Schematic Design Report

Cronulla High School

80820341

Prepared for
Schools Infrastructure NSW

15 July 2022

Cardno

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Appendices

1 Design criteria and standards

The design criteria are the minimum design standards and engineering guidelines to be used on the project. Guides, supplements and references

1.1 Design reference documents and engineering standards

The following design reference documents and engineering standards will be used in the development of the design:

- Education Facilities Standards and Guidelines (EFSG)
- Sutherland Shire Council Standards
- Concept Design Report by Cardno dated 25 July 2021
- Geotechnical investigation by Martens, report ref P2108205JR2V01 dated June 2021
- Permeability Assessment Report by Martens, dated 10 June 2021
- Relevant Australian and New Zealand Standards, including (but not necessarily limited to):
  - AS 2890.1 Off-Street Car Parking.
  - AS 1428 Design for Access and Mobility
  - AS/NZS 1170.0 – Structural Design Actions: General principles
  - AS/NZS 1170.1 – Structural Design Actions: Permanent, imposed and other actions
  - AS/NZS 1170.2 – Structural Design Actions: Wind actions
  - AS/NZS 1170.4 - Structural Design Actions: Earthquake actions
  - AS2159 – Piling Design and Installation
  - AS3600 – Concrete Structures
  - AS4100 – Steel Structures
  - AS3700 – Masonry Structures
  - AS1720 – Timber Structures
- National Construction Code 2019 (NCC)
- Asset Standards Authority (ASA) standards

1.2 Guides, plans and supplements

The following guides, plans and supplements will be used in the development of the detailed design:

- Sutherland Shire Council Guideline- Stormwater Management – Sutherland Shire Environmental Specification 2009”

1.3 Order of precedence

The following order of precedence shall apply in the event of any inconsistency, ambiguity or discrepancy between the brief, Reference Documents and other standards:

- Authority Standards
- Australian/New Zealand Standards

2 General

2.1 Site Description

The Cronulla High School site is located on the corner of Captain Cook Drive and Bate Bay Road in Cronulla. The site encompasses an area of nearly 6ha. Cronulla Caringbah Sharks Junior Rugby League Football Club (JRLFC) is located across the eastern half of this site, whereas the school ground is located at the south western half of this site. The topography within this school is nearly flat and is mildly sloping from the south to the north towards the Woolooware Bay with contour lines running from 5.5 to 5m. There is an embankment at the north of the main school area and the ground level drops to approximately RL2.3. A site location map is provided below in Figure 1.

Cronulla High School is located within the Sutherland Shire Local Government Area.

There are existing kerb outlets observed on Bates Bay Road and existing stormwater pipes running along Eulera Road.

Figure 1: Location map of Cronulla High School

2.2 Project Description

SINSW brief is to construct new building/s to accommodate 10 x New Permanent Teaching Spaces and an upgrade to existing staff and administration areas. Internal refurbishment to existing buildings to re-purpose some of the spaces where staff and administration spaces are removed will also be required.

The existing buildings are predominantly two-storey suspended slab on concrete columns, double brick walls with metal roof sheeting. Buildings B(h) F(f) and C(e) which are single storey double brick with metal roof sheeting.

An outline of the proposed development is provided below in Figure 2.

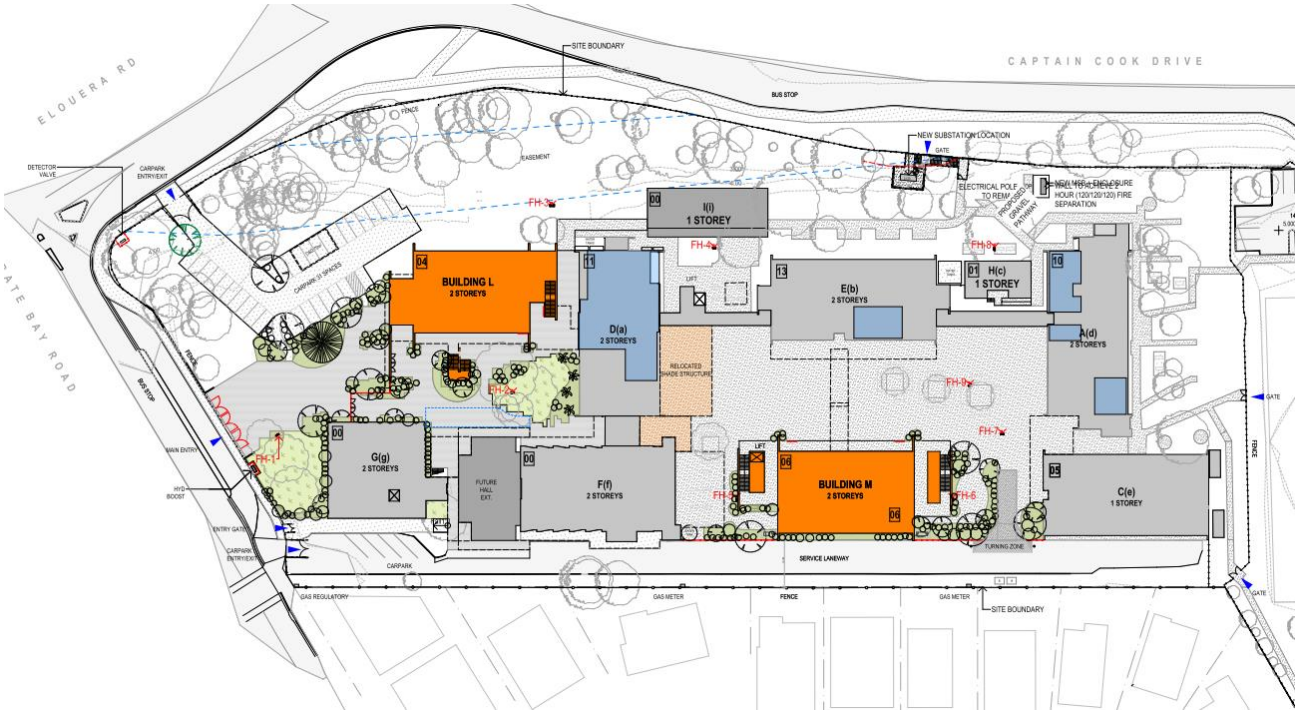


Figure 2: Proposed Development Plan (Source –Fulton Trotter Architects)

This report comprising of a stormwater management report, including a soil and water management plan has been prepared to support the REF application.

2.3 Civil Engineering

2.3.1 Existing information

2.3.1.1 List of Existing Information

The following existing information has been used:

- Site Survey Plan by Total Survey Solutions
- A site inspection carried out to identify locations of stormwater pits and stormwater discharge points.
- Permeability assessment report by Martens.

2.3.1.2 Stormwater Disposal Provisions

The proposed Stormwater Management System has been designed in accordance with the following documents:

- The Sutherland Shire Council guideline “Stormwater Management – Sutherland Shire Environmental Specification 2009”
- Sutherland Shire Council Development Control Plan: 2015, Chapter 37 “Stormwater and Groundwater Management”
- “Specifications for Civil Works Carried Out in Conjunction with Subdivisions and Developments” dated 2013.

2.3.1.3 Flooding and Overland Flow Provisions

The school site affected by minor flooding on the lower northern portion of the site for the 1% AEP event. We note that no buildings are proposed in this zone.

2.3.2 Stormwater

2.3.2.1 Stormwater collection

The stormwater drainage pipe system has been designed to collect all storm events in accordance with the AS 3500.3: 2021 and Council Guidelines as mentioned in Section 2.2.1.3.

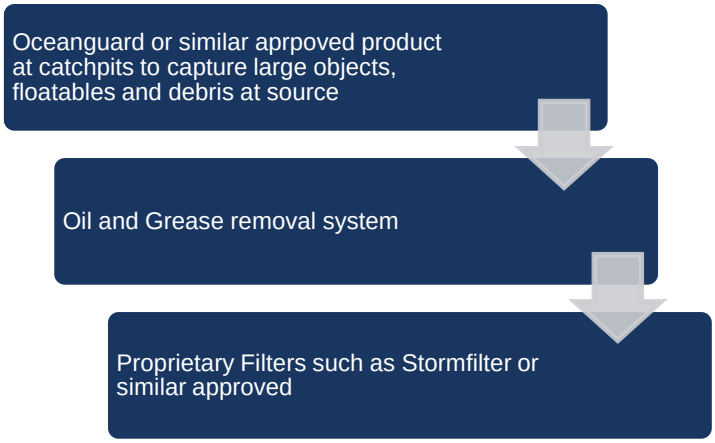
Roof water from the new development (i.e. Building L and Building M) along with runoff from the proposed new carparks are collected, quantity attenuated via an OSD and discharged to the existing public stormwater mains. The OSD will be designed to allow for stormwater discharge of runoffs of all the storms up to 100 years ARI. The controlled discharge will then be conveyed to a Council stormwater connection to an existing Kerb Inlet Pit (KIP) at Elouera Rd near the corner with Bate Bay Rd.

There is no increase in the impervious areas at the location of Building M, hence the roof and surface stormwater in the vicinity of Building M is discharged into the existing stormwater system.

A stormwater layout drawing for the proposed development is provided in Appendix A.

2.3.2.2 Stormwater quality

Water Sensitive Urban Design (WSUD) has been adopted in accordance with Sutherland Shire Council Stormwater Management 2009 requirements when designing the stormwater quality management system for this site. A treatment train system adopted for quality control is shown below



The table summarises pollutant removal targets from different sources to meet minimum Council and ESD requirements.

Pollutant	Performance Targets		
	Council's DCP % removal	ESD Requirements % removal	Achieved % removal
Gross Pollutants	90	90	90
Total Suspended Solids	70	80	80
Total Phosphorus	20	30	30
Total Nitrogen	35	30	35
Oil and Grease	No visible oils and grease in waterways	N/A	Yes

2.3.2.3 Soil and water management

Sedimentation and erosion measures for these proposed additions have been designed in accordance with the NSW Blue Book – Guideline for Managing Urban Stormwater: Soils and Construction – Volume 1 contain any sediment laden runoff from the site and minimise any impacts to the receiving environment. The proposed additions including both the buildings and car parks will be surrounded by silt fences and silt socks will be installed around existing catchpits. Designated entrance and exit with sediment protection measures will be provided for the construction vehicles.

A Soil and Water Management Plan (SWMP) is available in Appendix B.

2.4 Structural Engineering

2.4.1 Existing Information

2.4.1.1 List of existing information.

The following existing information has been used:

- A site inspection was carried to assess the structural configuration and condition of existing buildings.
- Geotechnical investigation report by Martens

2.4.1.2 Review of existing information

The buildings on site are generally in a good condition.

The geotechnical investigation report indicates that the area is underlain by alluvial deposits comprising of marine sands. The sand is expected to be of variable relative density and generally very loose to loose at shallow depths increasing to median dense to dense at depths of about 4mto 6m below ground level.

2.4.2 Schematic design

2.4.2.1 Design loads

Design loads have been derived as follows:

2.4.2.1.1 Live loads

- Classrooms: 3kPa
- Corridors, hallways and stairs: 4.0kPa

2.4.2.1.2 Wind loads

- Importance level: 3
- Annual probability of exceedance: 1:1000
- $V_{1000:}$ 46m/s
- Terrain Category: 3

2.4.2.1.3 Earthquake loads

- Importance Level: 3
- Annual probability of exceedance: 1:1000
- Probability Factor kp: 1.3
- Hazard Factor Z: 0.09
- Site Sub-Soil Class: De
- Earthquake Design Category: II
- Structural System: Ordinary moment resisting frames
- Structural Ductility Factor µ: 2
- Structural Performance Factor Sp: 0.77
- Sp/µ: 0.38; µ/Sp 2.6

2.4.3 Structural concept

2.4.3.1 New buildings – Blocks L and M

Structural schematic design for new buildings L and M are attached in Appendix C

The ground floor is designed as a waffle raft slab in accordance with the principles of AS2870 for a Class P site. Screwed piles founded in the dense sands are provided at every third rib. All columns are also provided with screwed piles to the dense sand.

The first floor is designed as a one-way post-tensioned slab on beams. Lateral stability is provided with frame action.

The roof is steel framed and designed as a portal frame in the transverse direction and fully braced with diagonal bracing to the first-floor slab in the longitudinal direction.

Reinforced brick walls are used where required to meet Australian Standards for robustness and strength for vertical loads and horizontal wind loads.

2.4.3.2 Alterations to existing buildings.

Except for demolition of a column on the first-floor level of Building D, the alterations to existing buildings generally include demolition of non-load bearing walls. These works do not affect the structural integrity of the existing buildings.

For Building D, a new steel beam has been designed to provide support to existing roof beams impacted by the demolition of the first-floor column.

2.4.3.3 Building I

Building I is a demountable building that is proposed to be re-located. We understand that the building was constructed in 2010.

An inspection of the exposed sub-floor framing indicates the following:

- Building I is approximately 27m long x 9m wide with a 2m wide awning and ramp entry.
- The building appears to have been joined together from 9, 3m wide sections.
- The footings appear to be stacked concrete blocks with stacked block piers placed at 3mx3m grids to the underside of the floor framing.
- The floor framing comprises of 200C purlin sections acting as joists at about 550mm centres and spanning onto 200C purlins sections acting as bearers.
- The 200C purlins joists are welded to the 200C bearers with welds at the flanges only.
- There are various areas of corrosion to the 200C purlins.

The following works are required:

- All corroded areas of the sub-floor framing shall be removed and replaced.
- The flange welded connections are not structurally adequate. The connections shall be rectified using GP brackets and M12 purlin bolts.
- Screwed pile footings shall be provided at the proposed location.
- Steel bridging beams are to be provided to span across an existing stormwater line.

APPENDIX

A

STORMWATER DISPOSAL PLAN

Cardno

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DATE PLOTTED: 4 July 2022 6:00 PM BY - GORAN MILENKOVIC

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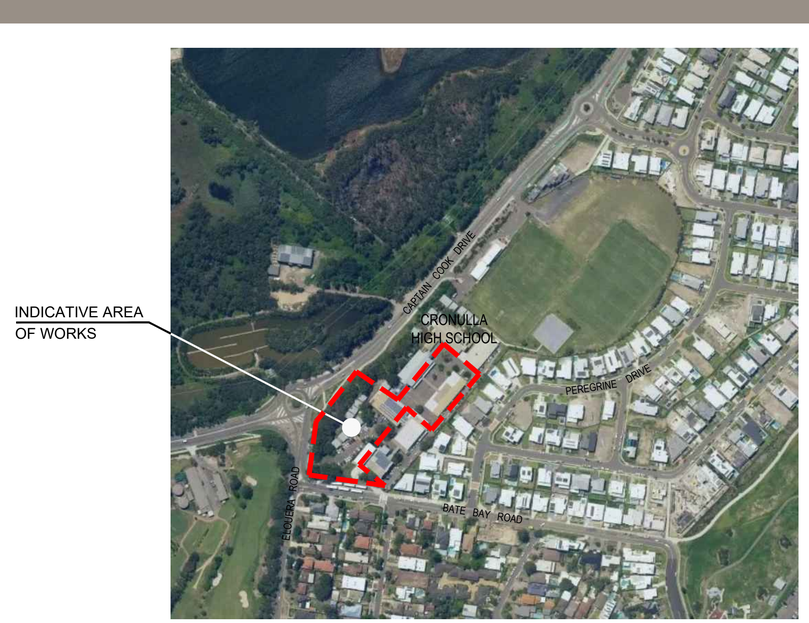
CIVIL WORKS

NSW DEPARTMENT OF EDUCATION

CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

COVER SHEET, LOCALITY PLAN AND SCHEDULE OF DRAWINGS

SCHEDULE OF DRAWINGS	
DRAWING No.	DESCRIPTION
CIVIL WORKS	
80821341-CI-0001	CIVIL COVER SHEET, LOCALITY PLAN AND SCHEDULE OF DRAWINGS
80821341-CI-0002	CIVIL CONSTRUCTION NOTES
80821341-CI-0101	CIVIL SITE AND STORMWATER DRAINAGE PLAN SHEET 1
80821341-CI-0102	CIVIL SITE AND STORMWATER DRAINAGE PLAN SHEET 2
80821341-CI-0103	CIVIL OSD TANK SECTIONS AND DETAILS
80821341-CI-0105	CIVIL SEDIMENTATION AND EROSION CONTROL PLAN SHEET 1
80821341-CI-0106	CIVIL SEDIMENTATION AND EROSION CONTROL PLAN SHEET 2
80821341-CI-0109	CIVIL CAR PARK PAVEMENT PLAN AND DETAILS
80821341-CI-0110	CIVIL SEDIMENTATION AND EROSION CONTROL DETAILS
80821341-CI-0111	CIVIL STORMWATER STANDARD DETAILS SHEET 1
80821341-CI-0112	CIVIL STORMWATER STANDARD DETAILS SHEET 2



LOCALITY PLAN

Rev.	Date	Description	Des.	Verif.	Appd.
1	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP

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Drawn	GM	Date	MAY 2022
Checked	MR	Date	MAY 2022
Designed	VJ	Date	MAY 2022
Verified	PP	Date	MAY 2022
Approved			

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	NTS	A1

Drawing Number: 80821341-CI-0001
Revision: 1

XREFs:
CAD File: \\cardno.corp\global\au\nsw\Directory\Structure\Projects\808\PY21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0001.dwg

DATE PLOTTED: 4 July 2022 6:01 PM BY : GORAN MILENKOVIC

CIVIL CONSTRUCTION NOTES

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

G2. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE CORRECTNESS OF ALL DIMENSIONS AND ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.

G3. STABILITY OF THE BUILDING DURING CONSTRUCTION AND EXCAVATION IN THE VICINITY OF ADJACENT BUILDINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO PART OF THE STRUCTURE SHALL BE OVER STRESSED. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.

G4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER FORTY EIGHT (48) HOURS BEFORE THE REINFORCEMENT IS COMPLETED. THE CONTRACTOR SHALL ALLOW TWO (2) HOURS AFTER THE COMPLETION OF THE REINFORCEMENT FOR THE ENGINEER'S INSPECTION. CONCRETE SHALL NOT BE ORDERED UNTIL THE REINFORCEMENT IS APPROVED BY THE ENGINEER.

G5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT SAA CODES, THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY AND THE SPECIFICATION.

G6. NO CHANGES SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

G7. U.N.O. DENOTES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

SITE PREPARATION

ROAD WORKS

SP1. REMOVE TOP SOIL, ROOT AFFECTED SOIL, FILL AND OTHER DELETERIOUS MATERIAL TO EXPOSE NATURAL SUBGRADE.

SP2. THE EXPOSED SUBGRADE SHOULD THEN BE PROOF ROLLED WITH AT LEAST EIGHT (8) PASSES OF A 10 TONNE MIN. DEAD WEIGHT ROLLER. ANY SOFT OR HEAVING AREAS SHOULD BE REMOVED TO A MAXIMUM DEPTH OF 300mm AND REPLACED WITH CLEAN WELL GRADED MATERIAL SUCH AS RIPPED OR CRUSHED SANDSTONE COMPACTED TO AT LEAST 100% OF STANDARD MAXIMUM DRY DENSITY (SMDD) AT ±2% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH AS1289.

SP3. COMPACTED FILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 150mm THICK AND COMPACTED TO AT LEAST 100% SMDD. FILL SHALL CONSIST OF CLEAN WELL GRADED MATERIAL SUCH AS RIPPED OR CRUSHED SANDSTONE WITH A MIN. CBR OF 15%.

SP4. DENSITY TESTING SHALL BE CARRIED OUT TO LEVEL 2 CERTIFICATION IN ACCORDANCE WITH AS3798.

SP5. SUB-BASE COURSE - TO BE DGS20 OR DGS40 OR RIPPED OR CRUSHED SANDSTONE WITH A CBR GREATER THAN 40%, MAXIMUM PARTICLE SIZE OF 60mm, WELL GRADED WITH A PLASTIC INDEX LESS THAN 10. COMPACT TO AN AVERAGE OF NOT LESS THAN 100% SMDD WITH A MINIMUM VALUE OF 98% SMDD.

SP6. ALL KERBS TO BE FORMED BY KERB MACHINE AND NOT BY HAND.

EXTERNAL FOOTPATHS/PAVEMENTS

SP7. REMOVE TOP SOIL, ROOT AFFECTED SOIL, FILL AND OTHER DELETERIOUS MATERIAL TO EXPOSE NATURAL SUBGRADE.

SP8. THE EXPOSED SUBGRADE SHOULD BE PROOF ROLLED. ANY SOFT OR HEAVING AREAS SHOULD BE REPLACED WITH CLEAN WELL GRADED MATERIAL. FILL IF REQUIRED, SHOULD BE CLEAN AND WELL GRADED. COMPACT TO 100% SMDD.

STORMWATER CONSTRUCTION NOTES

SW1. ESTABLISH EXACT LOCATION AND INVERT OF EXISTING SERVICES PRIOR TO COMMENCING WORKS.

SW2. ALLOW TO PAY ALL LOCAL AUTHORITY FEES AS REQUIRED FOR PERIODIC INSPECTIONS/APPROVALS.

SW3. ALL WORK TO BE IN ACCORDANCE WITH THE LOCAL COUNCIL STORMWATER POLICY.

SW4. MINOR FLOW ARI = 10 YEARS
MAJOR FLOW ARI = 100 YEARS

PIPEWORK

SW5. ALL WORKS TO COMPLY TO AS3500

SW6. ALL NEW PIPES 300 DIA. & LARGER SHALL BE REINFORCED CONCRETE CLASS 2 WITH RUBBER RING JOINTS. WHERE ANGLED THE MINIMUM RADIUS SHALL BE 152m. 150/225mm DIA. STORMWATER PIPES SHALL BE SEWER CLASS UPVC. MINIMUM PIPE SIZE FOR AN UNDERGROUND PIPE TO BE 150mm. MINIMUM PIPE GRADIENTS 1% U.N.O.

SW7. ALL DRAINAGE TRENCHES SHALL BE IN SOUND EXCAVATED MATERIAL. IF SOFT SPOTS EXIST, REMOVE AND BACKFILL WITH COMPACTED ROAD BASE (DGS40) WITH A MINIMUM CBR OF 25 COMPACT TO 98% STANDARD MAXIMUM DRY DENSITY TO AS 1289 E1.1.

SW8. ALL PIPES SHALL BE BEDDED ON 100mm SAND BED AND BACKFILLED WITH SAND TO 150mm ABOVE BARREL OF PIPE. THE REMAINDER OF THE TRENCH WILL BE BACKFILLED IN 150mm COMPACTED LAYERS IN GRANULAR FILL NON DISPERSIVE (EMERSON CLASS 5 OR 6) MATERIAL - NO TOP SOIL, GRASS, ROOTS, OR DELETERIOUS MATERIAL. COMPACT TO 98% STANDARD MAXIMUM DRY DENSITY AT ±2% OMC.

SW9. PROVIDE A 100mm DIA. UPVC. SLOTTED DRAINAGE PIPE 3000 LONG WRAPPED IN FILTER FABRIC SOCK IN ALL TRENCHES ADJACENT TO INLET PIPES TO PITS & CONNECTED TO PIT.

SW10. OTHER SUB SOIL DRAINAGE PIPES SHALL BE 100mm DIA. UPVC SLOTTED BEDDED AND BACKFILLED WITH 20mm GAUGE BLUE METAL. CLEAN OUTS SHALL BE EXTENDED TO THE SURFACE AND PROVIDED WITH A SCREWED COVER PLATE FLUSH WITH THE FINISHED SURFACE LEVEL.

SW11 ALL CONCRETE PITS CONSTRUCTED SHALL BE BEDDED AS PER PIPE SPECIFICATION. PIT BASES SHALL BE SMOOTH CONTOURED WITH MASS CONCRETE BENCHING PROVIDE STEP IRONS AS PER PIT SCHEDULE, PROVIDE HEAVY, MEDIUM OR LIGHT DUTY GALVANISED GRATE COVERS AS SPECIFIED IN SCHEDULE. ALL DRAINAGE WORKS ARE TO BE COMPLETED TO THE SATISFACTION OF THE SUPERVISING CIVIL ENGINEER. ALL WORKS TO COMPLY TO AS3500. HEADWALLS SHALL BE PRECAST CONCRETE BY 'BCP PRECAST' OR EQUAL. ALL PITS SHALL BE PRECAST CONCRETE TYPE DPT FOR DEEP PITS BY ICON INDUSTRIES OR EQUAL. PRECAST DRAINAGE PITS DEEPER THAN 1800mm SHALL HAVE 150mm MIN. WALL THICKNESS. 20mm DIA. GALV. MS. STEP IRONS SHALL BE INSTALLED IN PITS 1200mm AND DEEPER.

SW12 UNLESS NOTED OTHERWISE ON THE PLANS, PROVIDE THE FOLLOWING MIN. COVER TO PIPE:
- UNDER LANDSCAPE & PAVEMENT - 300mm
- UNDER ROAD (TRAFFIC) - 600mm

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT SAA CODE AS3600, WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. CONCRETE QUALITY:

ELEMENT	SLUMP (MAX)	MAX AGG. SIZE	CEMENT TYPE	ADMIX.	CONCRETE GRADE
CONCRETE DRIVEWAYS	60	20mm	A	N/A	40 MPa
CONCRETE KERBS, RETAINING WALLS	80	20mm	A	N/A	32 MPa
FOOTPATHS	80	20mm	A	N/A	25 MPa
PIERS	80	20mm	A	N/A	25 MPa

SUSPENDED CONCRETE FLOORS :-
MIN. CEMENT CONTENT = 300 kg/m^3
MAX. PERMISSIBLE DRYING SHRINKAGE = 750 MICROSTRAIN AT 56 DAYS.

C3. CLEAR CONCRETE COVER IN mm TO REINFORCEMENT U.N.O. SHALL BE AS FOLLOWS:-

STRUCTURAL ELEMENT	REINFORCEMENT COVER			
	INTERNAL		EXTERNAL	
	TOP	BTM.	TOP	BTM.
FOOTINGS & PIERS	-	-	50	50
DRAINAGE PITS			50	
CONCRETE DRIVEWAY			40	

NOTES:
1. CONCRETE POURED OVER A MEMBRANE ON THE GROUND IS INCLUDED AS INTERNAL.
2. CONCRETE EXPOSED TO CORROSIVE VAPOURS, CORROSIVE GROUND WATER, SEA WATER OR SPRAY IS TO HAVE REINFORCEMENT COVER AS NOTED ON THE DRAWINGS.
3. CONCRETE REQUIRING A FIRE RESISTANCE RATING SHALL HAVE REINFORCEMENT COVER AS NOTED ON THE DRAWINGS.
4. EXTERNAL ABOVE GROUND ELEMENTS ARE CLASSIFIED IN NEAR COASTAL ENVIRONMENT.

C4. CONDUITS, PIPES, ETC., SHALL NOT BE PLACED IN THE CONCRETE COVER TO REINFORCEMENT AND NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT.

C5. CONCRETE SIZES DO NOT INCLUDE THE THICKNESS OF APPLIED FINISHES.

C6. THE DEPTH OF BEAMS IS GIVEN FIRST AND INCLUDES THE SLAB THICKNESS.

C7. CONSTRUCTION JOINTS, WHERE NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE SUPERINTENDENT.

C8. FORMWORK SHALL REMAIN IN POSITION FOR THE TIME SPECIFIED. WHERE SLABS AND BEAMS ARE TO SUPPORT MASONRY OVER, FORMWORK AND PROPS MUST BE REMOVED PRIOR TO THE CONSTRUCTION OF MASONRY.

C9. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.

C10. CONCRETE SHALL BE CURED IN ACCORDANCE WITH AS3600 WITH A PRODUCT COMPATIBLE WITH THE APPLIED FINISHES. CURING COMPOUNDS SHALL COMPLY WITH AS3799. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE

C11. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C12. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

C13. SPLICES IN THE MAIN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. SPLICES IN THE DISTRIBUTION REINFORCEMENT MAY BE POSITIONED AS NECESSARY WITH SPLICES OF SUFFICIENT LENGTH TO DEVELOP THE FULL STRENGTH OF THE BARS. MINIMUM LAPS TO FABRIC SHALL BE TO OVER LAP TWO CROSS WIRES PLUS 50mm U.N.O. REINFORCEMENT SHALL BE SECURELY TIED AT ALL LAPS AND INTERSECTIONS WITH 1.25mm BLACK ANNEALED WIRE. THE WRITTEN APPROVAL OF THE SUPERINTENDENT SHALL BE OBTAINED FOR OTHER SPLICES WHERE THE LAP LENGTH IS NOT SHOWN. IT SHALL DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.

C14. ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH N12-300 U.N.O.

C15. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED PLASTIC OR PLASTIC TIPPED WIRE STOOLS AT NOT MORE THAN 600mm CENTRES BOTHWAYS IN SLABS AND AT 1000mm CENTRES IN BEAMS.

C16. DENOTES MAIN WIRES OF RECTANGULAR FABRIC TO AS 4671.

DENOTES SQUARE FABRIC TO AS 4671

SL..... DENOTES GRADE 500 DEFORMED WIRE REINFORCING SQUARE FABRIC OF DUCTILITY CLASS L TO AS 4671.

RL..... DENOTES GRADE 500 DEFORMED WIRE REINFORCING RECTANGULAR FABRIC OF DUCTILITY CLASS L TO AS 4671.

R ..... DENOTES GRADE 250 ROUND BARS OF DUCTILITY CLASS N TO AS 4671.

N ..... DENOTES GRADE 500 DEFORMED BARS OF DUCTILITY CLASS N TO AS 4671.

S ..... DENOTES GRADE 250 DEFORMED BARS OF DUCTILITY CLASS N TO AS 4671.

C17. FABRIC SHALL BE SUPPLIED IN FLAT SHEETS, ROLLS WILL NOT BE ACCEPTED

C18. TYPICAL REINFORCEMENT NOTATION:-
5N24-200 INDICATES
5 ..... DENOTES NUMBER OF BARS REQUIRED
N ..... DENOTES GRADE OF REINFORCEMENT
24..... DENOTES BAR DIAMETER IN MILLIMETRES
200... DENOTES BAR SPACING IN MILLIMETRES
TYPICAL ABBREVIATIONS:-
B ..... DENOTES BARS IN BOTTOM LAYER
T ..... DENOTES BARS IN TOP LAYER
ALT.... DENOTES BARS ALTERNATING
NF .... DENOTES BARS IN NEAR FACE
FF .... DENOTES BARS IN FAR FACE
EF .... DENOTES BARS IN EACH FACE

C19. FOR SLAB FALLS, CHAMFERS, REGLETS, DRIP GROOVES, ETC., REFER TO THE ARCHITECT'S DRAWINGS.

C20. LAP LENGTHS FOR DEFORMED BARS AS FOLLOWS:

BAR TYPE AND SIZE	VERTICAL BARS	HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE BELOW BAR	OTHER LOCATIONS	90° COG LENGTH
N12	500	550	500	200
N16	700	800	700	200
N20	1000	1250	1000	250
N24	1200	1500	1200	300
N28	1400	1750	1400	350

SEDIMENT RUN-OFF CONTROL NOTES

SR1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SOIL EROSION AND SEDIMENT CONTROL MEASURES GENERALLY IN ACCORDANCE WITH GUIDELINES OF THE LANDCOM MANAGING URBAN STORMWATER MANUAL AND AS NECESSARY TO PREVENT RUN-OFF FROM SITE OF SEDIMENT RESULTING FROM THE WORKS. SUCH MEASURES SHALL ALSO COMPLY WITH REQUIREMENTS OF COUNCIL, LANDCOM "BLUE BOOK" AND EPA . THIS WORK SHALL BE DONE PRIOR TO ANY EARTHWORKS COMMENCING ON SITE.

SR2. GRADE FINISHED SURFACE TO SHED WATER EVENLY WITHOUT CHANNELLING (UNTIL PIPED STORMWATER SYSTEM IS CONSTRUCTED). NOMINAL GRADIENTS FROM HIGH POINT OF 0.2%.

