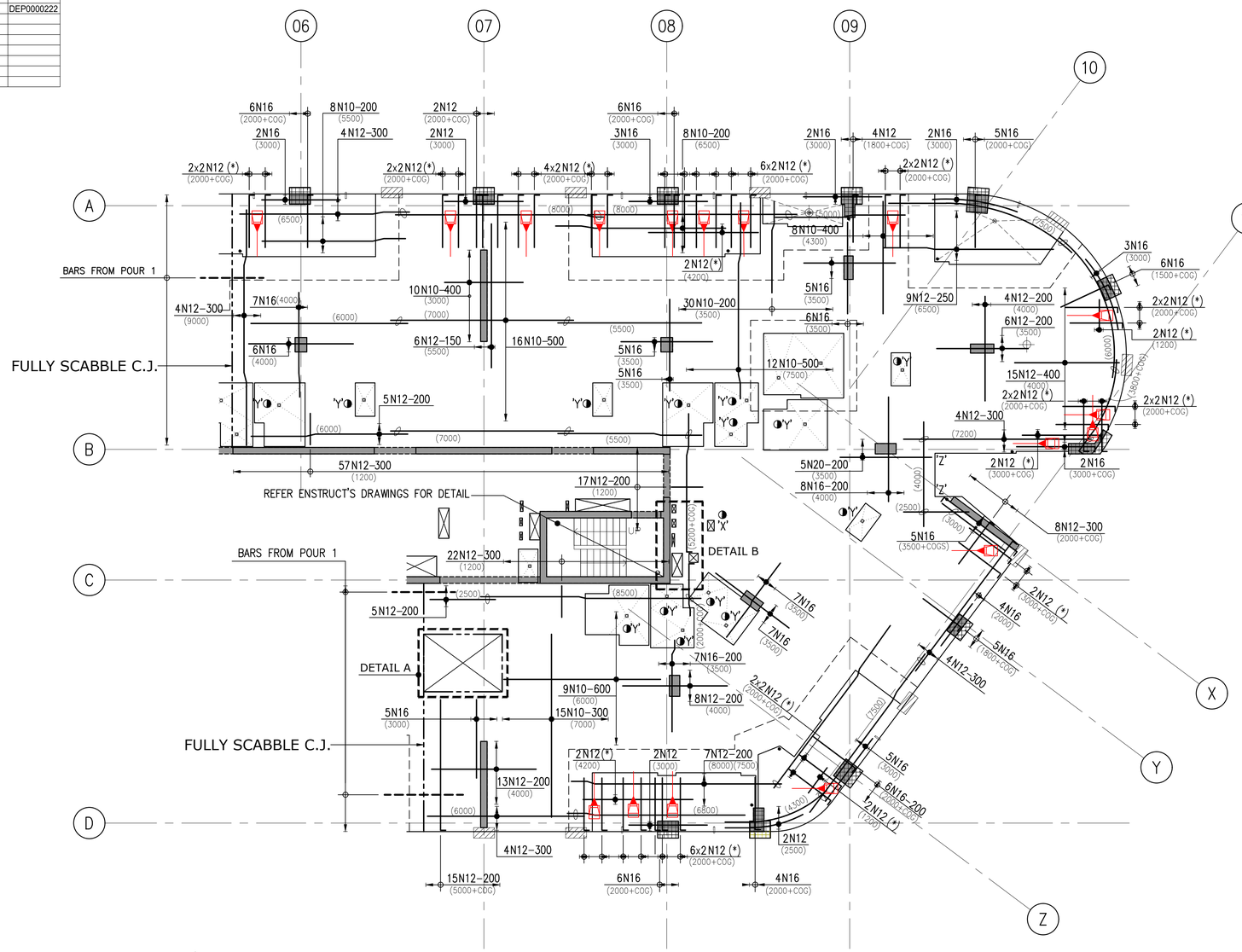
MELBOURNE
6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
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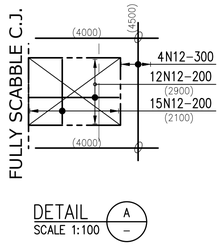
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 19 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2222	Revision: 1

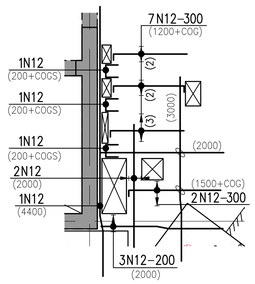
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 19-POUR 2- TOP REINFORCEMENT PLAN			Drawing No: INT-PT-2223	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

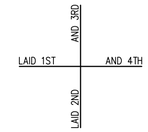
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.64 T

◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

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'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-119-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.119
REVISION: D

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

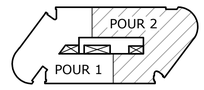
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: PC
Drawing Title: LEVEL 19 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2223	Revision: 1

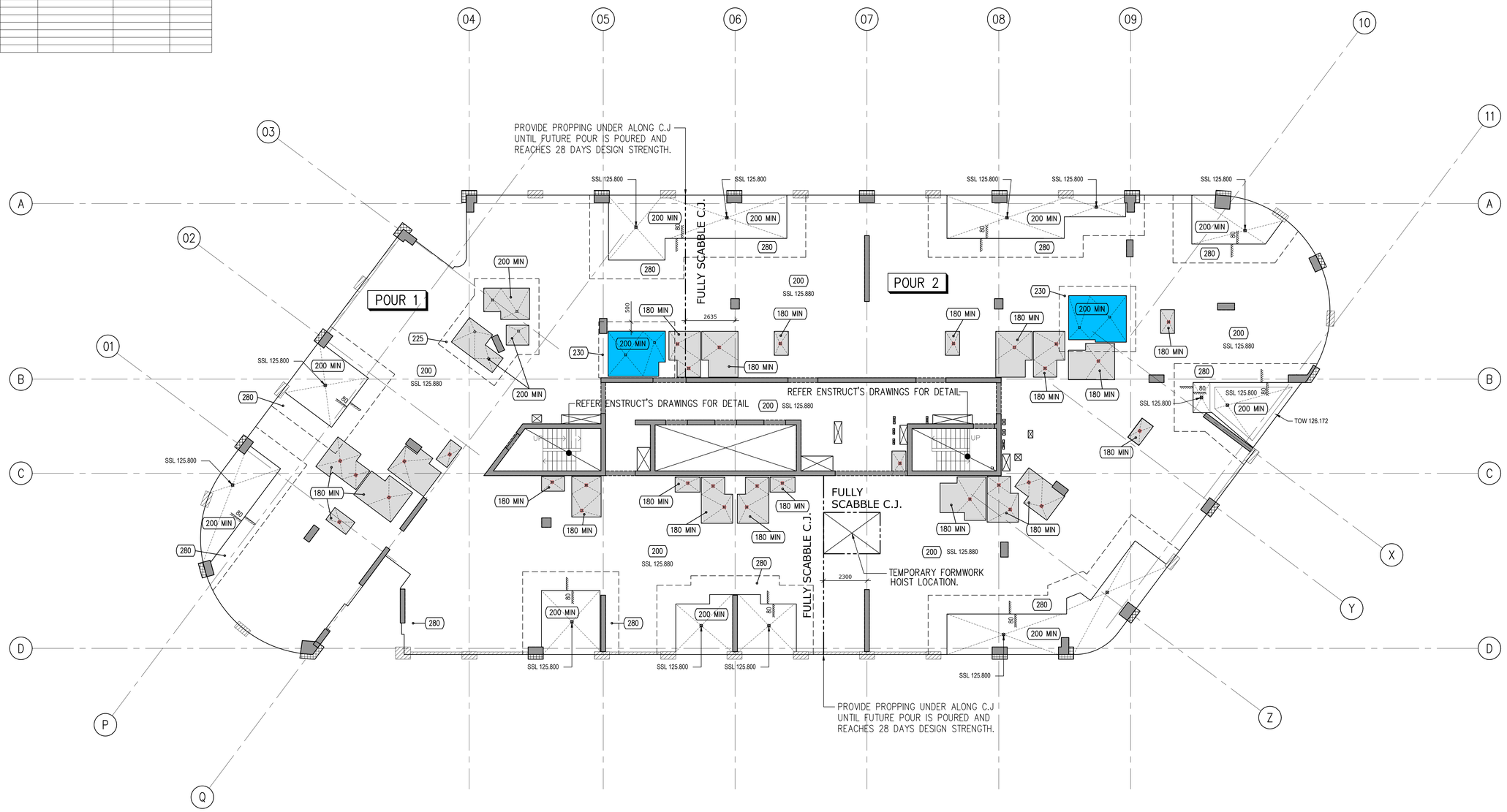


KEY PLAN
LEVEL 19

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-2300	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

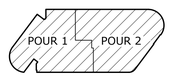
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD-BEARING PRECAST PANEL OVER

DENOTES LOAD-BEARING PRECAST PANEL OVER AND LOAD-BEARING ELEMENT UNDER

DENOTES NON LOAD-BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE - TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 20

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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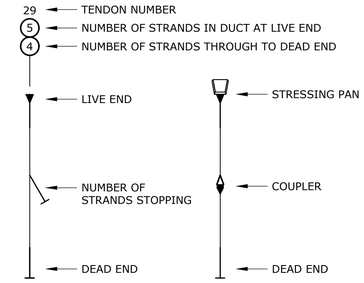
Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	PL
	Drawn: CP
Drawing Title LEVEL 20 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No. INPT20373	Date: 20-12-21
Drawing No. INT-PT-2300	Revision: 1

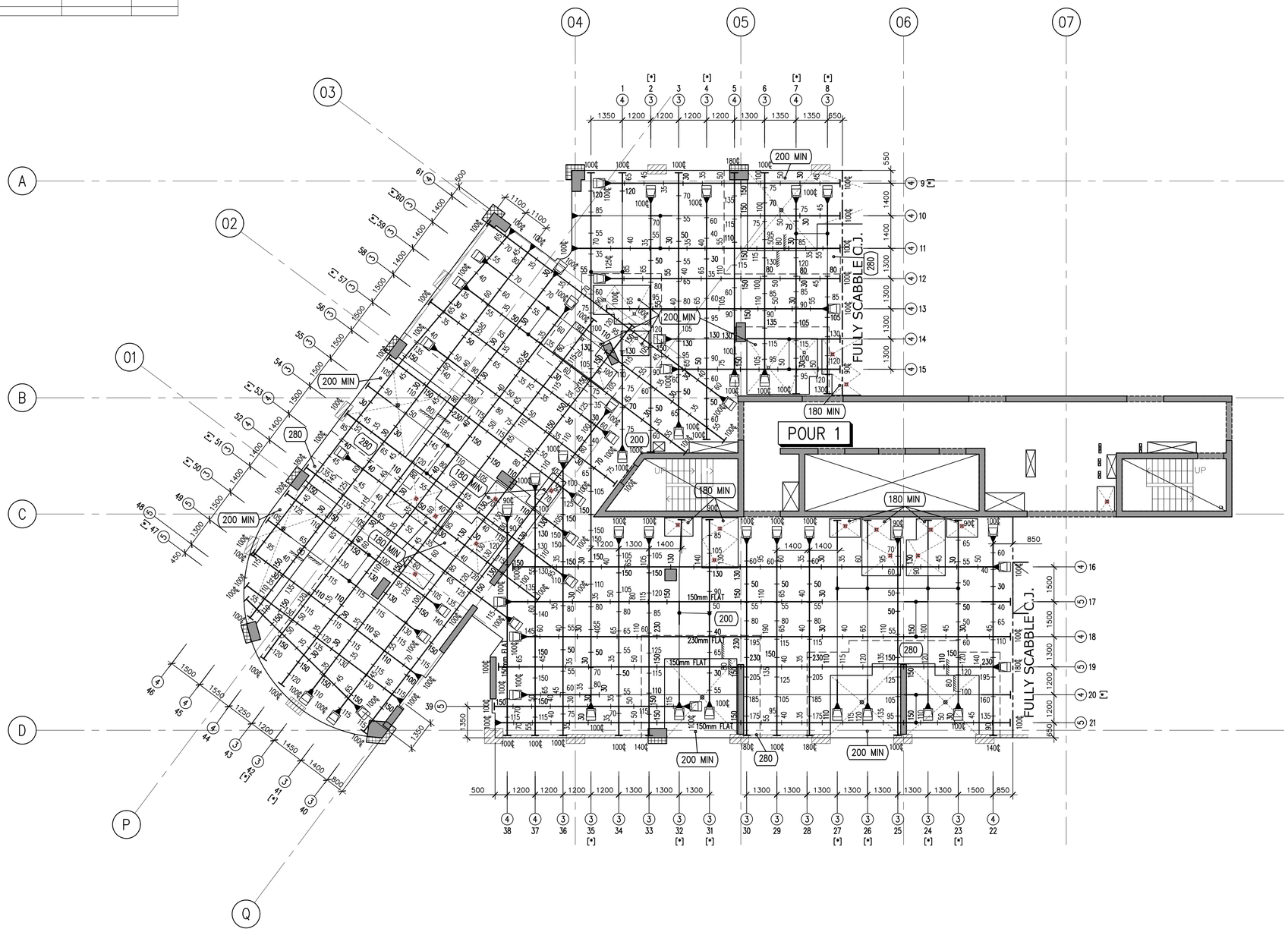
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20-POUR 1- POST TENSIONING PLAN		Drawing No: INT-PT-2311		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

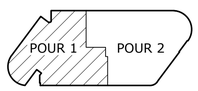
1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.38 T
- PAN REINFORCEMENT WEIGHT: 0.86 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.



KEY PLAN
LEVEL 20

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
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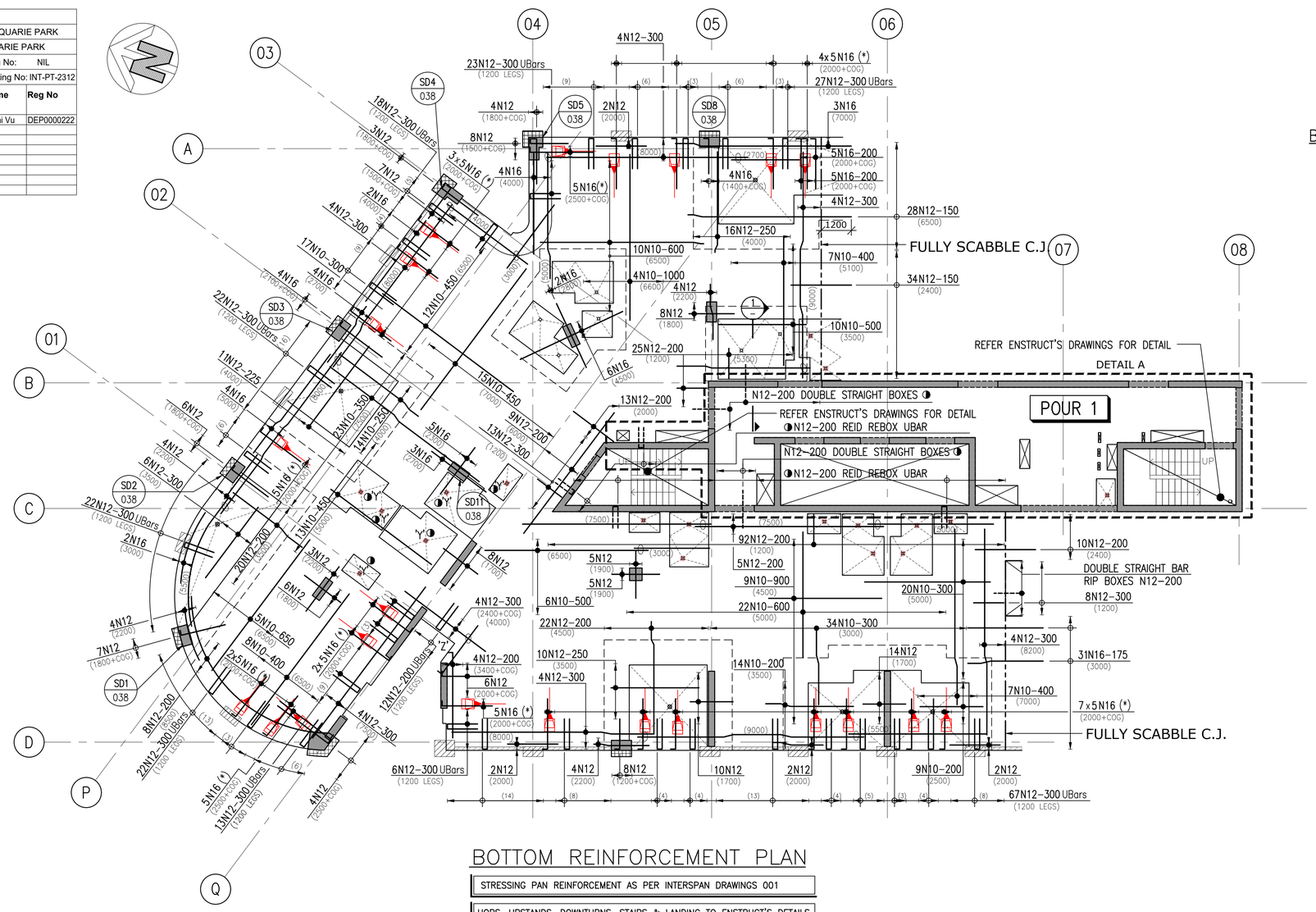
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 20 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2311	Revision: 1

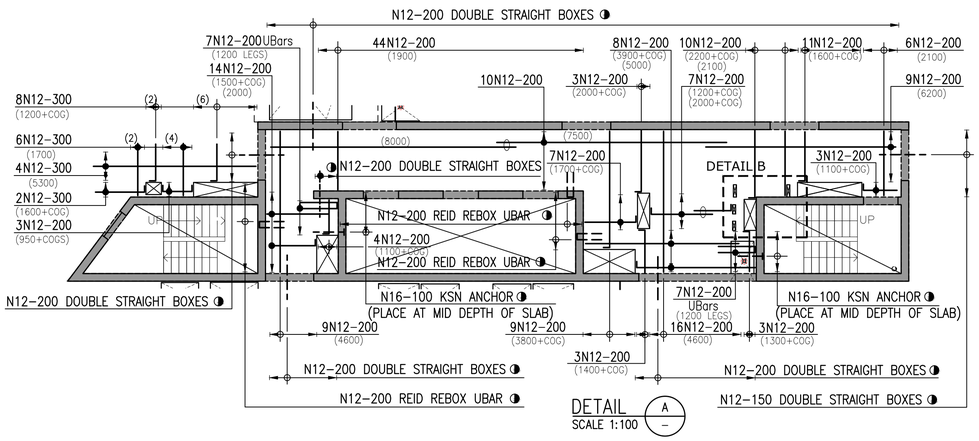
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No:	NIL	
Drawing Title: LEVEL 20-POUR 1- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2312		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

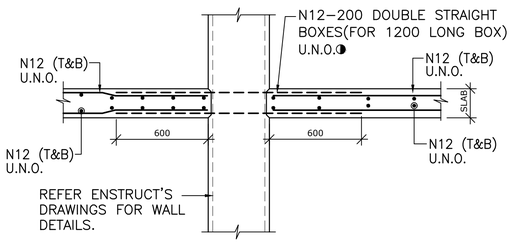


BOTTOM REINFORCEMENT PLAN

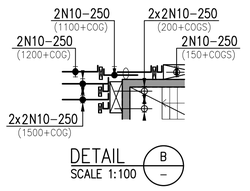
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.6 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



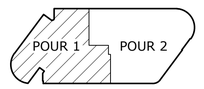
DETAIL A – SCALE 1:100



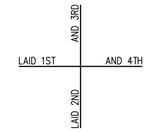
SECTION 1 – SCALE 1:20



DETAIL B – SCALE 1:100



KEY PLAN
LEVEL 20



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

Rev	Date	Status
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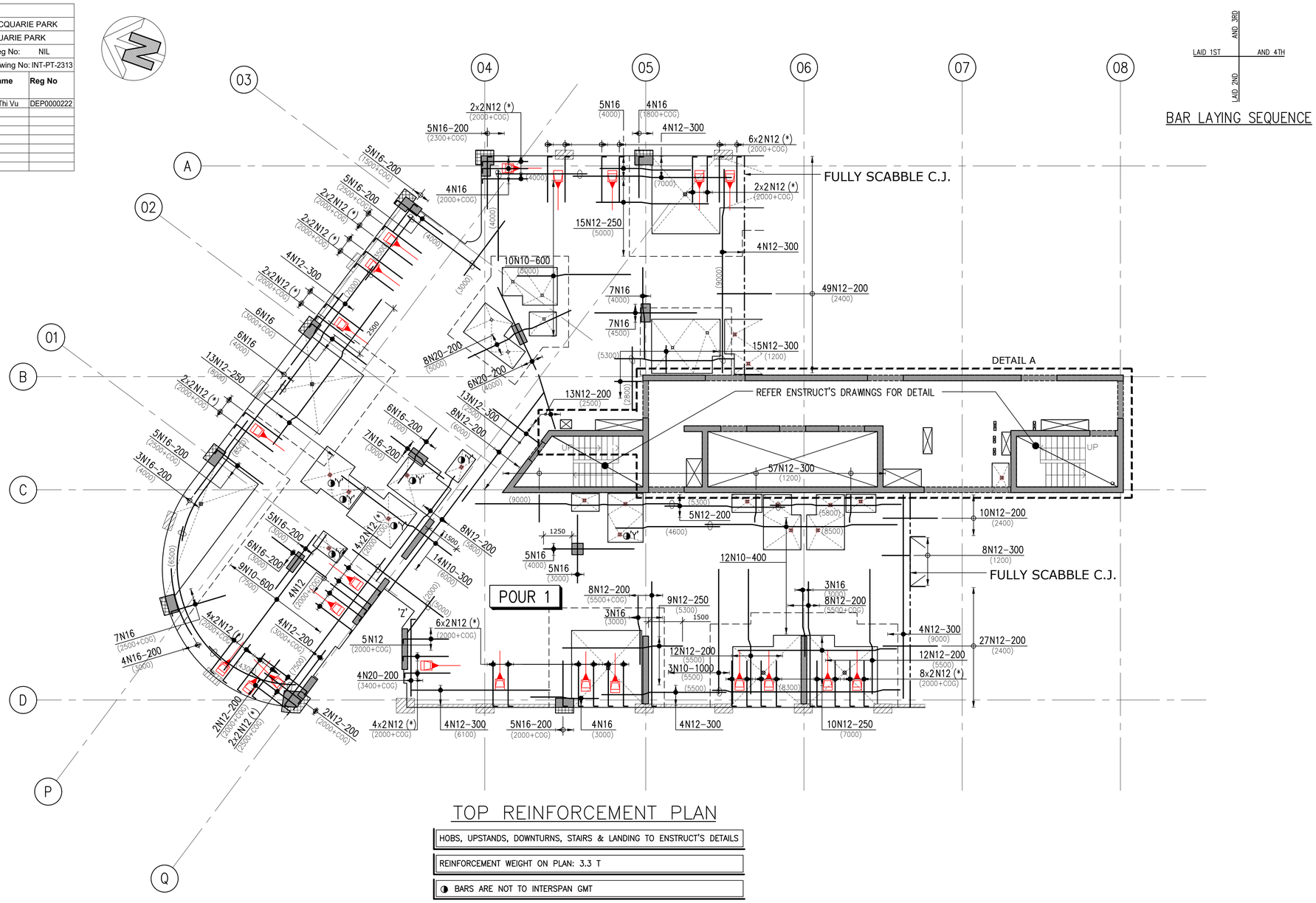
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 20 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2312	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20-POUR 1- TOP REINFORCEMENT PLAN	Drawing No: INT-PT-2313		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

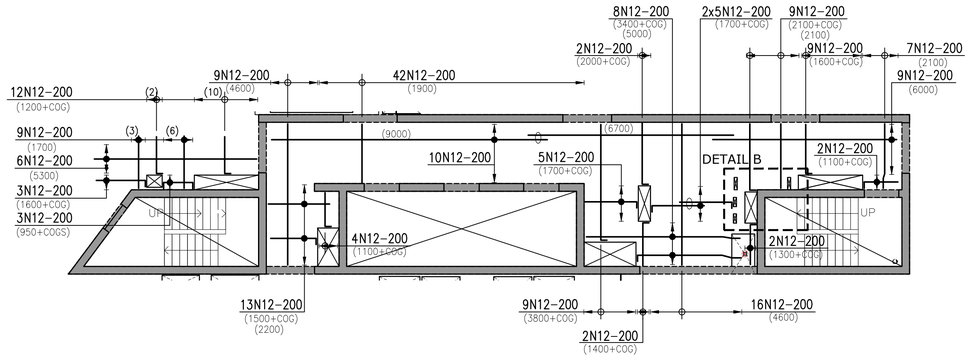


TOP REINFORCEMENT PLAN

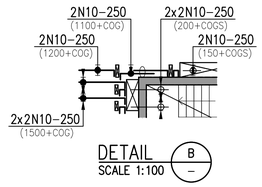
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.3 T

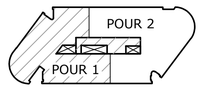
◑ BARS ARE NOT TO INTERSPAN GMT



DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:100



KEY PLAN
LEVEL 20

BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 20 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2313	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 20-POUR 2- POST TENSIONING PLAN		Drawing No: INT-PT-2321	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

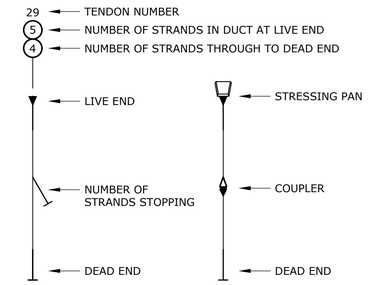
PAN REINFORCEMENT WEIGHT: 0.86 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

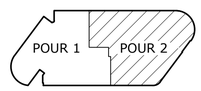


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 20

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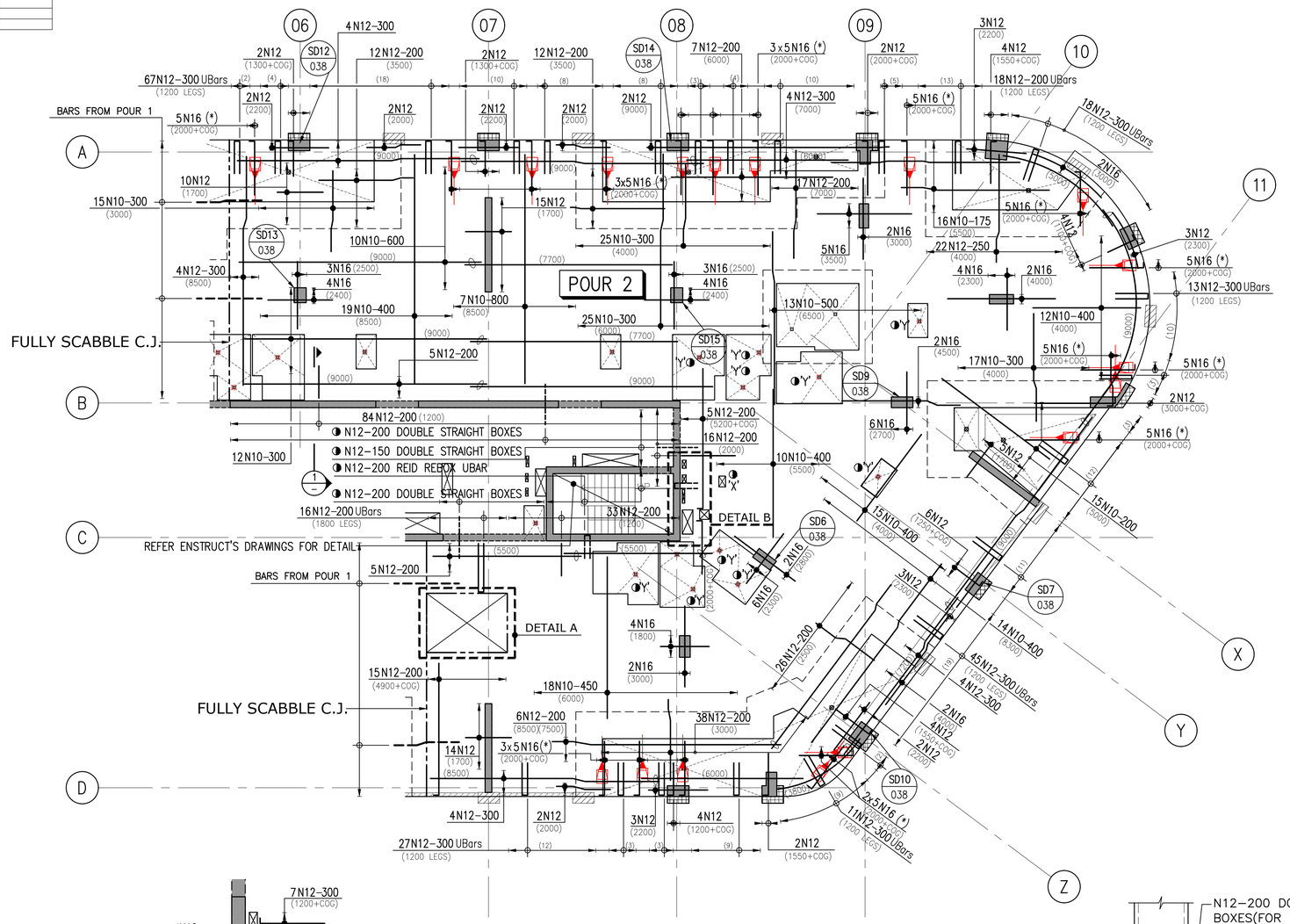
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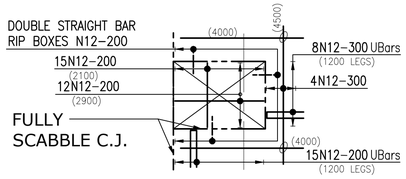
SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	PL
	Drawn: TX
Drawing Title LEVEL 20 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No. INPT20373	Date: 20-12-21
Drawing No. INT-PT-2321	Revision: 1

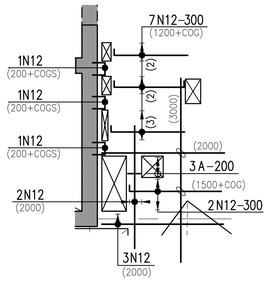
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20-POUR 2- BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2322		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





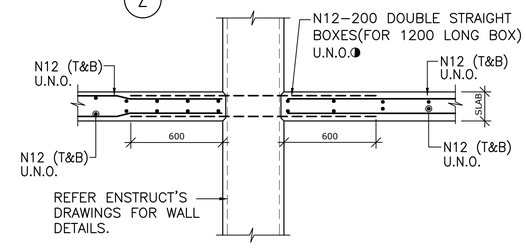
DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

BOTTOM REINFORCEMENT PLAN

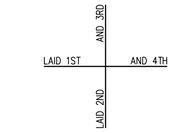
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.6 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



SECTION 1
SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

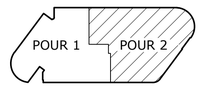


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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 20 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2322	Revision: 1

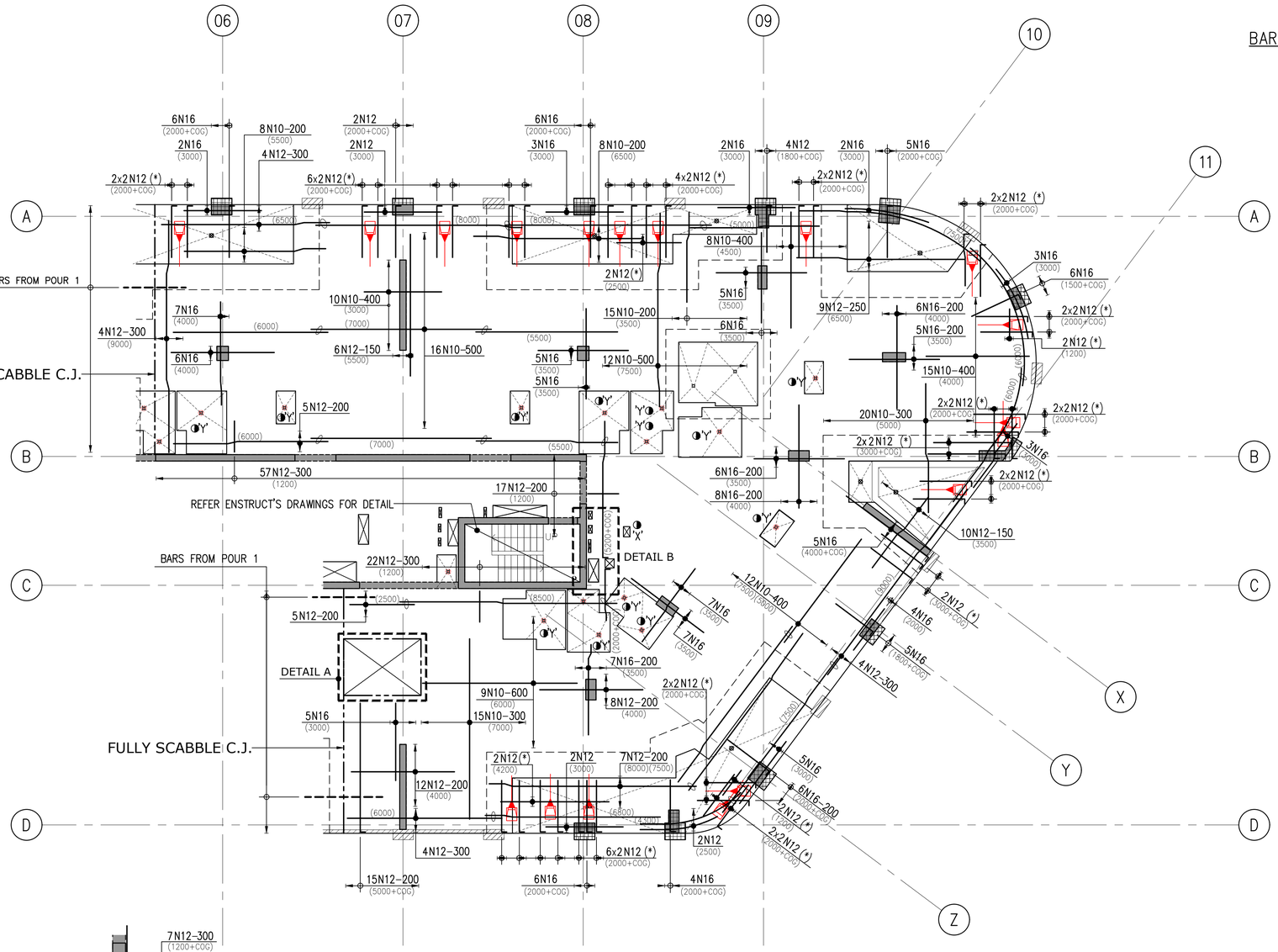


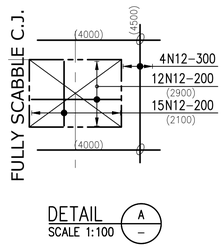
KEY PLAN
LEVEL 20

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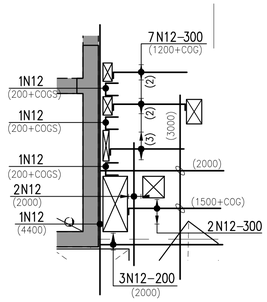
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 20-POUR 2- TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2323	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

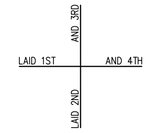
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.72 T

◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
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BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
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'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

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'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-120-00 A1-ST-316-10
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.120
REVISION: C

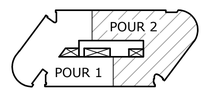
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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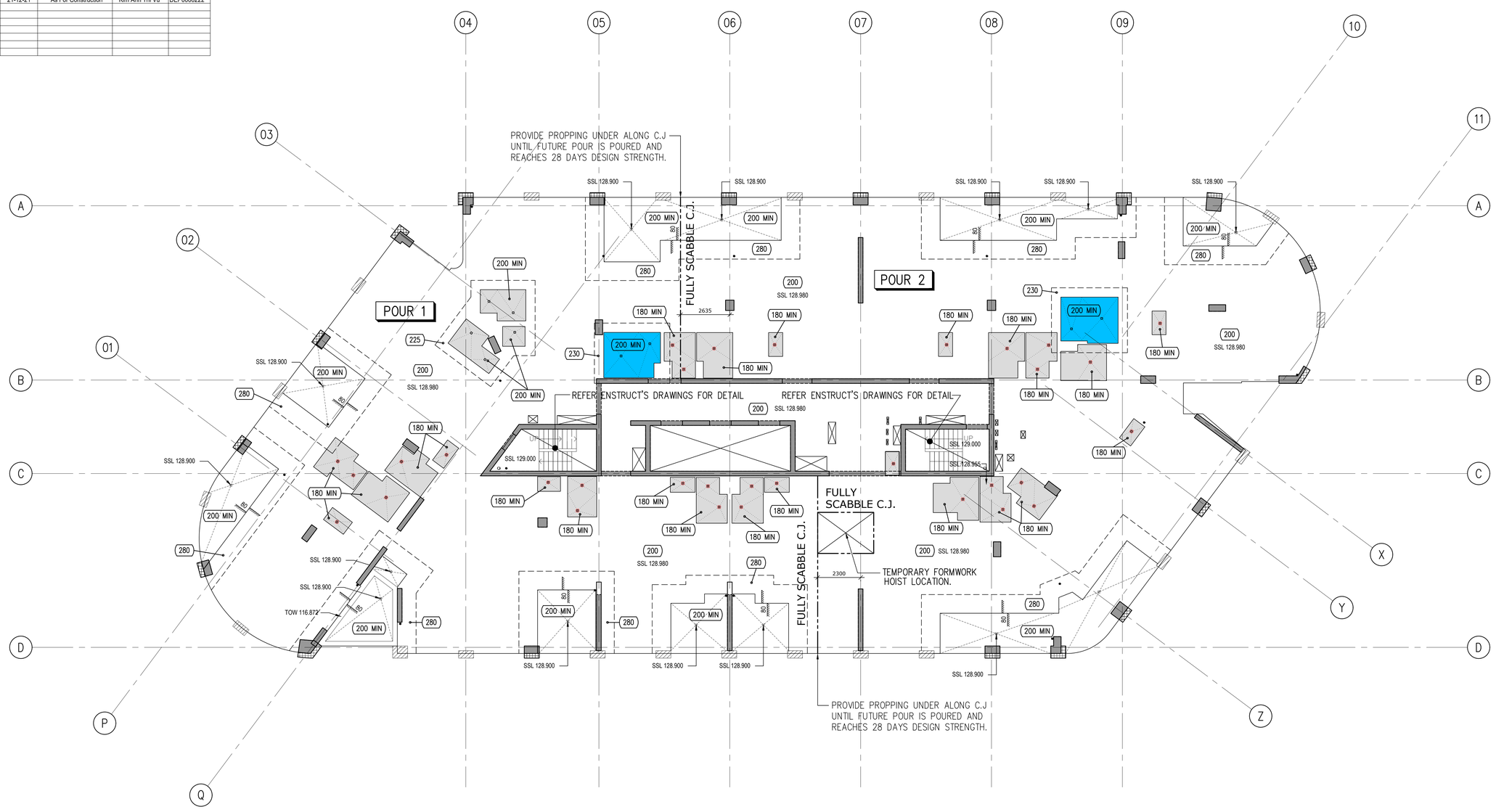
Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	LT
	Drawn: PC
Drawing Title	Checked: CC
LEVEL 20 - POUR 2 TOP REINFORCEMENT PLAN	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2323	Revision: 1



KEY PLAN
LEVEL 20

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-2400	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

WET AREAS TO BE CONFIRMED.