SR3. MAINTAIN THE EROSION CONTROL DEVICES INDICATED ON THE DRAWINGS TO THE SATISFACTION OF THE SITE SUPERINTENDENT AND THE LOCAL AUTHORITIES.

SR4. WHEN PROPOSED STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SILT FENCES ARE ERECTED AROUND PITS AND ON ROAD.

SR5. STREET PROTECTION WITH SHAKER EXIT GRIDS & STREET PIT INLET PROTECTION TO BE MAINTAINED FOR THE DURATION OF THE CONTRACT.

WARNING

UNLESS NOTIFIED TO THE CONTRARY IN WRITING, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY BREACHES OF THE PROTECTION OF ENVIRONMENT OPERATIONS ACT 1997. PLEASE NOTE FAILURE TO IMPLEMENT OR MAINTAIN APPROPRIATE EROSION/SEDIMENT CONTROL MEASURES IS A BREACH OF THE ACT. SUCH A BREACH IS LIABLE FOR A ON-THE SPOT FINE AND /OR PENALTY.

Rev.	Date	Description	Des.	Verif.	Appd.
1	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP

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Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
CONSTRUCTION NOTES

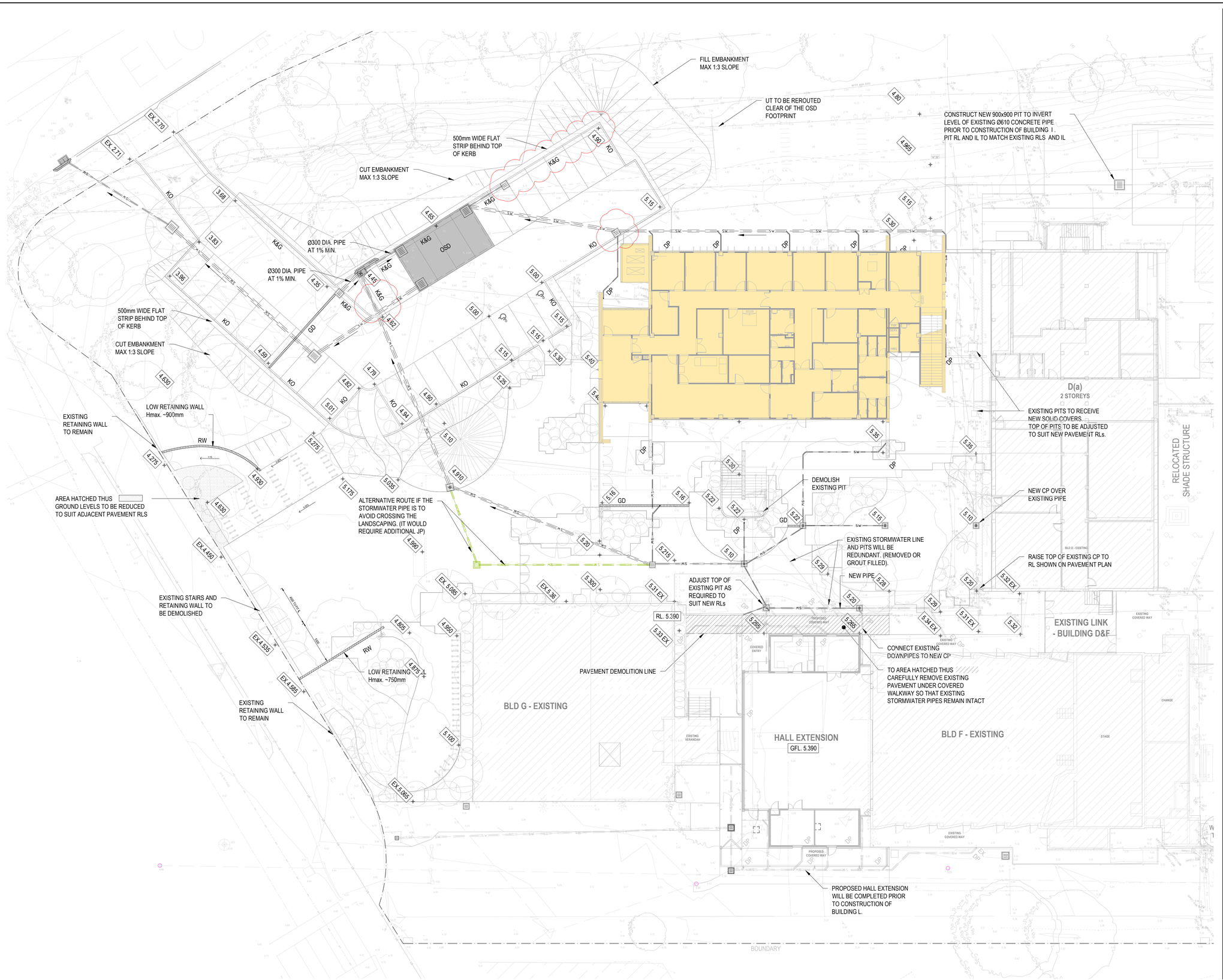
Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		N/A	A1

Drawing Number: 80821341-CI-0002
Revision: 1

XREFs:
CAD File: \\cardno.corp\global\au\nsw\Directory\Structure\Projects\808\PY21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0002.dwg

DATE PLOTTED: 14 July 2022 7:43 PM BY : GORAN MILENKOVIC



FOR CONTINUATION REFER TO DRAWING CI-0102

ALL PITS TO BE FITTED WITH WITH OCEANGUARD BASKET OR APPROVED EQUIVALENT

THE RL'S IN THE VICINITY OF THE HALL EXTENSION SHOWN AS EXISTING, ARE BASED ON THE ASSUMPTION THAT THE DESIGN RL'S OF THE HALL EXTENSION PROJECT HAVE BEEN ACHIEVED - TO BE CONFIRMED ON SITE.

LEGEND EXISTING:

- EXISTING CONTOURS
- UT — EXISTING TELECOMMUNICATIONS (SURVEY)
- UE — EXISTING ELECTRICITY (SURVEY)
- UG — EXISTING GAS (SURVEY)
- UW — EXISTING WATER MAIN
- US — EXISTING SEWER
- UOF — EXISTING OPTICAL FIBRE
- UU — EXISTING UNKNOWN SERVICE
- USW — EXISTING STORMWATER LINE
- UFH — EXISTING FIRE HYDRANT
- EXISTING DOOR / GATE
- EXISTING SURFACE AMENITIES / SERVICES
- EXISTING BOLLARDS
- EXISTING STORMWATER PIT

LEGEND PROPOSED:

- PROPOSED GRATED SURFACE INLET PIT
- SS — PROPOSED SUBSOIL DRAINAGE
- SW — ALTERNATIVE STORMWATER LINE
- SW — PROPOSED STORMWATER LINE
- SW — EXISTING STORMWATER/DOWNPIPE LINE
- DP — PROPOSED DOWN PIPE
- DP — EXISTING DOWN PIPE

Rev.	Date	Description	Des.	Verif.	Appd.
4	14/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP
1	09/06/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SITE AND STORMWATER DRAINAGE PLAN
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0101

Revision: 4

XREFs: X:Survey; X:CI-STORMWATER; X:ARCH-GROUND FLOOR PLAN; X:CI-PAVEMENT
CAD File: N:\Projects\80\FY21\341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0101.dwg

DATE PLOTTED: 16 July 2022 7:51 PM BY - GORAN MILENKOVIC

FOR CONTINUATION REFER TO DRAWING CI-0101

XREFs: X-Survey; X-CI-STORMWATER ; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT

CAD File: N:\Projects\80821\FY21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0102.dwg

CONSTRUCT NEW 900x900 PIT TO INVERT LEVEL OF EXISTING Ø610 CONCRETE PIPE PRIOR TO CONSTRUCTION OF BUILDING I . PIT RL AND IL TO MATCH EXISTING RLS AND IL

I(i)
1 STOREY

H(c)
1 STOREY

E(b)
2 STOREYS

A(d)
2 STOREYS

C(e)
1 STOREY

RELOCATED SHADE STRUCTURE

EX. PIT
RL 5.18

EX. PIT

EXISTING STORMWATER PIPE Ø225 TO BE UPGRADED FOR ARI=100 YEARS

NEW CATCH PIT OVER EXISTING Ø225 PIPE. PIT RL TO MATCH EXISTING PAVEMENT RLS ~5.245

NEW GRATED DRAIN TO MATCH EXISTING PAVEMENT RLS

NEW GRATED DRAIN TO DISCHARGE TO JUNCTION PIT

NEW JUNCTION PIT RL~ 5.315 TO MATCH EXISTING RLS

NEW JUNCTION PIT RL~ 5.315 TO MATCH EXISTING RLS

NEW GD

5000

EXISTING COVERED WAY

CHARGE

FUTURE BUILDING M

GFL 5.450

WATER TANK

EX. PIT
IL 4.51

KERB OUTLET PIPE ~ IL5.360 (C.O.S.)

TO AREA HATCHED THUS:
DEMOLISH EXISTING PAVEMENT AND ROAD KERB AND REINSTATE AS PER SECTION A-A
PROVIDE KERB OUTLETS PIPES AT EITHER END, PIPE INVERT LEVEL TO MATCH EXISTING ROAD GUTTER INVERT LEVEL

NEW CATCH PIT RL 5.280

KERB OUTLET PIPE ~ IL5.290 (C.O.S.)

5.21 Ex. GUTTER INVERT (C.O.S.)

5.13 Ex. GUTTER INVERT (C.O.S.)

P18

NORTH

LEGEND EXISTING:

- EXISTING CONTOURS
- UT — EXISTING TELECOMMUNICATIONS (SURVEY)
- UE — EXISTING ELECTRICITY (SURVEY)
- UG — EXISTING GAS (SURVEY)
- UW — EXISTING WATER MAIN
- US — EXISTING SEWER
- UOF — EXISTING OPTICAL FIBRE
- UU — EXISTING UNKNOWN SERVICE
- USW — EXISTING STORMWATER LINE
- UFH — EXISTING FIRE HYDRANT
- EXISTING DOOR / GATE
- EXISTING SURFACE AMENITIES / SERVICES
- EXISTING BOLLARDS
- EXISTING STORMWATER PIT

LEGEND PROPOSED:

- PROPOSED GRATED SURFACE INLET PIT
- SS — PROPOSED SUBSOIL DRAINAGE
- SW — ALTERNATIVE STORMWATER LINE
- SW — PROPOSED STORMWATER LINE
- SW — EXISTING STORMWATER/DOWNPIPE LINE
- DP — PROPOSED DOWN PIPE
- DP — EXISTING DOWN PIPE

TOP OF KERB RLS TO MATCH EXISTING

THESE RLS TO SUIT ILS OF KERB OUTLET PIPES AT EACH END

FALL 50mm

NEW BUILDING 'M'

5.45

DOWELS TO EXISTING GUTTER

SECTION A-A
SCALE 1:20
0102

Rev.	Date	Description	Des.	Verif.	Appd.
4	14/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP
1	09/06/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Checked MR	Date MAY 2022
Designed VJ	Date MAY 2022
Verified PP	Date MAY 2022
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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SITE AND STORMWATER DRAINAGE PLAN
SHEET 2

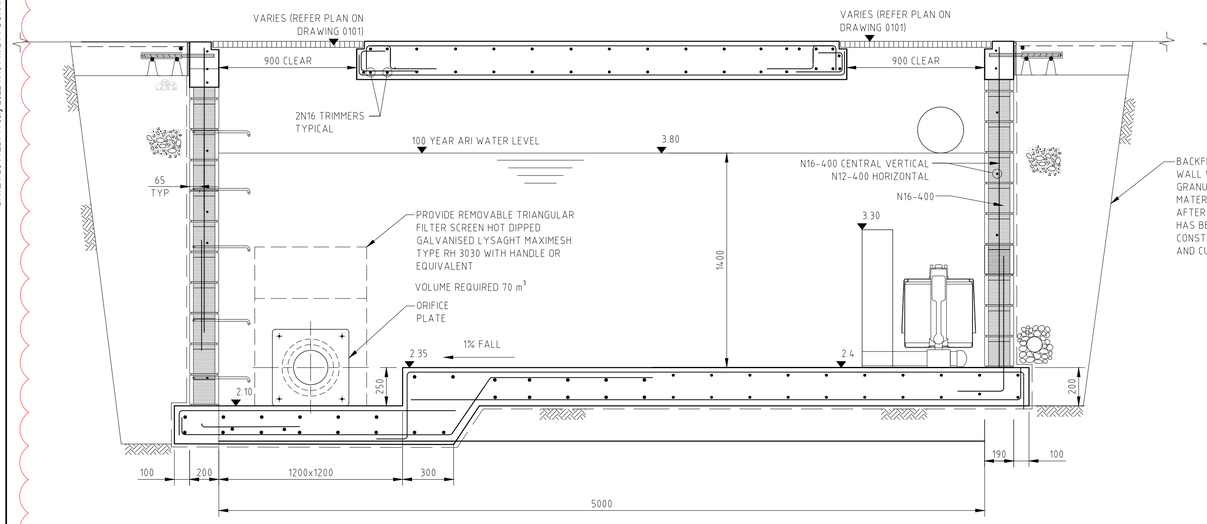
Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

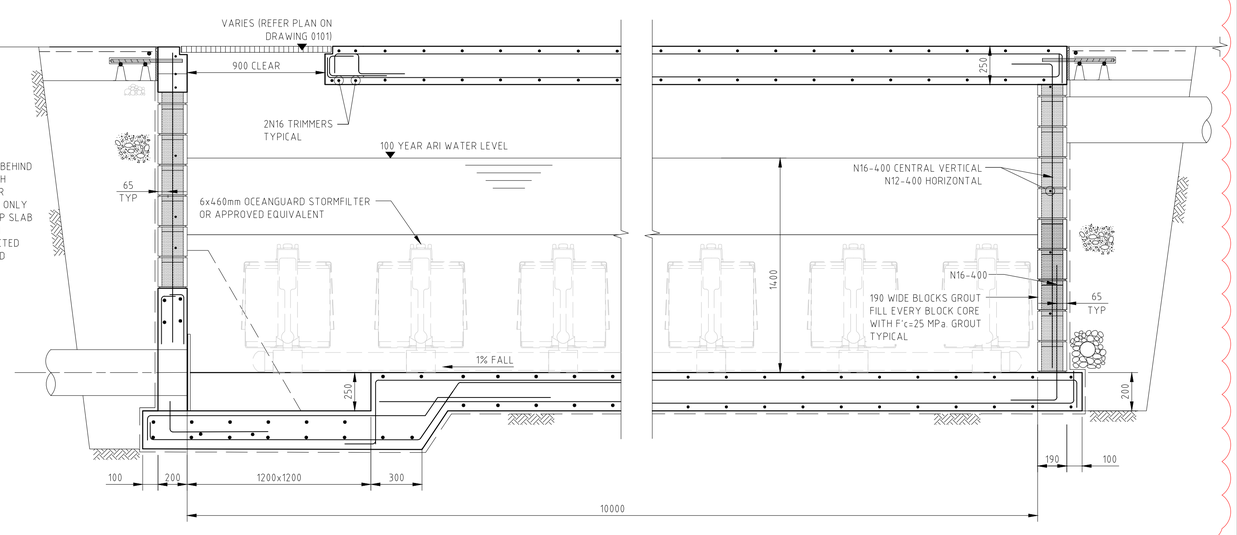
Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0102

Revision: 4

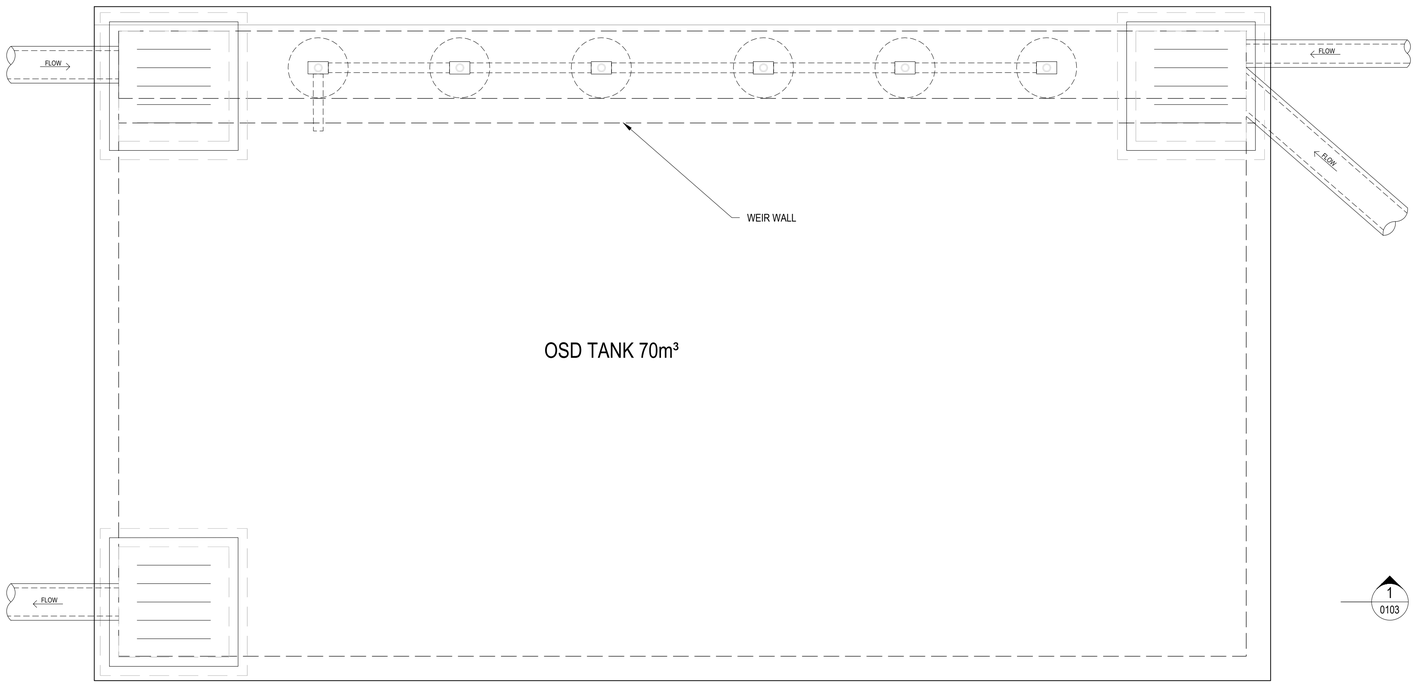
DATE PLOTTED: 14 July 2022 7:18 PM BY : GORAN MILENKOVIC



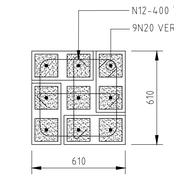


1 / 0103

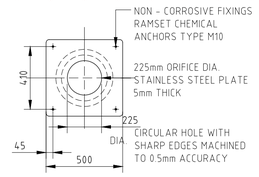
SECTION 1 / 0101
SCALE 1:20



OSD TANK PLAN
SCALE 1:25



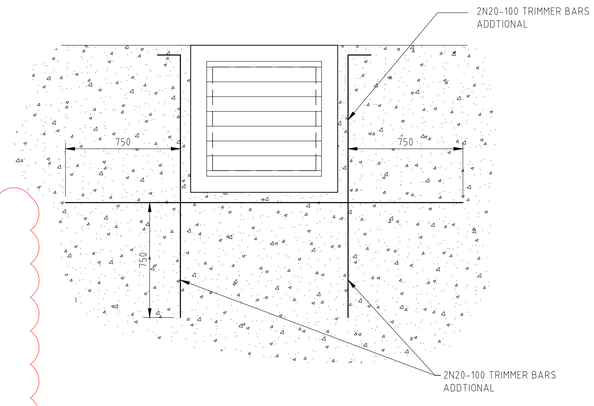
TYPICAL BLOCK PIER
N.T.S.



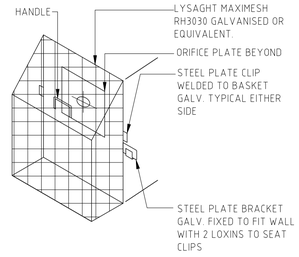
ORIFICE DIAMETER TO BE ENGRAVED ON THE PLATE SURFACE. ORIFICE TO BE EPOXY SEALED AROUND OUTER EDGES.

ORIFICE PLATE DETAIL
N.T.S.

SECTION 2 / 0101
SCALE 1:20



TRIMMER BARS TO OPENINGS
N.T.S.



TRASH SCREEN DETAIL
N.T.S.

STEP IRON DETAIL
N.T.S.

Rev.	Date	Description	Des.	Verif.	Appd.
4	14/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP
1	27/06/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

0 500 1000 1500 2000mm
SCALE 1:20 @A1

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Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
OSD TANK
SECTIONS AN DETAILS

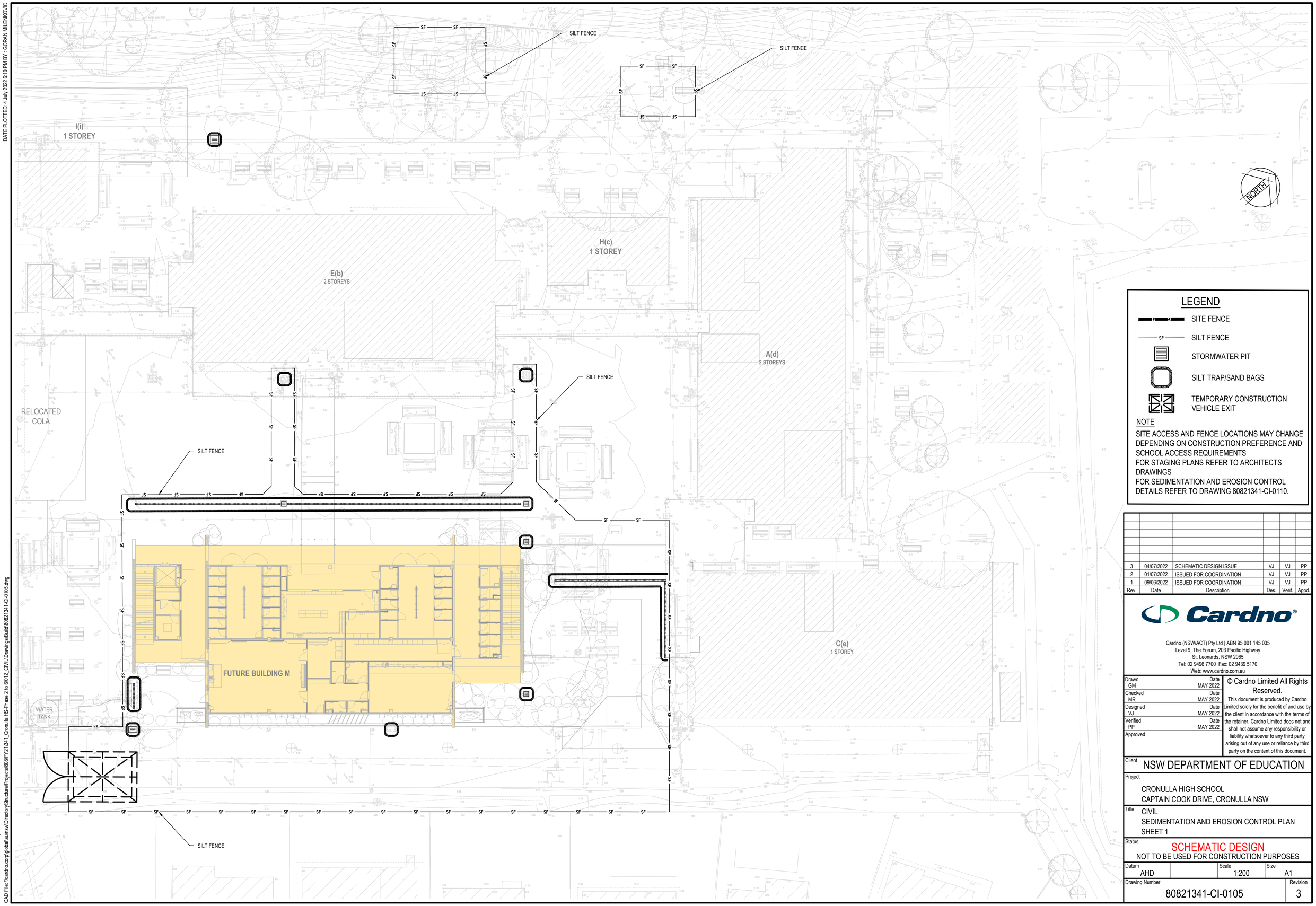
Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0103
Revision: 4

XREFs:
CAD File: N:\Projects\80821\FY21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0103.dwg

DATE PLOTTED: 4 July 2022 6:10 PM BY : GORAN MILENKOVIC



LEGEND

- SITE FENCE
- SILT FENCE
- STORMWATER PIT
- SILT TRAP/SAND BAGS
- TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

SITE ACCESS AND FENCE LOCATIONS MAY CHANGE DEPENDING ON CONSTRUCTION PREFERENCE AND SCHOOL ACCESS REQUIREMENTS
FOR STAGING PLANS REFER TO ARCHITECTS DRAWINGS
FOR SEDIMENTATION AND EROSION CONTROL DETAILS REFER TO DRAWING 80821341-CI-0110.

Rev.	Date	Description	Des.	Verif.	Appd.
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP
1	09/06/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0105
Revision: 3

XREFs: X-ARCH-SITE; X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT
CAD File: \\cardno.corp\global\au\nsw\Directory\Structure\Projects\80\81F\21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0105.dwg

DATE PLOTTED: 4 July 2022 6:11 PM BY - GORAN MILENKOVIC

XREFs: X-ARCH-SITE; X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT

CAD File: \\cardno.corp\global\au\nsw\Directory\Structure\Projects\80BIFY21341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0106.dwg

I(i)
1 STORY

D(a)
2 STOREYS

RELOCATED
COLA

EXISTING LINK
- BUILDING D&F

BLD G - EXISTING

HALL EXTENSION

BLD F - EXISTING

WATER TANK

BOUNDARY

LEGEND

- SITE FENCE
- SF — SILT FENCE
- STORMWATER PIT
- SILT TRAP/SAND BAGS
- TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

SITE ACCESS AND FENCE LOCATIONS MAY CHANGE DEPENDING ON CONSTRUCTION PREFERENCE AND SCHOOL ACCESS REQUIREMENTS
FOR STAGING PLANS REFER TO ARCHITECTS DRAEINGS
FOR SEDIMENTATION AND EROSION CONTROL DETAILS REFER TO DRAWING 80821341-CI-0110.

Rev.	Date	Description	Des.	Verif.	Appd.
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2023	ISSUED FOR COORDINATION	VJ	VJ	PP
1	09/06/2023	ISSUED FOR COORDINATION	VJ	VJ	PP

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Drawn GM	Date MAY 2022
Checked MR	Date MAY 2022
Designed VJ	Date MAY 2022
Verified PP	Date MAY 2022
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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 2

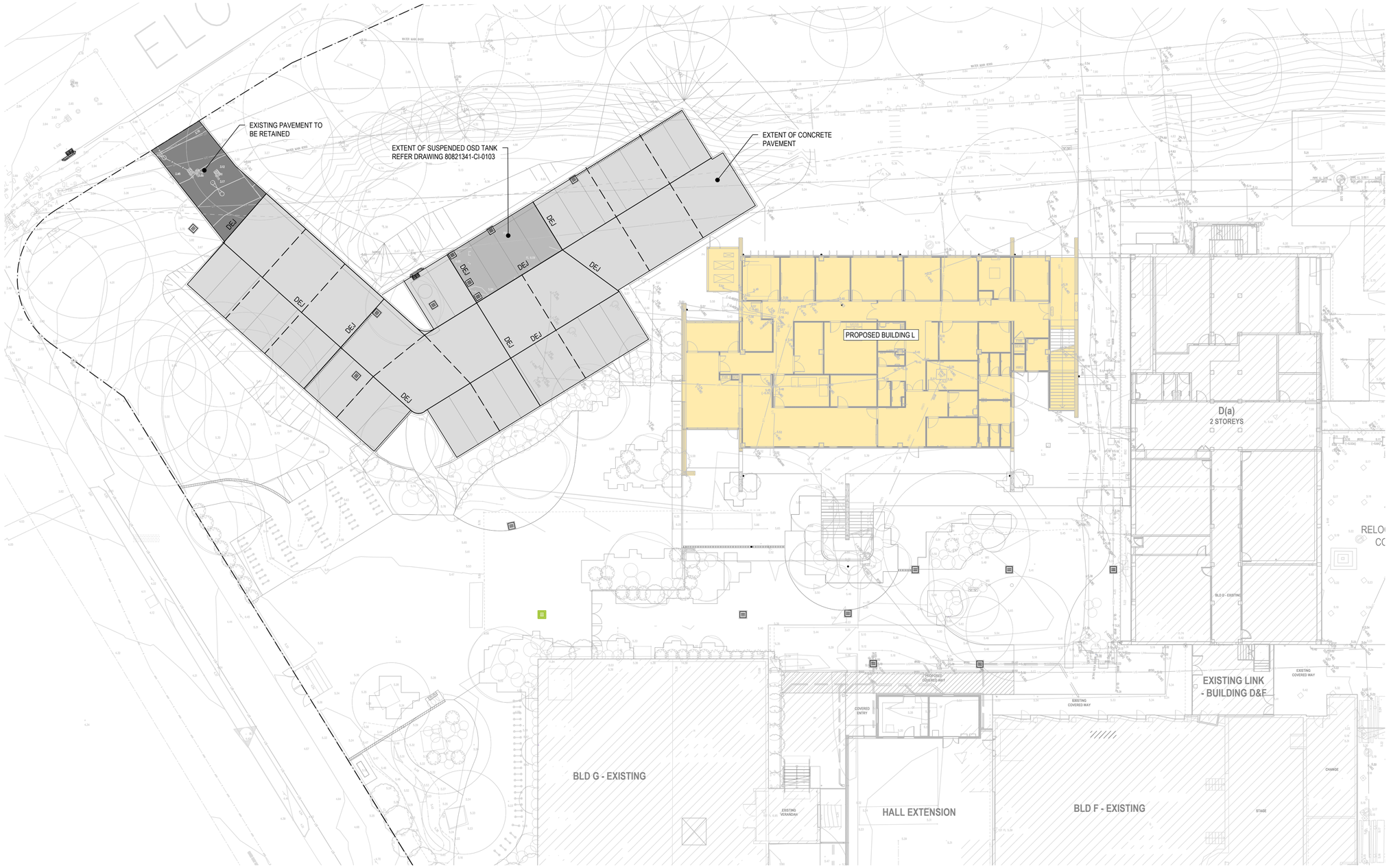
Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0106

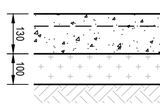
Revision: 3

DATE PLOTTED: 4 July 2022 6:13 PM BY - GORAN MILENKOVIC



LEGEND:

- EXISTING PAVEMENT TO REMAIN
- PROPOSED CONCRETE PAVEMENT
- SUSPENDED OSD TANK SLAB



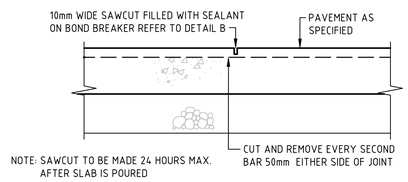
130MM SLAB, REINFORCED WITH SL82 MESH POURED ON 5MM SAND BLINDING OVER VAPOUR PROOF MEMBRANE ON 100MM DGB20 COMPACTED TO 98% SMDD. INCREASE SLAB THICKNESS TO 220MM FOR AT LEAST 1.5M FROM THE ENDS.