DENOTES WET AREA SET DOWN ZONE. 20mm SETDOWN AT FW.

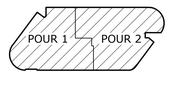
DENOTES WET AREA SET DOWN ZONE. 30mm SETDOWN AT FW.

DENOTES LOAD–BEARING PRECAST PANEL OVER

DENOTES LOAD–BEARING PRECAST PANEL OVER AND LOAD–BEARING ELEMENT UNDER

DENOTES NON LOAD–BEARING PRECAST COLUMN

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



KEY PLAN
LEVEL 21

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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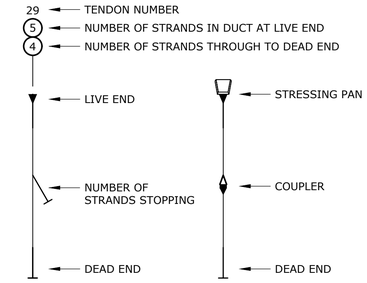
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	Drawn: PC
Drawing Title: LEVEL 21 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: 2400	Revision: 1

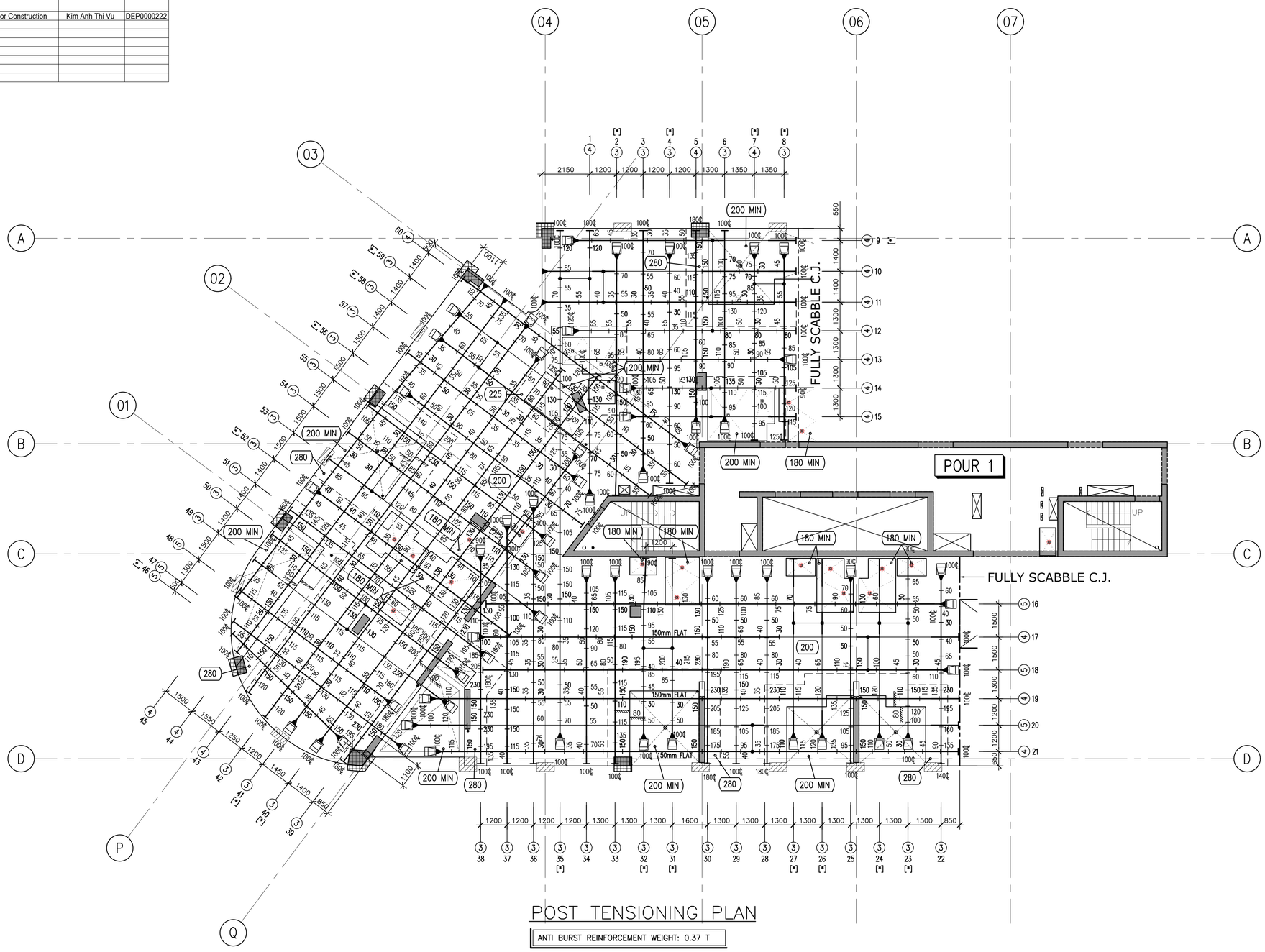
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21-POUR 1 - POST TENSIONING PLAN			Drawing No: INT-PT-2411	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND





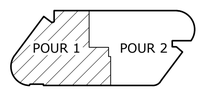
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.37 T

PAN REINFORCEMENT WEIGHT: 1.0 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

[*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.



KEY PLAN
LEVEL 21

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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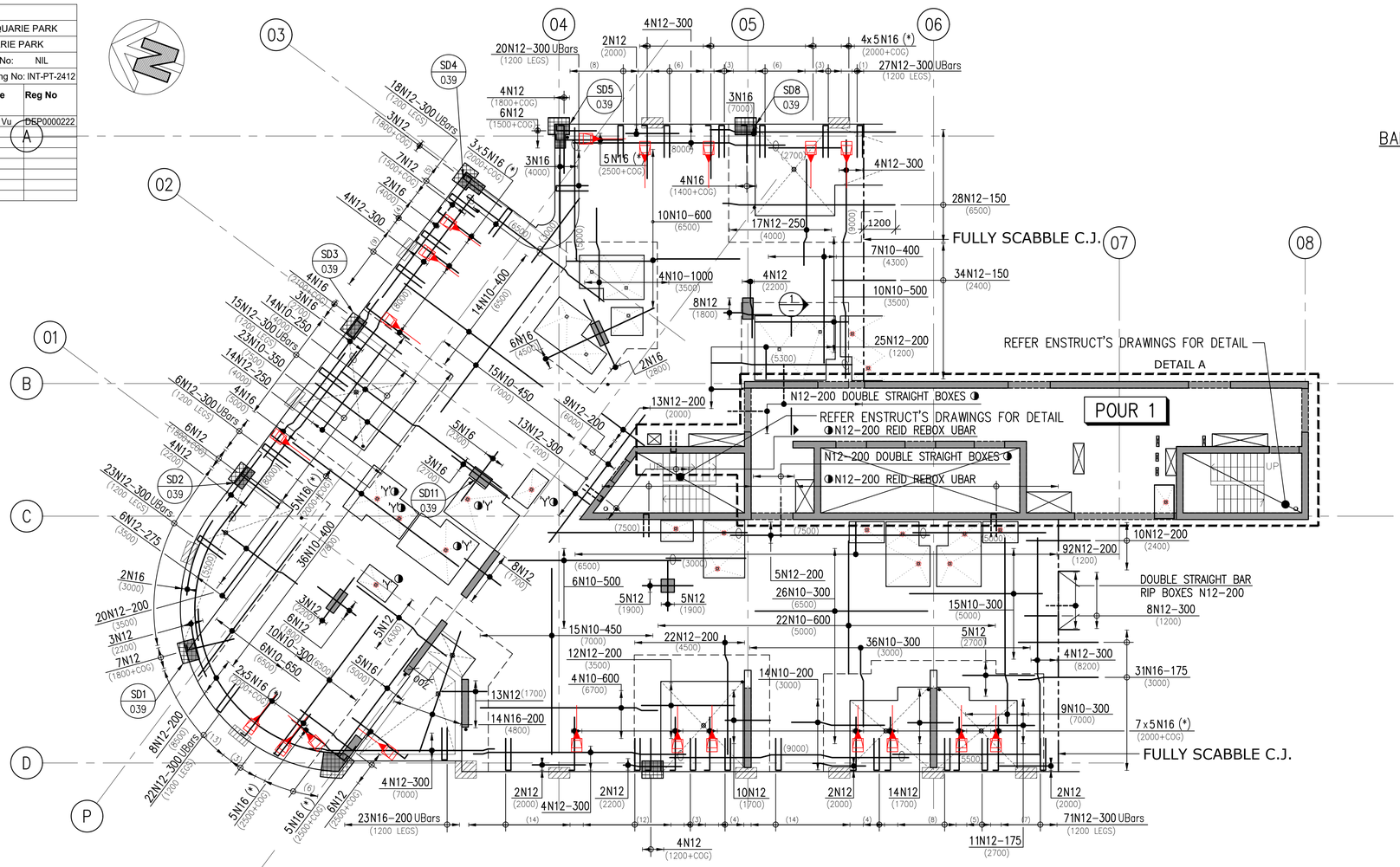
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 21 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2411	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21-POUR 1 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2412		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DSP0000222



BOTTOM REINFORCEMENT PLAN

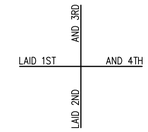
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.9 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER

DETAIL A / SCALE 1:100

DETAIL B / SCALE 1:100

SECTION 1 / SCALE 1:20

DETAIL B / SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

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   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

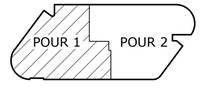
'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

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THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 21

Interspan

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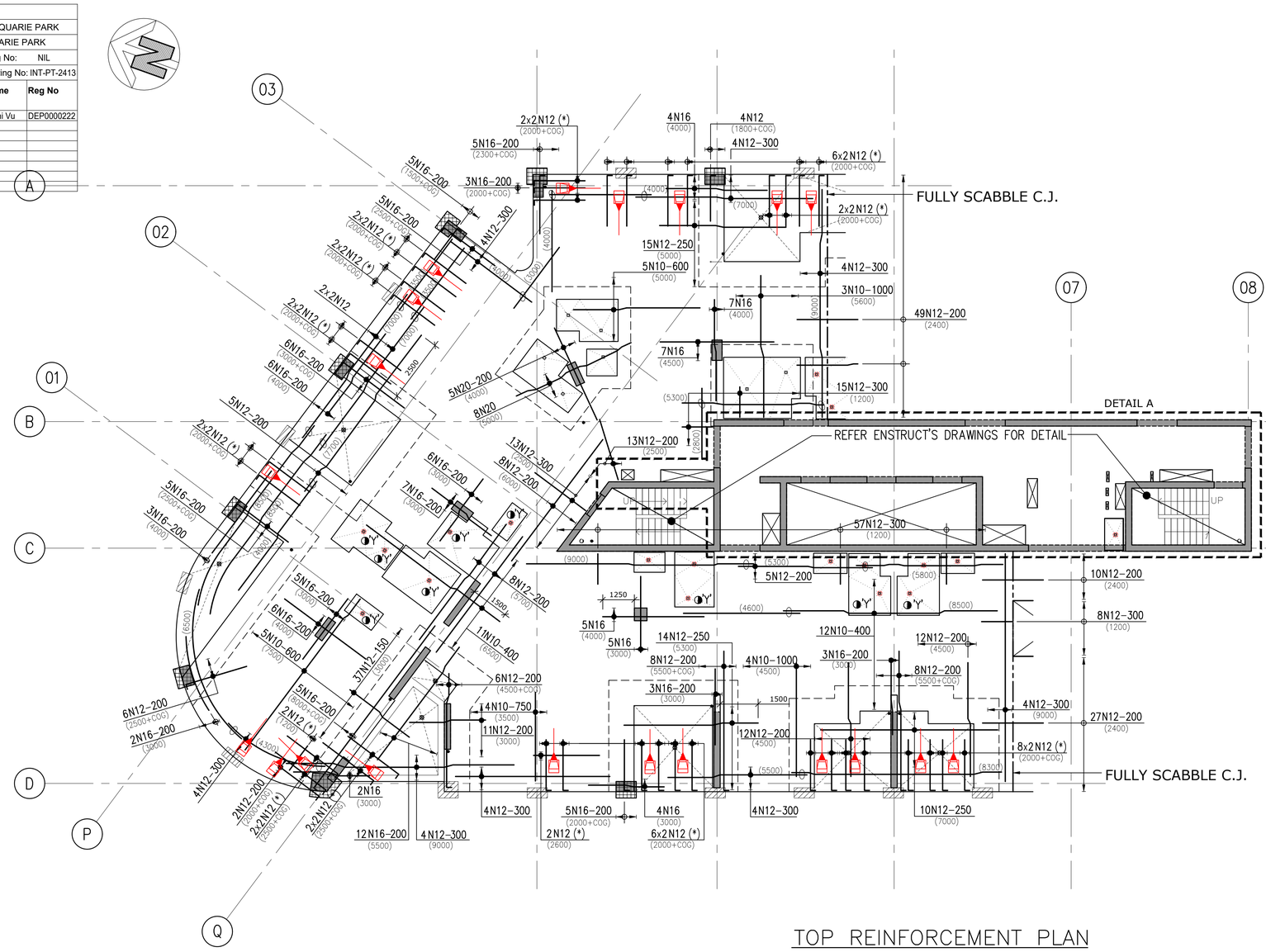
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TT3
Drawing Title: LEVEL 21 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2412	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21-POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2413		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



TOP REINFORCEMENT PLAN

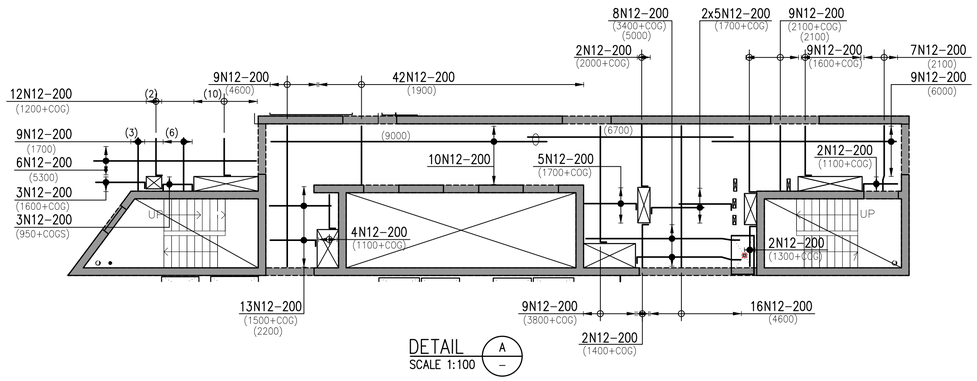
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.5 T

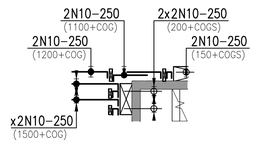
◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

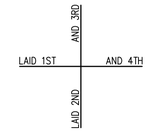
LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100



DETAIL B SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   17 - DENOTES NUMBER OF BARS IN GROUP
   N20 - DENOTES BAR GRADE AND DIAMETER
   250 - DENOTES BAR SPACINGS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
   (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   200 - DENOTES SPACING OF STIRRUP SETS (mm)
   X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

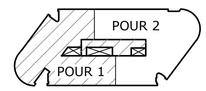
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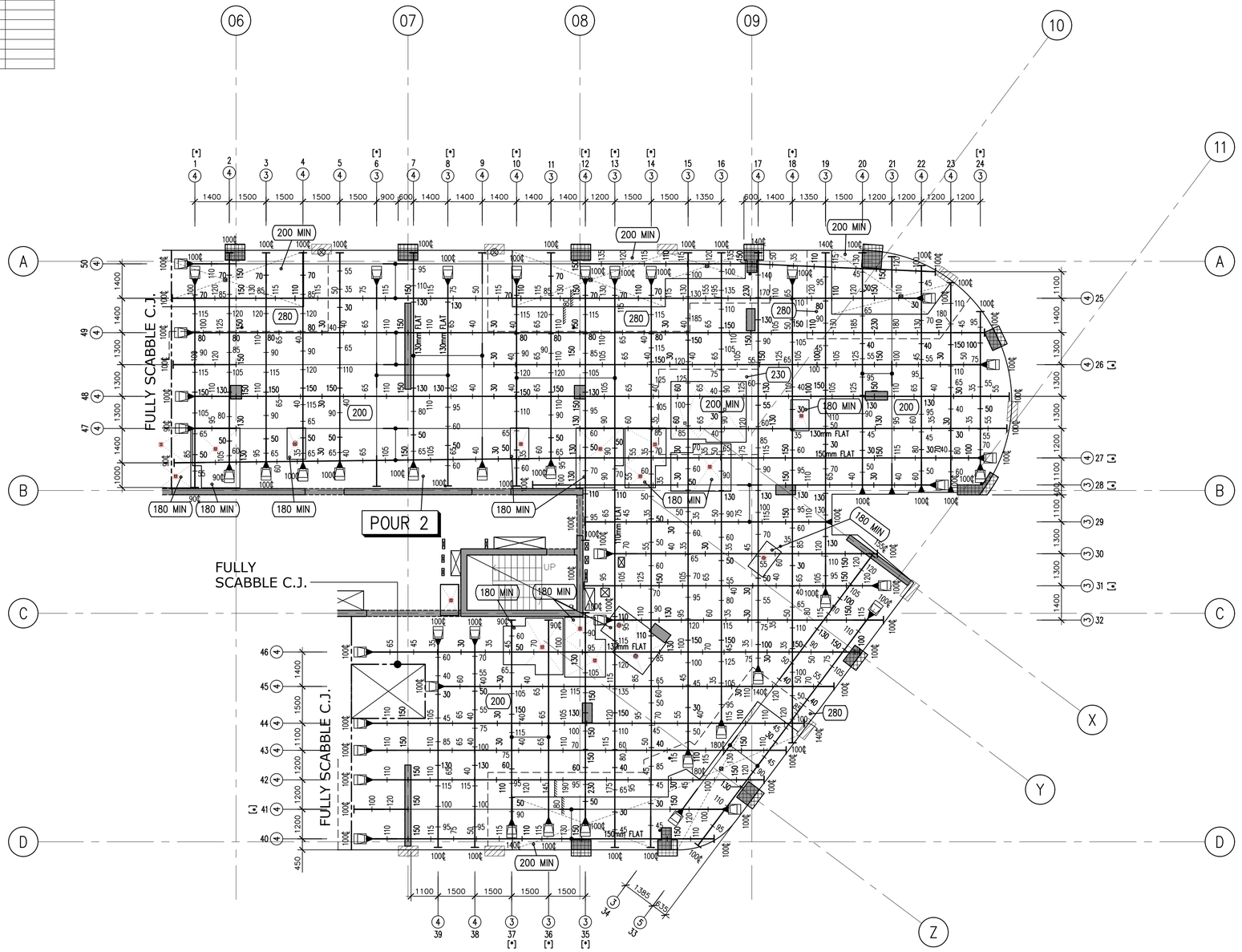
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 21 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2413	Revision: 1



KEY PLAN
LEVEL 21

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21-POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-2421	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

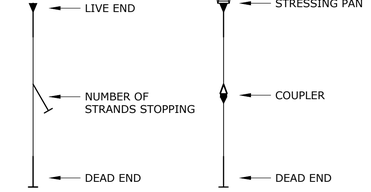


POST TENSIONING PLAN

- ANTI BURST REINFORCEMENT WEIGHT: 0.31 T
- PAN REINFORCEMENT WEIGHT: 0.75 T
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.
- [*] DENOTES PAN TRIMMER REINFORCEMENTS AS PER DRAWING 001 ARE NOT REQUIRED.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

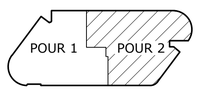
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 21 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2421	Revision: 1

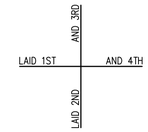


KEY PLAN
LEVEL 21

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 21-POUR 2 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2422		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