SUBGRADE TO BE PREPARED FOR A CBR OF 10% IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT

JOINTS AS SHOWN SHALL BE SAWN JOINTS UNLESS NOTED OTHERWISE

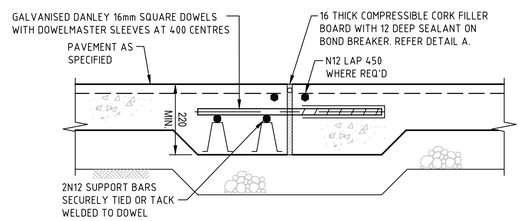
CONCRETE PAVEMENT

SCALE 1:10



SAWN JOINT (TYPICAL)

SCALE 1:10



DOWELLED EXPANSION JOINT (DEJ1) (TYPICAL UNO)

SCALE 1:10

Rev.	Date	Description	Des.	Verif.	Appd.
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1	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
CAR PARK PAVEMENT PLAN AND DETAILS

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0109
Revision: 2

XREFs: X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT
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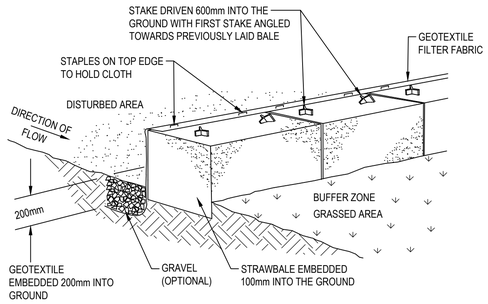
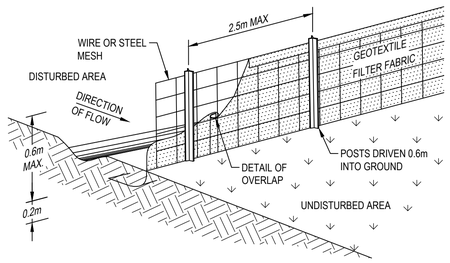
DATE PLOTTED: 4 July 2022 6:13 PM BY : GORAN MILENKOVIC



STRAWBALE AND GEOTEXTILE SEDIMENT FILTER
NTS



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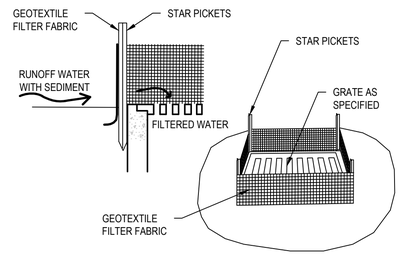
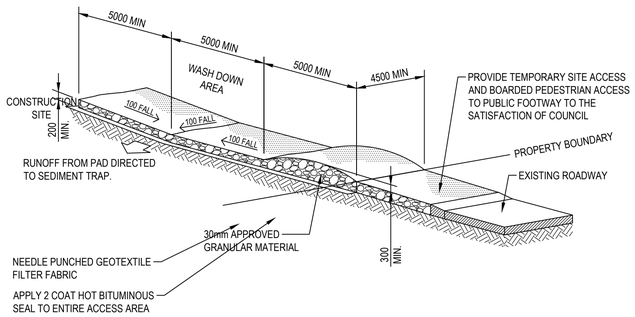
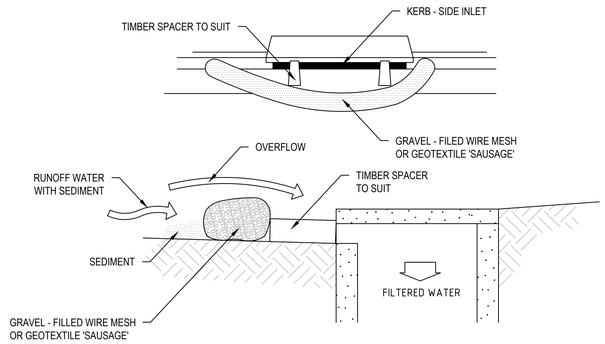


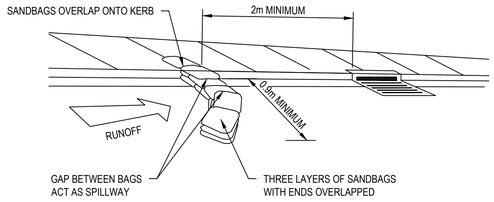
GEOTEXTILE FILTER PIT SURROUND
NTS



STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
NTS



MESH AND GRAVEL INLET FILTER
NTS



SANDBAG SEDIMENT TRAP FOR KERB INLET ON GRADE
NTS

Rev.	Date	Description	Des.	Verif.	Appd.
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
1	09/06/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Drawn	GM	Date MAY 2022
Checked	MR	Date MAY 2022
Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL
DETAILS

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0110

Revision: 3

XREF's:
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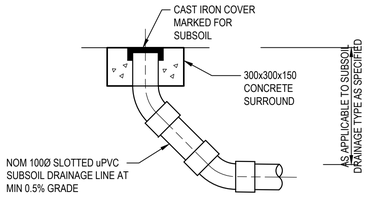
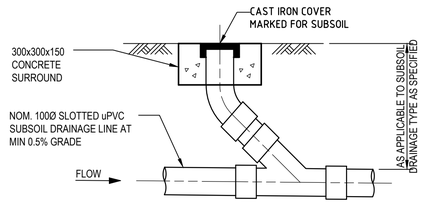
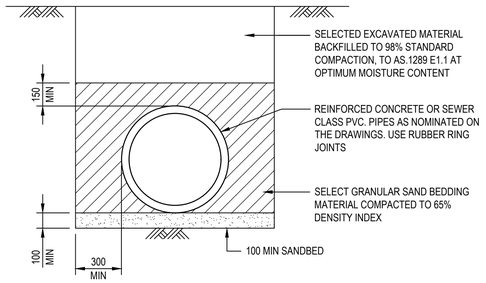


HIGH END RISER
N.T.S.



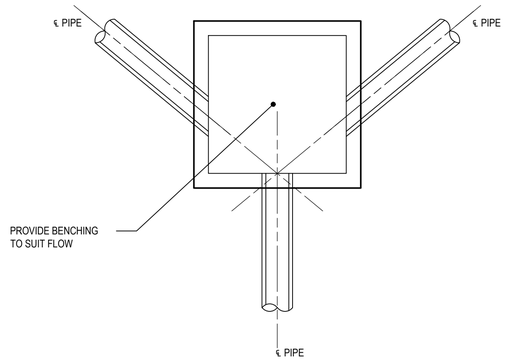
INTERMEDIATE RISER
N.T.S.

(TYPICAL AT 25m. INTERVALS UNLESS OTHERWISE NOTED ON PLAN)

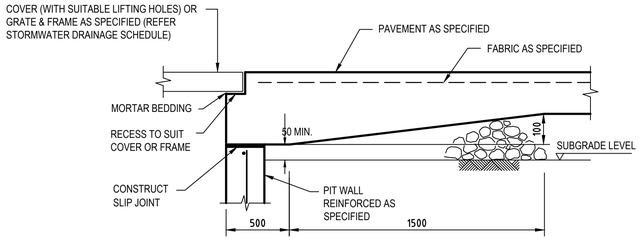


TYPICAL PIPE LAYING DETAIL U.N.O.

NOTE:
ALLOW TO BUILD 100Ø AG. DRAIN IN THE LAST 3.0m OF DRAINAGE PIPE, UPSTREAM OF ALL DRAINAGE PITS.



JUNCTION PIT SET OUT DETAILS
N.T.S



DETAIL "A"
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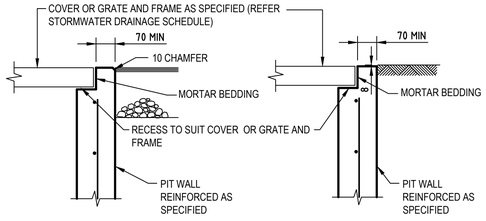
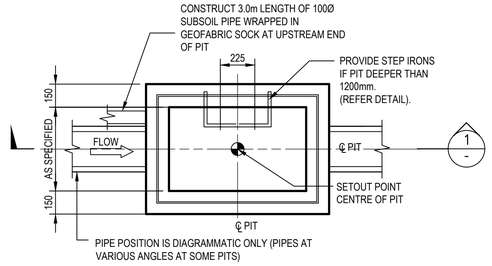


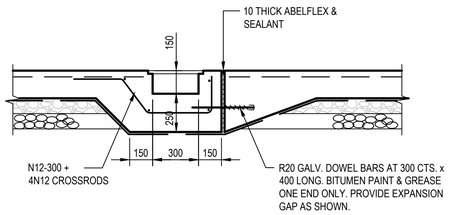
DETAIL "B"
SCALE 1:10

DETAIL "C"
SCALE 1:10

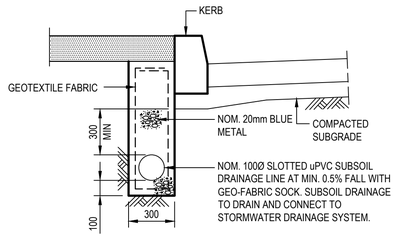


PLAN
NTS

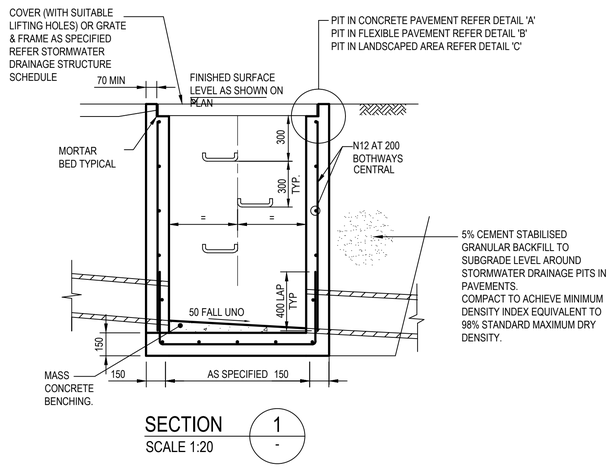
PIT EDGE TREATMENT FOR STORMWATER DRAINAGE AND OTHER SERVICES PITS IN ROAD PAVEMENTS AND LANDSCAPED AREAS



GRATED DRAIN DETAIL
SCALE 1:20



SUBSOIL DRAINAGE LINE IN LANDSCAPED AREAS ADJACENT TO ROADS



SECTION 1 / -
SCALE 1:20

SURFACE INLET/JUNCTION PIT (SIP/JP)

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Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0111

Revision: 2

XREF's:
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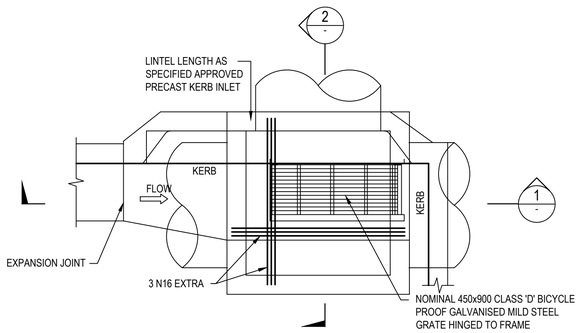
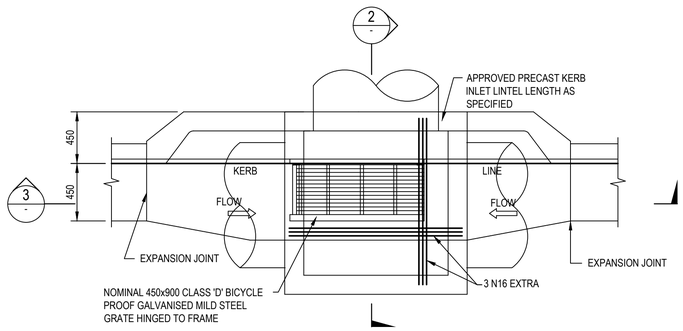
DATE PLOTTED: 4 July 2022 6:16 PM BY - GORAN MILENKOVIC



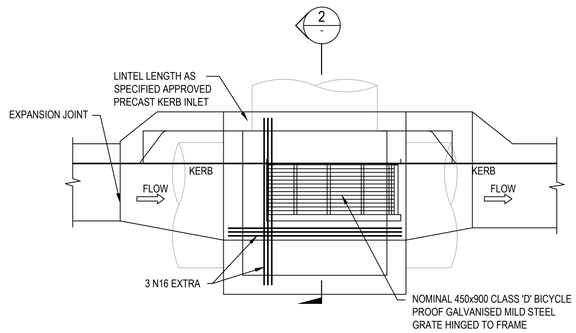
PLAN
NTS

KERB INLET PIT (KIP-A)
(CORNER)



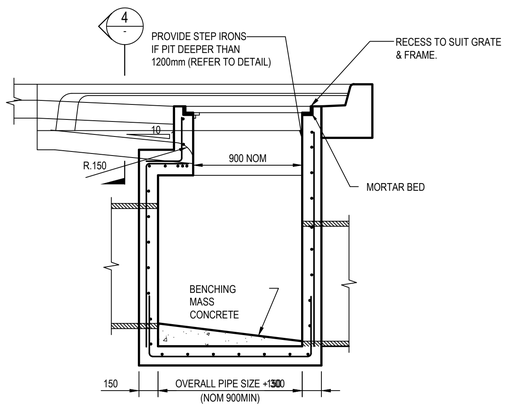
PLAN
NTS

KERB INLET PIT (KIP-B)
(SAG)



PLAN
NTS

KERB INLET PIT (KIP-C)
(ON GRADE)



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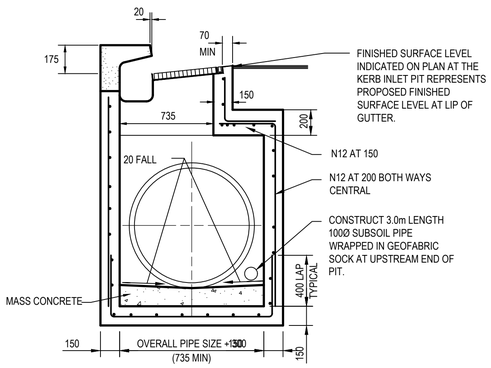

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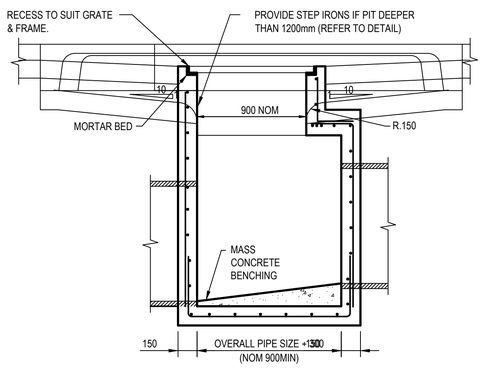

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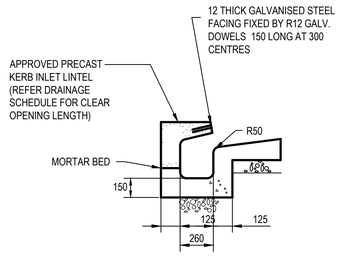

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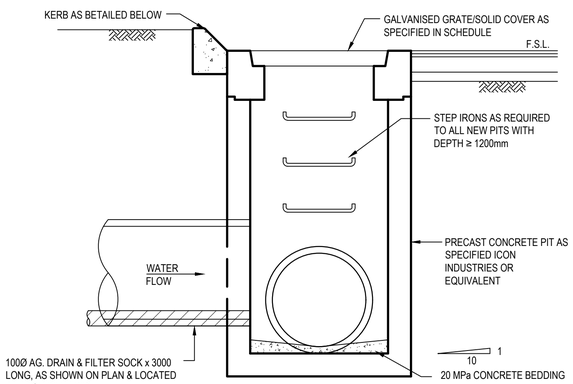

PRECAST STORMWATER PIT

TO BE INSTALLED AND BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. PROVIDE GALVANISED IRON STEP IRONS EPOXIED INTO CONCRETE FOR PITS DEEPER THAN 1200mm.

Rev.	Date	Description	Des.	Verif.	Appd.
2	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
1	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Drawn	GM	Date MAY 2022
Checked	MR	Date MAY 2022
Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 2

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0112

Revision: 2

XREFs:
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APPENDIX

B

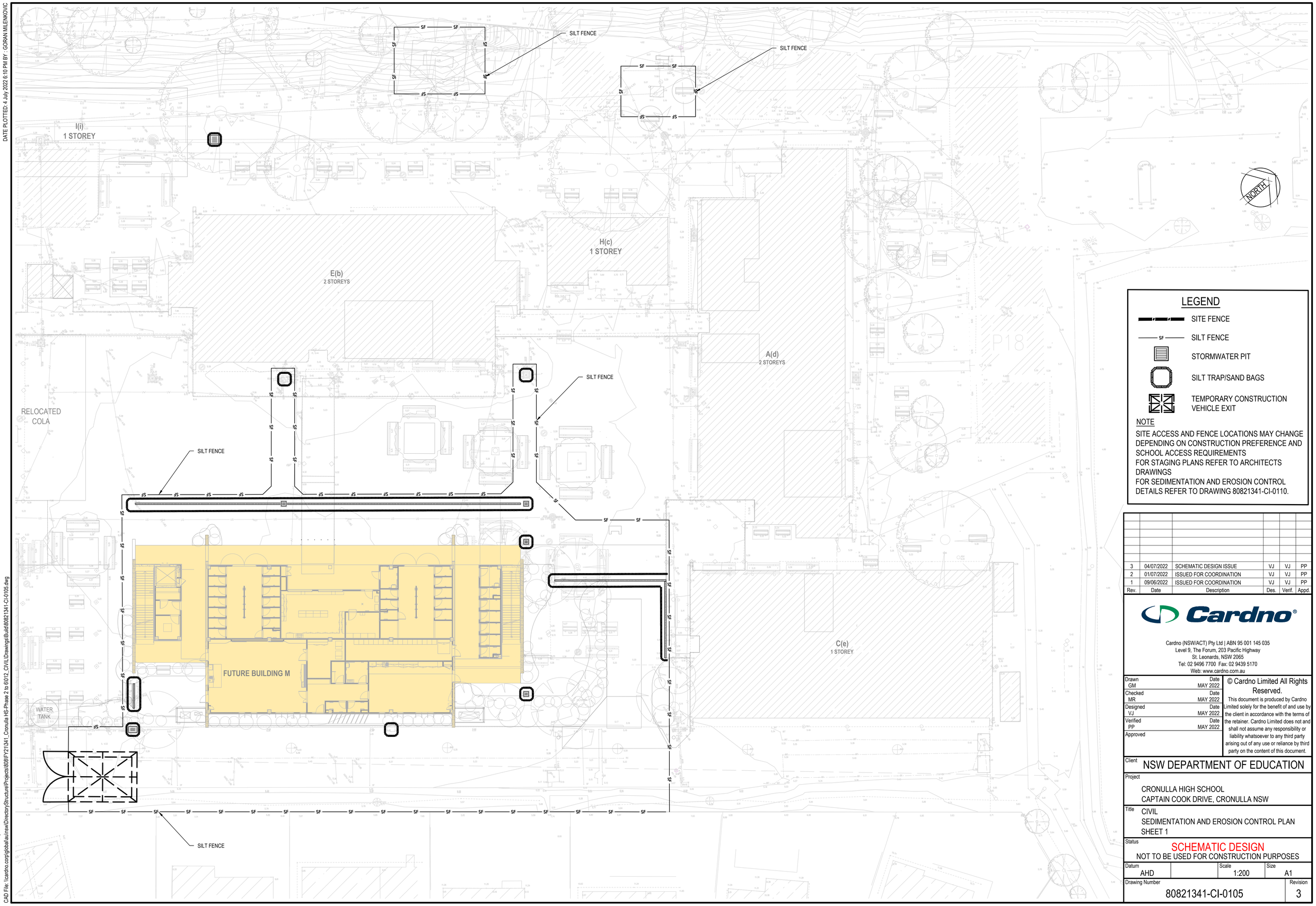
SOIL WATER AND MANAGEMENT PLAN

Cardno

now

Stantec

DATE PLOTTED: 4 July 2022 6:10 PM BY : GORAN MILENKOVIC



LEGEND

- SITE FENCE
- SILT FENCE
- STORMWATER PIT
- SILT TRAP/SAND BAGS
- TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

SITE ACCESS AND FENCE LOCATIONS MAY CHANGE DEPENDING ON CONSTRUCTION PREFERENCE AND SCHOOL ACCESS REQUIREMENTS
FOR STAGING PLANS REFER TO ARCHITECTS DRAWINGS
FOR SEDIMENTATION AND EROSION CONTROL DETAILS REFER TO DRAWING 80821341-CI-0110.

Rev.	Date	Description	Des.	Verif.	Appd.
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0105
Revision: 3

XREFs: X-ARCH-SITE; X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT
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XREFs: X-ARCH-SITE; X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT

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I(i)
1 STORY

D(a)
2 STOREYS

RELOCATED
COLA

EXISTING LINK
- BUILDING D&F

BLD G - EXISTING

HALL EXTENSION

BLD F - EXISTING

WATER TANK

BOUNDARY

LEGEND

- SITE FENCE
- SF — SILT FENCE
- STORMWATER PIT
- SILT TRAP/SAND BAGS
- TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

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Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 2

Status: SCHEMATIC DESIGN
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Datum		Scale	Size
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Revision: 3

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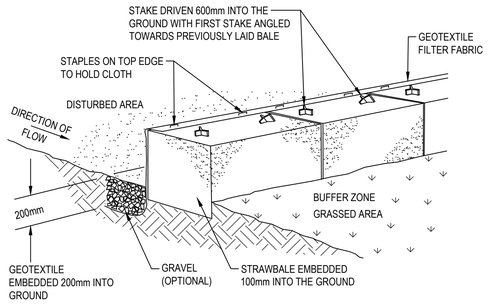

STRAWBALE AND GEOTEXTILE SEDIMENT FILTER
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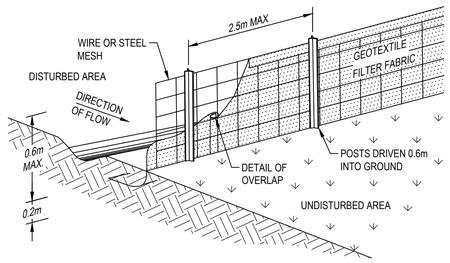

SEDIMENT FENCE
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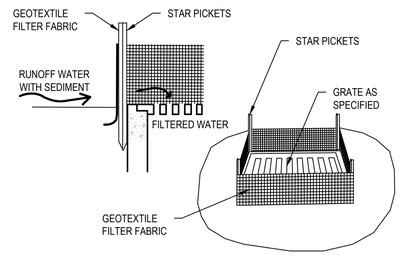

GEOTEXTILE FILTER PIT SURROUND
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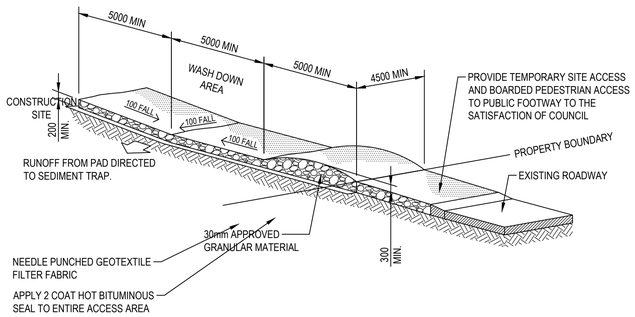
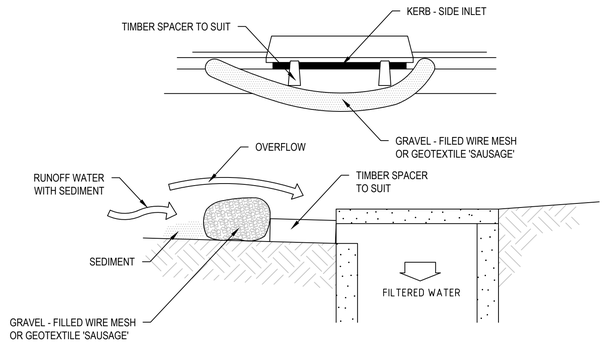


STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
NTS



MESH AND GRAVEL INLET FILTER
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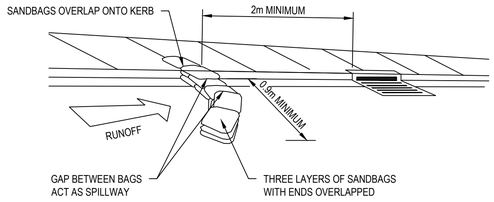

SANDBAG SEDIMENT TRAP FOR KERB INLET ON GRADE
NTS

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Drawn	GM	Date MAY 2022
Checked	MR	Date MAY 2022
Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL
DETAILS

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0110

Revision: 3

XREF's:
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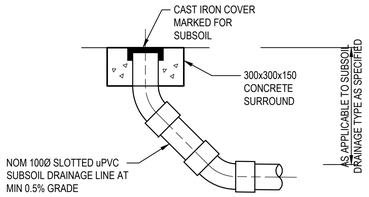
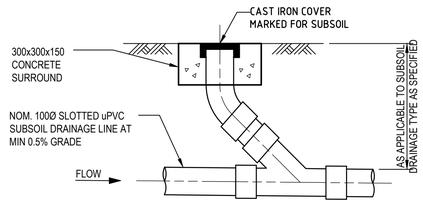
DATE PLOTTED: 4 July 2022 6:15 PM BY : GORAN MILENKOVIC

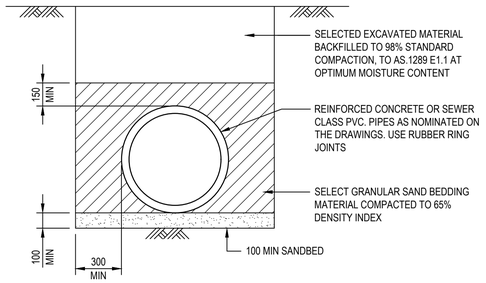


HIGH END RISER
N.T.S.



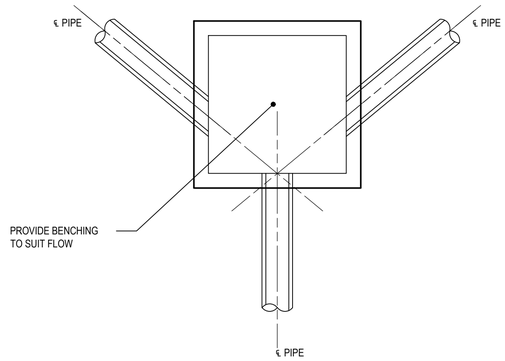
INTERMEDIATE RISER
N.T.S.

(TYPICAL AT 25m. INTERVALS UNLESS OTHERWISE NOTED ON PLAN)

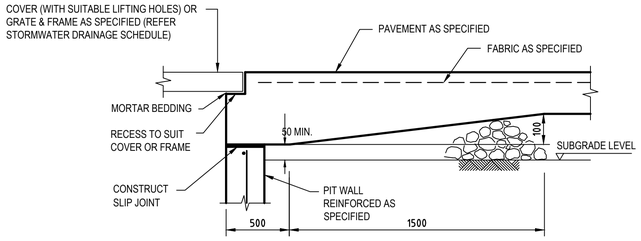


TYPICAL PIPE LAYING DETAIL U.N.O.

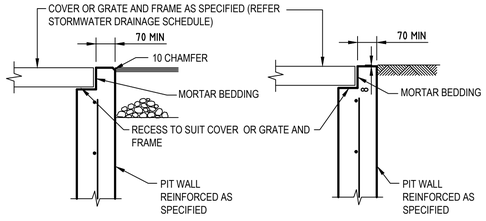
NOTE:
ALLOW TO BUILD 100Ø AG. DRAIN IN THE LAST 3.0m OF DRAINAGE PIPE, UPSTREAM OF ALL DRAINAGE PITS.



JUNCTION PIT SET OUT DETAILS
N.T.S

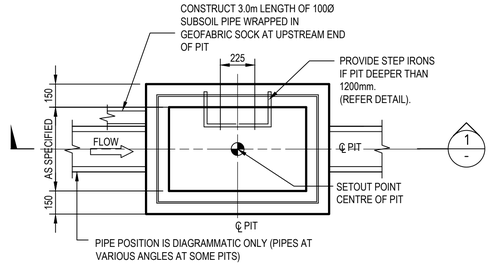


DETAIL "A"
N.T.S



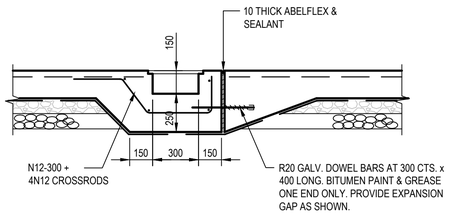
DETAIL "B"
SCALE 1:10

DETAIL "C"
SCALE 1:10

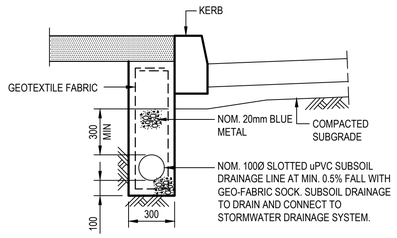


PLAN
NTS

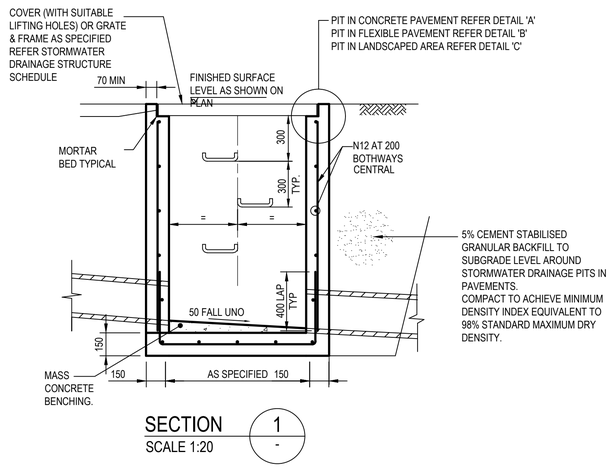
PIT EDGE TREATMENT FOR STORMWATER DRAINAGE AND OTHER SERVICES PITS IN ROAD PAVEMENTS AND LANDSCAPED AREAS



GRATED DRAIN DETAIL
SCALE 1:20



SUBSOIL DRAINAGE LINE IN LANDSCAPED AREAS ADJACENT TO ROADS



SECTION 1 / -
SCALE 1:20

SURFACE INLET/JUNCTION PIT (SIP/JP)

Rev.	Date	Description	Des.	Verif.	Appd.
2	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
1	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Drawn	GM	Date MAY 2022
Checked	MR	Date MAY 2022
Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0111

Revision: 2

XREF's:
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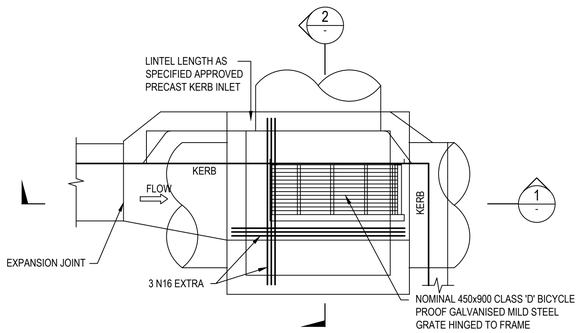
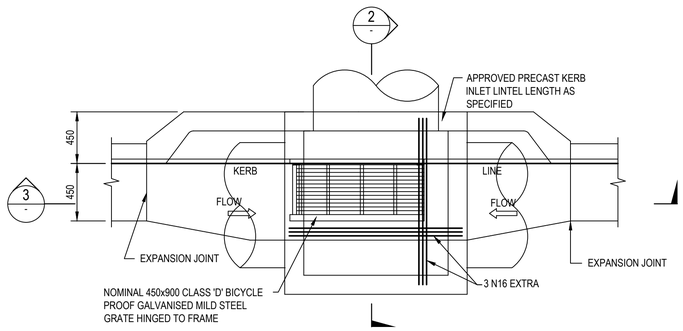
DATE PLOTTED: 4 July 2022 6:16 PM BY - GORAN MILENKOVIC



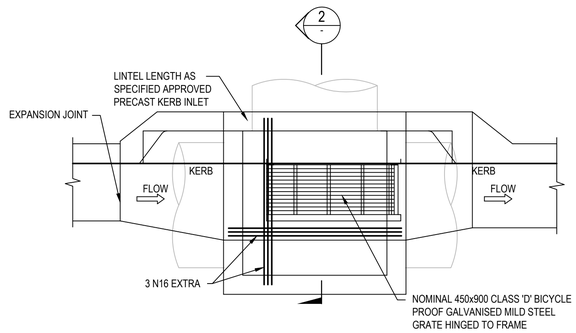
PLAN
NTS

KERB INLET PIT (KIP-A)
(CORNER)



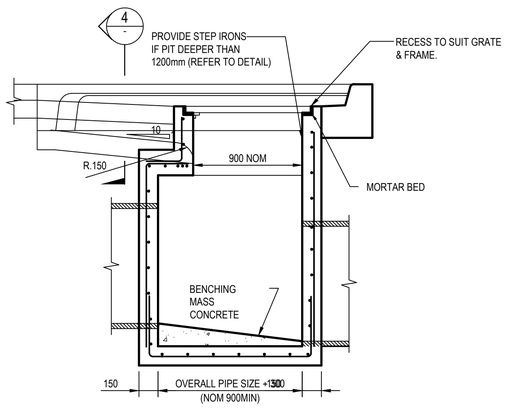
PLAN
NTS

KERB INLET PIT (KIP-B)
(SAG)

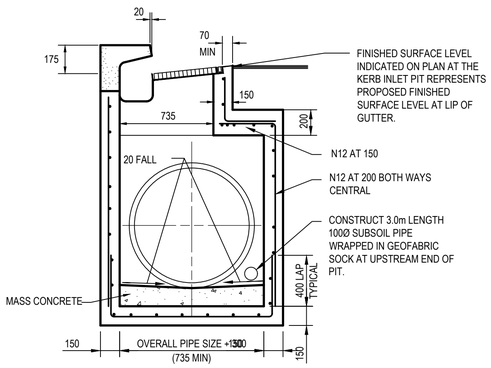


PLAN
NTS

KERB INLET PIT (KIP-C)
(ON GRADE)



SECTION 1
SCALE 1:20



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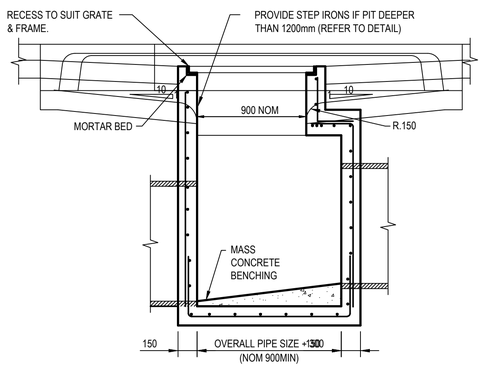

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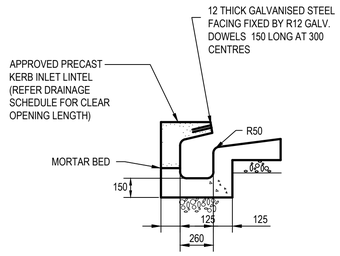

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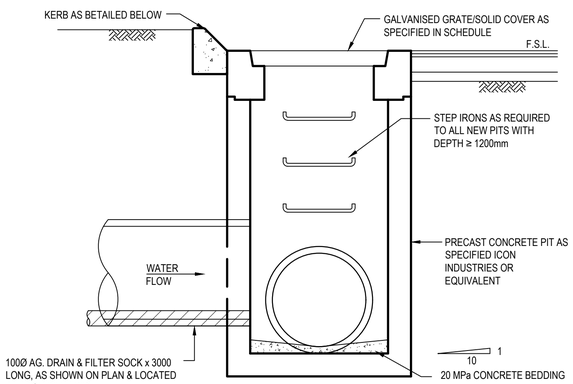

PRECAST STORMWATER PIT

TO BE INSTALLED AND BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. PROVIDE GALVANISED IRON STEP IRONS EPOXIED INTO CONCRETE FOR PITS DEEPER THAN 1200mm.