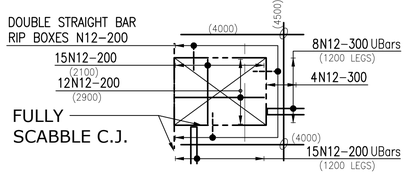
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

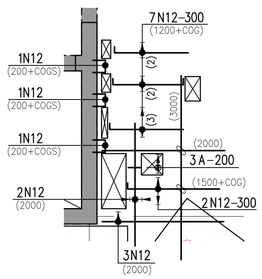
CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

BOTTOM REINFORCEMENT PLAN

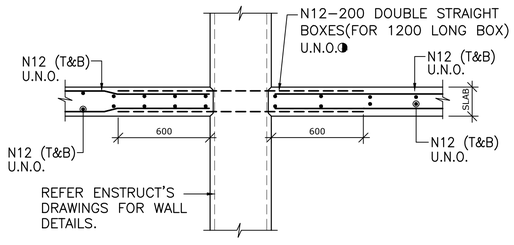
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.7 T
- ◑ BARS ARE NOT TO INTERSPAN GMT
- (*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.
- LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



DETAIL A SCALE 1:100

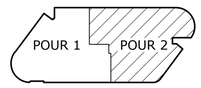


DETAIL B SCALE 1:50



SECTION 1 SCALE 1:20

STIRRUP SCHEDULE		
A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



KEY PLAN
LEVEL 21

Rev	Date	Status
1	21-12-21	AS FOR CO-ORDINATION

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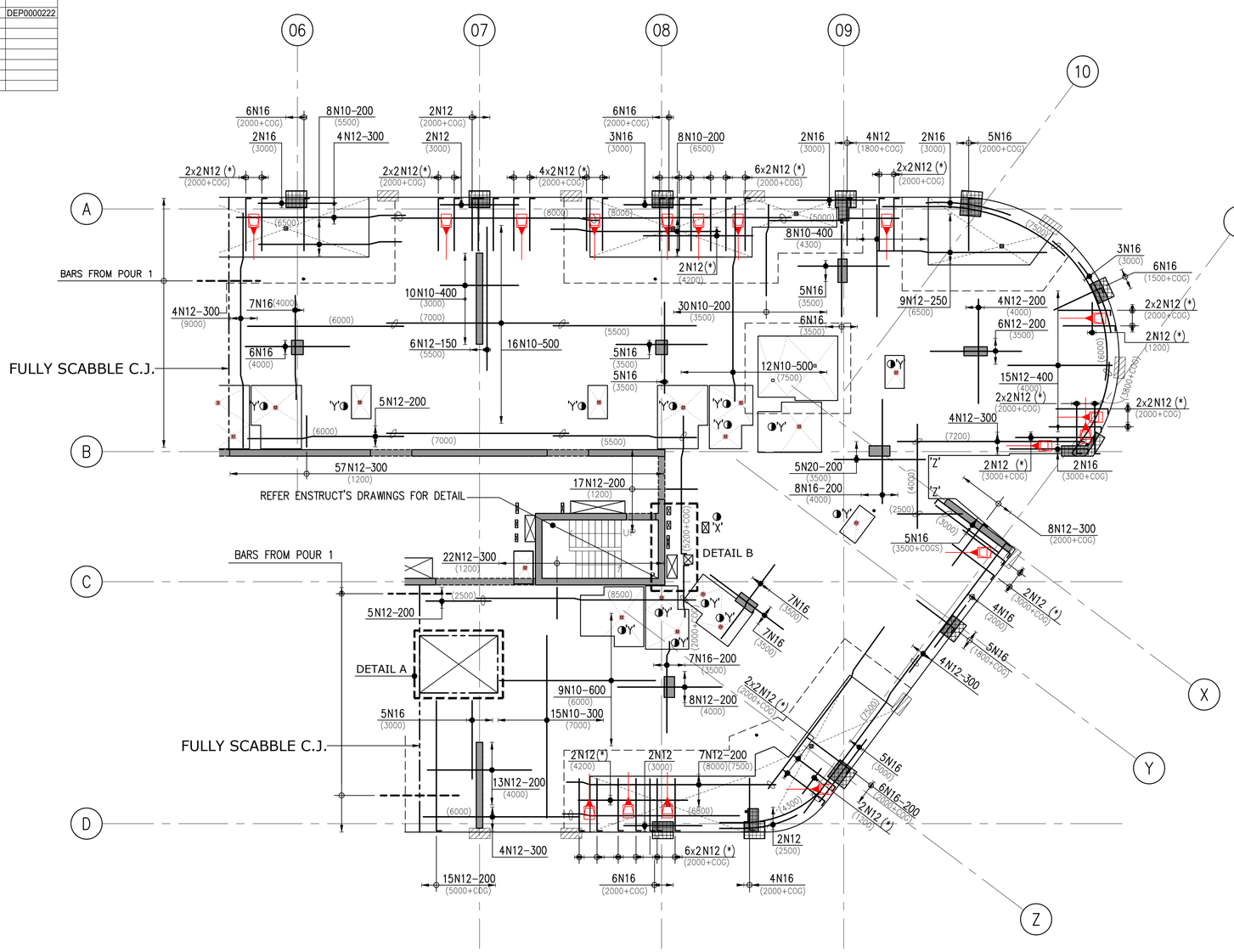
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Website: www.interspan.com.au

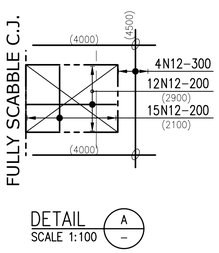
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BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	LT
	Drawn: TT3
Drawing Title: LEVEL 21 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2422	Revision: 1

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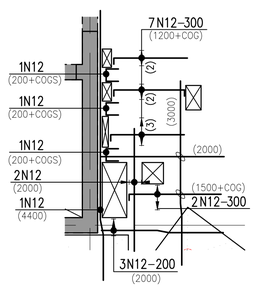
Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 21-POUR 2- TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2423	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





DETAIL A
SCALE 1:100



DETAIL B
SCALE 1:50

TOP REINFORCEMENT PLAN

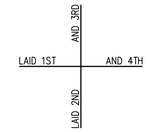
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.64 T

◑ BARS ARE NOT TO INTERSPAN GMT

(*) TRIMMER REINFORCEMENTS TO BE INSTALLED AT STRESSING PAN.

LOCALISED SUPPLEMENTARY REINFORCEMENTS FOR PRECAST PANEL CONNECTION TO SLAB EDGE – TO BE CONFIRMED BY PRECAST ENGINEER



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	25	40	25	40	25	40
BTM	25	40	25	40	25	40
SIDES	25	40	25	40	25	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-121-00 A1-ST-317-00
REVISION: D B

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.121
REVISION: C

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

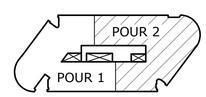
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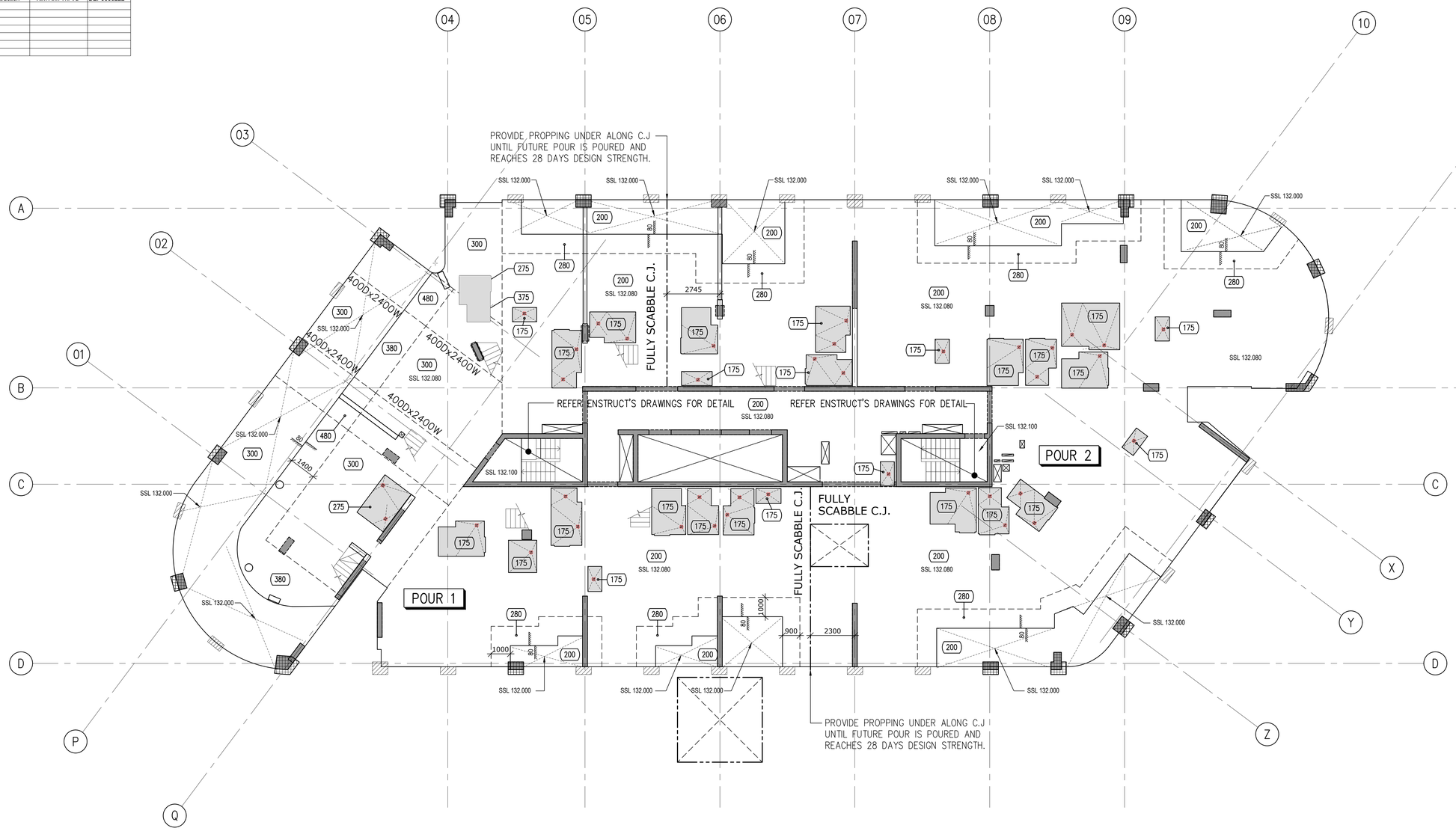
Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	LT
	Drawn: PC
Drawing Title LEVEL 21 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No. INPT20373	Date: 20-12-21
Drawing No. INT-PT-2423	Revision: 1



KEY PLAN
LEVEL 21

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-2500	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

DENOTES WET AREA SET DOWN ZONE.
25mm SETDOWN AT FW.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

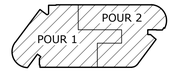
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 22 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2500	Revision: 1

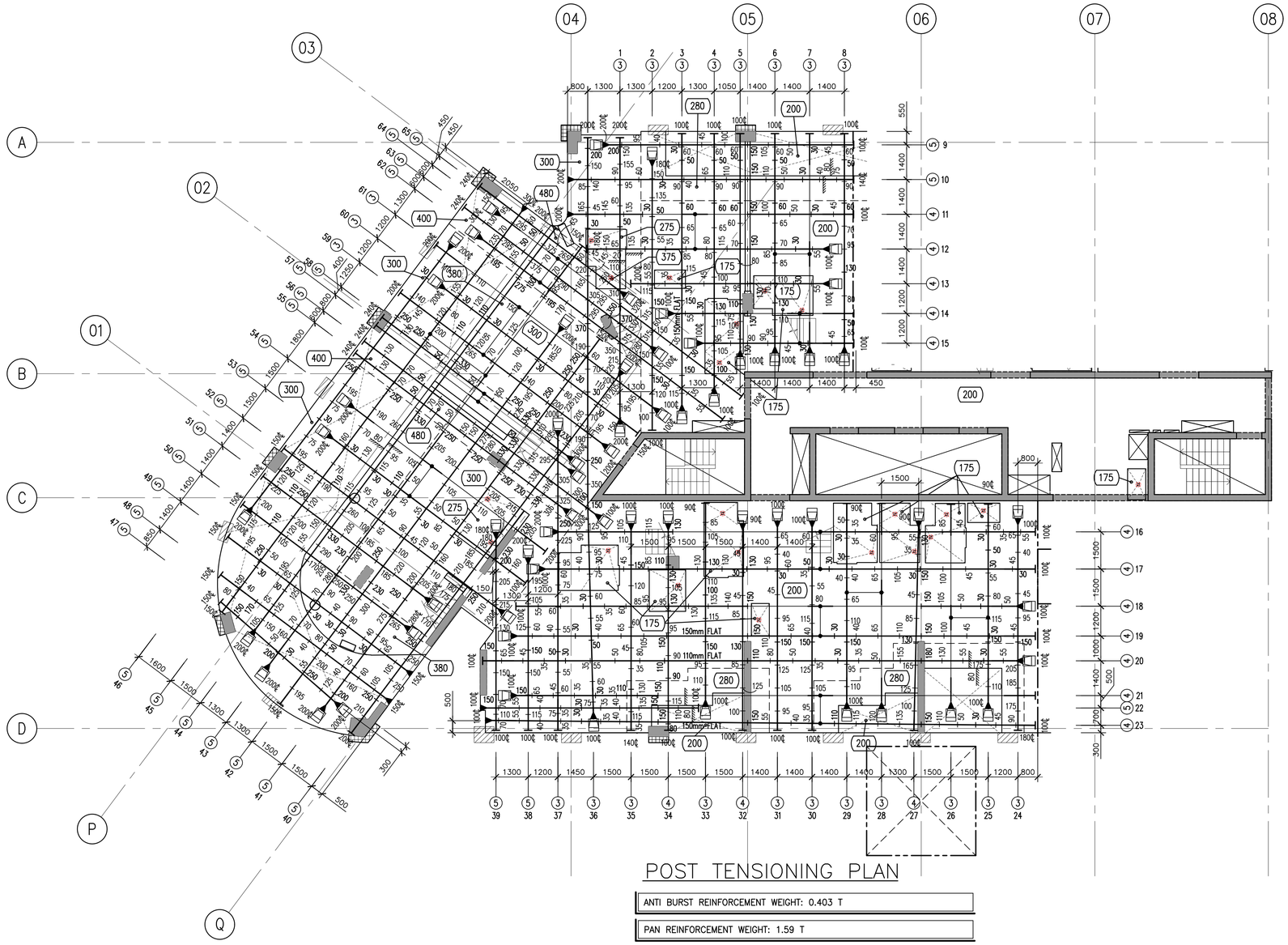


KEY PLAN
LEVEL 22

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 22-POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-2511	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

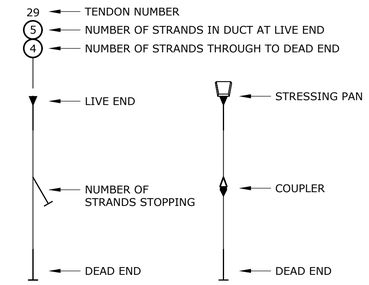
ANTI BURST REINFORCEMENT WEIGHT: 0.403 T

PAN REINFORCEMENT WEIGHT: 1.59 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

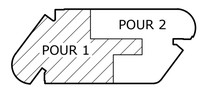
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F: +61 2 8307 0297

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6/20 - 26 Sabre Drive
Port Melbourne, VIC 3207
P: +61 3 8396 9600
F: +61 3 8396 9640

SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

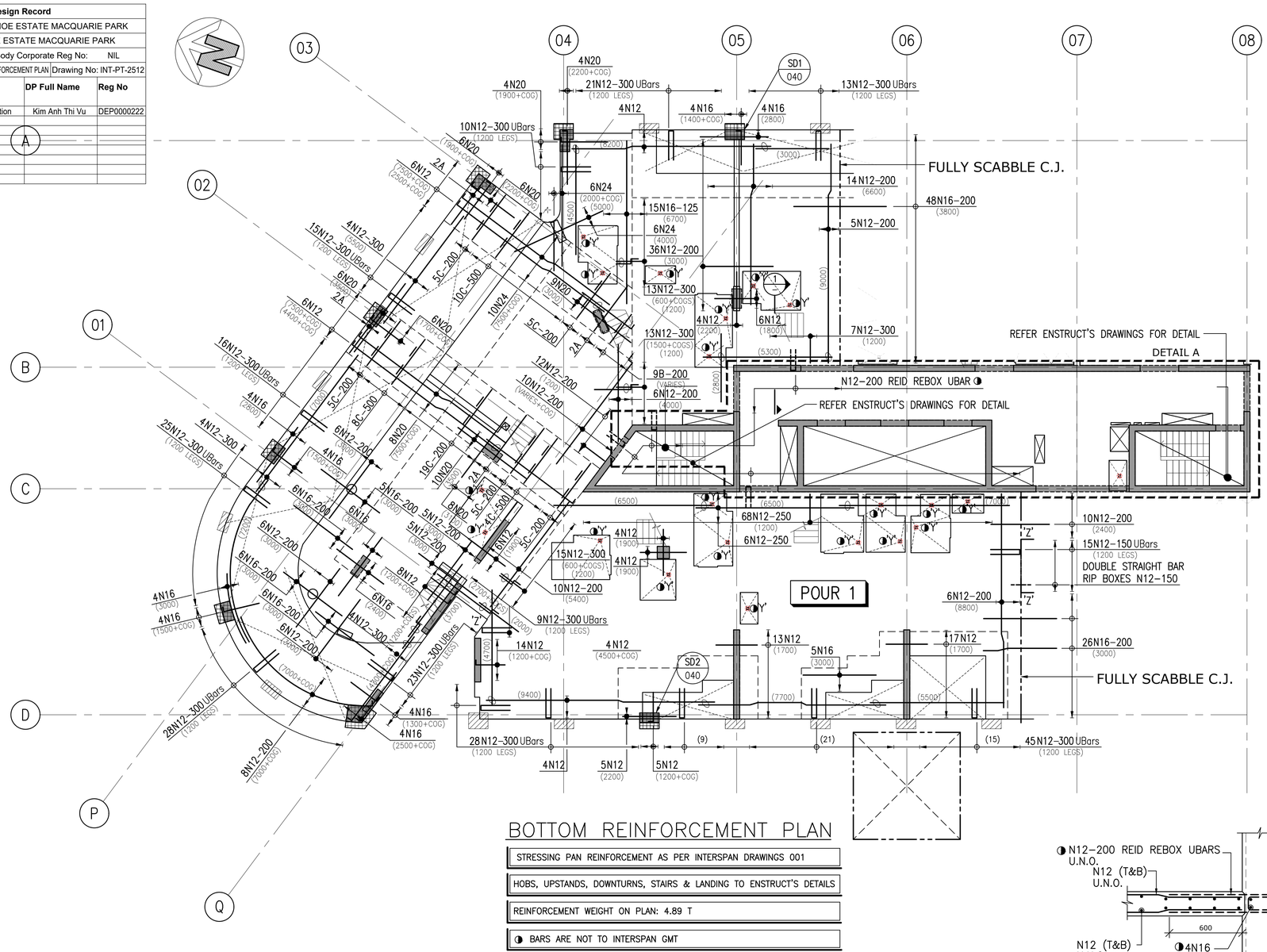
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN3
Drawing Title: LEVEL 22 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2511	Revision: 1



KEY PLAN
LEVEL 22

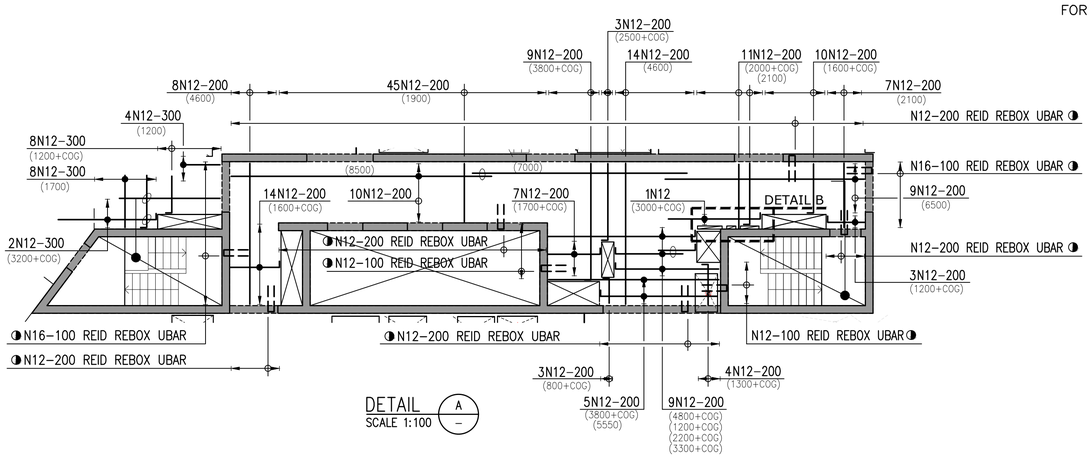
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22-POUR 1 - BOTTOM REINFORCEMENT PLAN			Drawing No: INT-PT-2512	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

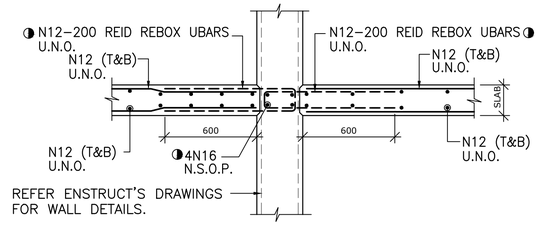


BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.89 T
- ◑ BARS ARE NOT TO INTERSPAN GMT

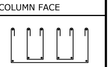


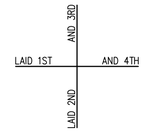
DETAIL A — SCALE 1:100



SECTION 1 — SCALE 1:20

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

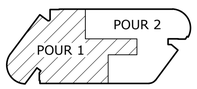
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 22

Interspan

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Port Melbourne, VIC 3207
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F: +61 3 8396 9640

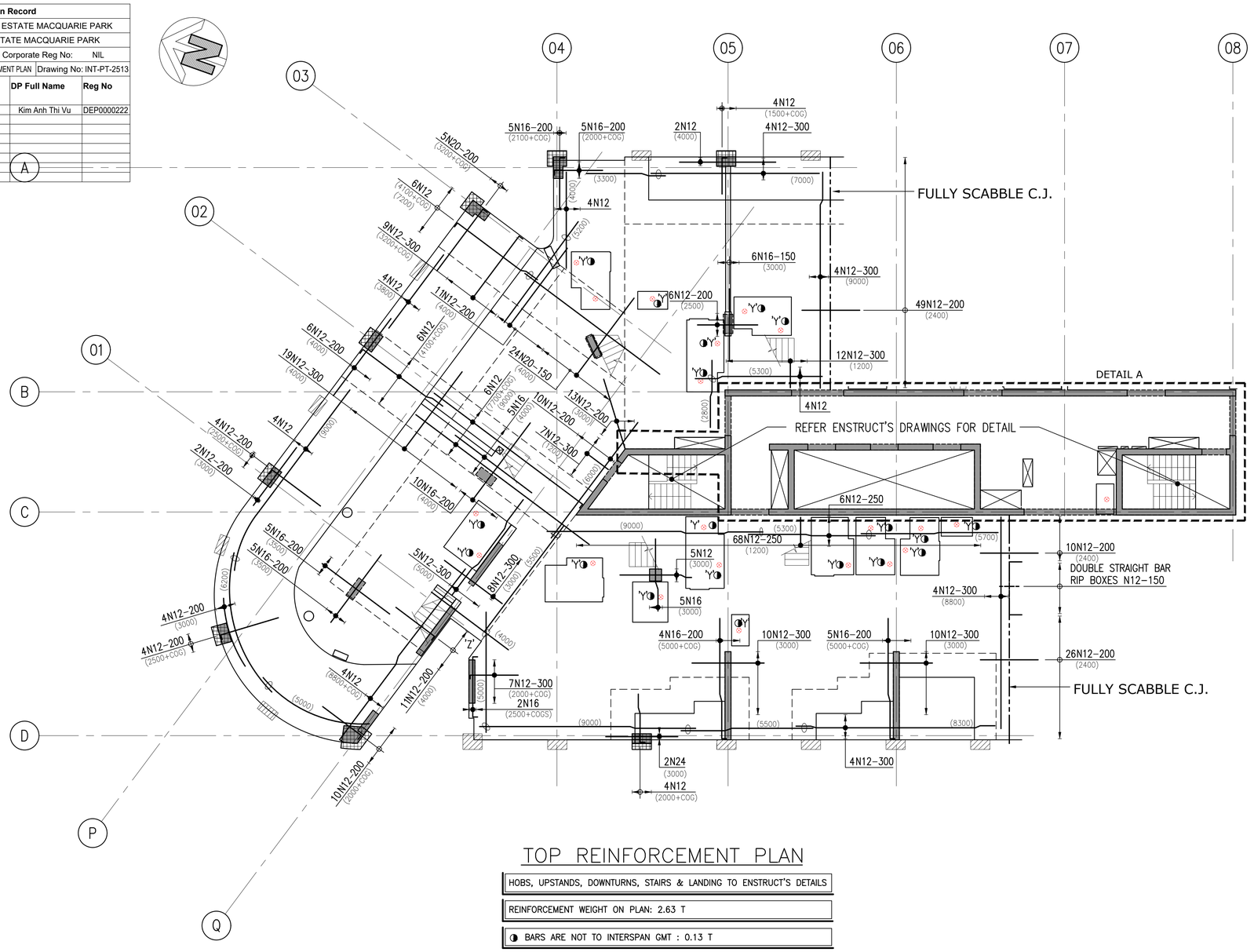
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 22 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2512	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 22-POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2513	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

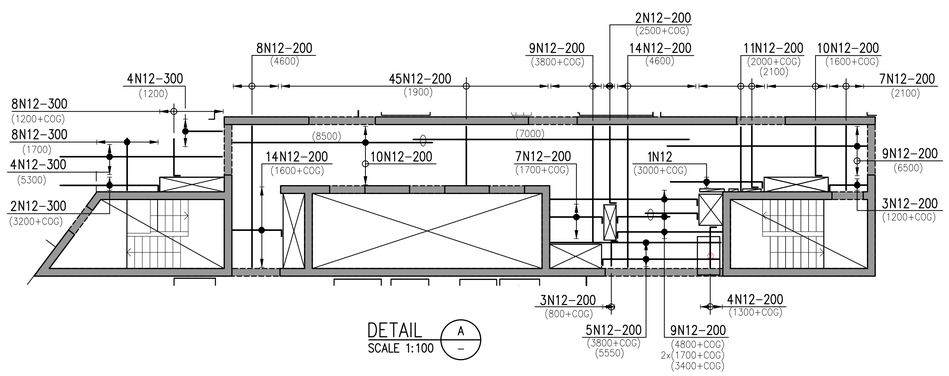


TOP REINFORCEMENT PLAN

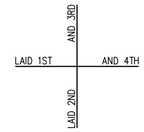
HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.63 T

◑ BARS ARE NOT TO INTERSPAN GMT : 0.13 T



DETAIL A
SCALE 1:100



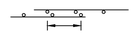
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

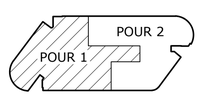


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 22

Interspan

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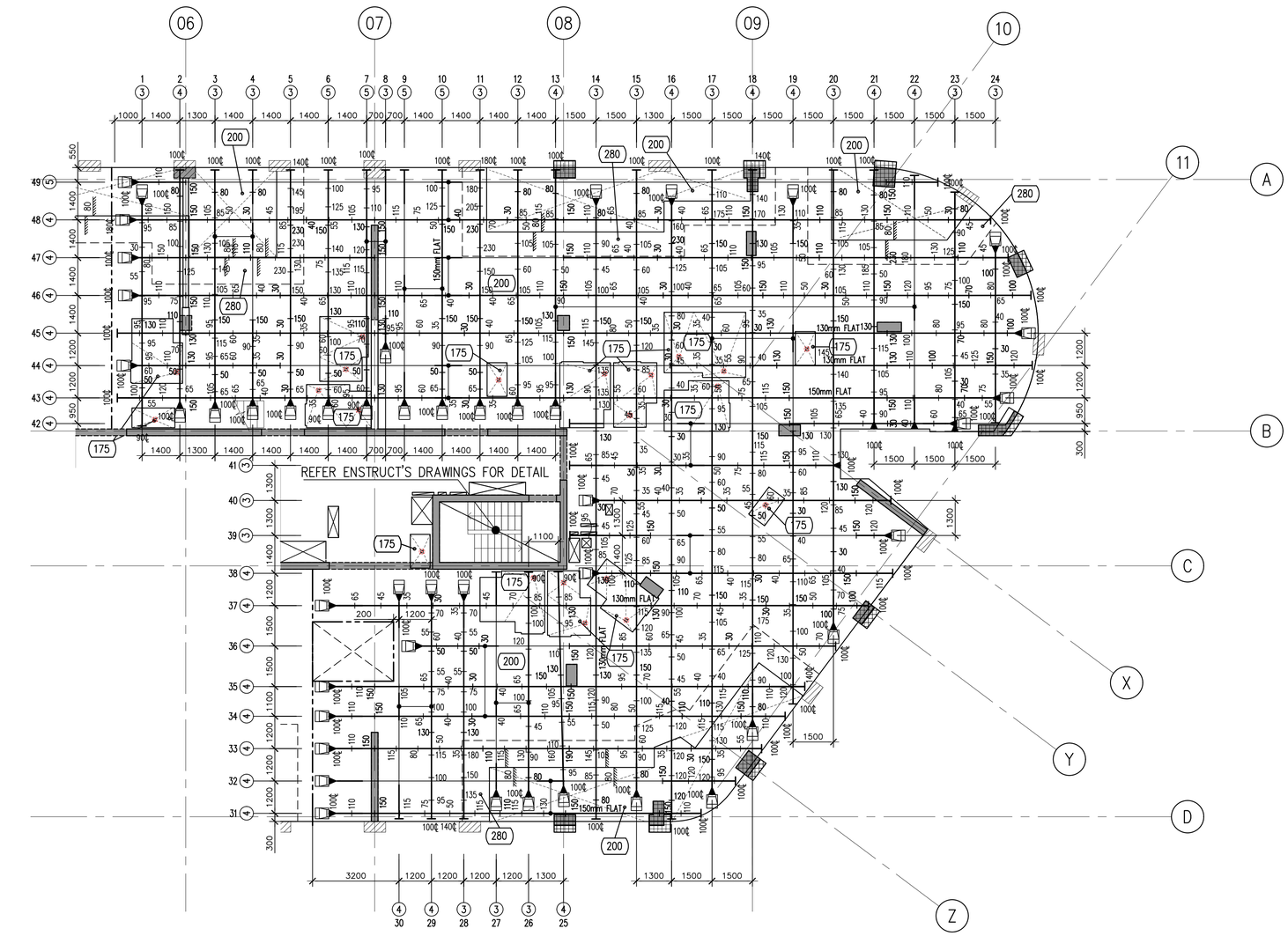
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 22 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2513	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22-POUR 2- POST TENSIONING PLAN			Drawing No: INT-PT-2521	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



POST TENSIONING PLAN

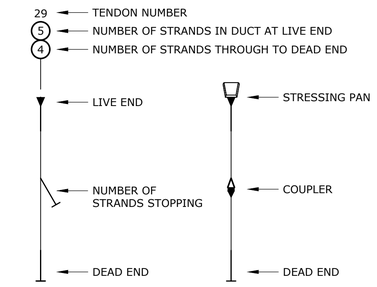
ANTI BURST REINFORCEMENT WEIGHT: 0.403 T

PAN REINFORCEMENT WEIGHT: 1.59 T

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWING 001 U.N.O.

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO AS4672.1-2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

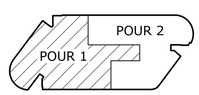


THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 22

Interspan

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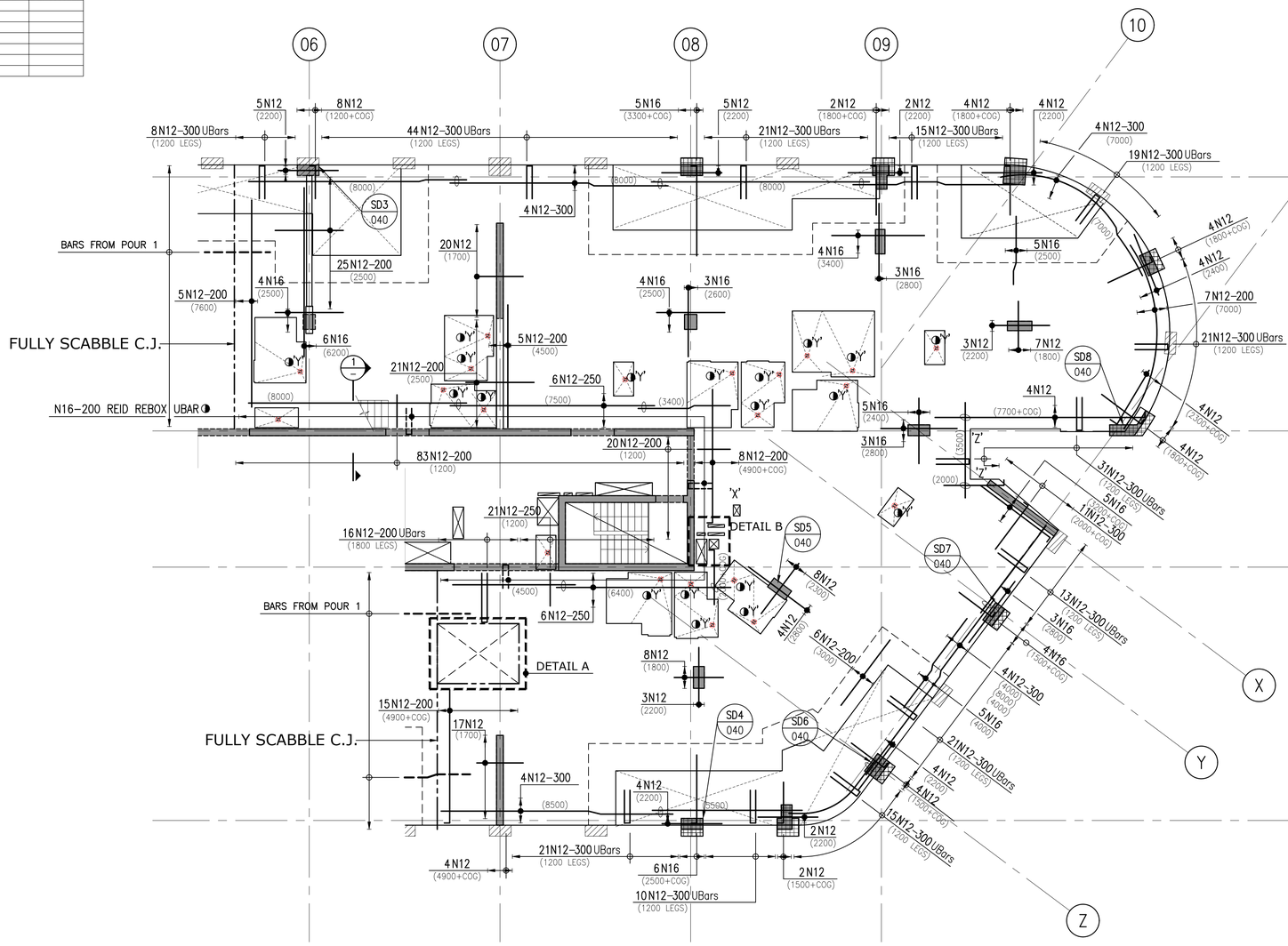
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F: +61 3 8396 9640

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: HN1
Drawing Title: LEVEL 22 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2521	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22-POUR 2 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2522		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

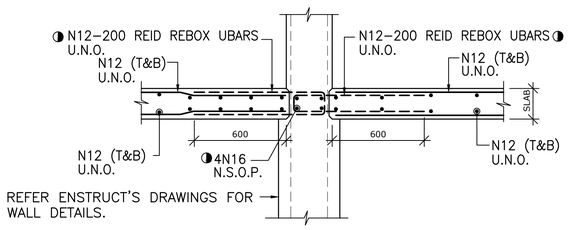
'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

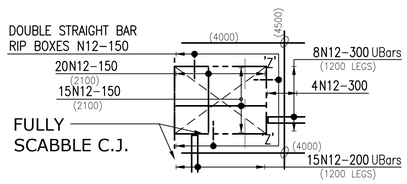
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

BOTTOM REINFORCEMENT PLAN

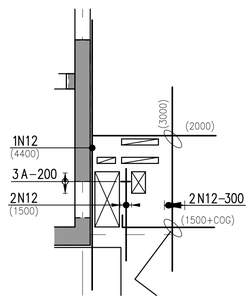
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 2.42 T
- ◑ BARS ARE NOT TO INTERSPAN GMT



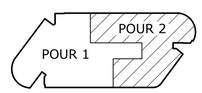
SECTION 1 — SCALE 1:20



DETAIL A — SCALE 1:100



DETAIL B — SCALE 1:50



KEY PLAN
LEVEL 22

STIRRUP SCHEDULE

A	N10 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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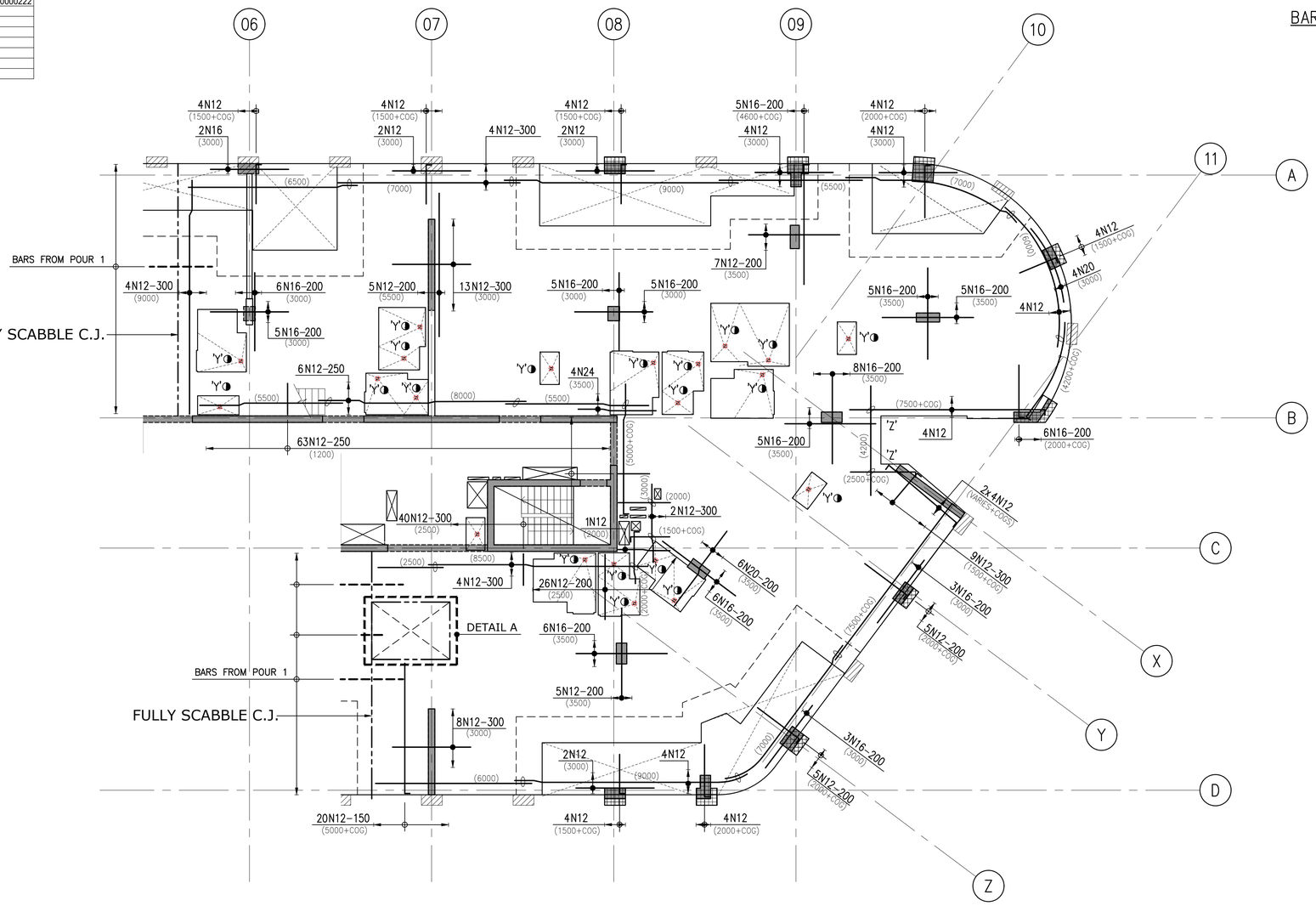
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Port Melbourne, VIC 3207
P: +61 3 8396 9600
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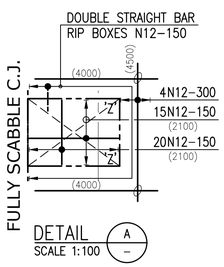
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 22 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2522	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 22-POUR 2 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2523		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