Rev.	Date	Description	Des.	Verif.	Appd.
2	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
1	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP

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Drawn	GM	Date MAY 2022
Checked	MR	Date MAY 2022
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Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 2

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

Drawing Number: 80821341-CI-0112

Revision: 2

XREFs:
CAD File: \\cardno.corp\global\au\nsw\Director\Structure\Projects\808\PY21341_Cronulla HS-Phase 2 to 6\01\2_CIVIL\Drawings\Build\80821341-CI-0112.dwg

APPENDIX

C

STRUCTURAL ENGINEERING DRAWINGS

Cardno

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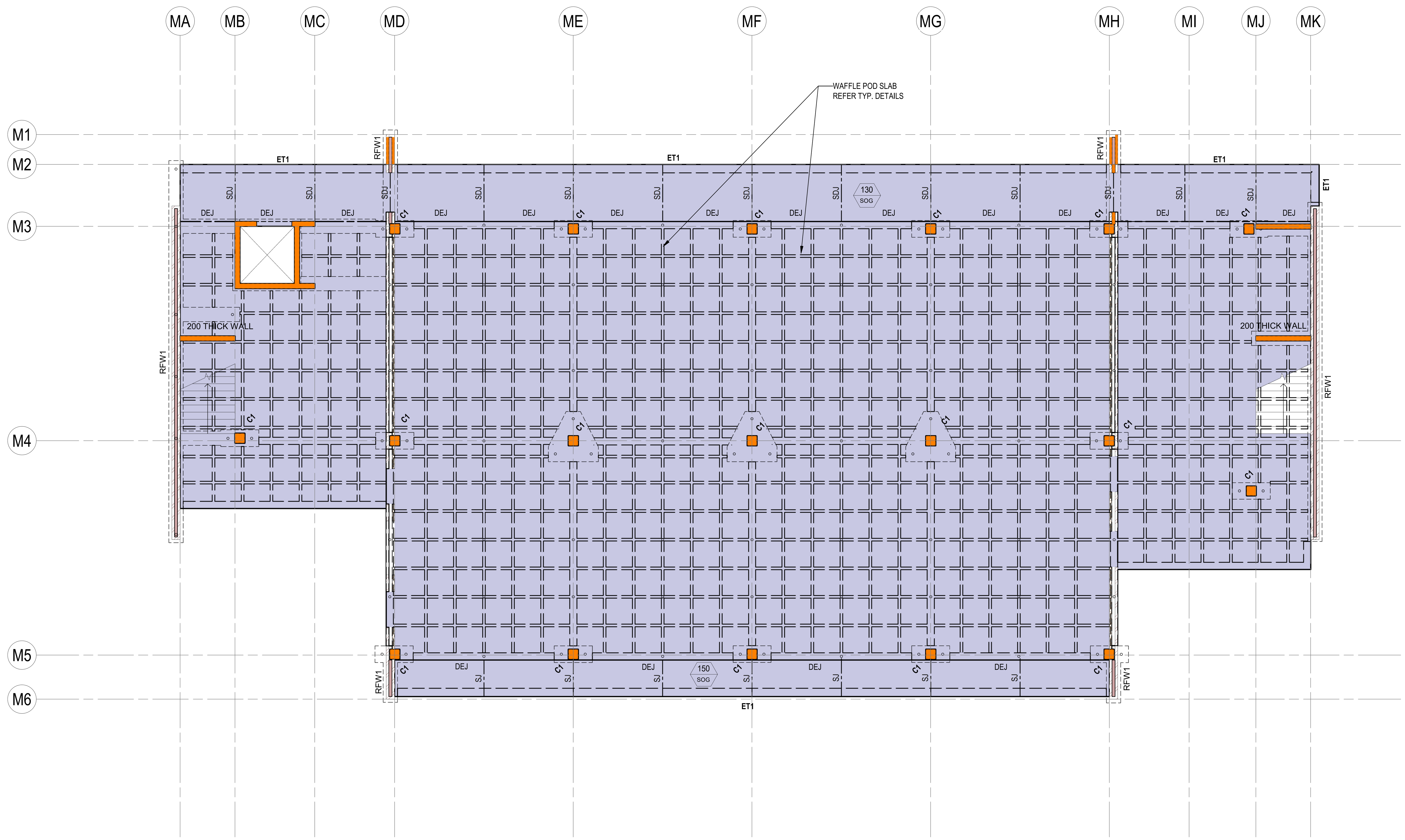
DATE PLOTTED: 4/07/2022 7:22:18 PM



SLAB ON GRADE PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES & DRAWING LIST REFER TO DRAWING No ST-0001
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

SLABS

1. FOR SLAB FLOOR FINISHED REFER TO ARCHITECTS DRAWINGS.
2. FOR ALL SLAB PENETRATIONS REFER TO ARCHITECTS & BUILDING SERVICES DRAWINGS.
3. SURFACE FALLS, DRAINAGE & EMERGENCY OVERFLOWS IN EXTERNAL AREAS TO ARCHITECTS DETAILS.
4. ALL WATERPROOFING TO ARCHITECTS SPECIFICATION.
5. ALL FALLS TO ARCHITECTS DETAILS/
6. FOR ADDITIONAL REINFORCEMENT REFER TO PLANS, SECTIONS AND DETAILS.
7. PROVIDE TRIMMER BARS AROUND ALL PENETRATIONS, COLUMNS, JOINT INTERSECTIONS AND RE-ENTRANT CORNERS. REFER TO TYPICAL SLAB ON GROUND TRIMMER DETAILS FOR REINFORCEMENT. ALL TRIMMER BARS TO BE LAID UNDER TOP REINFORCEMENT (FABRIC).
8. PROVIDE FILLER AND APPROVED SEALANT WITH BACKING ROD AROUND ALL COLUMNS, WALLS AND PANELS THAT PENETRATE THE SLAB. REFER TO TYPICAL JOINT DETAILS.
9. ENSURE ALL TILED SURFACES AND MASONRY WALLS ARE JOINTED ACROSS CONCRETE SLAB JOINTS
10. JOINT PATTERN MAY BE ALTERED TO SUIT CONSTRUCTION SEQUENCE. ADVISE ENGINEER OF PROPOSED CHANGES PRIOR TO POURING CONCRETE.

SLAB ON GRADE PLAN LEGEND

200	SLAB THICKNESS
EB__	EDGE BEAM, REFER TO DETAILS
IB__	INTERNAL BEAM, REFER TO DETAILS
ET__	SLAB THICKENING REFER TO DETAILS
C	CONCRETE COLUMN OVER, REFER TO COLUMN SCHEDULE AND DETAILS
SC	STEEL COLUMN, REFER TO MEMBER SCHEDULE
●	LOADBEARING PILE UNDER PILE CAP / FOOTING, REFER TO DETAILS
-60	SETDOWN IN SLAB SURFACE TO BE CONFIRMED BY THE ARCHITECT
600 x 1200 BEAM	DENOTES SIZE OF BEAM (DEPTH x WIDTH)

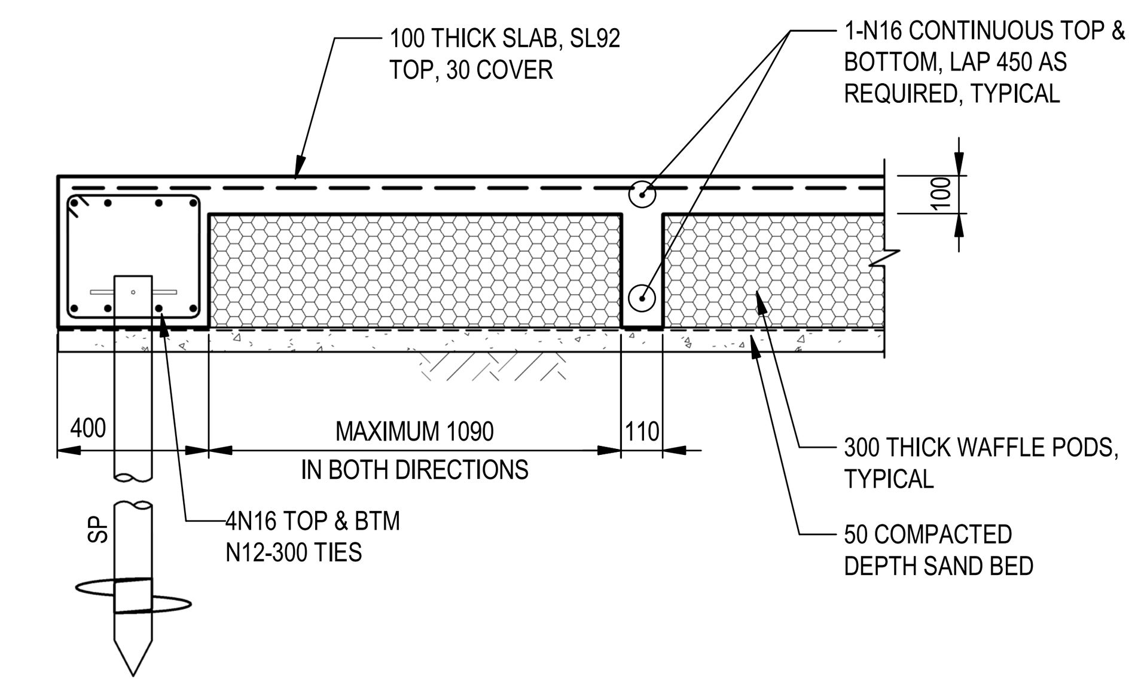
NORTH

CONCRETE COLUMN SCHEDULE

Mark	Member Size	Description
C1	400x400	CONCRETE COLUMN

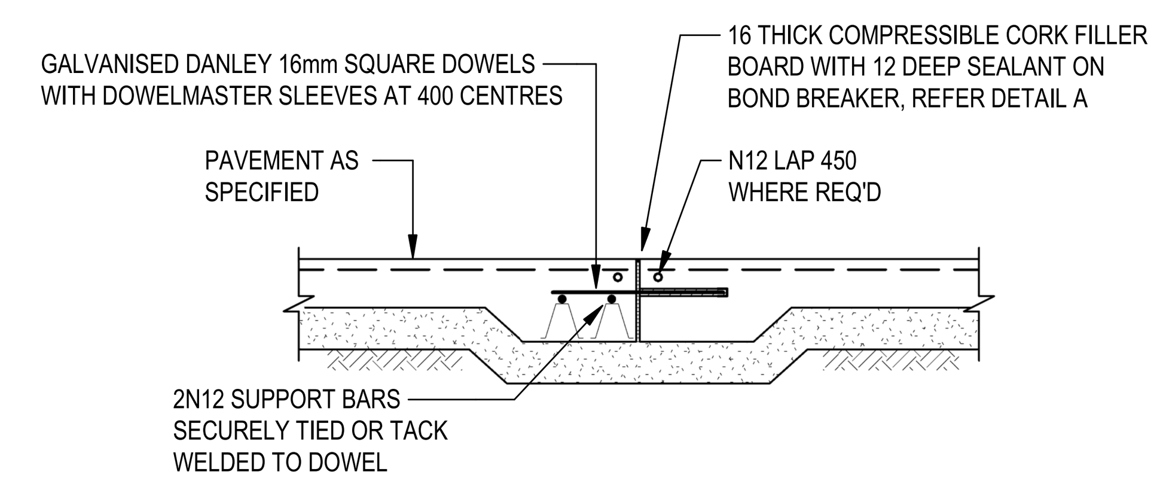
REINFORCED WALL:

- **RFW1 : 350 REINFORCED BRICKWALL**



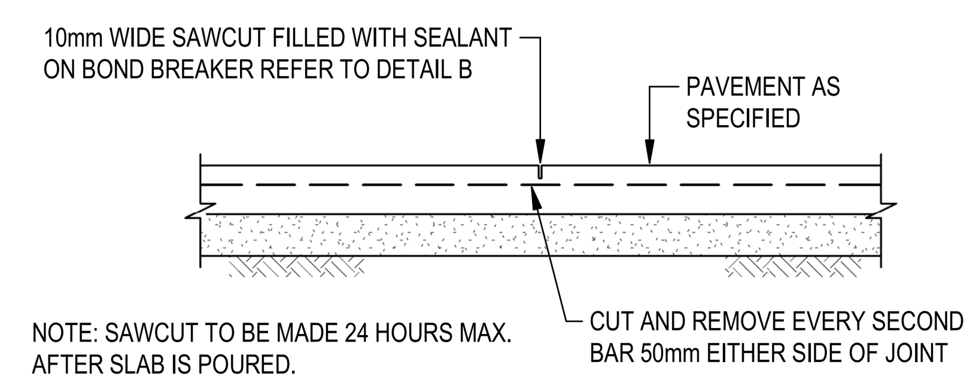
WAFFLE SLAB EDGE BEAM DETAIL

SCALE 1:20



DOWELLED EXPANSION JOINT (DEJ) (TYPICAL UNO)

SCALE 1:20



SAWN JOINT (SJ) (TYPICAL)

SCALE 1:20

BLOCK M GROUND FLOOR GENERAL ARRANGEMENT PLAN

SCALE 1 : 100

NOTE:

1. **GROUND FLOOR SLAB TO BE RAFT SLAB IN ACCORDANCE WITH AS2870 FOR A CLASS P SITE. THIS WILL COMPROMISE OF A 400mm DEEP RAFT WAFFLE SLAB WITH SCREW PILES.**
2. **ALL COLUMNS AND LOAD BEARING WALLS TO BE PILED USING SCREWED PILES. PILES TO BE FOUNDED IN MEDIUM DENSE SAND, ESTIMATED AT 6m DEPTH BELOW GROUND LEVEL, REFER GEOTECHNICAL INVESTIGATION REPORT BY MARTENS, REF P2108205JR2V01**
3. **CONCRETE STRENGTH, f'c = 40 MPa.**

MODEL PATH: C:\Temp\Revit\80821341 - Cronulla HS - Phase 2 to 6 (Central 2019)_amel.salonga.rvt

Rev	Date		Des.	Ver.	Appr.
6	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
5	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn AS | Checked AK | Designed AK | Verified PP | Approved

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

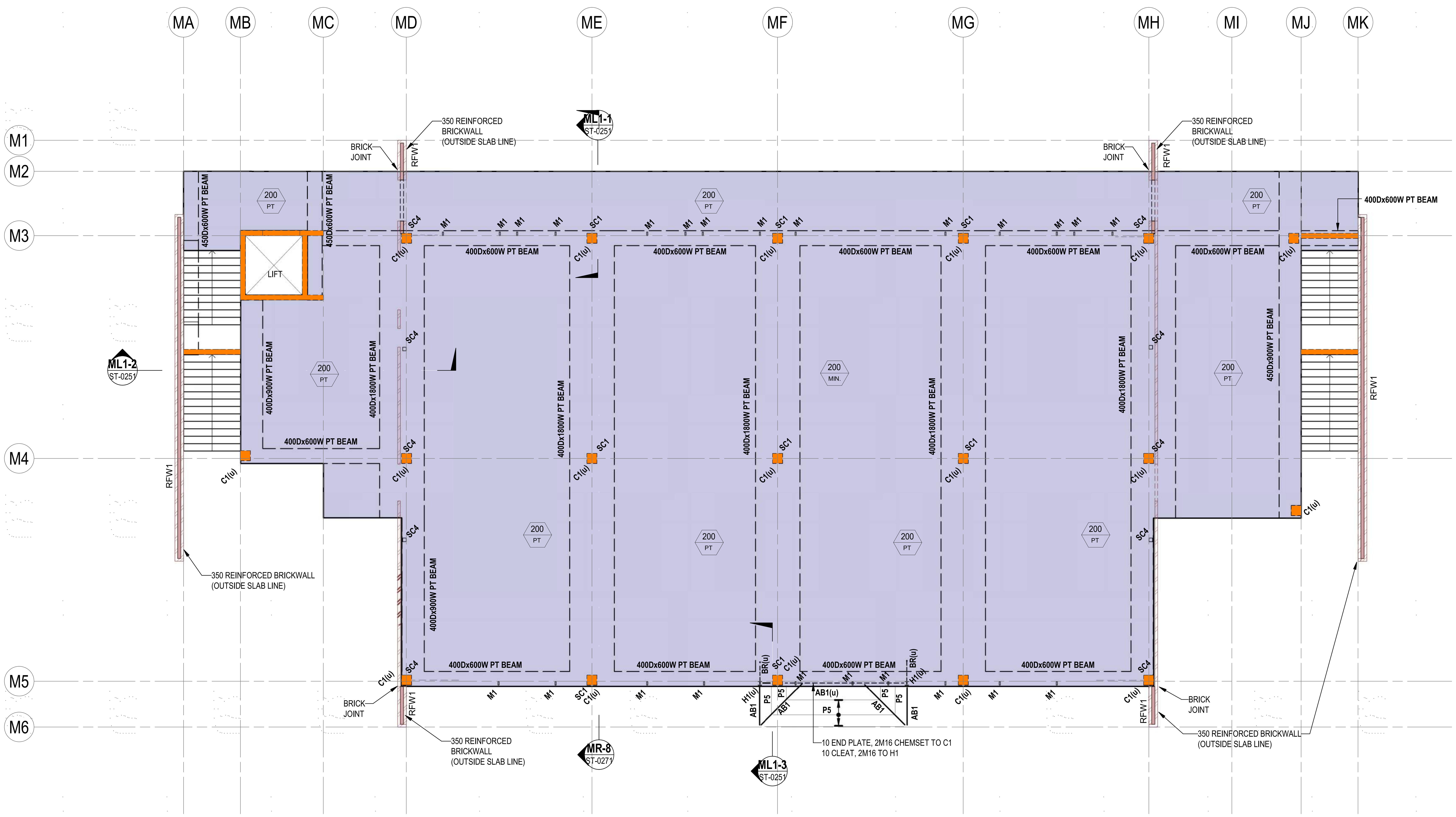
Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Scale 1:100 | Size A1

Title: BLOCK M GROUND FLOOR G.A. PLAN

Drawing Number: 80821341-ST-0221 | Revision: 6

DATE PLOTTED: 4/07/2022 7:22:23 PM



SUSPENDED LAB PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES & DRAWING LIST REFER TO DRAWING No ST-001 & ST-002
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

SLABS

1. FOR SLAB FLOOR FINISHED REFER TO ARCHITECTS DRAWINGS.
2. FOR ALL SLAB PENETRATIONS REFER TO ARCHITECTS & BUILDING SERVICES DRAWINGS.
3. SURFACE FALLS, DRAINAGE & EMERGENCY OVERFLOWS IN EXTERNAL AREAS TO ARCHITECTS DETAILS.
4. ALL WATERPROOFING TO ARCHITECTS SPECIFICATION.
5. ALL FALLS TO ARCHITECTS DETAILS/
6. FOR ADDITIONAL REINFORCEMENT REFER TO PLANS, SECTIONS AND DETAILS.

SUSPENDED SLAB PLAN LEGEND

200	SLAB THICKNESS
EB__	EDGE BEAM, REFER TO DETAILS
IB__	INTERNAL BEAM, REFER TO DETAILS
PL__	CONCRETE PLINTH REFER TO DETAILS
C	CONCRETE COLUMN OVER, REFER TO COLUMN SCHEDULE AND DETAILS
SC	STEEL COLUMN, REFER TO MEMBER SCHEDULE
	LOADBEARING PILE UNDER PILE CAP / FOOTING, REFER TO DETAILS
-60	SETDOWN IN SLAB SURFACE TO BE CONFIRMED BY THE ARCHITECT
600 x 1200 BEAM	DENOTES SIZE OF BEAM (DEPTH x WIDTH)

STEEL COLUMN SCHEDULE

Mark	Member Size	Description
M1	150x50x4 RHS	MULLION
SC1	250x250x9 SHS	STEEL COLUMN
SC2	100x100x6 SHS	STEEL COLUMN
SC4	150x150x5 SHS	STEEL COLUMN
ST2	100x100x4 SHS	STUB COLUMN

BLOCK M AWNING STEEL MEMBER

Mark	Member Size	Description	Comments
H1	150UC30	HANGER	FULLY WELDED TO AB1
AB1	200 PFC	STEEL BEAM	
BR	75x75x4 SHS	BRACING	
P5	C15019	PURLIN	PURLINS @ 600

BLOCK M FIRST FLOOR GENERAL ARRANGMENT PLAN

SCALE 1 : 100

NOTES:

- **ALL CONCRETE COLUMN 400x400**
- **ALL SLABS 200 THICK**
- **ALL SLABS AND BEAMS TO BE POST-TENSIONED UNO**
- **FOR STEEL MEMBER SCHEDULE REFER ST-0261**

MODEL PATH: C:\Temp\Revit\80821341 - Cronulla HS - Phase 2 to 6 (Central 2019)_amel.salonga.rvt

Rev	Date		Des.	Ver.	Appr.
6	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
5	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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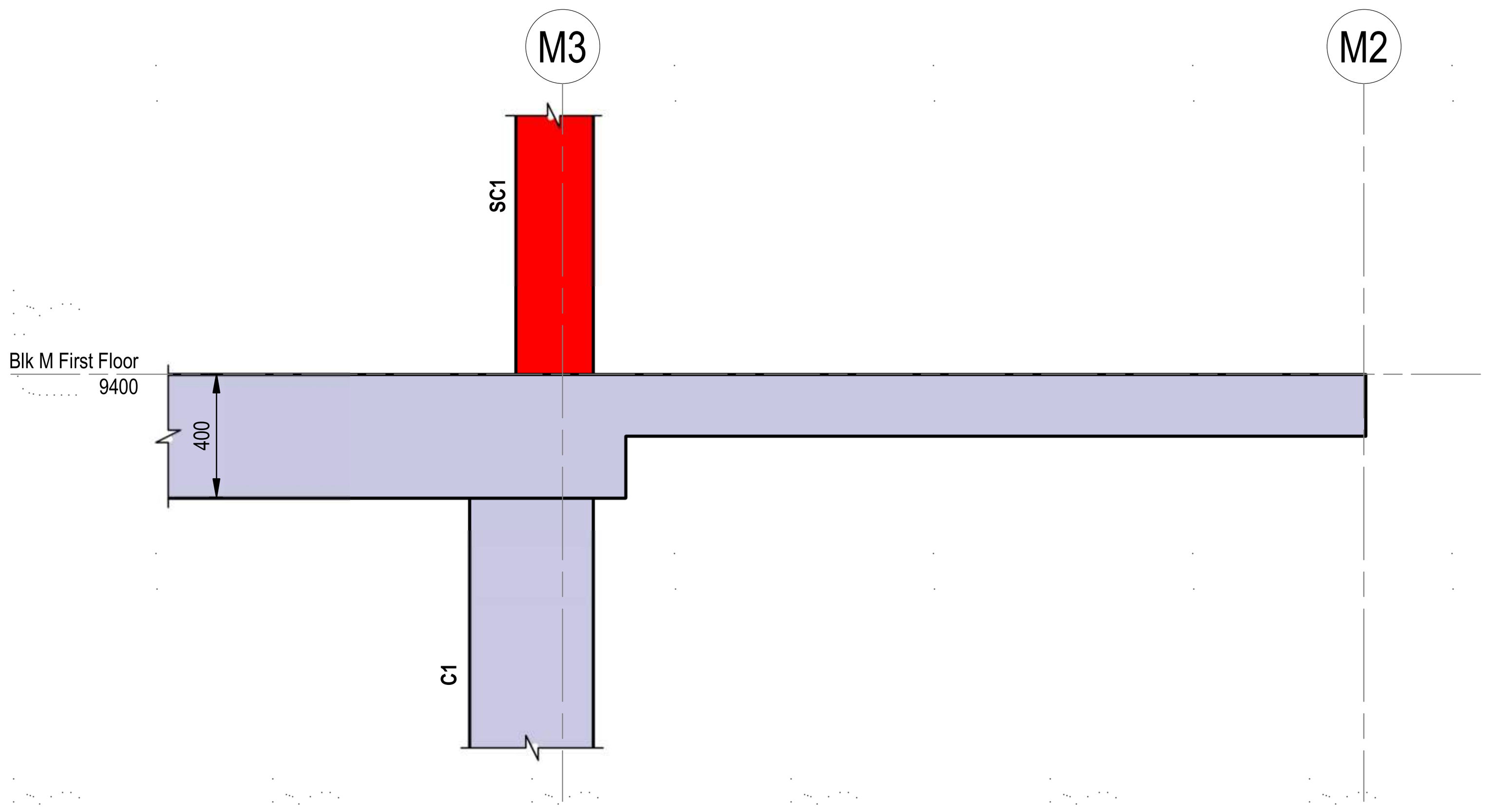
Drawn	AS
Checked	AK
Designed	AK
Verified	PP
Approved	
Client	NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project	CRONULLA HIGH SCHOOL
Title	BLOCK M FIRST FLOOR G.A. PLAN
Status	SCHEMATIC DESIGN — NOT TO BE USED FOR CONSTRUCTION PURPOSES
Scale	1:100
Size	A1
Drawing Number	80821341-ST-0241
Revision	6

DATE PLOTTED: 4/07/2022 7:22:26 PM



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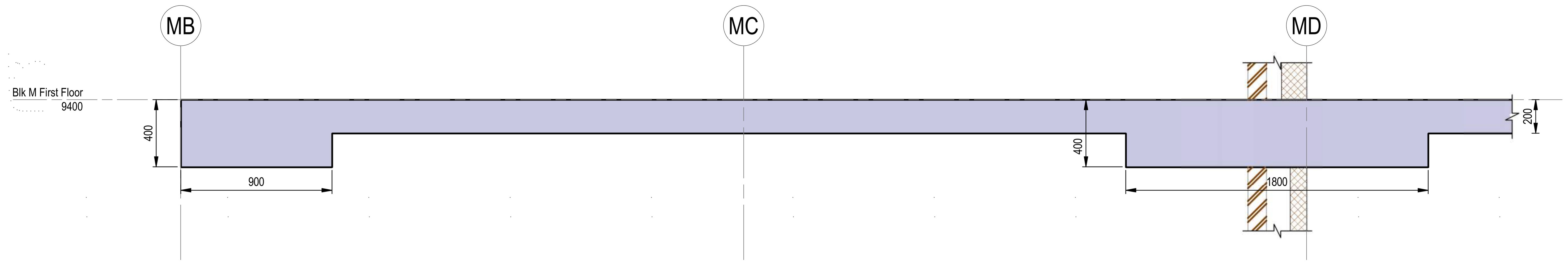

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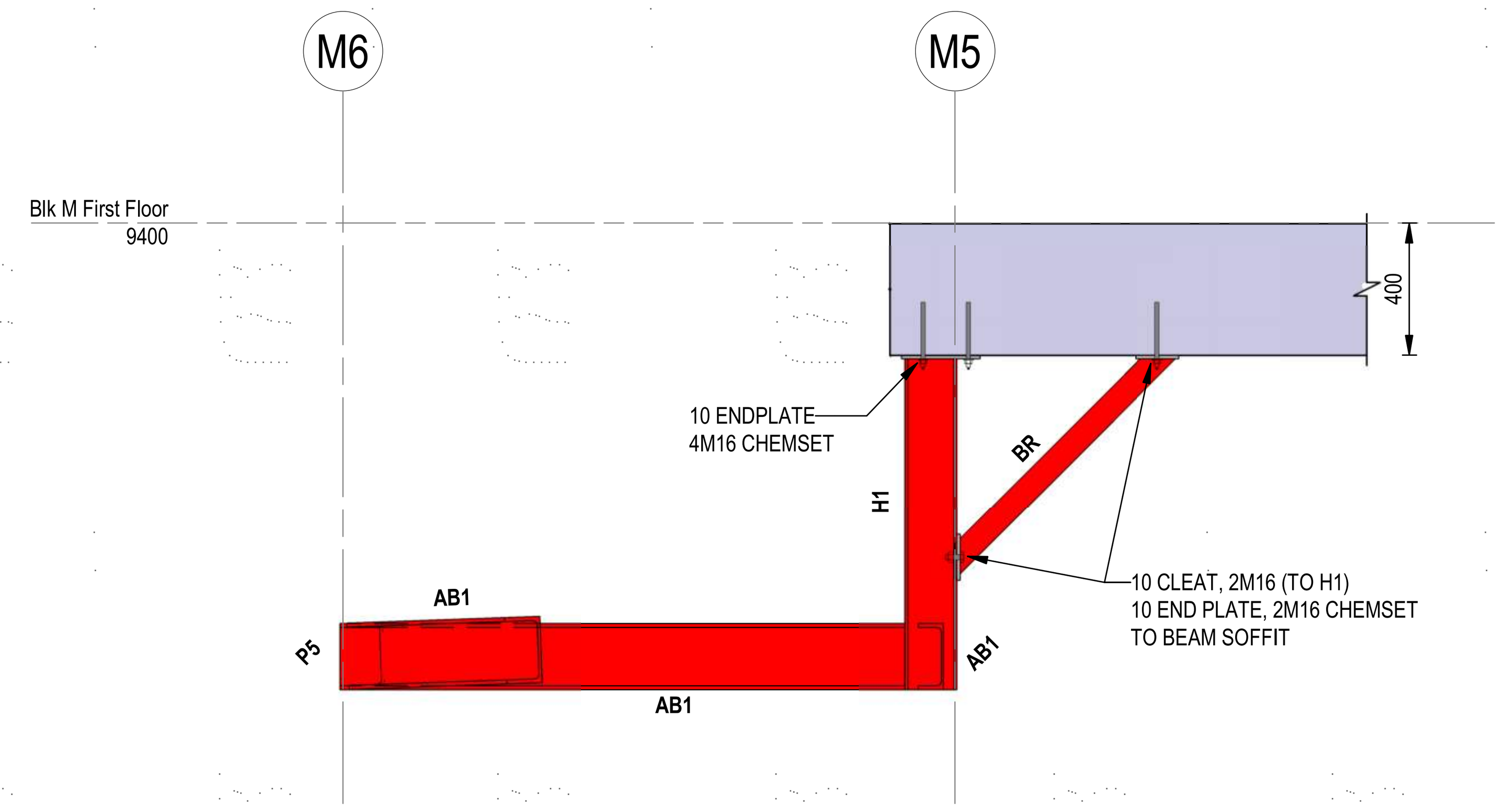