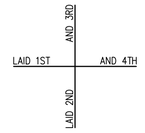


TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.53 T

◑ BARS ARE NOT TO INTERSPAN GMT



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

   'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

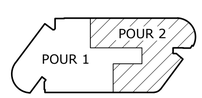
   'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

   'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-122-00 A1-ST-322-00
REVISION: C A
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.122
REVISION: M

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status



KEY PLAN
LEVEL 22

Interspan

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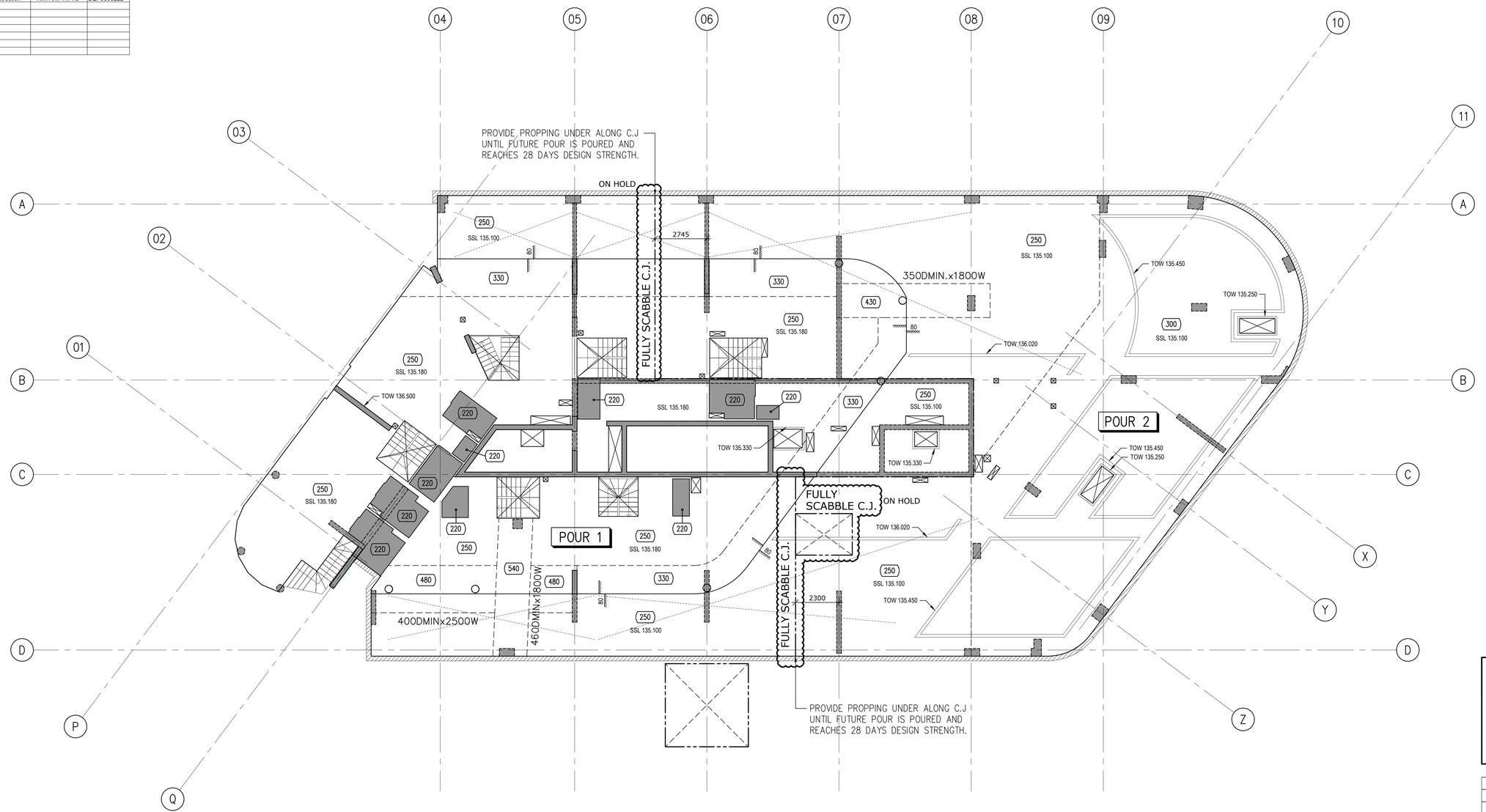
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Website: www.interspan.com.au

Project Title	Designed
BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	PL
	Drawn: TX
Drawing Title LEVEL 22 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No. INPT20373	Date: 20-12-21
Drawing No. INT-PT-2523	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 23 - GENERAL ARRANGEMENT PLAN		Drawing No: INT-PT-2600	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

DENOTES WET AREA SET DOWN ZONE.
30mm SETDOWN AT FW.

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

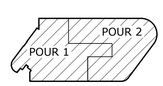
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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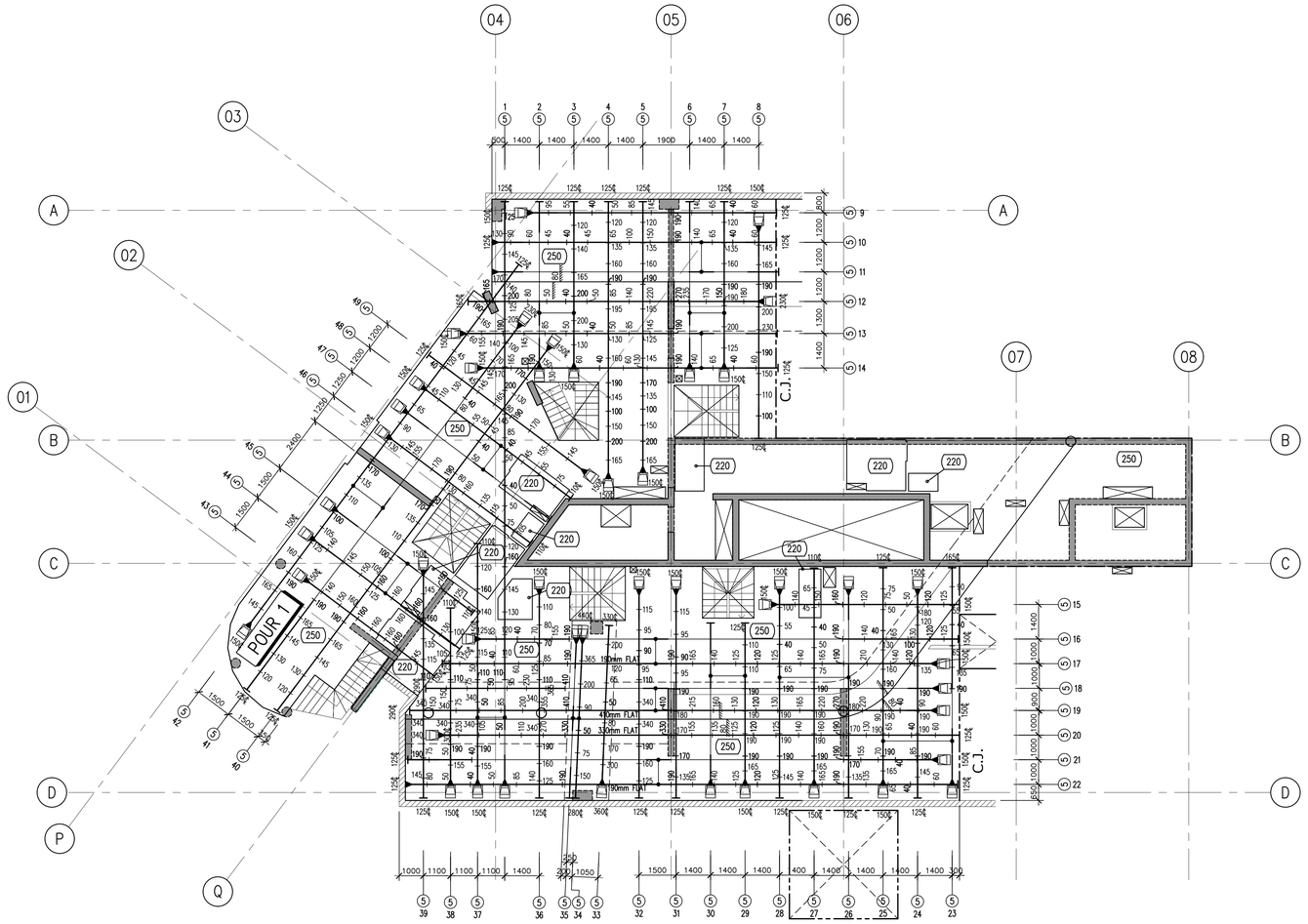
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 23 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2600	Revision: 1



KEY PLAN
LEVEL 23

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 23-POUR 1 - POST TENSIONING PLAN		Drawing No: INT-PT-2611		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



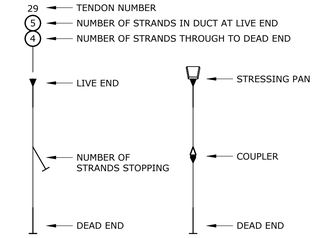
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.31 T

PAN REINFORCEMENT WEIGHT: 1.24 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO ASNZS4672.1 - 2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00 1
REVISION: A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

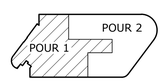
Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION

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Website: www.interspan.com.au

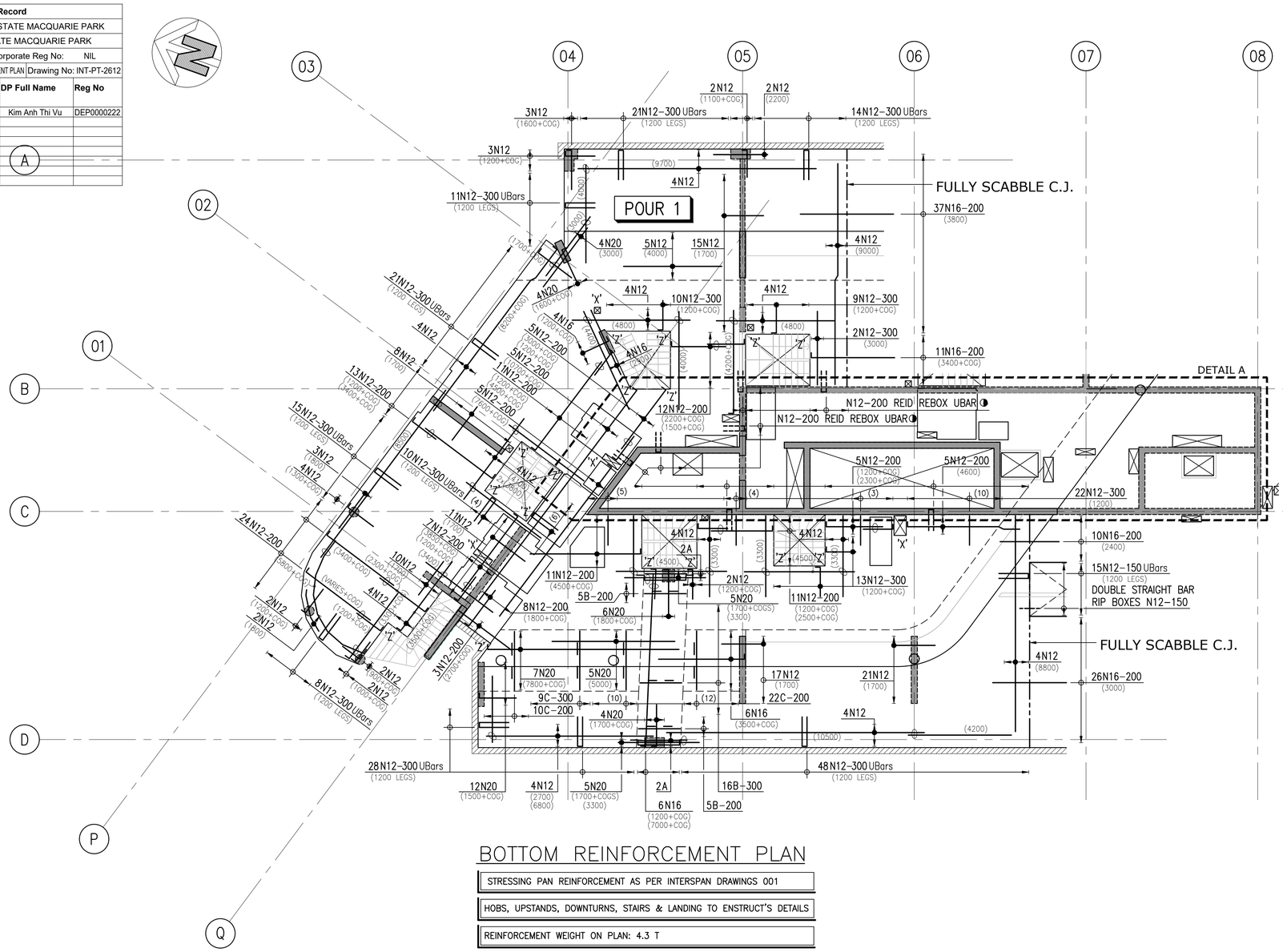
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 23 - POUR 1 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2611	Revision: 1



KEY PLAN
LEVEL 23 - POUR 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 23-POUR 1 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2612		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



LAID 1ST · AND 3RD · AND 4TH · LAID 2ND

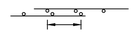
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

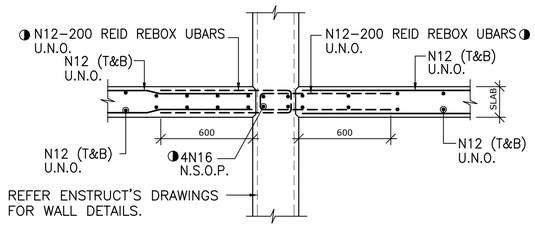


'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

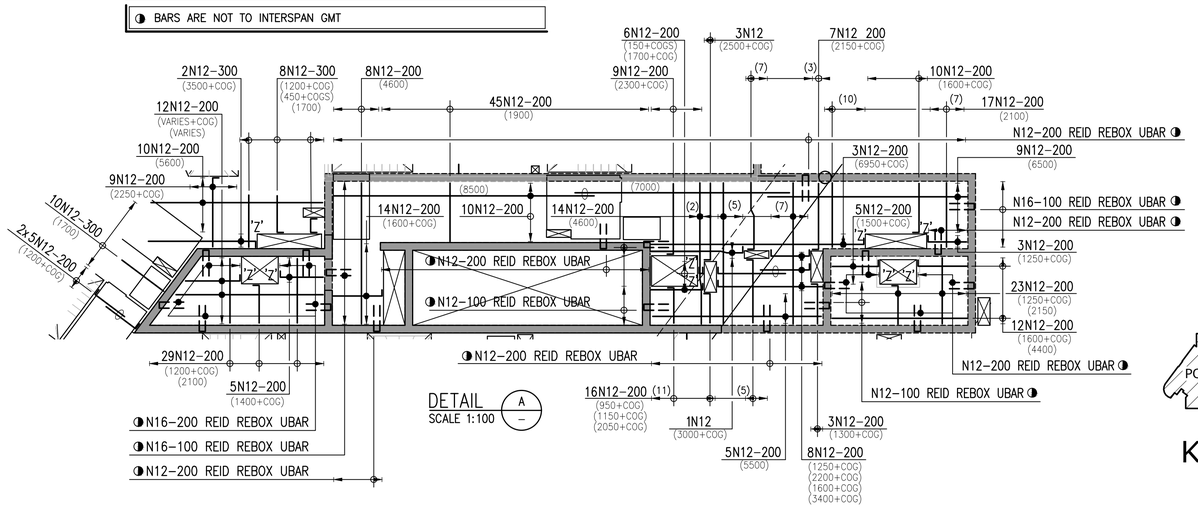


BOTTOM REINFORCEMENT PLAN

- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 4.3 T
- ◑ BARS ARE NOT TO INTERSPAN GMT

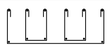
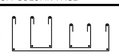


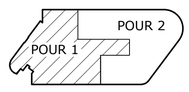
SECTION 1 SCALE 1:20



DETAIL A SCALE 1:100

STIRRUP SCHEDULE

A	2 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



KEY PLAN
LEVEL 23

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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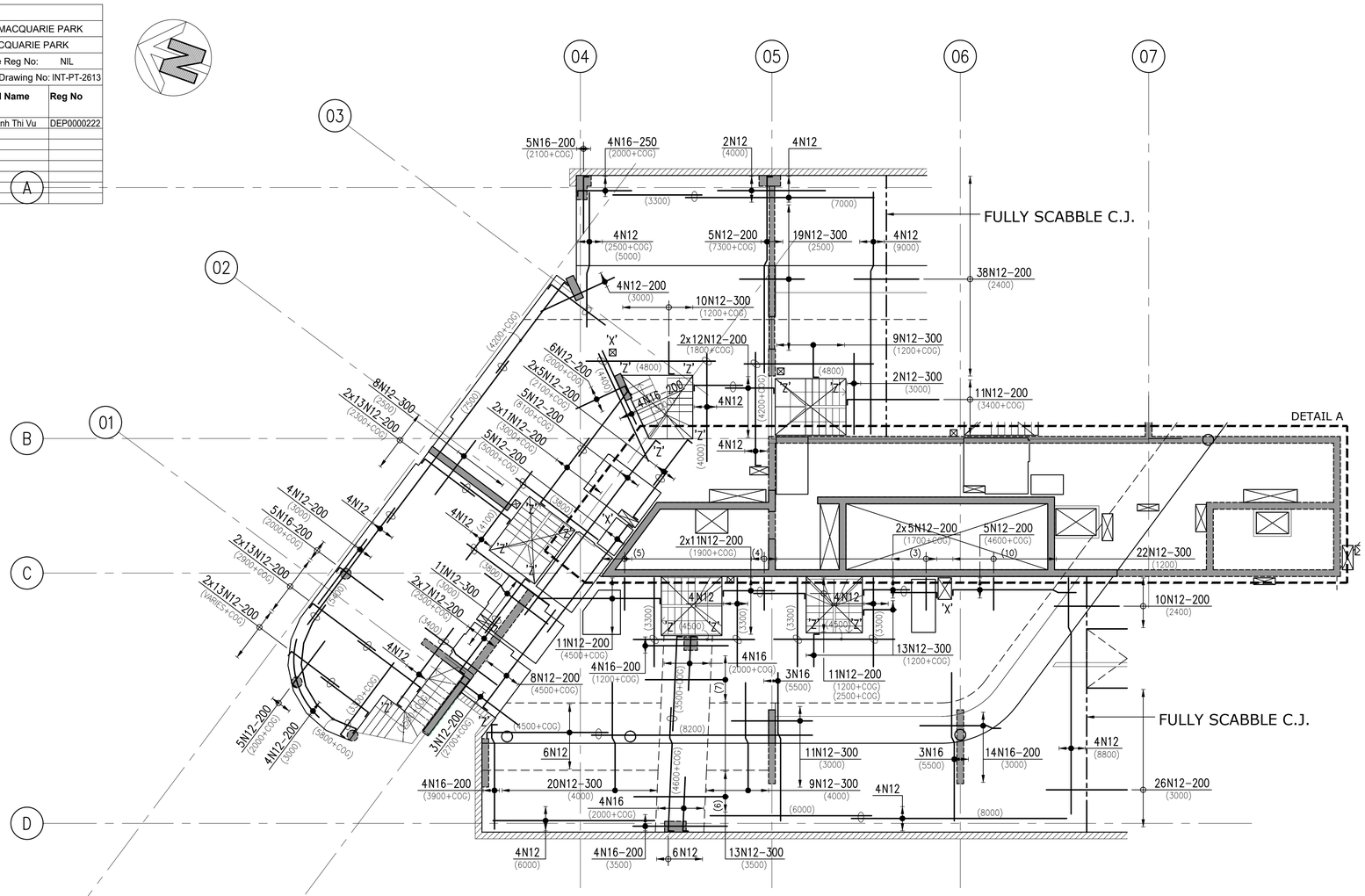
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: PC
Drawing Title: LEVEL 23 - POUR 1 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2612	Revision: 1