SECTION ML1-3
SCALE 1 : 20 ST-0241

Rev	Date		Des.	Ver.	Appr.
4	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn AS	Date
Checked AK	Date
Designed AK	Date
Verified PP	Date
Approved	Date

Client NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project CRONULLA HIGH SCHOOL
Title BLOCK M FIRST FLOOR SECTIONS

Status **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
		1:20	A1

Drawing Number	Revision
80821341-ST-0251	4

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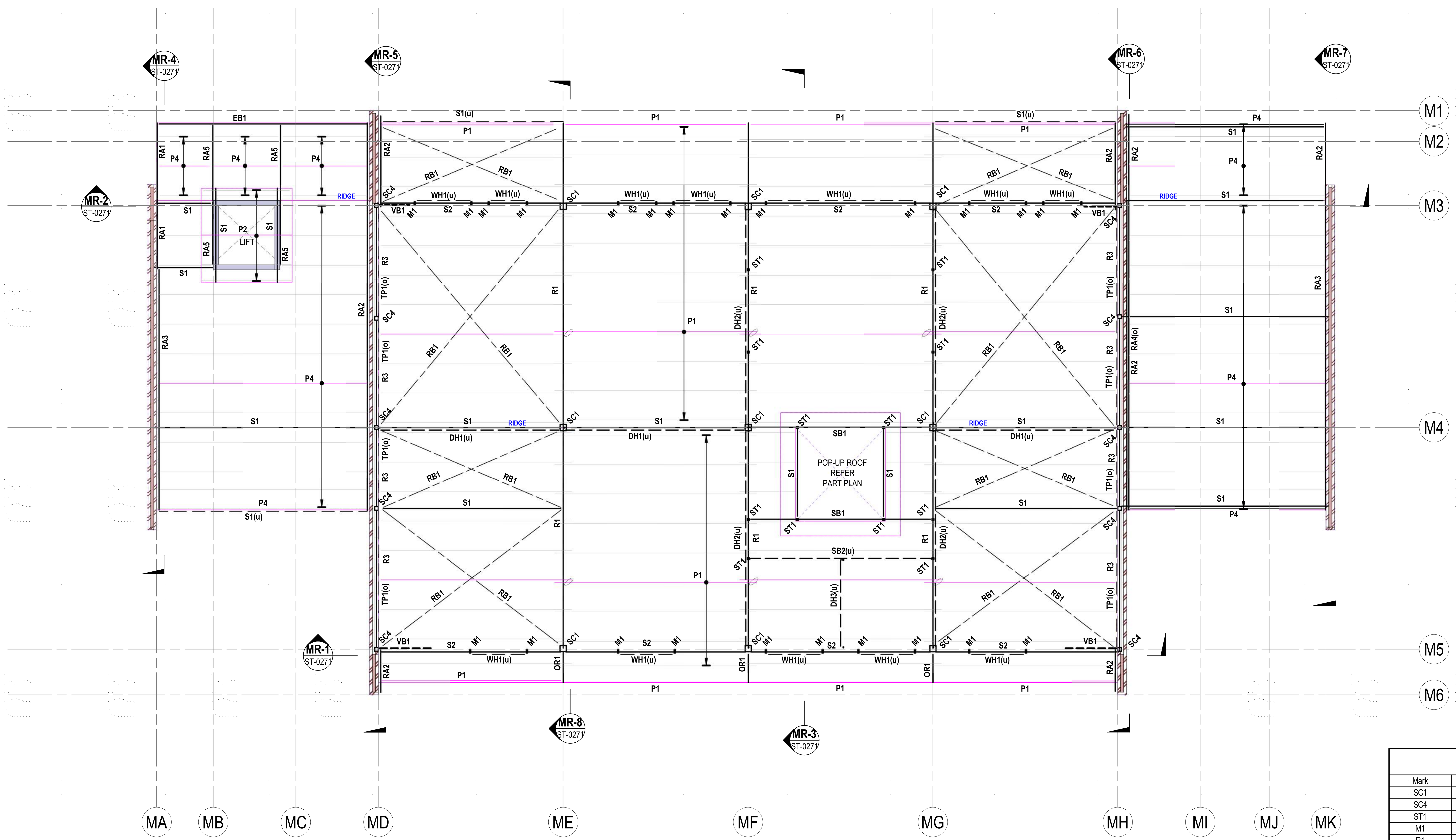
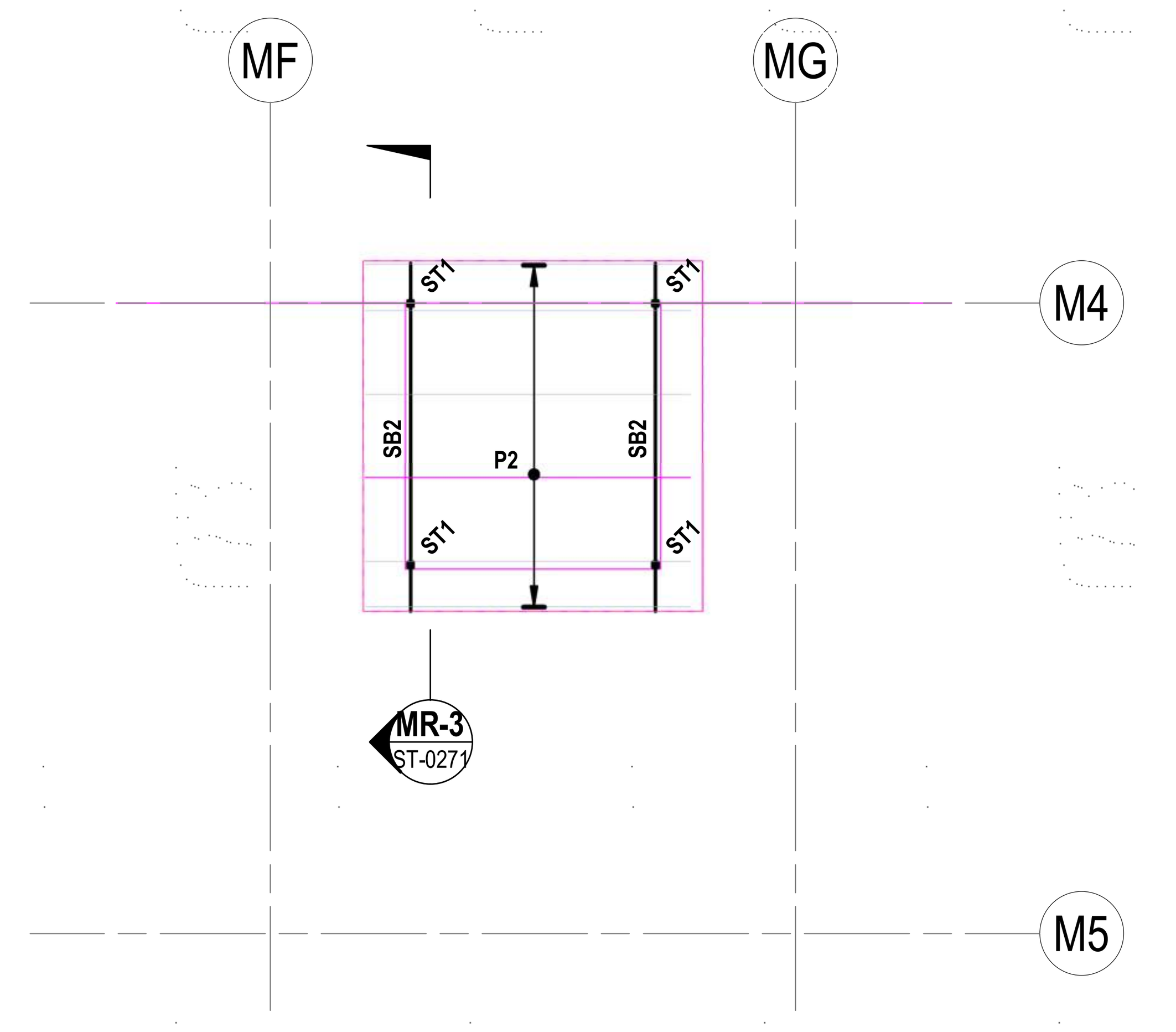
DATE PLOTTED: 4/07/2022 7:22:31 PM



BLOCK M ROOF FRAMING PLAN

SCALE 1 : 100



BLOCK M POP-UP ROOF STEEL PLAN

SCALE 1 : 100

ROOF FRAMING PLAN NOTES

- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS
- FOR ALL ROOF PENETRATIONS REFER TO ARCHITECT AND SERVICE ENGINEERS DRAWINGS
- ALL WATERPROOFING, FLASHING, GUTTERING AND SHEETING ARCHITECTS SPECIFICATION
- ALL FALLS AND LEVELS TO ARCHITECTS DETAILS
- ALL CONNECTIONS NOT DETAILED SHALL BE IN ACCORDANCE WITH AISC STANDARDIZED STRUCTURAL STEEL CONNECTIONS U.N.O.
- FOR SURFACE TREATMENT TO ALL STRUCTURAL STEELWORK REFER TO CONSTRUCTION NOTES DRAWING
- CONTRACTOR SHALL GIVE DUE CONSIDERATION TO ACCURACY OF FABRICATION AND PLANNING OF ERECTION PROCEDURE
- FOR FIREPROOFING REQUIREMENTS REFER TO ARCHITECTS DRAWINGS

LEGEND:

(u) : DENOTES MEMBER UNDER

(o) : DENOTES MEMBER OVER

(b) : DENOTES MEMBER BEYOND

STEEL ROOF MEMBER SCHEDULE (BLOCK M)

Mark	Member Size	MemberDescription_CDD	Comments
SC1	250x250x9 SHS	STEEL COLUMN	
SC4	150x150x5 SHS	STEEL COLUMN	
ST1	75x75x3 SHS	STUB COLUMN	
M1	150x50x4 RHS	MULLION	
R1	460UB67	RAFTER	FLY BRACING AT EVERY 2nd PURLIN
R3	310UB32	RAFTER	
EB1	200 PFC	STEEL BEAM	IN PURLIN DEPTH
SB1	200 PFC	STEEL BEAM	
SB2	200 PFC	STEEL BEAM	
RA1	200 PFC	RACKING BEAM	
RA2	200 PFC	RACKING BEAM	TOES DOWN
RA3	150 PFC	RAFTER	
RA4	150x90x8 UA	RACKING ANGLE	LOWER ROOF (FIRST FLOOR)
RA5	300PFC	RACKING BEAM	
OR1	TW 100x200	OUTRIGGER	
S1	89x89x5 SHS	STRUT	
S2	200 PFC	STEEL BEAM	TOES DOWN
DH1	310UB40	DOOR HEADER	
DH2	200 PFC	DOOR HEADER	
DH3	200 PFC	DOOR HEADER	
WH1	200 PFC	WINDOW HEAD	TOES UP
P1	Z20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P2	Z15015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P4	C20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
TP1	C20015	PURLIN	GIRT (PARAPET) TOES DOWN
RB1	20 DIA ROD	ROOF BRACING	
VB1	150x100x5 RHS	VERTICAL BRACING	

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Rev	Date		Des.	Ver.	Appr.
6	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
5	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn AS — Date

Checked AK — Date

Designed AK — Date

Verified PP — Date

Approved — Date

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Title: BLOCK M ROOF FRAMING PLAN

Status: **SCHEMATIC DESIGN**

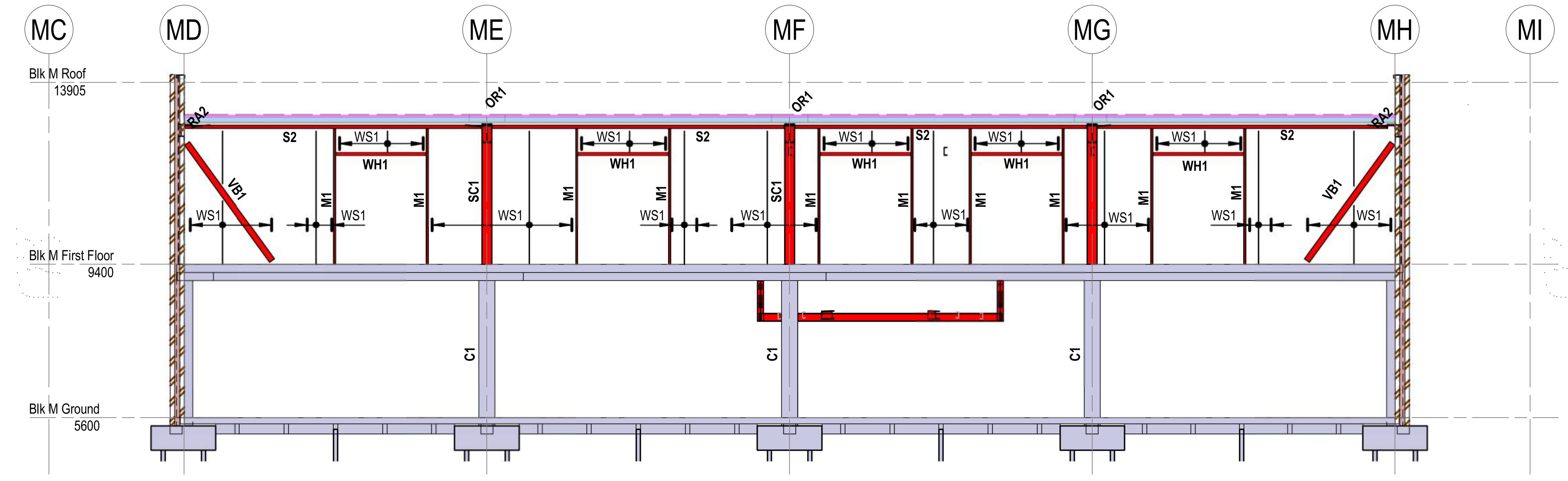
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
		1:100	A1

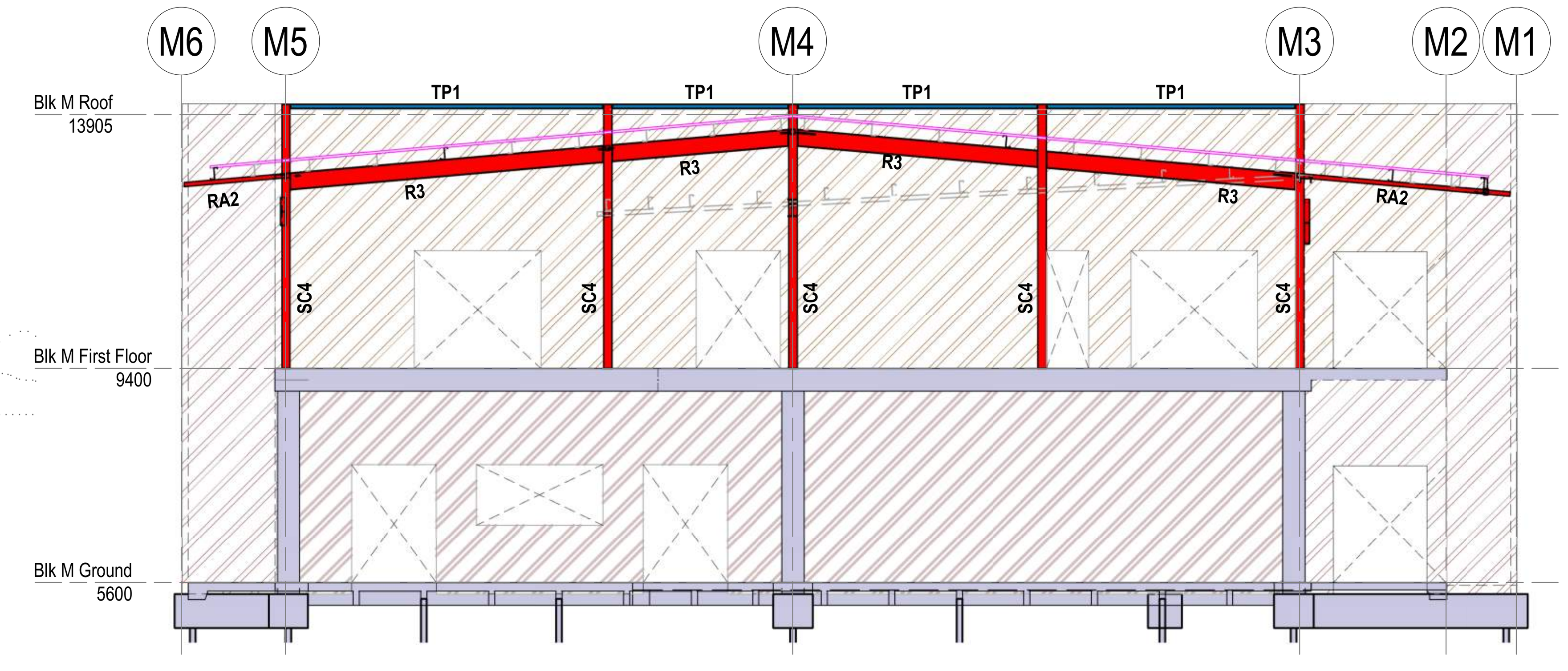
Drawing Number	Revision
80821341-ST-0261	6

DATE PLOTTED: 4/07/2022 7:22:39 PM
MODEL PATH: C:\Temp\Revit\80821341 - Cronulla HS - Phase 2 to 6 (Central 2019)_arnel.salonga.rvt

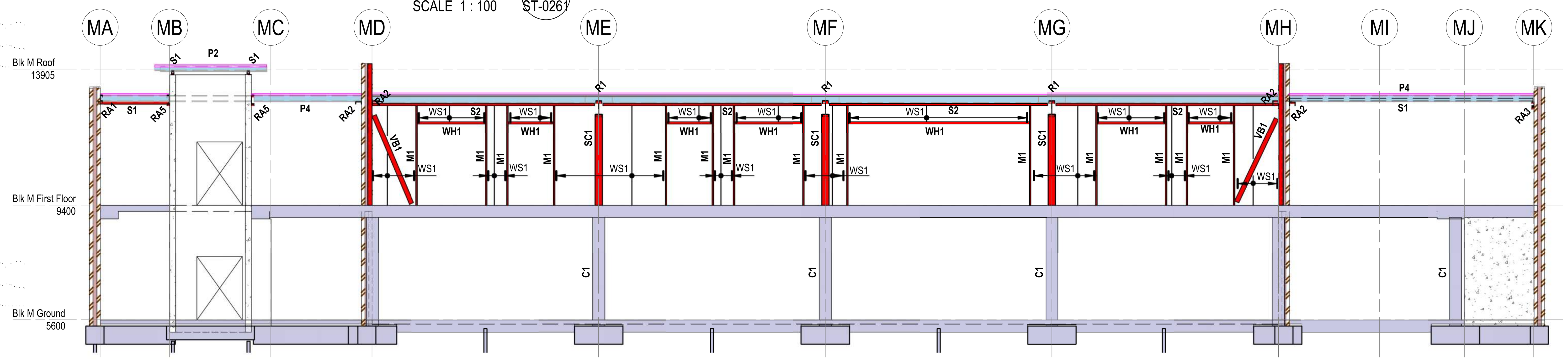
NOTE:
- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- FOR STEEL ROOF MEMBER SCHEDULE REFER TO ST-0261
- WS1 : RONDO OR SIMILAR APPROVED WALL STUDS



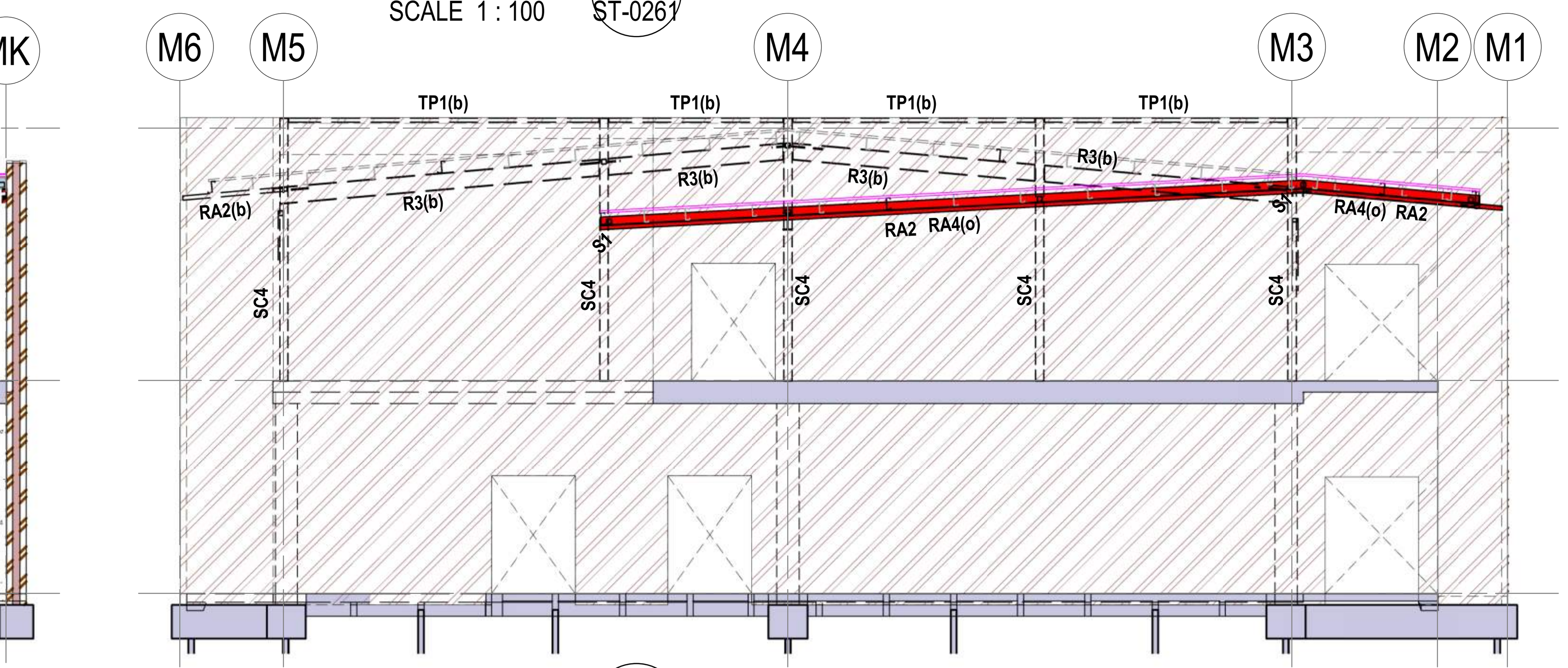
SECTION MR-1
SCALE 1 : 100 ST-0261



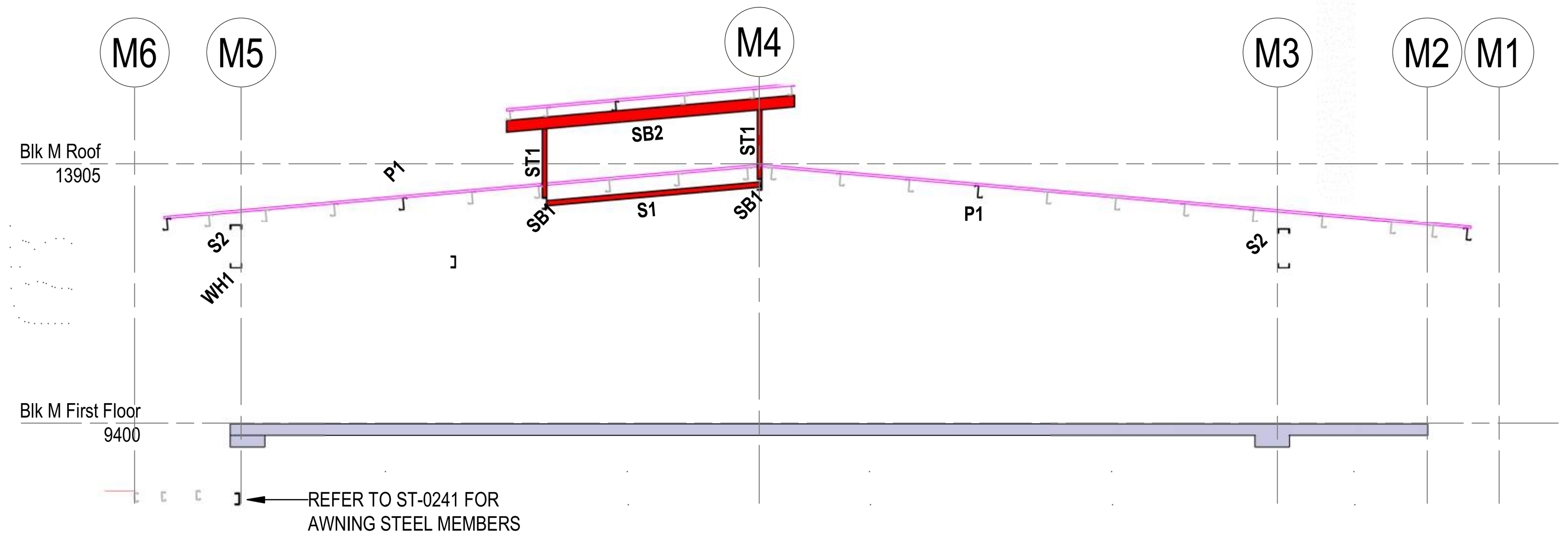
SECTION MR-5
SCALE 1 : 100 ST-0261



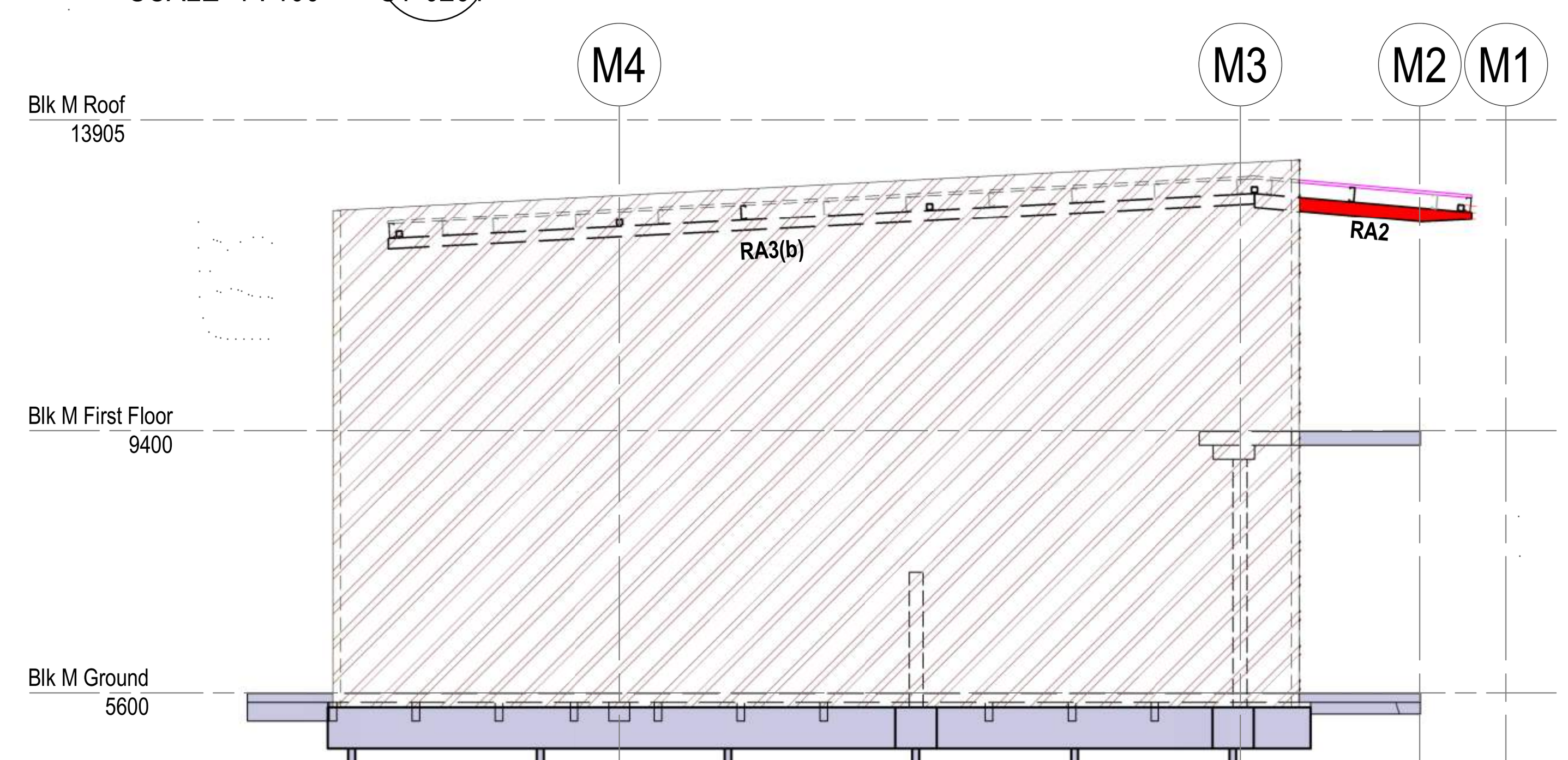
SECTION MR-2
SCALE 1 : 100 ST-0261



SECTION MR-6
SCALE 1 : 100 ST-0261

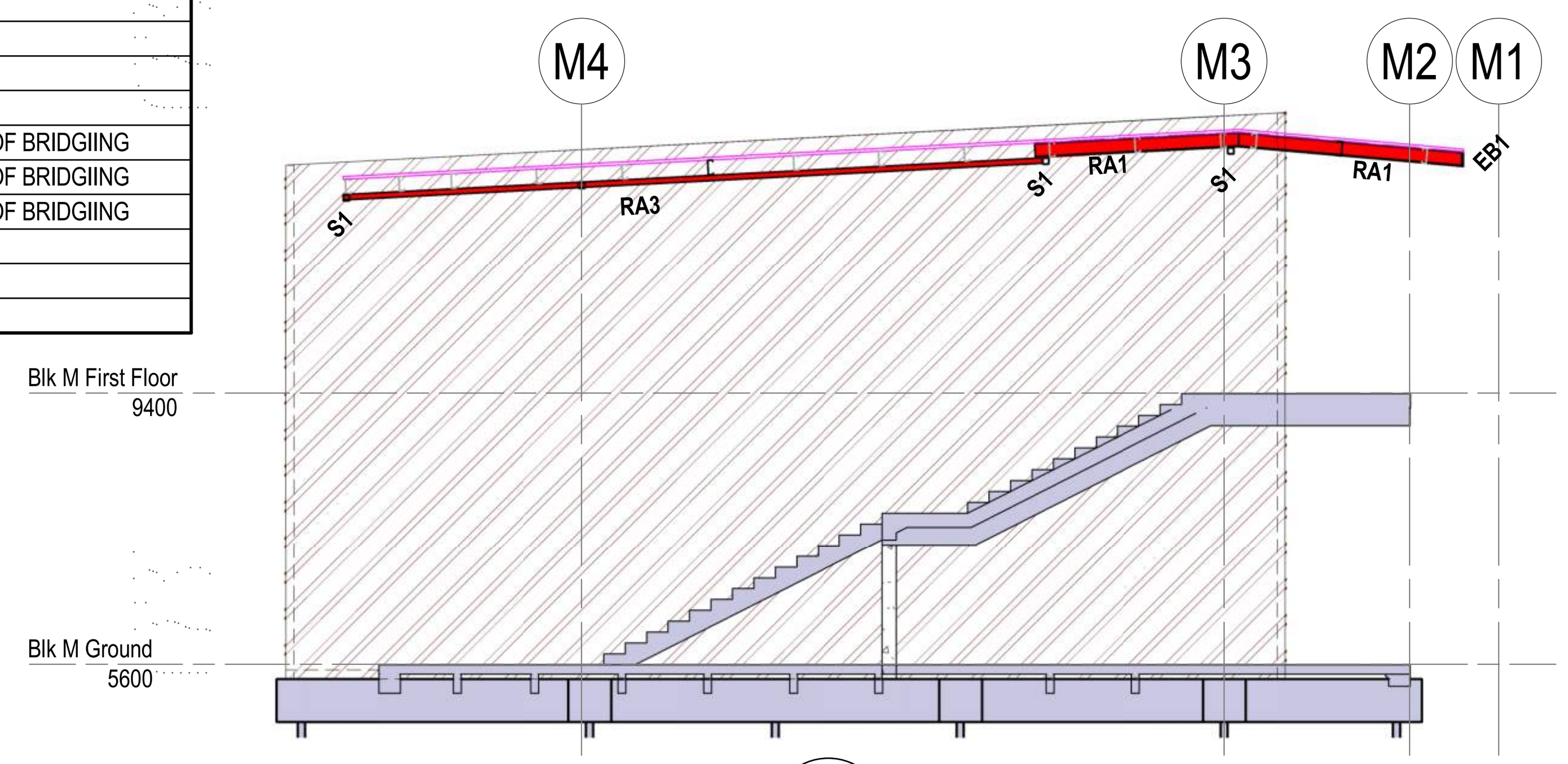


SECTION MR-3
SCALE 1 : 100 ST-0261

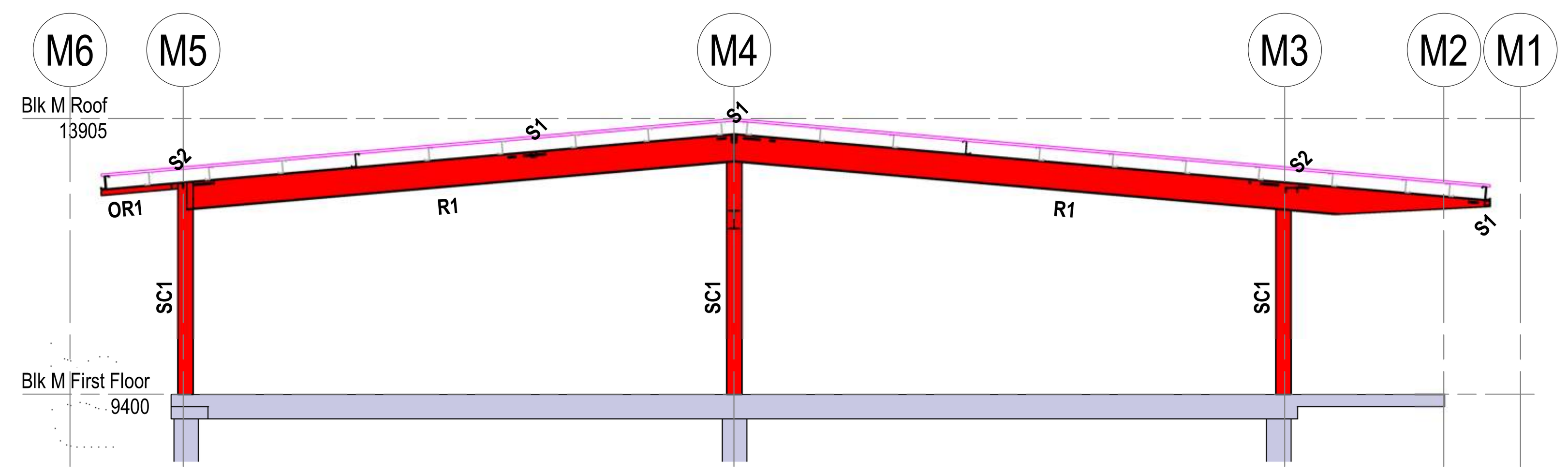


SECTION MR-7
SCALE 1 : 100 ST-0261

STEEL ROOF MEMBER SCHEDULE (BLOCK M)			
Mark	Member Size	MemberDescription_CDD	Comments
SC1	250x250x9 SHS	STEEL COLUMN	
SC4	150x150x5 SHS	STEEL COLUMN	
ST1	75x75x3 SHS	STUB COLUMN	
M1	150x50x4 RHS	MULLION	
R1	460UB67	RAFTER	FLY BRACING AT EVERY 2nd PURLIN
R3	310UB32	RAFTER	
EB1	200 PFC	STEEL BEAM	IN PURLIN DEPTH
SB1	200 PFC	STEEL BEAM	
SB2	200 PFC	STEEL BEAM	
RA1	200 PFC	RACKING BEAM	
RA2	200 PFC	RACKING BEAM	TOES DOWN
RA3	150 PFC	RAFTER	
RA4	150x90x8 UA	RACKING ANGLE	LOWER ROOF (FIRST FLOOR)
RA5	300PFC	RACKING BEAM	
OR1	TW 100x200	OUTRIGGER	
S1	89x89x5 SHS	STRUT	
S2	200 PFC	STEEL BEAM	TOES DOWN
DH1	310UB40	DOOR HEADER	
DH2	200 PFC	DOOR HEADER	
DH3	200 PFC	DOOR HEADER	
WH1	200 PFC	WINDOW HEAD	TOES UP
P1	Z20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P2	Z15015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P4	C20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
TP1	C20015	PURLIN	GIRT (PARAPET) TOES DOWN
RB1	20 DIA ROD	ROOF BRACING	
VB1	150x100x5 RHS	VERTICAL BRACING	



SECTION MR-4
SCALE 1 : 100 ST-0261



SECTION MR-8
SCALE 1 : 100 ST-0241

ROOF FRAMING PLAN NOTES
- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS ENGINEERS DRAWINGS
- FOR ALL ROOF PENETRATIONS REFER TO ARCHITECT AND SERVICE ENGINEERS DRAWINGS
- ALL WATERPROOFING, FLASHING, GUTTERING AND SHEETING ARCHITECTS SPECIFICATION
- ALL FALLS AND LEVELS TO ARCHITECTS DETAILS
- ALL CONNECTIONS NOT DETAILED SHALL BE IN ACCORDANCE WITH AISC STANDARDIZED STRUCTURAL STEEL CONNECTIONS U.N.O.
- FOR SURFACE TREATMENT TO ALL STRUCTURAL STEELWORK REFER TO CONSTRUCTION NOTES DRAWING
- CONTRACTOR SHALL GIVE DUE CONSIDERATION TO ACCURACY OF FABRICATION AND PLANNING OF ERECTION PROCEDURE
- FOR FIREPROOFING REQUIREMENTS REFER TO ARCHITECTS DRAWINGS

LEGEND:
- (u) : DENOTES MEMBER UNDER
- (o) : DENOTES MEMBER OVER
- (b) : DENOTES MEMBER BEYOND

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6	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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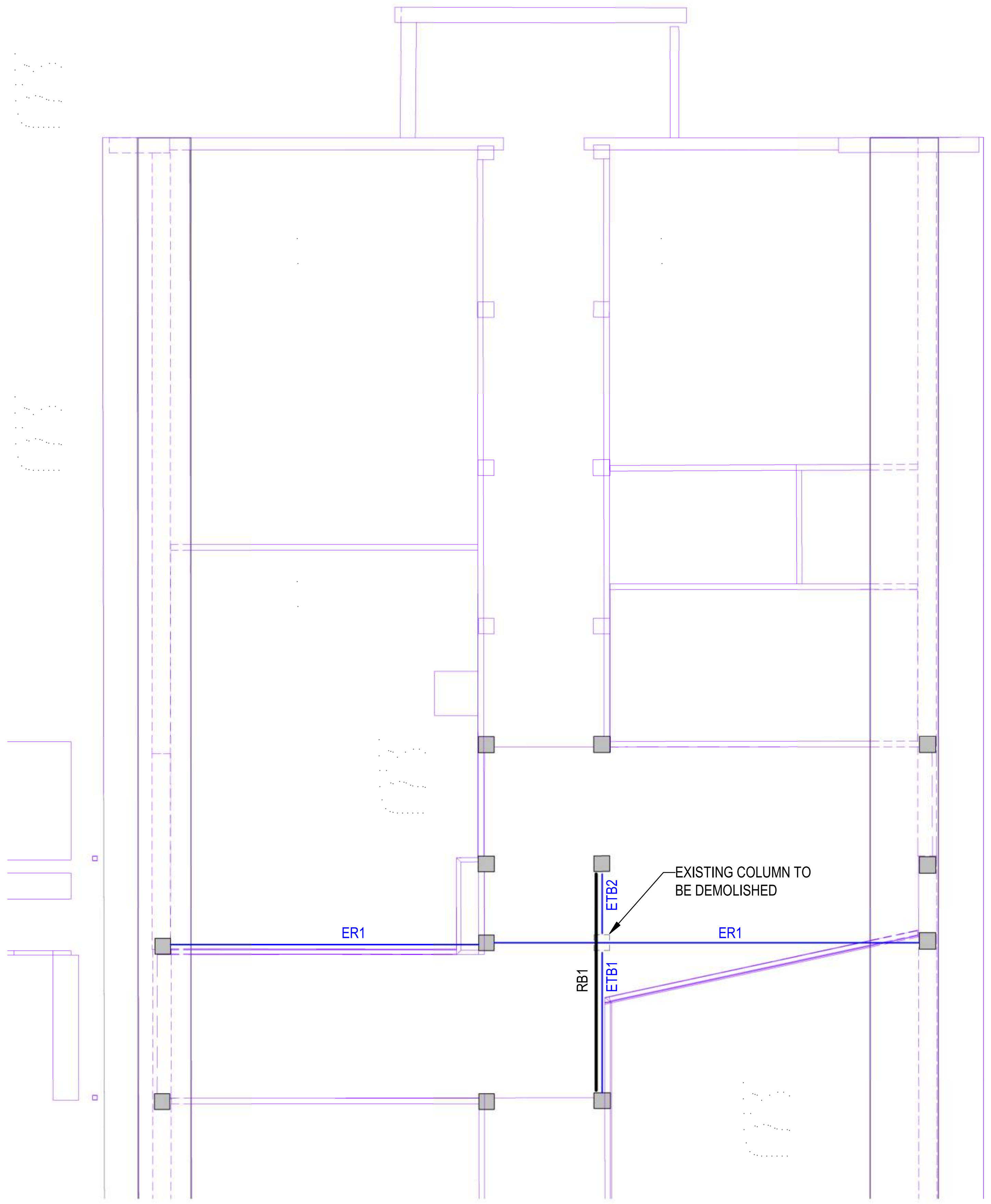
Drawn: AS
Checked: AK
Designed: AK
Verified: PP
Approved:

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project: CRONULLA HIGH SCHOOL
Title: STEEL FRAMING ELEVATION

Status: **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Scale: 1:100 Size: A1
Drawing Number: 80821341-ST-0271 Revision: 6

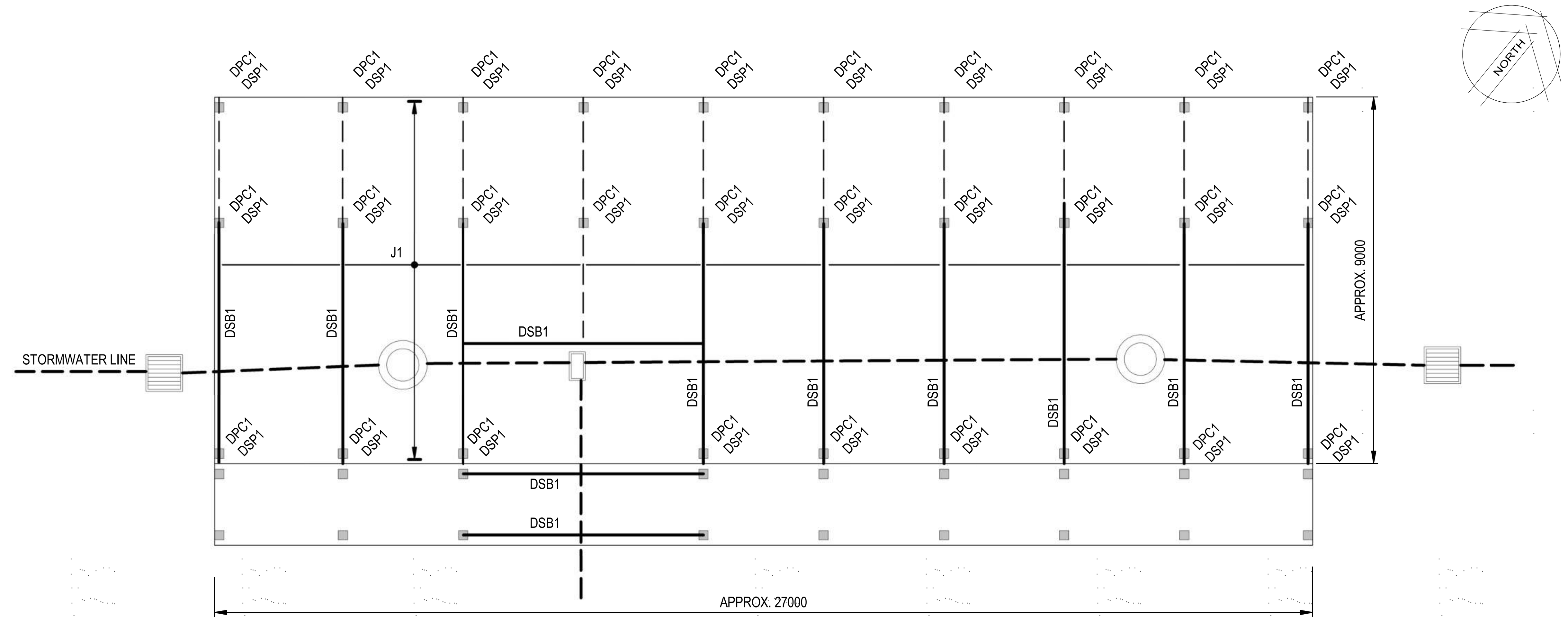


BLOCK D FIRST FLOOR
SCALE 1 : 100

NOTE:

ETB1, ETB2	: EXISTING TIE BEAM	- 150x76 UB
ER1	: EXISTING RAFTER	- 228x102 UB, WELD PROFILED 75x4 SHS, 100mm LONG WITH 10 BASE PLATE, 4M16 TO RB1
RB1	: ROOF BEAM	- 250UB31, 10 END PLATE, 4M16 CHEMSET TO EXISTING COLUMN

METHOD STATEMENT FOR DEMOLITION OF EXISTING COLUMN:
1. PROP EXISTING RAFTER ER1 WITH 2.5t SWL PROPS EACH SIDE OF COLUMN.
2. PROP EXISTING TIE BEAMS ETB1 AND ETB2 WITH 2t SWL EACH SIDE OF COLUMN.
3. ARRANGE FOR INSPECTION BY ENGINEER.
4. DEMOLISH COLUMN.
5. CONNECT ETB1 AND ETB TO ER1 WITH 10 WELDED CLEATS.
6. ARRANGE FOR INSPECTION BY ENGINEER.
7. REMOVE PROPS TO ETB1 AND ETB2.
8. INSTALL RB1.

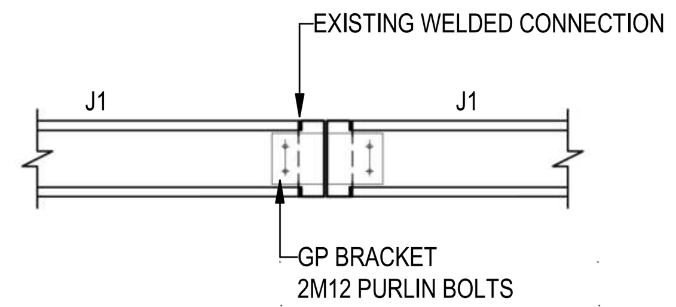


FOOTING PLAN

NOTE:
DPC1 : 600x600x400 PILE CAP WITH 230x230 BRICK PIER
DSP1 : SCREW PILE WITH SWL= 50 kN

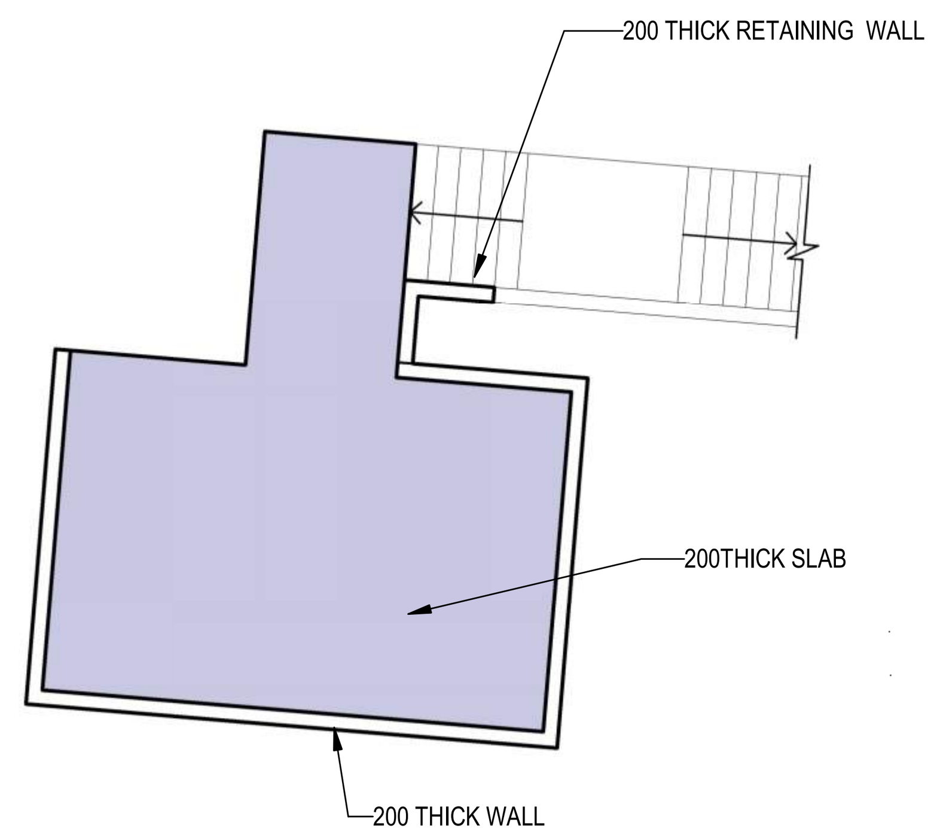
DSB1 : 310UB32
DSB2 : 310UB46

BLOCK I DEMOUNTABLE PLAN
SCALE 1 : 100



NOTES:
1. ALL CORRODED STEEL SECTIONS SHALL BE REPLACED.
2. ALL C PURLIN TO PURLIN CONNECTIONS SHALL BE RECTIFIED USING BOLTED CONNECTIONS AS SHOWN.

SUB-FLOOR FRAMING RECTIFICATION DETAIL
SCALE 1 : 20



SUBSTATION PLAN
SCALE 1 : 100

Rev	Date		Des.	Ver.	Appr.
2	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn AS
Checked AK
Designed AK
Verified PP
Approved

Client NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project CRONULLA HIGH SCHOOL
Status SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Scale 1:100 Size A1
Title BLOCK D FIRST FLOOR, BLOCK I & SUBSTATION PLAN
Drawing Number 80821341-ST-0301 Revision 2

DATE PLOTTED: 4/07/2022 7:22:43 PM
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DATE PLOTTED: 4/07/2022 7:14:02 PM

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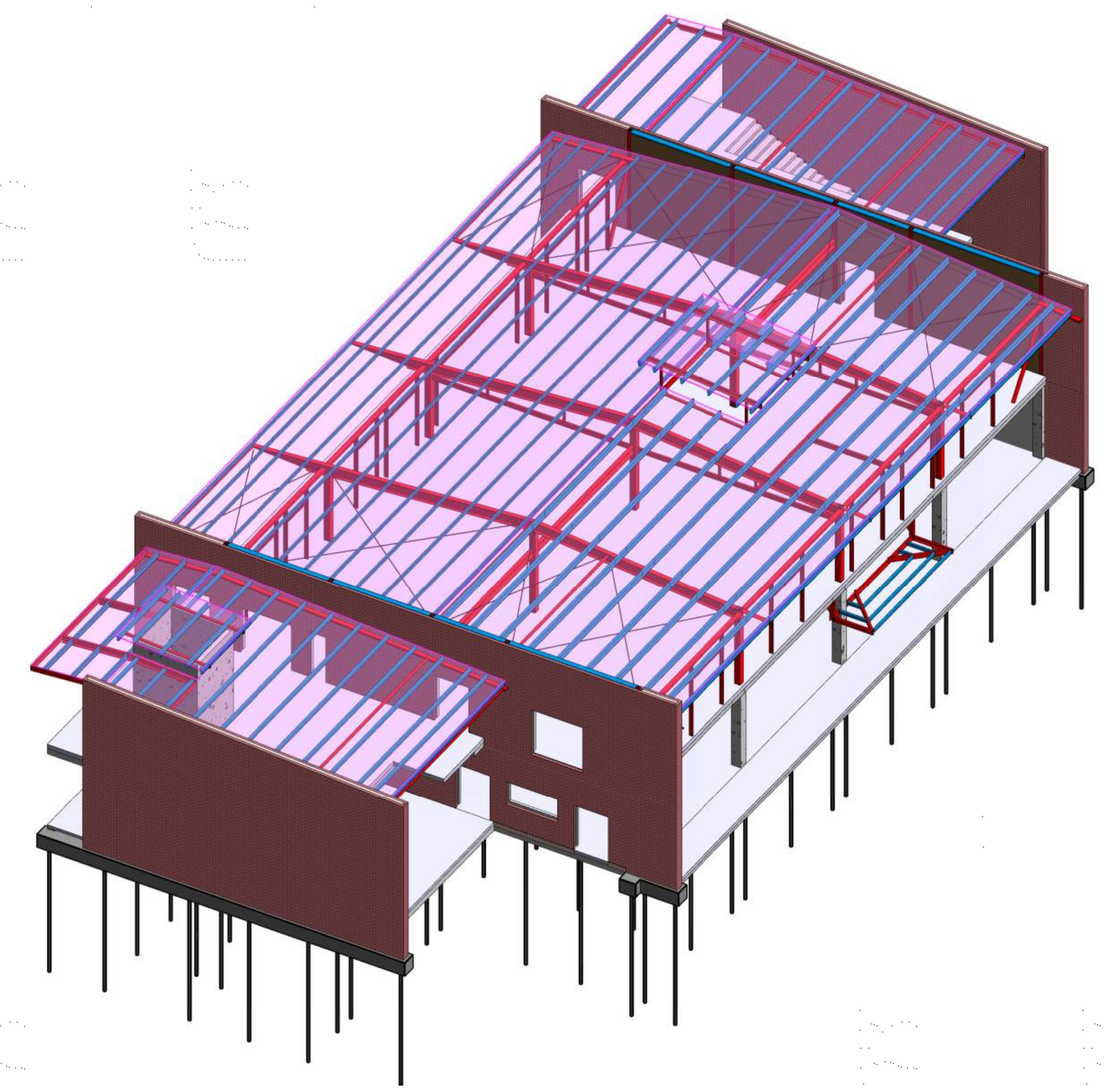
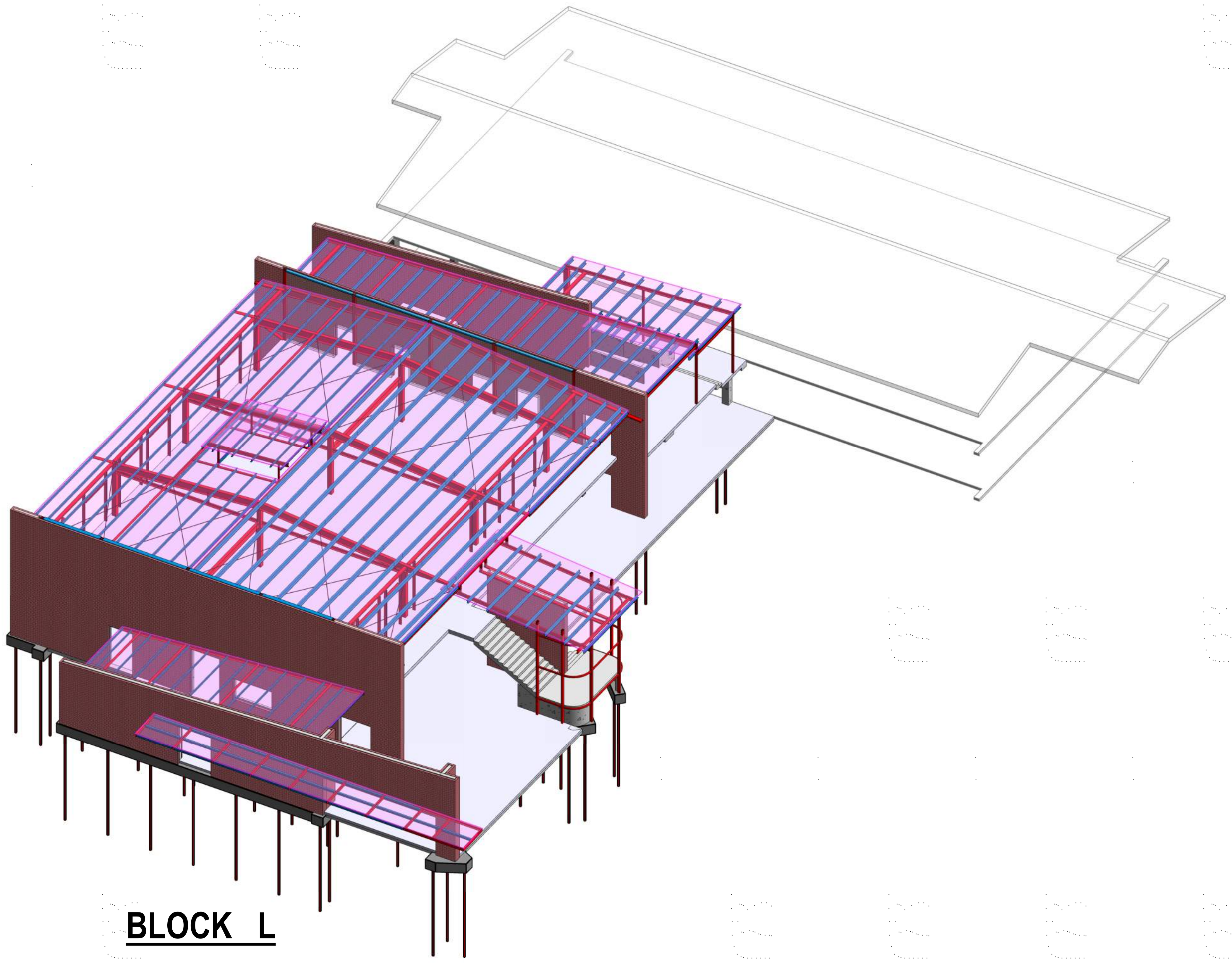
NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

CRONULLA HIGH SCHOOL

COVER SHEET



BLOCK M



BLOCK L

DRAWING INDEX

DRG. No.	DRAWING NAME
ST-0000	COVER SHEET
ST-0001	STRUCTURAL CONSTRUCTION NOTES
ST-0101	BLOCK L FOUNDATION PLAN
ST-0121	BLOCK L GROUND FLOOR G.A. PLAN
ST-0141	BLOCK L FIRST FLOOR G.A. PLAN
ST-0151	BLOCK L FIRST FLOOR SECTIONS
ST-0161	BLOCK L ROOF FRAMING PLAN
ST-0171	STEEL FRAMING ELEVATION
ST-0201	BLOCK M FOUNDATION PLAN
ST-0221	BLOCK M GROUND FLOOR G.A. PLAN
ST-0241	BLOCK M FIRST FLOOR G.A. PLAN
ST-0251	BLOCK M FIRST FLOOR SECTIONS
ST-0261	BLOCK M ROOF FRAMING PLAN
ST-0271	STEEL FRAMING ELEVATION
ST-0301	BLOCK D FIRST FLOOR, BLOCK I & SUBSTATION PLAN

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Checked: AK	Date
Designed: AK	Date
Verified: PP	Date
Approved	Date

Status: **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
			A1

Drawing Number	Revision
80821341-ST-0000	5

DATE PLOTTED: 4/07/2022 7:14:05 PM

GENERAL NOTES

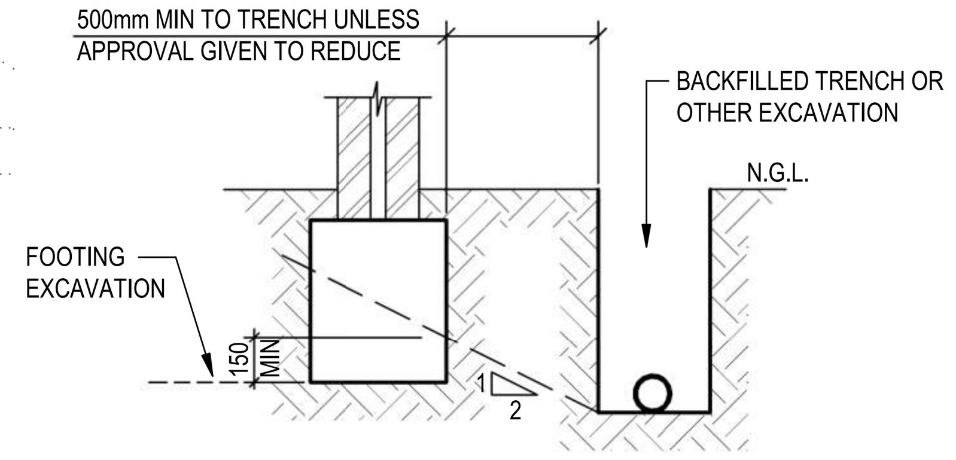
1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS, SPECIFICATIONS AND ADDITIONAL WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. THE INFORMATION CONTAINED ON THESE DRAWINGS IS FOR STRUCTURAL ENGINEERING PURPOSES ONLY. ALL DISCREPANCIES THAT COULD RESULT IN CHANGES TO THE STRUCTURAL DETAILS SHALL BE REFERRED TO THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
IF IN DOUBT, ASK.
2. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE CORRECTNESS OF ALL DIMENSIONS AND ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.
3. IT IS THE BUILDER'S RESPONSIBILITY TO ENSURE THE SAFETY AND STABILITY OF NEW AND EXISTING STRUCTURES DURING CONSTRUCTION. TEMPORARY STRUCTURES, FORMWORK, FALSEWORK,TEMPORARY BRACING, SHORING AND THE LIKE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER ***FORTY-EIGHT (48) HOURS*** BEFORE THE REINFORCEMENT IS COMPLETED. THE CONTRACTOR SHALL ALLOW ***TWO (2) HOURS*** AFTER THE COMPLETION OF THE REINFORCEMENT FOR THE ENGINEER'S INSPECTION.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
6. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH ALL WORKCOVER REQUIREMENTS AND OCCUPATIONAL HEALTH AND SAFETY ACT REGULATIONS.
7. NO CHANGES SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
8. CONSTRUCTION FROM THESE DRAWINGS AND ASSOCIATED CONSULTANTS' DRAWINGS SHALL NOT COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES AND PRINCIPAL CERTIFYING AUTHORITY.
9. '***U.N.O.***' OR '***UNO***' DENOTES 'UNLESS NOTED OTHERWISE' ON THE DRAWINGS.
10. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.