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 23-POUR 1 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2613	

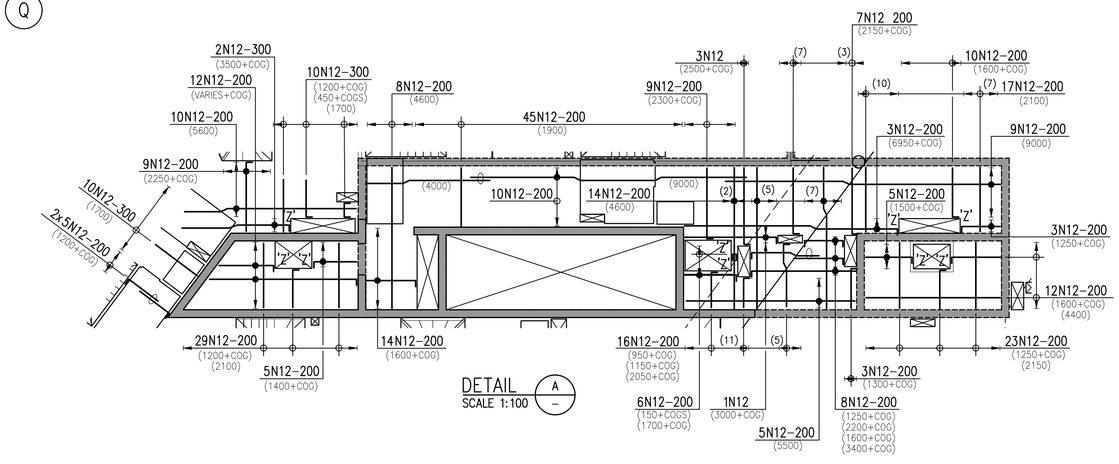
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



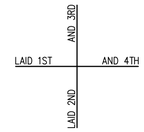
TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 3.16 T



DETAIL A
SCALE 1:100



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
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   - 17 - DENOTES NUMBER OF BARS IN GROUP
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
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   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

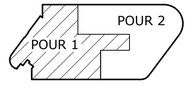
'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

Rev	Date	Status
1	21-12-21	AS FOR CONSTRUCTION



KEY PLAN
LEVEL 23

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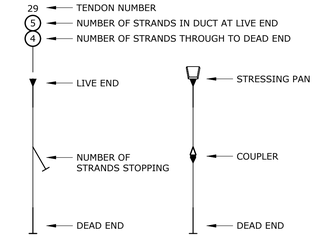
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: PC
Drawing Title: LEVEL 23 - POUR 1 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2613	Revision: 1

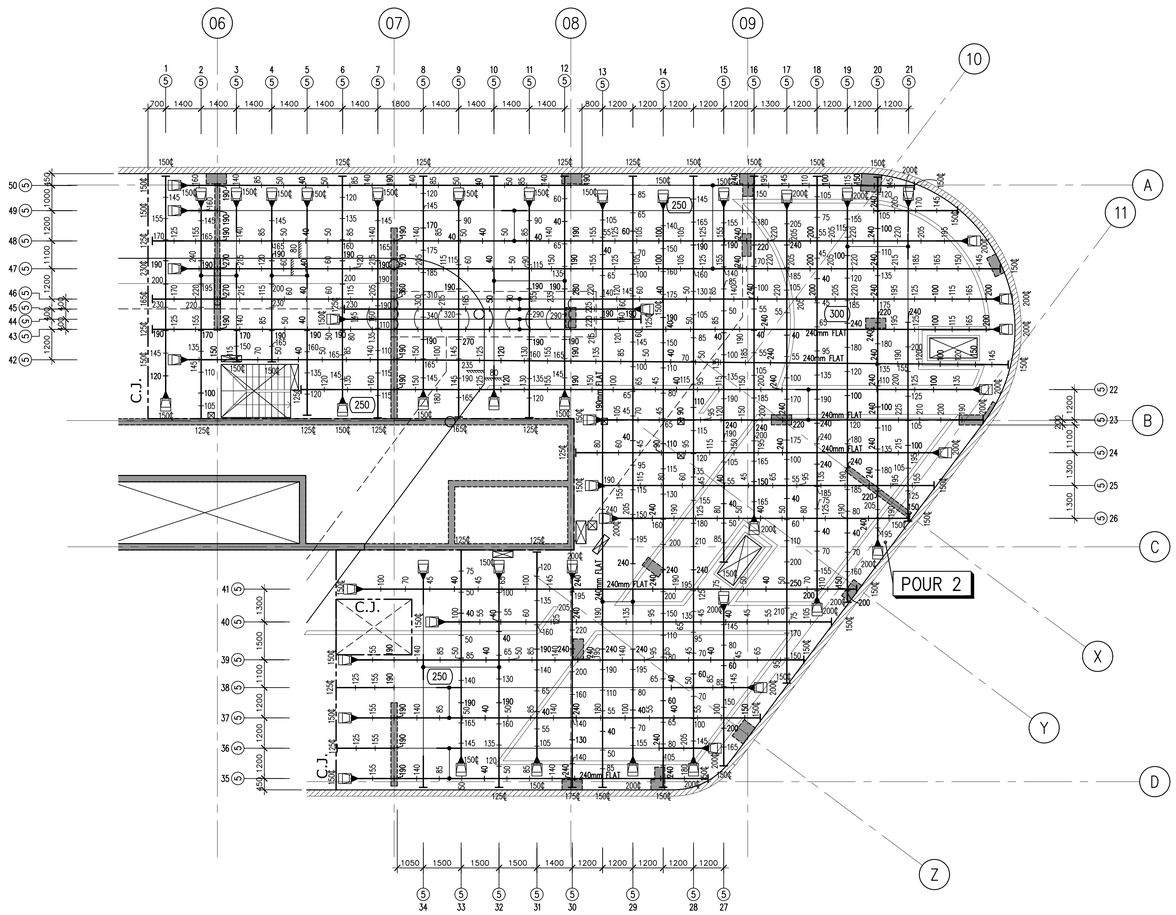
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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 23-POUR 2 - POST TENSIONING PLAN			Drawing No: INT-PT-2621	
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO ASNZS4672.1 - 2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND

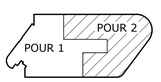




POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.311T

PAN REINFORCEMENT WEIGHT: 1.35 T



KEY PLAN
LEVEL 23 - POUR 2

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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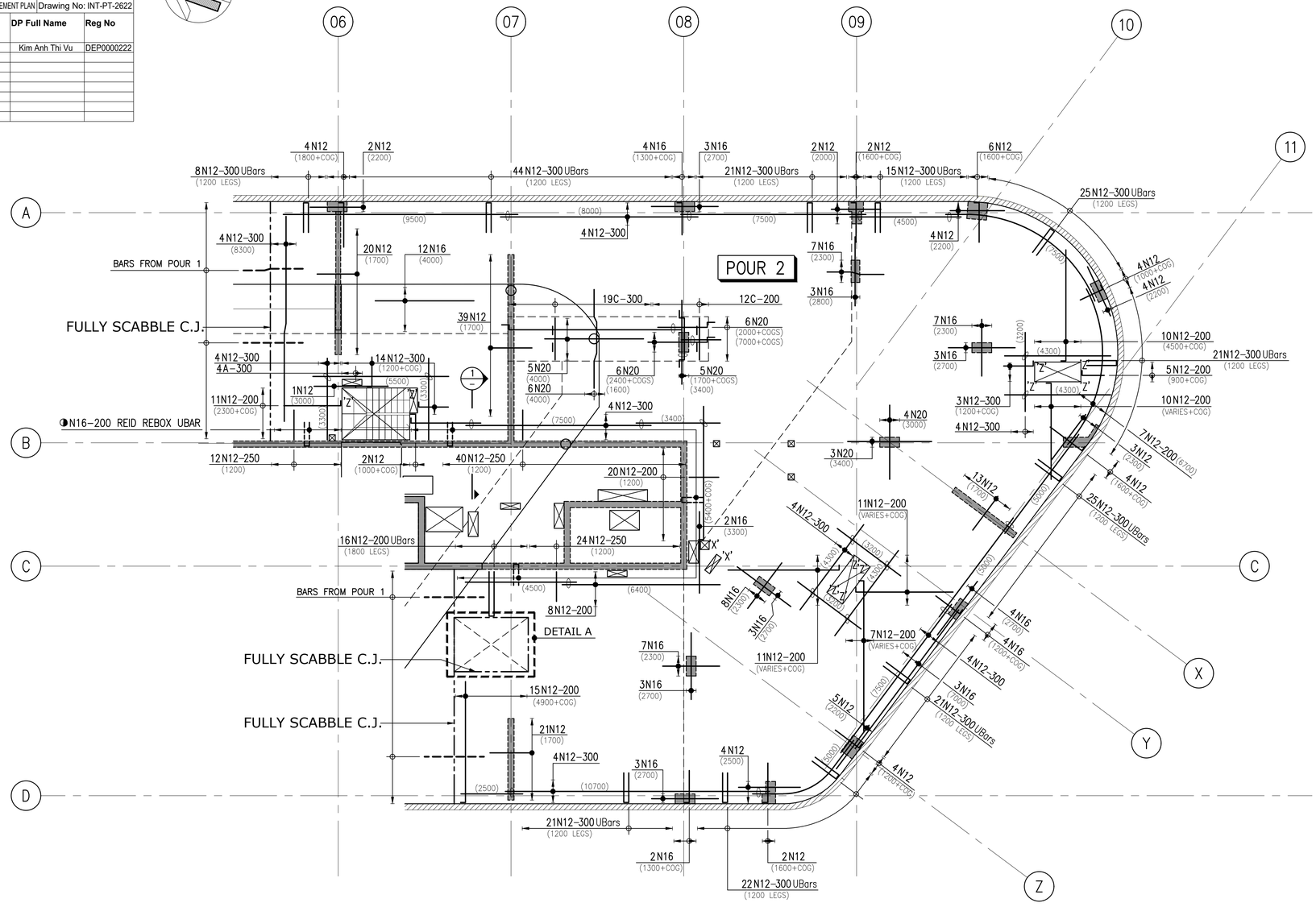
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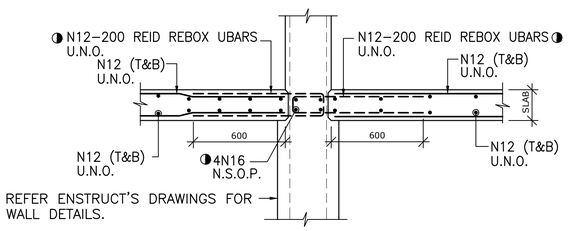
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: PC
Drawing Title: LEVEL 23 - POUR 2 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2621	Revision: 1

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 23-POUR 2 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2622		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

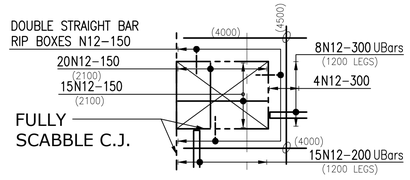




SECTION 1 / – SCALE 1:20

BOTTOM REINFORCEMENT PLAN

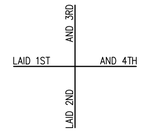
- STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001
- HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS
- REINFORCEMENT WEIGHT ON PLAN: 3.42 T
- ◑ BARS ARE NOT TO INTERSPAN GMT



DETAIL A / – SCALE 1:100

STIRRUP SCHEDULE

A	N12 CLOSED TIE TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
B	4 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	
C	6 LEGS N12 TOP & BOTTOM BARS AS NOTED ON PLAN. FIRST TIE TO BE 50mm FROM COLUMN FACE	



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 / 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

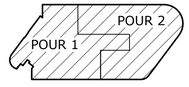
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: CP
Drawing Title: LEVEL 23 - POUR 2 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2622	Revision: 1

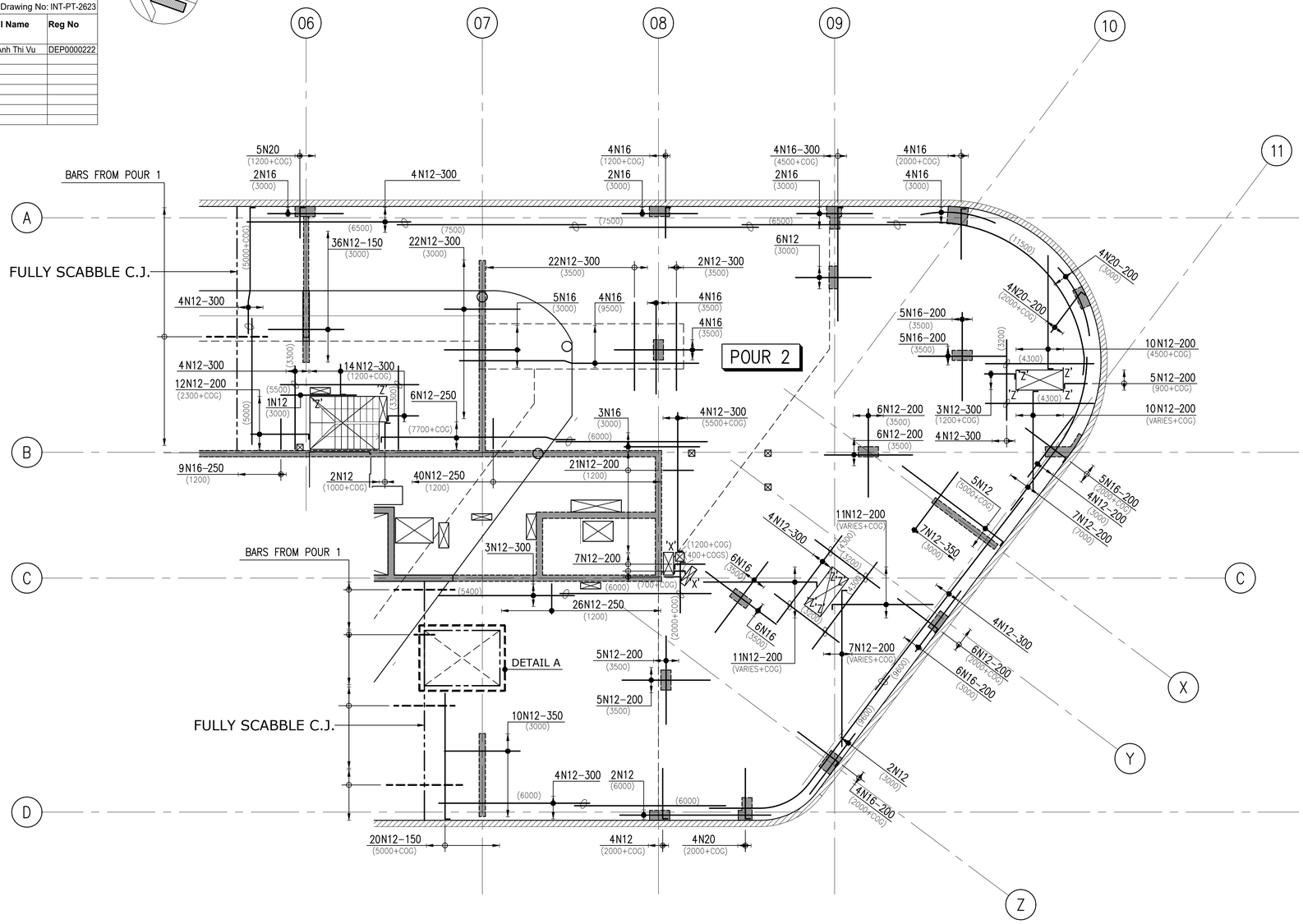


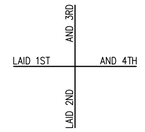
KEY PLAN
LEVEL 23

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 23-POUR 2 - TOP REINFORCEMENT PLAN	Drawing No: INT-PT-2623		

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222





BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

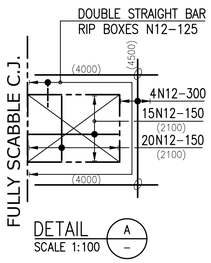
'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-123-00 A1-ST-323-00
REVISION: A 1
CONSULTANT: Bates Smart
DRAWING NO: A04.A1.123
REVISION: A



DETAIL A
SCALE 1:100

TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.14 T

PROVIDE SL82 TOP MESH THROUGHOUT

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

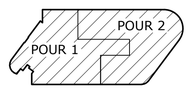
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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 23 - POUR 2 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2623	Revision: 1