GROUND PREPARATION

1. EXCAVATION AND GROUND PREPARATION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATION FOLLOWING THE RECOMMENDATIONS OF THE **PROJECT** GEOTECHNICAL REFERENCES AND ANY ADDITIONAL INSTRUCTIONS THAT MAY BE PROVIDED BY A GEOTECHNICAL ENGINEER DURING THE COURSE OF THE PROJECT.

FOUNDATION NOTES

1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE IN ACCORDANCE WITH THE **GEOTECHNICAL REFERENCES TABLE** ON THIS DRAWING. THIS FOUNDATION MATERIAL SHALL BE UNIFORM AND BE APPROVED BY THE ENGINEER FOR THIS PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.
2. FOOTING EXCAVATIONS SHALL BE CLEANED TO REMOVE ALL LOOSE OR SOFTENED MATERIAL AND DEBRIS PRIOR TO PLACING OF CONCRETE.
3. WHERE SKIN FRICTION IS REQUIRED TO BE DEVELOPED, CLEAN AND ROUGHEN THE SIDES OF THE EXCAVATION TO THE SATISFACTION OF THE ENGINEER.
4. CONCRETE SHOULD BE POURED AS SOON AS POSSIBLE AFTER EXCAVATION. IF EXCAVATIONS ARE LIKELY TO REMAIN OPEN FOR ***MORE THAN 24 HOURS*** A BLINDING LAYER OF CONCRETE SHALL BE PLACED TO PROTECT THE FOUNDATION BASE.
5. FOOTINGS SHALL BE CONCRETED ON THE DAY OF APPROVAL UNLESS PERMISSION IS GIVEN OTHERWISE.
6. FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS U.N.O.
7. DO NOT EXCEED NOMINATED ***ANGLE OF REPOSE*** BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS.
8. RESIDENTIAL SLABS & FOOTINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870-2011 FOR THE ***SITE CLASSIFICATION*** AND ***CONSTRUCTION TYPE*** NOMINATED IN THE **PROJECT GEOTECHNICAL REFERENCES TABLE** ON THIS DRAWING.
9. RETAINING WALLS OTHER THAN CANTILEVER WALLS SHALL NOT BE BACKFILLED UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED. COMPACTION OF BACKFILL, IF REQUIRED, SHALL BE COMPACTED AS SPECIFIED ON DRAWINGS. ENSURE FREE-DRAINING BACKFILL MATERIAL AND DRAINAGE IS IN PLACE AS SPECIFIED ON THE DRAWINGS.
10. FOOTING LEVELS, WHERE SHOWN ARE ESTIMATES ONLY AND WILL BE ESTABLISHED DURING SITE INSPECTION OF WORK IN PROGRESS.
11. PRIOR TO ANY EXCAVATION NEAR EXISTING FOOTINGS, THE BUILDER SHALL DETERMINE THE DEPTH OF FOUNDING OF EXISTING FOOTINGS BY LOCAL INVESTIGATORY EXCAVATION. GENERAL EXCAVATION SHALL NOT PROCEED BELOW A LEVEL 150mm ABOVE THE UNDERSIDE OF EXISTING FOOTINGS STRICTLY UNTIL APPROVAL HAS BEEN PROVIDED BY THE ENGINEER.
12. THE LIMITS OF EXCAVATIONS NEAR FOOTINGS SHALL BE AS SET OUT IN THE DETAIL BELOW UNLESS OTHERWISE APPROVED BY THE ENGINEER.



PROJECT GEOTECHNICAL REFERENCES

REPORT No. & REVISION	P2108205JR02V01
DATED	June 2021
PREPARED BY	MARTENS
FOUNDATION DESIGN PARAMETERS:	
• REFER TO GEOTECHNICAL INVESTIGATION REPORT	

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, AS1379 & AS3610 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. FOR CONCRETE QUALITY REFER TO **CONCRETE QUALITY & COVER SUMMARY** TABLE ON THIS DRAWING. ALL CEMENT TO BE TYPE 'SL' SHRINKAGE-LIMITED CEMENT IN ACCORDANCE WITH AS3972:2010, EXCEPT THAT THE MAXIMUM SHRINKAGE OF THE CEMENT IN THE MORTAR TEST SAMPLE IN ACCORDANCE WITH AS2350 SHALL BE LESS THAN ***600 MICROSTRAIN***.
3. PROJECT ASSESSMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379:2007 CLAUSE B7.
a) ALL CONCRETE IN SLABS AND BEAMS TO BE PROPORTIONED TO LIMIT DRYING SHRINKAGE TO ***650 MICROSTRAIN AT 56 DAYS***.
b) DETAILS OF THE PROPOSED MIX TO BE SUBMITTED & APPROVAL OBTAINED PRIOR TO POURING ANY CONCRETE.
c) SHRINKAGE TESTS SHALL BE CARRIED OUT BY AN APPROVED NATA REGISTERED LABORATORY IN ACCORDANCE WITH *AS1012 PART 13*. TESTS SHALL BE CONDUCTED ON THE FIRST BATCH OF CONCRETE USED IN SUSPENDED SLABS AND SUBSEQUENTLY AT THE RATE OF ***ONE TEST EVERY ADDITIONAL 100 CUBIC METRES OF CONCRETE SUPPLIED***. THREE SPECIMENS SHALL BE TAKEN FOR EACH TEST AND THE SHRINKAGE SHALL BE THE AVERAGE OF THE THREE RESULTS . THE COST OF TESTING SHALL BE BORNE BY THE CONTRACTOR AS SHALL ANY ADDITIONAL TESTS REQUIRED IF THE CONCRETE FAILS TO MEET THE SPECIFIED SHRINKAGE LIMITS.
4. NO ADMIXTURES OTHER THAN THOSE SPECIFIED IN THE **CONCRETE QUALITY & COVER SUMMARY** TABLE (OR APPROVED EQUIVALENTS) SHALL BE USED IN CONCRETE UNLESS APPROVED BY THE STRUCTURAL ENGINEER, WITH THE ONLY EXCEPTION BEING LOW RANGE WATER REDUCING ADMIXTURE.

CONCRETE CONTINUATION

4. NO ADMIXTURES OTHER THAN THOSE SPECIFIED IN THE **CONCRETE QUALITY & COVER SUMMARY** TABLE (OR APPROVED EQUIVALENTS) SHALL BE USED IN CONCRETE UNLESS APPROVED BY THE STRUCTURAL ENGINEER, WITH THE ONLY EXCEPTION BEING LOW RANGE WATER REDUCING ADMIXTURE.
5. CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE IN ACCORDANCE WITH **CONCRETE QUALITY & COVER SUMMARY** UNLESS NOTED OTHERWISE WHERE COVER MAY NEED TO BE INCREASED FOR FIRE RATING.
6. COVER TO REINFORCEMENT IN THE FACE OF CONCRETE POURED OVER A VAPOUR PROOF MEMBRANE ON THE GROUND IS INCLUDED AS INTERNAL.
7. CONDUITS, PIPES, ETC. SHALL ONLY BE LOCATED ***IN THE MIDDLE THIRD OF THE SLAB DEPTH*** AND SHALL NOT BE PLACED IN THE CONCRETE COVER TO REINFORCEMENT. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
8. CONCRETE SIZES DO NOT INCLUDE THE THICKNESS OF APPLIED FINISHES.
9. THE DEPTH OF BEAMS IS GIVEN FIRST AND INCLUDES THE SLAB THICKNESS.
10. CONSTRUCTION JOINTS, WHERE NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE STRUCTURAL ENGINEER.
11. CONSTRUCTION SUPPORT PROPPING IS TO REMAIN IN PLACE WHERE NEEDED TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. WHERE SLABS AND BEAMS ARE TO SUPPORT MASONRY OVER, FORMWORK AND PROPS MUST BE REMOVED PRIOR TO THE CONSTRUCTION OF MASONRY .
12. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED TO ACHIEVE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
13. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF ***THREE (3) DAYS***, AND THE PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF ***SEVEN (7) DAYS*** FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS370 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED (REFER MANUFACTURERS SPECIFICATION). PVA BASED CURING COMPOUNDS ARE NO ACCEPTABLE . POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.
14. REPAIRS TO CONCRETE SHALL NOT BE ATTEMPTED WITHOUT THE PERMISSION OF THE ENGINEER.
15. CAST-IN FIXINGS, BOLTS ETC. SHALL NOT BE ALTERED WITHOUT THE PERMISSION OF THE ENGINEER.
16. SLABS AND BEAMS SHALL BE CONSTRUCTED TO BEAR ONLY ON THE BEAMS, WALLS, COLUMNS ETC. SHOWN ON THE DRAWINGS. ALL OTHER BUILDING ELEMENTS SHALL BE KEPT ***12mm CLEAR*** OF SOFFITS OF STRUCTURE .

CONCRETE QUALITY & COVER SUMMARY

• MIN. CEMENT CONTENT = **300 kg/m³**
• MAX. PERMISSIBLE DRYING SHRINKAGE = **600 MICROSTRAIN AT 56 DAYS**.

STRUCTURAL ELEMENT	SLUMP (MAX)	MAX. AGG. SIZE	CEMENT TYPE	STRENGTH GRADE	ADMIXTURE	REBAR COVER TOP	REBAR COVER BTM
SLABS ON GROUND							
EXTERNAL	80	Ø20mm	SL	32MPa	PENETRON	40	40
INTERNAL	80	Ø20mm	SL	25MPa	-	30	30
SUSPENDED SLABS & BEAMS							
CONVENTIONAL							
EXTERNAL	80	Ø20mm	SL	32MPa	PENETRON	40	40
INTERNAL	80	Ø20mm	SL	32MPa	-	20	20
POST-TENSIONED							
EXTERNAL	80	Ø20mm	SL	40MPa	PENETRON	50	50
INTERNAL	80	Ø20mm	SL	40MPa	-	40	40
COLUMNS							
EXTERNAL	80	Ø20mm	SL	40MPa	-	40	
INTERNAL	80	Ø20mm	SL	40MPa		30	
LIFT & STAIR WALLS							
EXTERNAL	80	Ø20mm	SL	40MPa	-	40	
INTERNAL	80	Ø20mm	SL	40MPa		30	
BLOCK WALL CORE GROUT FILLING (UNO)	230	Ø10mm	SL	25MPa		55	
BORED PIERS	80	Ø20mm	SL	32MPa		50	
PAD/STRIP FOOTINGS	80	Ø20mm	SL	32MPa		50	
LIFT PIT	80	Ø20mm	SL	40MPa	PENETRON	65	

SCREW PILE NOTES

1. ALL SCREW PILES ARE TO BE DESIGNED BY A SPECIALIST PILING CONTRACTOR AND ARE TO BE DESIGNED TO RESIST THE PILE LOADS SHOWN ON THE DESIGN DRAWINGS.
2. FOR SITE AND PILE DESIGN PARAMETERS REFER TO FOUNDATION NOTES TABLE F1.1 FOR GEOTECHNICAL INVESTIGATION REPORT.
3. STEEL SCREW PILE DESIGN AND INSTALLATION IS TO COMPLY WITH THE REQUIREMENTS OF AS2159 AND AS410. DESIGN SHALL CONSIDER BUT NOT BE LIMITED TO ULTIMATE STRENGTH, SERVICEABILITY, DURABILITY AND SETTLEMENTS.
4. THE TOP OF THE SCREW PILE SHALL BE POSITIVELY CONNECTED TO THE STRUCTURE OVER. THE DESIGN OF THE CONNECTION IS THE RESPONSIBILITY OF PILING CONTRACTOR. THE DESIGN OF THE CONNECTION SHALL BE CAPABLE OF TRANSMITTING THE PILE LOADS SHOWN ON THE DESIGN DRAWINGS.
5. FOR ULTIMATE LIMIT STATE DESIGN, THE GEOTECHNICAL STRENGTH REDUCTION FACTOR, Ø g, SHALL NOT EXCEED 0.40 UNLESS OTHERWISE STATED IN THE GEOTECHNICAL REPORT. SHOULD THE PILING CONTRACTOR ADOPT A VALUE HIGHER THAN 0.1, APPROVAL SHALL BE SORT FROM THE STRUCTURAL AND GEOTECHNICAL ENGINEERS.
6. TORQUE TO LOAD CORRELATIONS ARE NOT DEEMED SUITABLE FOR PILE CAPACITY CALCULATIONS. THE PILING CONTRACTORS SHALL SUBMIT CALCULATIONS FOR THE PILE DESIGN FOR REVIEW BY CARDNO. FOR ALL RELEVANT LOAD CASES, STATIC TESTS SHALL BE UNDERTAKEN (MINIMUM OF ONE TEST TO CONFIRM COMPRESSION AND TENSION CAPACITY). THE GEOTECHNICAL STRENGTH FACTOR, Ø g, IN ULTIMATE LIMIT STATE DESIGN SHALL BE APPLIED TO THE MAXIMUM TEST LOAD, IF THE TEST IS NOT TAKEN TO FAILURE AS REQUIRED BY AS2159. THE GEOTECHNICAL STRENGTH REDUCTION FACTOR CAN BE INCREASED DEPENDING ON PERCENTAGE OF STATIC LOAD TESTS CONDUCTED, REFER TO AS2159.
7. CORROSION ALLOWANCE FOR STEEL PILES TO APPLY TO ALL EXPOSED STEEL SURFACES FOR A DESIGN LIFE OF 50 YEARS UNLESS STATED OTHERWISE. ANY SURFACE COATING APPLIED TO THE PILE SHALL BE IGNORED WHEN CALCULATING CORROSION ALLOWANCE AS THE INTEGRITY OF THE COATING CANNOT BE GUARANTEED DURING THE INSTALLATION PROCESS.
8. INSTALLATION TORQUES TO BE MONITORED TO RECONCILE EXPECTED GEOTECHNICAL CONDITIONS AND THOSE ACTUALLY ENCOUNTERED DURING INSTALLATION.
9. PILE LOAD TEST RESULTS TO BE SUBMITTED TO CARDNO FOR REVIEW AND APPROVAL.
10. ALL TOLERANCES FOR THE PILES ARE TO BE WITHIN THE PERMISSIBLE LIMITS DEFINED BY AS2159, UNLESS NOTED OTHERWISE BY CARDNO.
11. PILE SHAFTS TO BE COMPLETELY FILLED WITH 40MPa BLOCK CORE FILL MIX.
12. AT THE COMPLETION OF THE PILING WORKS THE PILING CONTRACTOR IS TO ISSUE A CERTIFICATE THAT THE PILES HAVE BEEN DESIGNED AND INSTALLED IN ACCORDANCE WITH THE APPROPRIATE AUSTRALIAN STANDARDS AND CAN SUPPORT THE LOADS SPECIFIED ON THE DESIGN DRAWINGS FOR THE NOMINATED DESIGN LIFE OF THE STRUCTURE. CERTIFICATION IS TO BE PROVIDED BY AN APPROPRIATELY QUALIFIED ENGINEER.
13. DETAIL ENGINEERING CALCULATIONS AND ENGINEERING CERTIFICATE BY AN NER REGISTERED ENGINEER SHALL BE PROVIDED TO THE PROJECT ENGINEER FOR REVIEW A MINIMUM OF 7 DAYS PRIOR TO COMMENCEMENT OF PILING.

REINFORCEMENT

1. THE **REBAR DEVELOPMENT AND LAP SPLICE TABLES** ON THIS DRAWING HAVE BEEN CALCULATED IN ACCORDANCE WITH *SECTION 13 OF AS3600-2009* FOR DEFORMED BARS.
2. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
3. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS .
4. SPLICES IN THE MAIN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. SPLICES IN THE DISTRIBUTION REINFORCEMENT MAY BE POSITIONED AS NECESSARY WITH SPLICES OF SUFFICIENT LENGTH TO DEVELOP THE FULL STRENGTH OF THE BARS. MINIMUM LAPS TO FABRIC SHALL BE TO OVERLAP ***TWO CROSS WIRES PLUS 50mm U.N.O.*** REINFORCEMENT SHALL BE SECURELY TIED AT ALL LAPS AND INTERSECTIONS WITH ***1.25mm BLACK ANNEALED WIRE***. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR OTHER SPLICES . WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.
5. ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH ***N12-300 UNO***. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED CHAIRS NOT MORE THAN ***600mm CENTRES BOTH WAYS*** IN SLABS AND AT ***1000mm CENTRES IN BEAMS*** IN EXPOSURE CONDITIONS **B2 OR C** USE ONLY PLASTIC OR CONCRETE CHAIRS.
6. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON CHAIRS AT NOT MORE THAN ***600mm CENTRES BOTH WAYS*** IN SLABS, ***800mm EACH WAY*** FOR FABRIC, AND AT ***1000mm CENTRES IN BEAMS*** IN EXPOSURE CONDITIONS **B2 OR C** . WHEN POURED ON GROUND AS FORMWORK PROVIDE PLATES UNDER ALL BAR CHAIRS. PLASTIC TIPPED STEEL CHAIRS SHALL NOT BE USED ON EXPOSED FACES IN EXPOSURE CLASSIFICATION B1, B2 AND C, ONLY PLASTIC OR CONCRETE CHAIRS.
7. STEEL REINFORCEMENT MATERIAL QUALITY TO *AS4671:2001*, DENOTED AS FOLLOWS:
SL = GRADE 500 DEFORMED WIRE REINFORCING SQUARE FABRIC OF DUCTILITY CLASS 'L'
RL = GRADE 500 DEFORMED WIRE REINFORCING RECTANGULAR FABRIC OF DUCTILITY CLASS 'L'
R = GRADE 250 ROUND BARS OF DUCTILITY CLASS 'N'
N = GRADE 500 DEFORMED BARS OF DUCTILITY CLASS 'N'
S = GRADE 250 DEFORMED BARS OF DUCTILITY CLASS 'N'
8. TEST CERTIFICATES CONFIRMING COMPLIANCE TO AS4671 SHALL BE SUPPLIED TO THE STRUCTURAL ENGINEER.
9. FABRIC SHALL BE SUPPLIED IN FLAT SHEETS, ROLLS WILL NOT BE ACCEPTED.
10. TYPICAL REINFORCEMENT NOTATION SHALL BE INTERPRETED AS FOLLOWS:
'5N24-200' INDICATES
'**5**' NUMBER OF BARS REQUIRED
'**N**' DENOTES GRADE OF REINFORCEMENT
'**24**' DENOTES BAR DIAMETER IN MILLIMETRES
'**200**' DENOTES MAXIMUM BAR SPACING IN MILLIMETRES
11. TYPICAL BAR LAYING ABBREVIATIONS:
BTM = BARS IN BOTTOM LAYER
TOP = BARS IN TOP LAYER
ALT = BARS ALTERNATING
NF = BARS IN NEAR FACE
FF = BARS IN FAR FACE
EF = BARS IN EACH FACE
12. FOR SLAB FALLS, CHAMFERS, REGLETS, DRIP GROOVES, ETC., REFER TO THE ARCHITECT'S DRAWINGS. MAINTAIN CONCRETE COVER AT THESE DETAILS.
13. SITE BENDING OF REINFORCEMENT SHALL BE AVOIDED IF POSSIBLE. WHERE SITE BENDING IS UNAVOIDABLE IT SHALL BE CARRIED OUT COLD, WITHOUT THE APPLICATION OF HEAT, AND IN ACCORDANCE WITH THE *PRACTICE NOTE RPN1 OF THE STEEL REINFORCEMENT INSTITUTE OF AUSTRALIA*.
14. LAPPED SPLICES SHALL NOT BE USED FOR BARS WITH DIAMETER LARGER THAN 40mm. CONTRACTOR / DETAILER TO EITHER WORK OUT OR REQUEST THE INCREASED VALUES FROM THE ENGINEER FOR SITUATIONS THAT LIE OUTSIDE THE ASSUMPTIONS.
15. USE COMPRESSION LAP SPLICE LENGTH AT COLUMN AND WALL VERTICAL SPLICE LOCATIONS UNLESS INDICATED OTHERWISE ON PLANS, DETAILS OR SCHEDULES. USE TENSION SPLICE LENGTH FOR ALL OTHER SPLICES, WHERE SPLICING IS PERMITTED IN CODE.
16. CONTRACTOR / DETAILER MAY SUBMIT LESSER SPLICE LENGTH FOR REVIEW AND APPROVAL.
17. DEVELOPMENT LENGTHS AT SLAB FOLDS SHALL BE MEASURED IN ACCORDANCE WITH THE DIAGRAM ON THIS DRAWING.
18. LAPPED SPLICE LENGTHS FOR HORIZONTAL BARS WITH MORE THAN 300 mm CONCRETE CAST BELOW THE BAR AND SPACED AT ≥ 150 mm CENTRES TO COMPLY WITH THE FOLLOWING UNO:

COVER	f'c	N12	N16	N20	N24	N28	N32
≥25	≥20	770	1150	1570	-	-	-
≥30	≥25	600	980	1350	1740	-	-
≥40	≥32	510	770	1100	1440	1810	2220
≥50	≥40	460	630	890	1200	1030	1890

DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS.
LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO AS3600 OR SUPERINTENDENT.
EPOXY COATED BARS, BARS IN LIGHTWEIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS. REFER TO AS3600 OR SUPERINTENDENT.

19. LAPPED SPLICE LENGTHS FOR VERTICAL BARS (AND HORIZONTAL BARS WITH LESS THAN 300 mm CONCRETE CAST BELOW THE BAR) SPACED AT ≥ 150 mm CENTRES TO COMPLY WITH THE FOLLOWING UNO:

COVER	f'c	N12	N16	N20	N24	N28	N32
≥25	≥20	590	890	1210	-	-	-
≥30	≥25	490	750	1040	1340	-	-
≥40	≥32	390	660	840	1110	1400	1710
≥50	≥40	350	480	690	920	1180	1450

NOT APPLICABLE FOR BARS IN COLUMNS.
DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS.
LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO AS3600 OR SUPERINTENDENT.
EPOXY COATED BARS, BARS IN LIGHTWEIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS. REFER TO as3600 OR SUPERINTENDENT.

20. LAPPED SPLICE LENGTHS FOR VERTICAL BARS (AND HORIZONTAL BARS WITH LESS THAN 300 mm CONCRETE CAST BELOW THE BAR) FOR NARROW MEMBERS SUCH AS BEAMS AND COLUMNS SPACED AT ≤ 150 mm CENTRES TO COMPLY WITH THE FOLLOWING UNO

COVER	f'c	N12	N16	N20	N24	N28	N32
≥25	≥20	700	940	1190	-	-	-
≥30	≥25	620	830	1060	1300	-	-
≥40	≥32	540	700	900	1110	1340	1590
≥50	≥40	510	610	970	970	1170	1390

DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS.
LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO AS3600 OR SUPERINTENDENT.
EPOXY COATED BARS, BARS IN LIGHTWEIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS. REFER TO as3600 OR SUPERINTENDENT.

BRICKWORK AND BLOCKWORK

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH *AS3700*, CURRENT EDITION.
2. UNCONFINED COMPRESSIVE STRENGTH AND TYPE OF MORTAR SHALL BE AS FOLLOWS:

ELEMENT	UNCONFINED COMPRESSIVE STRENGTH (f'uc)	MORTAR MIX RATIO (CEMENT : LIME : SAND)
CLAY BRICKWORK	**20 MPa**	**1 : 1 : 6**
CONCRETE BLOCKWORK	**15 MPa**	**1 : 0.25 : 3**
NOTE: MIX RATIO IS BY VOLUME AND SHALL ALWAYS BE MEASURED WITH A BUCKET OR GAUGE BOX.		

3. MORTAR ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
4. NO CHASES OR RECESSES ARE PERMITTED IN LOAD BEARING MASONRY WITHOUT THE APPROVAL OF THE ENGINEER.
5. WITH THE EXCEPTION OF REINFORCED CONCRETE BLOCKWORK, ALL MASONRY WHICH IS SUPPORTING SLABS AND BEAMS SHALL BE TROWELLED SMOOTH WITH MORTAR FILLING ALL VOIDS. TWO LAYERS OF ALCOR OR EQUIVALENT LOW-FRICTION METAL SLIP JOINT MATERIAL SHALL BE PLACED FULL WIDTH ACROSS SUCH LOAD BEARING SURFACES U.N.O. ON THE DRAWINGS.
6. PROVIDE FULL DEPTH ***10mm ABELFLEX OR EQUIVALENT*** AGAINST ALL VERTICAL SURFACES WHICH ARE TO BE USED AS FORMWORK U.N.O.
7. ALL RETAINING WALL BLOCKWORK SHALL BE ***SERIES 20.90 OR 30.90 OPEN-ENDED BLOCKS*** U.N.O.
8. PROVIDE A ***300mm WIDE*** STRIP OF COARSE FREE DRAINING GRANULAR BACKFILL WRAPPED WITH ***BIDIM A34 GEOTEXTILE FABRIC*** OR APPROVED EQUIVALENT BEHIND ALL RETAINING WALLS. PROVIDE SUBSOIL DRAINAGE LINE WITH SUFFICIENT FALL TO AN APPROPRIATE OUTLET.
9. PROVIDE CONTROL JOINTS IN BLOCKWORK RETAINING WALLS AT ***6.0m MAX CENTRES U.N.O.***
10. PROVIDE CONTROL JOINTS IN BRICKWORK IN ACCORDANCE WITH *"TECHNICAL NOTE 61 - AUG 2008" BY CEMENT, CONCRETE & AGGREGATES AUSTRALIA* U.N.O.
11. CHASES, HOLES, RECESSES ETC. SHALL NOT BE MADE IN LOAD BEARING MASONRY WALLS WITHOUT PRIOR APPROVAL FROM ENGINEER.
12. ALL CLAY BRICKS USED EXTERNALLY MUST HAVE EXPOSURE CLASSIFICATION - REFER TO ARCHITECT FOR SPECIFICATIONS.
13. ALL DOUBLE SKIN SOLID WALLS SUCH AS 230mm THICK BRICKWORK SHALL BE BONDED BY A ***HEADER COURSE EVERY 4th COURSE***.
14. NON LOAD BEARING WALLS BUILT PRIOR TO POURING CONCRETE SHALL BE SEPARATED FROM CONCRETE ABOVE BY ***16mm THICK*** CLOSED CELL POLYSTYRENE STRIP. WHERE BUILT AFTER CONCRETE IS POURED LEAVE ***12mm CLEAR*** OF CONCRETE SOFFIT.
15. REFER TO CONCRETE NOTES FOR DE-PROPPING PRIOR TO CONSTRUCTION OF MASONRY WALLS ON SUSPENDED SLABS.
16. BRICKWORK AND UNREINFORCED BLOCKWORK SHALL BE ARTICULATED IN ACCORDANCE WITH *PART 3.3 OF THE NATIONAL CONSTRUCTION CODE*, UNLESS OTHERWISE DIRECTED BY ENGINEER. WHERE POSSIBLE WALL JOINTS ARE TO ALIGN WITH CONTROL JOINTS IN CONCRETE SLABS. JOINTS SHALL GENERALLY BE LOCATED A MAXIMUM 5m FROM WALL CORNERS.
17. INSTALL APPROVED CAVITY TIES IN ACCORDANCE WITH *AS3700* BETWEEN SKINS OF BRICKS, BETWEEN CONCRETE WALLS AND BETWEEN MASONRY WALLS AT NOT MORE THAN ***400mm SPACING VERTICALLY*** AND ***500mm SPACING HORIZONTALLY*** OVER WHOLE AREA OF WALLS. ABOVE GROUND EXTERIOR WALL TIES SHALL BE ***GRADE 316 STAINLESS STEEL***.
19. PROVIDE ***1 ROW OF 'CLEAN-OUT' BLOCKS*** TO ALL CORE-FILLED BLOCKWORK WALLS. ALL MORTAR AND DEBRIS IS TO BE REMOVED FROM CAVITY PRIOR TO PLACEMENT OF REINFORCEMENT AND CORE FILLING WITH GROUT. PROVIDE ADDITIONAL ROWS OF 'CLEAN- OUT' BLOCKS AT THE BASE OF EACH LIFT.
20. CONCRETE COVER TO STEEL REINFORCEMENT WITHIN CORE-FILLED BLOCKWORK WALLS AS INDICATED INCLUDES THE WALL THICKNESS OF THE BLOCK. PROVIDE ***65mm NOMINAL COVER*** TO THE RETAINING FACE OF BLOCKWORK WALLS U.N.O.
21. GROUT ALL CORES IN REINFORCED BLOCKWORK U.N.O. HEIGHT OF BLOCKWORK TO BE GROUTED ON ONE DAY SHALL BE ***2400mm***. GROUT SHALL BE PLACED IN LIFTS OF ***1200mm*** MAXIMUM AND COMPACTED BY POKER VIBRATOR. ALLOW ***1 HOUR*** BETWEEN SUCCESSIVE LIFTS TO ALLOW PLASTIC SETTLEMENT TO OCCUR.
22. REINFORCEMENT PROJECTING FROM FOUNDATION OR SLABS INTO CORES, SHALL BE SET ACCURATELY IN PLACE USING TEMPLATES TO ALIGN WITH THE CENTRE OF THE LENGTH OF CORES AND WITH COVER AS NOTED. WHERE HORIZONTAL BARS ARE INDICATED, THE WEBS OF THE BLOCKS BELOW THE BARS SHALL BE CUT DOWN TO ACCOMMODATE THE BARS.

PROJECT-SPECIFIC DESIGN PARAMETERS:

1. WHERE THERE IS A DISCREPANCY BETWEEN CONSTRUCTION NOTES AND PROJECT-SPECIFIC DESIGN PARAMETERS, THE TABLE BELOW SHALL TAKE PRECEDENCE.