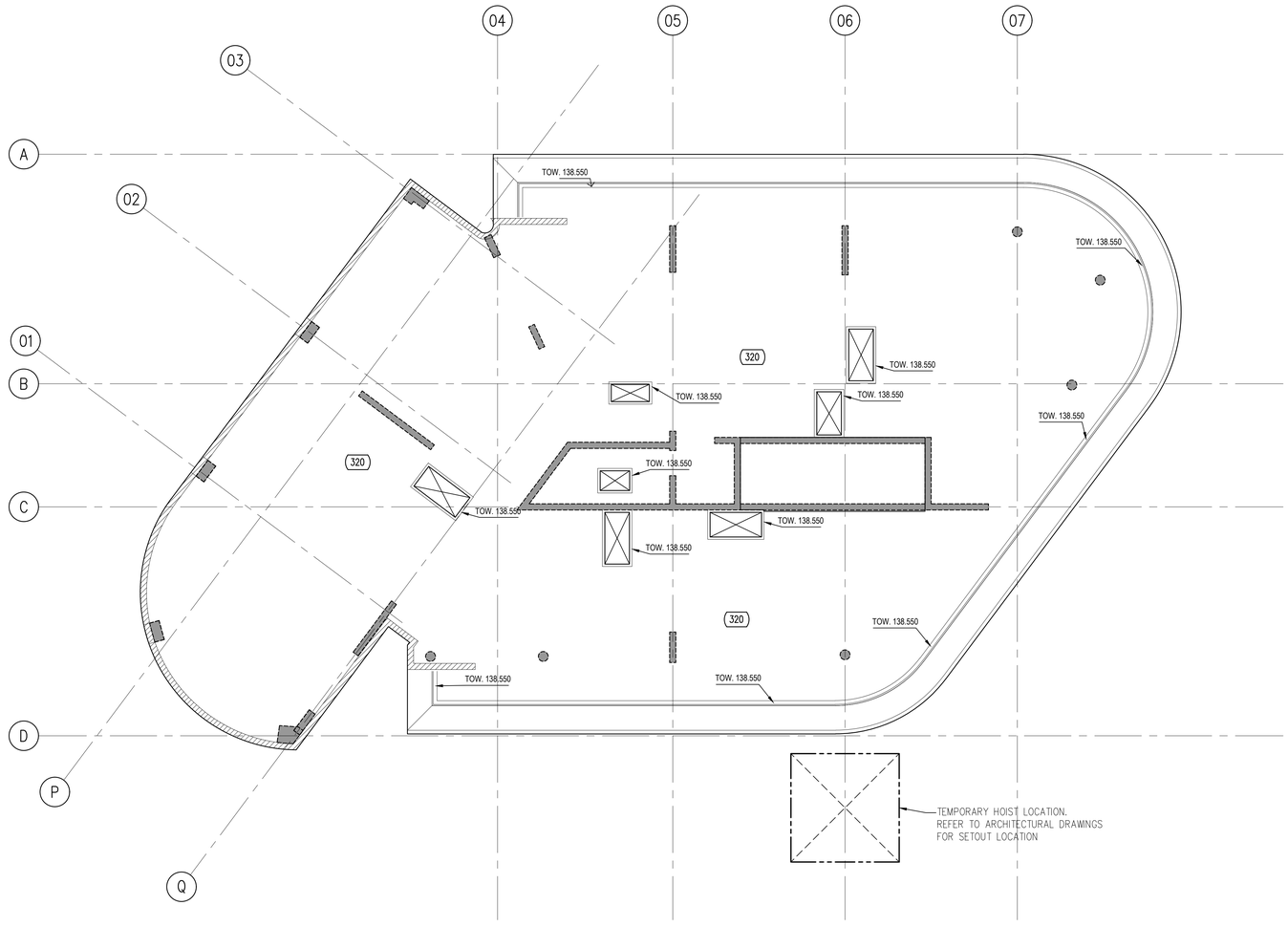


KEY PLAN
LEVEL 23

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 24 - GENERAL ARRANGEMENT PLAN			Drawing No: INT-PT-2700

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222



GENERAL ARRANGEMENT PLAN

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-124-00 A1-ST-324-00
REVISION: A A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.124
REVISION: A

Rev	Date	Status
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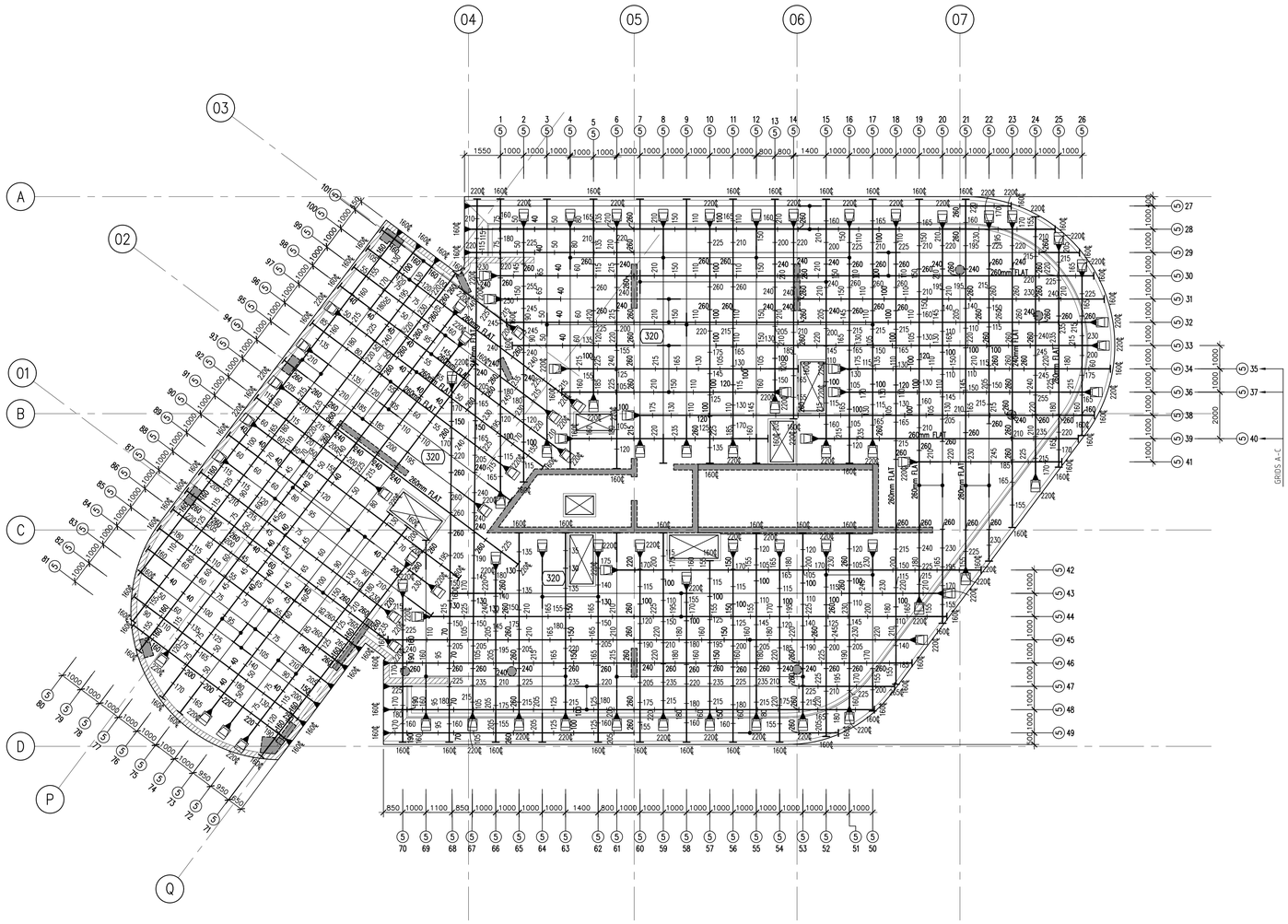
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	Drawn: TX
Drawing Title: LEVEL 24 GENERAL ARRANGEMENT PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2700	Revision: 1

KEY PLAN
LEVEL 24

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903		Body Corporate Reg No: NIL	
Drawing Title: LEVEL 24 - POST TENSIONING PLAN			Drawing No: INT-PT-2711

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	20.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222



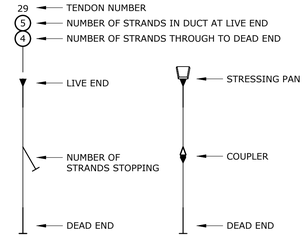
POST TENSIONING PLAN

ANTI BURST REINFORCEMENT WEIGHT: 0.63 T

PAN REINFORCEMENT WEIGHT: 2.322 T

POST - TENSIONING NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. ALL STRAND TO BE 12.7mm 7 WIRE SUPER GRADE, LOW RELAXATION STRAIN TO ASNZS4672.1 - 2007 U.N.O.
4. ✳ INDICATES HEIGHT MEASURED FROM ADJACENT SOFFIT IN WHICH TENDON RUNS.
5. POST - TENSIONING LEGEND



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-124-00 A1-ST-324-00
REVISION: A A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.124
REVISION: A

Rev	Date	Status
1	20-12-21	AS FOR CONSTRUCTION

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F: +61 3 8396 9640

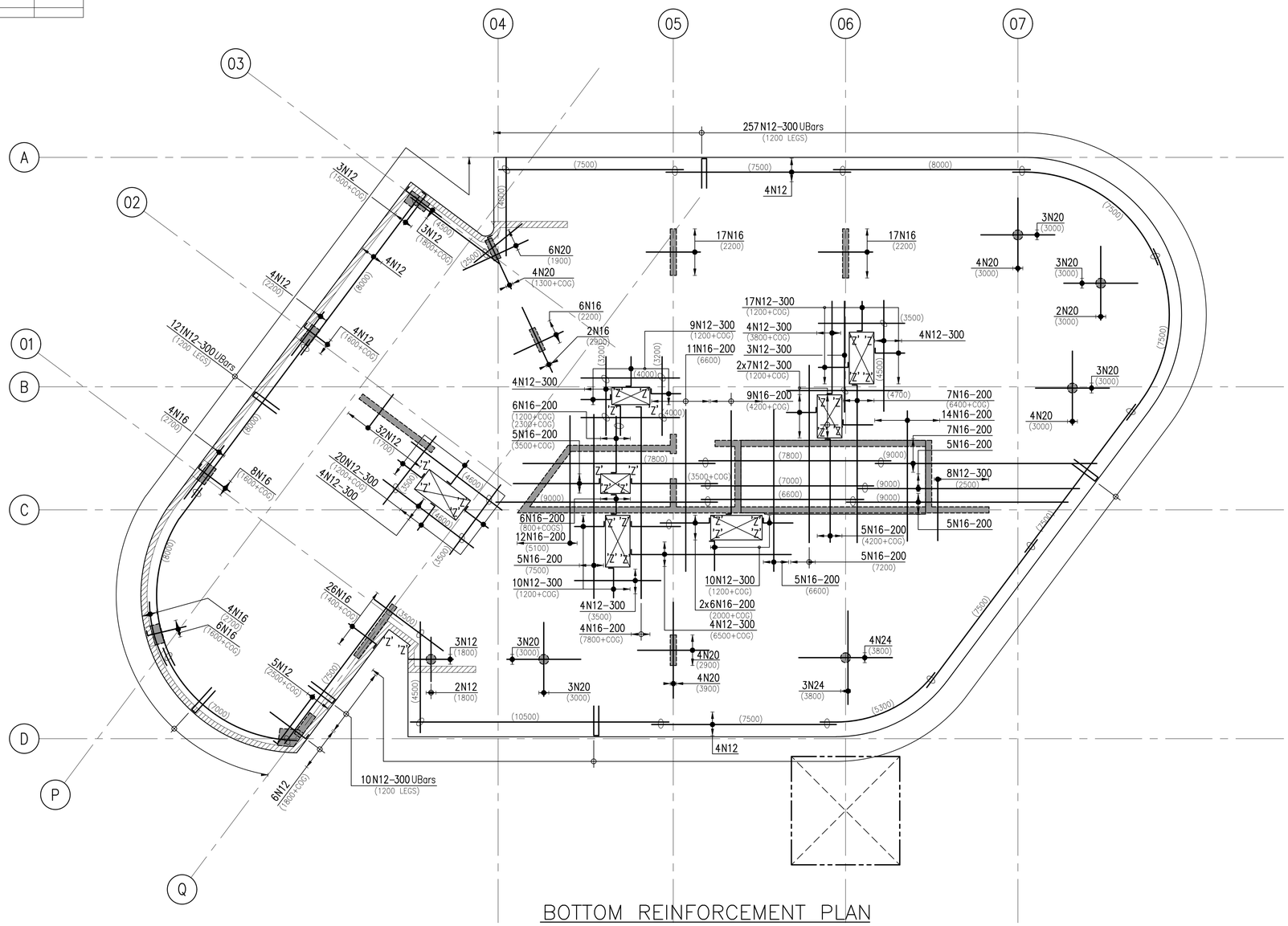
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Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: PL
	Drawn: TX
Drawing Title: LEVEL 24 POST TENSIONING PLAN	Checked: CC
	Scale: 1:100 @ B1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2711	Revision: 1

KEY PLAN
LEVEL 24

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Regulated Design Record				
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK				
Consent No: SSDA8903		Body Corporate Reg No: NIL		
Drawing Title: LEVEL 24 - BOTTOM REINFORCEMENT PLAN		Drawing No: INT-PT-2712		
Rev	**Date dd.mm.yy**	**Description**	**DP Full Name**	**Reg No**
1	21.12.21	As For Construction	Kim Anh Thi Vu	DEP0000222

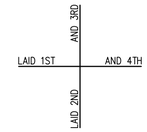


BOTTOM REINFORCEMENT PLAN

STRESSING PAN REINFORCEMENT AS PER INTERSPAN DRAWINGS 001

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 4.06 T



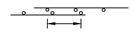
BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
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   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.



MINIMUM 1 WIRE SPACING PLUS 25mm
DO NOT LAP TOP FABRIC OVER SUPPORTS

8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER



'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS



'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG



THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-124-00 A1-ST-324-00
REVISION: A A

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.124
REVISION: A

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

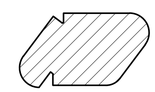
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SYDNEY - MELBOURNE - UK - UAE - VIETNAM
Website: www.interspan.com.au

Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: TT
	Drawn: PT
Drawing Title: LEVEL 24 BOTTOM REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2712	Revision: 1

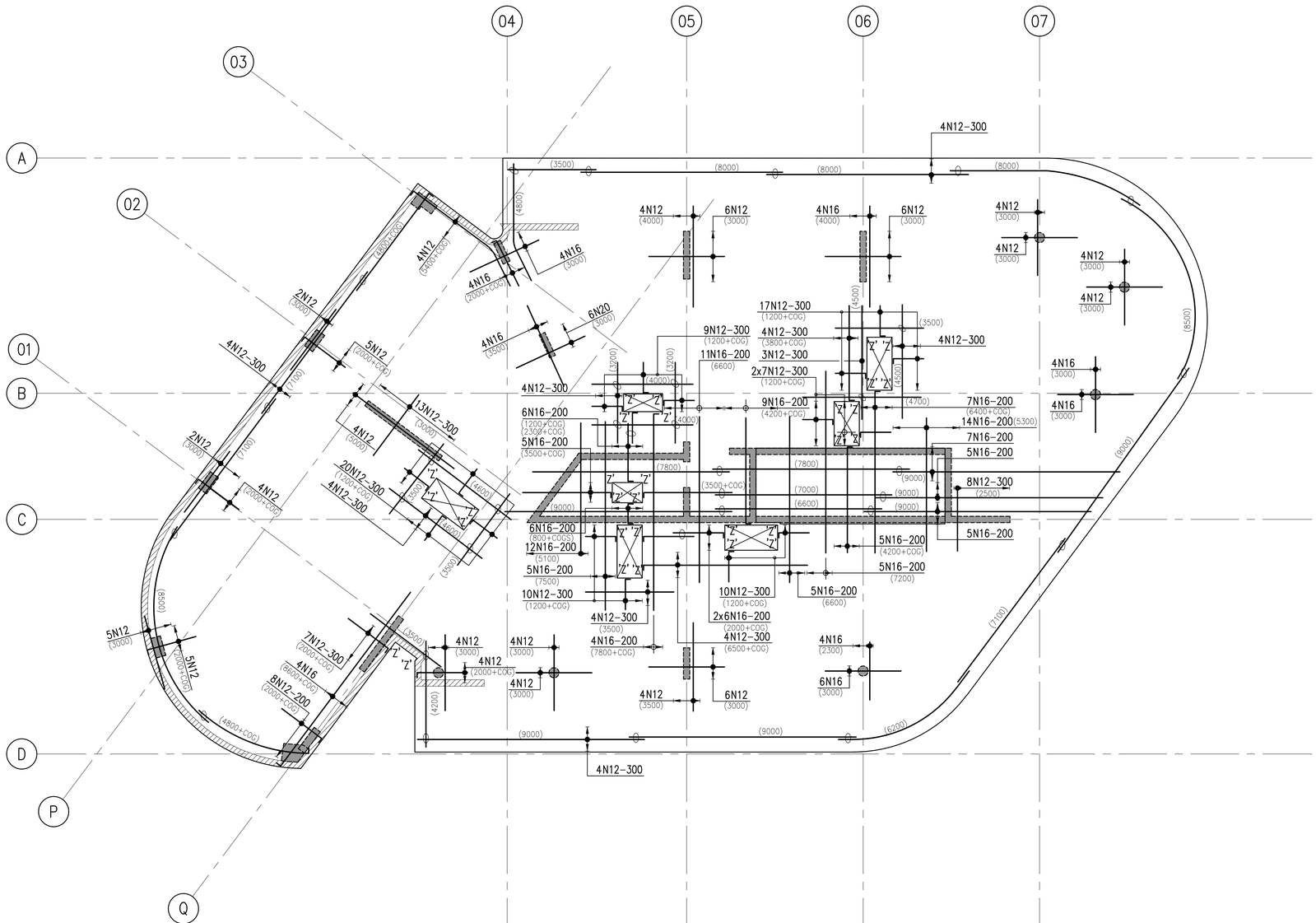


KEY PLAN
LEVEL 24

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Regulated Design Record			
Project Address: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK			
Consent No: SSDA8903	Body Corporate Reg No: NIL		
Drawing Title: LEVEL 24 - TOP REINFORCEMENT PLAN		Drawing No: INT-PT-2713	

Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
1	21-12-21	As For Construction	Kim Anh Thi Vu	DEP0000222

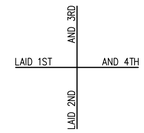


TOP REINFORCEMENT PLAN

HOBS, UPSTANDS, DOWNTURNS, STAIRS & LANDING TO ENSTRUCT'S DETAILS

REINFORCEMENT WEIGHT ON PLAN: 2.87 T

PROVIDE SL82 TOP MESH THROUGHOUT



BAR LAYING SEQUENCE

REINFORCEMENT NOTES

1. REFER TO DRAWING 001 FOR GENERAL NOTES AND ANTI-BURST REINFORCEMENT DETAILS.
2. REFER TO STRUCTURAL ENGINEER'S DRAWINGS FOR CONCRETE PROFILE DETAILS.
3. COVER TO REINFORCEMENT AS PER TABLE BELOW U.N.O.

	SLABS		BANDS		BEAMS	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
TOP	30	40	30	40	30	40
BTM	30	40	30	40	30	40
SIDES	30	40	30	40	30	40

4. DISTRIBUTION BARS SHALL BE N10.1000 U.N.O. LAP AND COG AS REQUIRED
5. REINFORCEMENT BAR TAGS 17.N20.250.X (2000)
   - 17 - DENOTES NUMBER OF BARS IN GROUP
   - N20 - DENOTES BAR GRADE AND DIAMETER
   - 250 - DENOTES BAR SPACINGS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
   - (2000) - DENOTES BAR LENGTH
6. STIRRUP BAR TAGS: 5.A.200.X
   - 5 - DENOTES NUMBER OF STIRRUP SETS IN GROUP
   - A - DENOTES STIRRUP TYPE. REFER TO STIRRUP SCHEDULE.
   - 200 - DENOTES SPACING OF STIRRUP SETS (mm)
   - X - DENOTES BAR MARK FOR REBAR SCHEDULING
7. LAPS IN MESH U.N.O.

   MINIMUM 1 WIRE SPACING PLUS 25mm
   DO NOT LAP TOP FABRIC OVER SUPPORTS
8. BAR CRANKS MAX. 10 1
9. TRIMMER BARS TO PENETRATIONS.

'X' DENOTES 2N10 AT 100 SPACING EACH SIDE OF PENETRATION EXTEND 600 PAST EACH CORNER

'Y' DENOTES 8N10 AROUND PENETRATION EXTEND 400 PAST INTERSECTING BARS

'Z' DENOTES 2N10 AT 100 SPACING ACROSS RE-ENTRANT CORNERS 1200 LONG

THIS DRAWING IS BASED ON THE FOLLOWING INFORMATION AS PROVIDED TO INTERSPAN:

CONSULTANT: enstruct
DRAWING NO: A1-ST-124-00 A1-ST-324-00
REVISION: A 1

CONSULTANT: Bates Smart
DRAWING NO: A04.A1.124
REVISION: A

1	21-12-21	AS FOR CONSTRUCTION
Rev	Date	Status

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Project Title: BUILDING A1 IVANHOE ESTATE MACQUARIE PARK	Designed: LT
	Drawn: TX
Drawing Title: LEVEL 24 TOP REINFORCEMENT PLAN	Checked: CC
	Scale: 1:100 @ A1
Project No.: INPT20373	Date: 20-12-21
Drawing No.: INT-PT-2713	Revision: 1

KEY PLAN
LEVEL 24

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