DESIGN LOADINGS SUMMARY

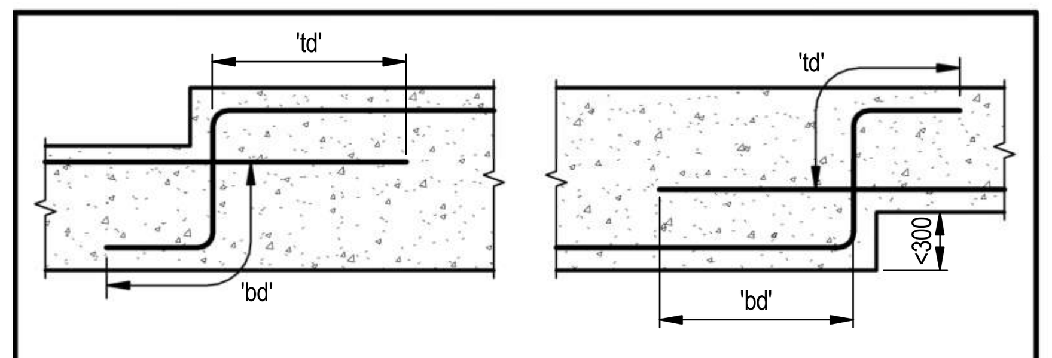
DESIGN LIFE: *50 YEARS*

DESIGN LOADS *(IN ACCORDANCE WITH AS/NZS1170.1:2002)*

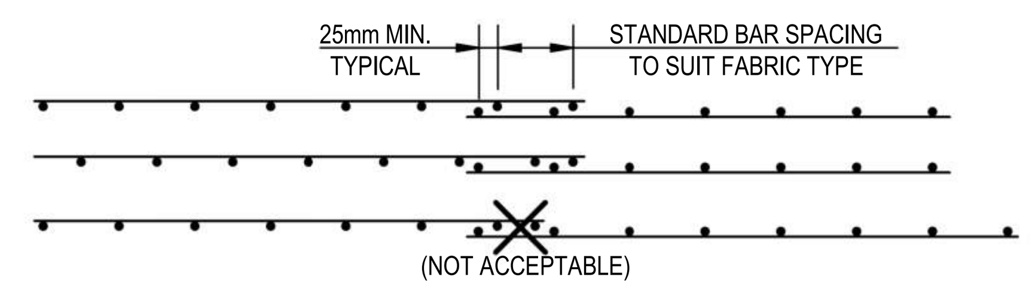
BUILDING ELEMENTS/ZONES	LIVE LOAD
NON-TRAFFICABLE ROOF	**0.25 kPa**
STAIRS, CORRIDORS	**4.00 kPa**
SUSPENDED SLABS	**5.00 kPa**

DESIGN WIND LOADS *(IN ACCORDANCE WITH AS/NZS1170.2:2011)*
• TERRAIN CATEGORY = **3** IMPORTANCE LEVEL **= 3**
• Vr(ult) = **46m/s** • Vr(serv) = **38m/s** • Mzcat = **0.89**
• Mi = **1.0** • Ms = **1.0** • Mt = **1.0 (1.3 FOR WIND FROM EAST TO SOUTH DIRECTIONS ON LIBRARY AND GYM, AND FROM EAST DIRECTION ON PS.C.)**

DESIGN EARTHQUAKE LOADS *(IN ACCORDANCE WITH AS/NZS 1170.4:2007)*
• ANNUAL PROBABILITY OF EXCEEDENCE = **1:1000**
• PROBABILITY FACTOR (Kp) = **1.3** IMPORTANCE LEVEL = **3**
• HAZARD FACTOR (Z) = **0.08**
• SUB-SOIL CLASS (Ce) = **Ce**
• IMPORTANCE LEVEL = **3**



DEVELOPMENT LENGTHS 'L' AT SLAB FOLDS



REINFORCEMENT MESH LAP

STRUCTURAL STEELWORK

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH *AS4100, AS/NZS1554, AND AS/NZS5131* EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS. PURLINS AND GIRTS SHALL BE IN ACCORDANCE WITH *AS/NZS4600*.
2. ALL STEEL SHALL BE IN ACCORDANCE WITH:
• *AS/NZS1163* FOR GRADE 350 RHS SECTIONS
• *AS/NZS1163* FOR GRADE 200 CHS SECTIONS UP TO 165mm O.D.
• *AS/NZS1163* FOR GRADE 350 CHS SECTIONS EXCEEDING 165mm O.D.
• *AS1397* FOR GRADE G450 Z350 PURLINS AND GIRTS
• *AS/NZS3678* FOR GRADE 250 HOT ROLLED PLATES, FLOORPLATES AND SLABS
• *AS/NZS3679.1* FOR GRADE 300 PLUS HOT ROLLED BARS AND SECTIONS
• *AS/NZS3679.2* FOR GRADE 300 WELDED WB & WC SECTIONS
THE FABRICATOR SHALL SUPPLY CERTIFICATION TO THE STRUCTURAL ENGINEER CONFIRMING COMPLIANCE OF STRUCTURAL STEEL TO THE RELEVANT STANDARD PRIOR TO FABRICATION.
3. WHERE CONNECTIONS ARE NOT DETAILED, THEY SHALL BE PROVIDED WITH A ***MINIMUM 10mm THICK CLEAT PLATE WITH 2M20 8.8/S BOLTS***. THE CONTRACTOR SHALL PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING STEEL TO STEEL AND TIMBER TO STEEL WHETHER OR NOT THEY ARE DETAILED ON THE DRAWINGS.
4. ALL DETAILS, GAUGE LINES ETC. WHERE NOT SPECIFICALLY SHOWN ARE TO BE IN ACCORDANCE WITH *AISC DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL* AND *AISC STANDARDISED STRUCTURAL CONNECTIONS*.
5. THE DISTANCE BETWEEN CENTRES OF FASTENERS AND THE MINIMUM DISTANCE FROM THE CENTRE OF A FASTENER TO THE EDGE OF A PLATE OR FLANGE OF A ROLLED SECTION SHALL COMPLY WITH *AS4100 AND AS/NZS5131*.
6. ALL BEAMS SHALL BE SUPPLIED WITH NATURAL CAMBER UP. ADDITIONAL CAMBER SHALL BE AS NOTED ON THE DRAWINGS. FABRICATED AND HOT DIP GALVANISED STEEL SHALL COMPLY WITH THE FABRICATION TOLERANCES IN ACCORDANCE WITH *AS4100*.
7. WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH *AS/NZS1554*. WELDING CONSUMABLES SHALL BE ***E48XX*** OR ***W50X***. ALL WELDS SHALL BE ***6mm CONTINUOUS FILLET WELD (6 CFW) U.N.O.***. BUTT WELDS WHERE INDICATED "FSBW" ON THE DRAWINGS SHALL BE COMPLETE PENETRATION BUTT WELDS AS DEFINED IN *AS/NZS1554*. ALL WELDS SHALL BE CATEGORY **SP** U.N.O.
8. BOLTING CATEGORY WHERE SHOWN SHALL BE AS FOLLOWS IN ACCORDANCE WITH AS4100 AND AS/NZS5131:
4.6/S = COMMERCIAL BOLTS OF GRADE 4.6 TO AS 1111, SNUG TIGHTENED.
8.8/S = HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS1252, SNUG TIGHTENED.
8.8/TB = HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS1252 FULLY TENSIONED TO AS/NZS5131 AS BEARING JOINT.
8.8/TF = HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS1252 FULLY TENSIONED TO AS/NZS5131 AS A FRICTION JOINT WITH FACING SURFACES LEFT UNCOATED.
9. NO CONNECTION SHALL HAVE LESS THAN **2M20 8.8/S** BOLTS U.N.O. NO BOLT THREAD SHALL BE PERMITTED WITHIN THE BEARING LENGTH. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL COMPLY WITH *AS/NZS1252* AND SHALL BE INSTALLED IN ACCORDANCE WITH *AS4100* AND AS/NZS5131. TEST CERTIFICATES CONFIRMING BOLT COMPLIANCE TO AS/NZS1252 SHALL BE SUPPLIED TO THE STRUCTURAL ENGINEER PRIOR TO ERECTION. ALL HIGH STRENGTH BOLTS DENOTED ***8.8/TB*** OR ***8.8/TF*** SHALL BE INSTALLED USING APPROVED LOAD INDICATING WASHERS OR BY TURN OF NUT CONTROL OF TENSIONING.
10. PROVIDE SEAL PLATES TO ALL HOLLOW SECTIONS. PROVIDE VENT HOLES IN CLOSED SECTIONS TO BE HOT DIP GALVANISED.
11. ALL STEEL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.
13. THE CONTRACTOR SHALL PREPARE AND SUBMIT WORKSHOP DRAWINGS IN PDF FORMAT TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO COMMENCING FABRICATION. PERMISSION TO USE DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR DIMENSIONS, FIT AND COMPLIANCE WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
14. THE FABRICATION AND ERECTION OF THE STRUCTURAL STEELWORK SHALL BE UNDERTAKEN BY A QUALIFIED PERSON EXPERIENCED IN SUCH SUPERVISION, IN ORDER TO ENSURE THAT ALL REQUIREMENTS OF THE DESIGN ARE MET.
16. PROVIDE FIRE RATING TO STRUCTURAL STEEL AS REQUIRED BY THE BUILDING CODE OF AUSTRALIA AND THE SPECIFICATION AS SUMMARISED IN THE **FRL SUMMARY TABLE** ON THIS DRAWING.
17. STRUCTURAL STEELWORK SHALL BE PROTECTED FROM THE ENVIRONMENT IN ACCORDANCE WITH *AS/NZS2312 AND AS/NZ5131*. STEELWORK SHALL HAVE THE FOLLOWING SURFACE TREATMENT U.N.O.:

STEELWORK SURFACE TREATMENTS SUMMARY

ELEMENT	SURFACE PREPARATION	PROTECTIVE COATING
INTERNAL (NOT EXPOSED TO WEATHER)	**ABRASIVE BLAST CLEANED TO CLASS 2 1/2 TO AS1627**	**INORGANIC ZINC SILICATE TO 75um DRY FILM THICKNESS**
EXTERNAL (EXPOSED TO WEATHER >1km FROM THE COAST)		**HOT DIP GALVANISED TO AS/NZS4680, AS/NZS4791 OR AS/NZS4792. MINIMUM COATING MASS 600g/m².**
EXTERNAL (EXPOSED TO WEATHER <1km FROM THE COAST)		**HOT DIP GALVANISED TO AS/NZS4680, AS/NZS4791 OR AS/NZS4792. MINIMUM COATING MASS 600g/m². AND TWO COATS OF EPOXY MICACEOUS IRON OXIDE.**
ALL BOLTS, WASHERS AND NUTS	-	**HOT DIP GALVANISED TO AS1214.**

DESIGN LIFE OF COATINGS: ***25 YEARS TO FIRST MAINTENANCE***
EXPOSURE ENVIRONMENT: ***CATEGORY C (MEDIUM)***

NCC PARAMETERS & STRUCTURAL FRL SUMMARY

BUILDING & STRUCTURES CLASSIFICATION(S)	RISE IN STOREYS	TYPE OF CONSTRUCTION	HEIGHT OF BUILDING
CLASS 9b: BEING A SCHOOL ASSEMBLY BUILDING	**VARIES (REFER BCA REPORT)**		

STRUCTURAL ELEMENT	FRL	NOTES
FLOORS	**120/120/120**	- -
ROOFS	**- / - / -**	- -
EXTERNAL NON-LOADBEARING WALL >3m FROM FIRE SOURCE FEATURE	**- / - / -**	- -
EXTERNAL LOADBEARING WALL >3m FROM FIRE SOURCE FEATURE	**120/60/30**	- -
ALL COLUMNS U.N.O.	**120/ - / -**	- -
INTERNAL COLUMNS SUPPORTING ROOF STRUCTURE	**- / - / -**	- -
LIFT SHAFTS	**120/120/120**	- -

NOTE: FINAL DETERMINATION OF THE APPROPRIATE NCC PARAMETERS AND FRL CLASSIFICATIONS FOR THIS PROJECT IS TO BE CONFIRMED BY A SUITABLY QUALIFIED NCC CONSULTANT.

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Rev	Date		Des.	Ver.	Appr.
3	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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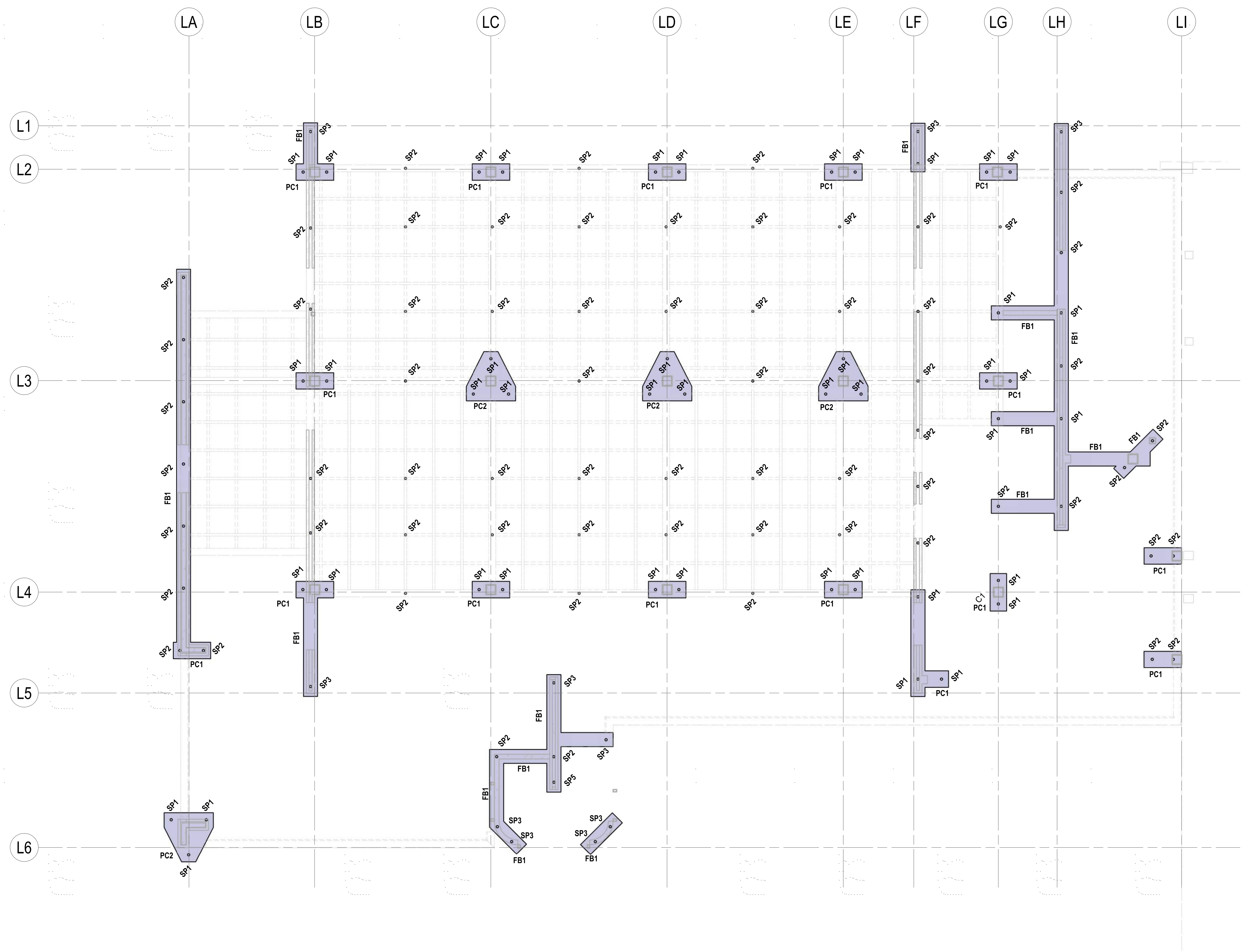
Drawn AS	Date
Checked AK	Date
Designed AK	Date
Verified PP	Date
Approved	Date

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project: CRONULLA HIGH SCHOOL
Title: STRUCTURAL CONSTRUCTION NOTES
Status: **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
			A1

Drawing Number	Revision
80821341-ST-0001	3

DATE PLOTTED: 4/07/2022 7:14:10 PM



BLOCK L FOUNDATION PLAN

SCALE 1 : 100

FOOTING PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

FOOTINGS

1. ALL FOOTING LEVELS TO BE CHECKED AGAINST IN-GROUND SERVICES.
2. FOR ALLOWABLE BEARING PRESSURE REFER TO CONSTRUCTION NOTES DRAWING.
3. BUILDER TO CONFIRM ALL TOP OF FOOTING LEVELS WITH THE ARCHITECT PRIOR TO POURING CONCRETE.
4. THE ACTUAL DEPTH OF EACH FOOTING SHALLBE CHECKED AND APPROVED BY A GEOTECHNICAL ENGINEER.
5. ALL CONCRETE COLUMNS TO BE PLACED CENTRALLY ON PAD FOOTING U.N.O.
6. ALL WATERPROOFING TO ARCHITECTS SPECIFICATIONS

PILES/PIERS

1. ALL PILES/PIERS ARE TO BE LOCATED CENTRALLY UNDER COLUMNS AND WALLS U.N.O. REFER TO ARCHITECTS DRAWINGS FOR SETOUT.
2. THE ACTUAL DEPTH OF EACH FOOTING SHALL BE CHECKED AND APPROVED BY A GEOTECHNICAL ENGINEER.
3. ALL LOADS SHOWN ARE UNFACTORED
4. LOADS ARE TO BE USED FOR PILE/PIER DESIGN PURPOSES ONLY.
5. PILE/PIER DESIGN TO COMPLY WITH AS2159

EXISTING SERVICES

1. THE POSITION OF ALL EXISTING SERVICES SHOWN SHOULD BE REGARDED AS APPROXIMATE ONLY AND NOT NECESSARILY COMPREHENSIVE. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS AND INFORM ALL AUTHORITIES PRIOR TO ANY EXCAVATION.

A. APPLICABLE TO ALL PAD FOOTING AND FOOTING BEAMS INCREASE PAD DEPTH WITH 15MPa MASS CONCRETE AS REQUIRED TO:
   - A.1 OBTAIN AN ALLOWABLE BEARING PRESSURE OF 500kPa TO GEOTECHNICAL ENGINEERS APPROVAL ON SITE.
   - A.2 HAVE A LOAD DISPERSION LINE OF 45 FROM UNDERSIDE OF PAD TO CLEAR EXISTING SERVICES.
   - A.3 ENSURE PAD IS FOUNDED AT UNDERSIDE OF ADJACENT SERVICES EXCAVATIONS.

BLOCK L SCREW PILE SCHEDULE

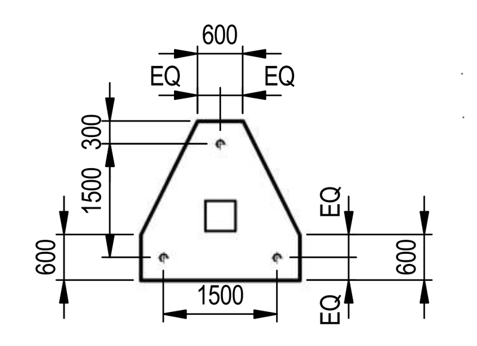
Mark	SWL (kN)
SP1	250
SP2	150
SP3	100

FOOTING BEAM SCHEDULE

MARK	SIZE		REINFORCEMENT	
	WIDTH (mm)	DEPTH (mm)	BARS	TIES
FB1	600	600	5N20 T&B	N12-300

CONCRETE PILE CAP FOOTING SCHEDULE (BLOCK L)

MARK	SIZE			REINFORCEMENT		PILES
	WIDTH (mm)	LENGTH (mm)	DEPTH (mm)	BARS	TIES	
PC1	700	1600	600	5N20 T&B	N12-300	2 x SP1
PC2	1500	1500	600	5N20 T&B	N12-300	3 xSP1



PC2 : PILES AT 1500 CENTRES AT 60 DEGREES

PILE CAP (PC2) DETAIL

SCALE 1 : 100

Rev	Date		Des.	Ver.	Appr.
8	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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5	02-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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Drawn AS Date
Checked AK Date
Designed AK Date
Verified PP Date
Approved Date

Client NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project CRONULLA HIGH SCHOOL

Title BLOCK L FOUNDATION PLAN

Status **SCHEMATIC DESIGN** NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum | Date | Scale 1:100 | Size A1

Drawing Number 80821341-ST-0101 | Revision 8

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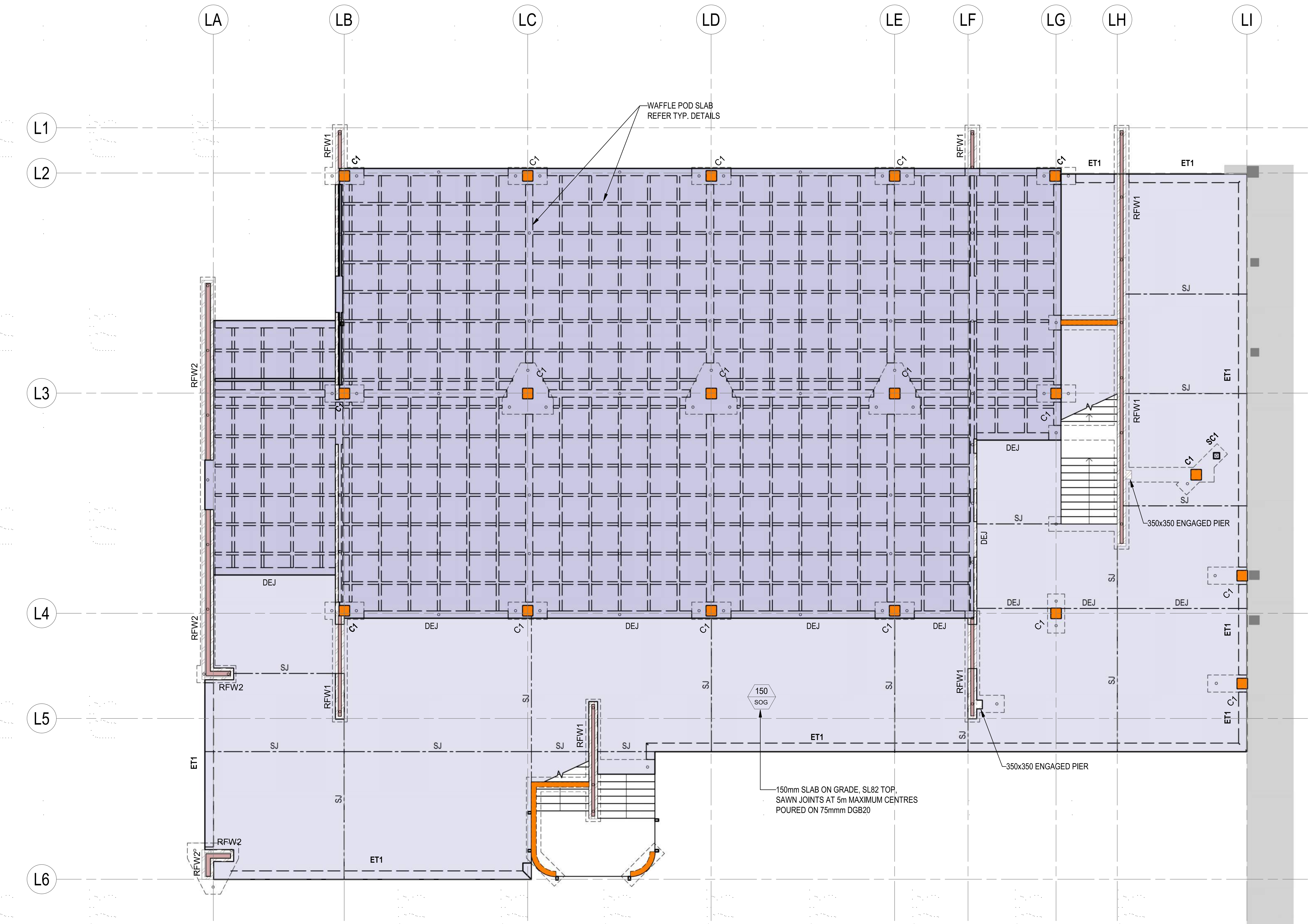


BLOCK L GROUND FLOOR GENERAL ARRANGEMENT

SCALE 1 : 100

NOTE:

1. GROUND FLOOR SLAB TO BE RAFT SLAB IN ACCORDANCE WITH AS2870 FOR A CLASS P SITE. THIS WILL COMPROMISE OF A 400mm DEEP RAFT WAFFLE SLAB WITH SCREW PILES.
2. ALL COLUMNS AND LOAD BEARING WALLS TO BE PILED USING SCREWED PILES. PILES TO BE FOUNDED IN MEDIUM DENSE SAND, ESTIMATED AT 6m DEPTH BELOW GROUND LEVEL, REFER GEOTECHNICAL INVESTIGATION REPORT BY MARTENS, REF P2108205JR2V01
3. CONCRETE STRENGTH, f'c = 40 MPa.

CONCRETE COLUMN SCHEDULE

Mark	Member Size	Description
C1	400x400	CONCRETE COLUMN

REINFORCED WALL:

- RFW1 : 350 WITH 130 RC WALL
- RFW2 : 470 WITH 180 RC WALL

SLAB ON GRADE PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES & DRAWING LIST REFER TO DRAWING No ST-0001
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

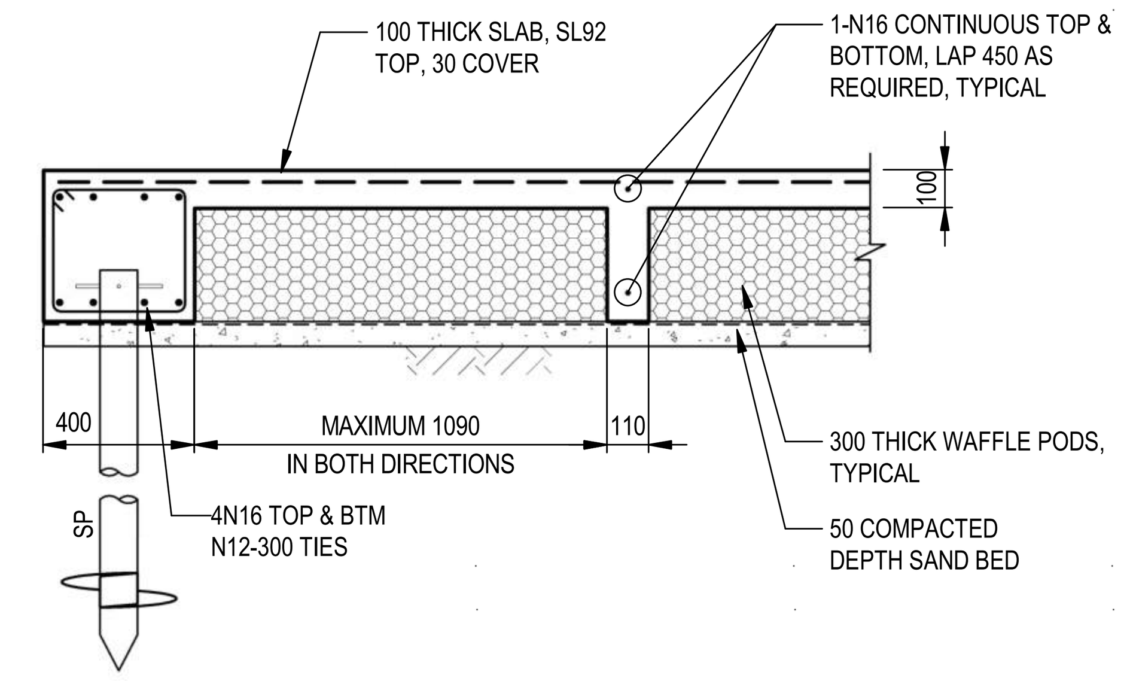
SLABS

1. FOR SLAB FLOOR FINISHED REFER TO ARCHITECTS DRAWINGS.
2. FOR ALL SLAB PENETRATIONS REFER TO ARCHITECTS & BUILDING SERVICES DRAWINGS.
3. SURFACE FALLS, DRAINAGE & EMERGENCY OVERFLOWS IN EXTERNAL AREAS TO ARCHITECTS DETAILS.
4. ALL WATERPROOFING TO ARCHITECTS SPECIFICATION.
5. ALL FALLS TO ARCHITECTS DETAILS/
6. FOR ADDITIONAL REINFORCEMENT REFER TO PLANS, SECTIONS AND DETAILS.
7. PROVIDE TRIMMER BARS AROUND ALL PENETRATIONS, COLUMNS, JOINT INTERSECTIONS AND RE-ENTRANT CORNERS. REFER TO TYPICAL SLAB ON GROUND TRIMMER DETAILS FOR REINFORCEMENT. ALL TRIMMER BARS TO BE LAID UNDER TOP REINFORCEMENT (FABRIC).
8. PROVIDE FILLER AND APPROVED SEALANT WITH BACKING ROD AROUND ALL COLUMNS, WALLS AND PANELS THAT PENETRATE THE SLAB. REFER TO TYPICAL JOINT DETAILS.
9. ENSURE ALL TILED SURFACES AND MASONRY WALLS ARE JOINTED ACROSS CONCRETE SLAB JOINTS
10. JOINT PATTERN MAY BE ALTERED TO SUIT CONSTRUCTION SEQUENCE. ADVISE ENGINEER OF PROPOSED CHANGES PRIOR TO POURING CONCRETE.

SLAB ON GRADE PLAN LEGEND

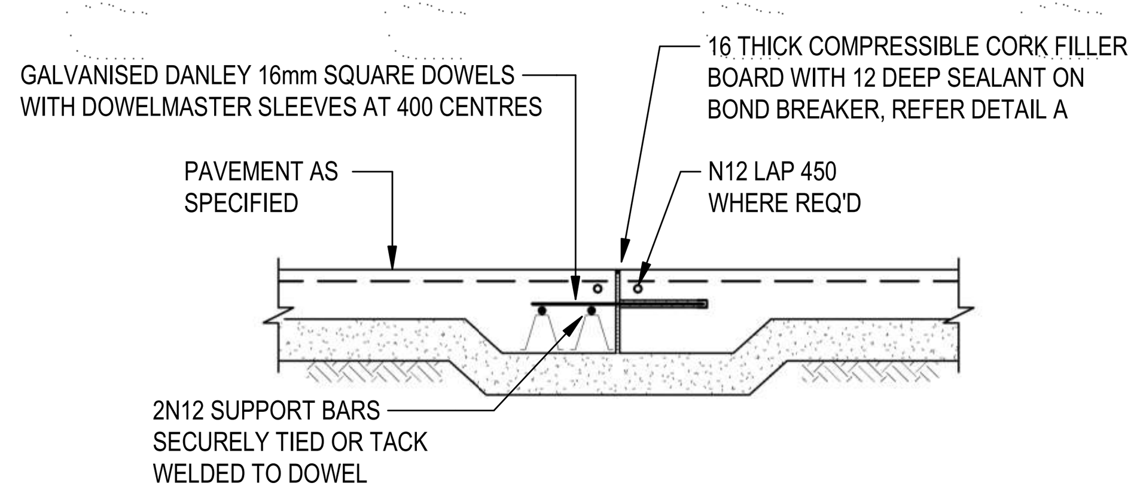
200	SLAB THICKNESS
EB__	EDGE BEAM, REFER TO DETAILS
IB__	INTERNAL BEAM, REFER TO DETAILS
ET__	SLAB THICKENING REFER TO DETAILS
C__	CONCRETE COLUMN OVER, REFER TO COLUMN SCHEDULE AND DETAILS
SC__	STEEL COLUMN, REFER TO MEMBER SCHEDULE
●	LOADBEARING PILE UNDER PILE CAP / FOOTING, REFER TO DETAILS
-50	SETDOWN IN SLAB SURFACE TO BE CONFIRMED BY THE ARCHITECT
600 x 1200 BEAM	DENOTES SIZE OF BEAM (DEPTH x WIDTH)

NORTH



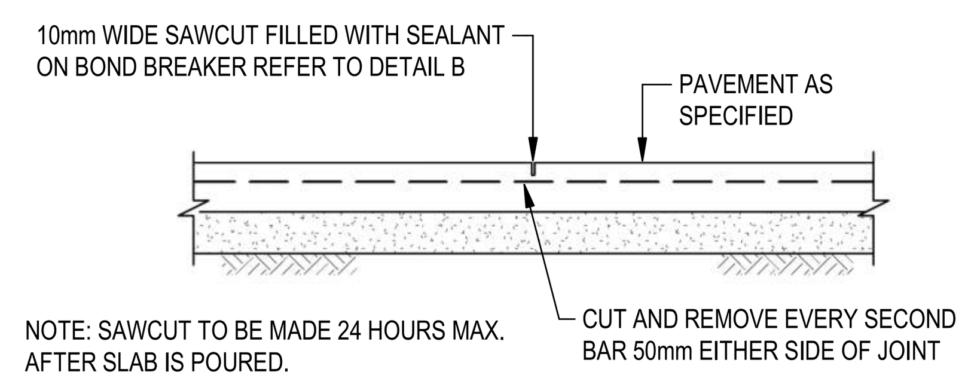
WAFFLE SLAB EDGE BEAM DETAIL

SCALE 1:20



DOWELLED EXPANSION JOINT (DEJ) (TYPICAL UNO)

SCALE 1:20



NOTE: SAWCUT TO BE MADE 24 HOURS MAX. AFTER SLAB IS POURED.

SAWN JOINT (SJ) (TYPICAL)

SCALE 1:20

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7	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
6	02-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
5	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	27-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn	AS
Checked	AK
Designed	AK
Verified	PP
Approved	

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Title: BLOCK L GROUND FLOOR G.A. PLAN

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Scale: 1:100 | Size: A1

Drawing Number: 80821341-ST-0121 | Revision: 7

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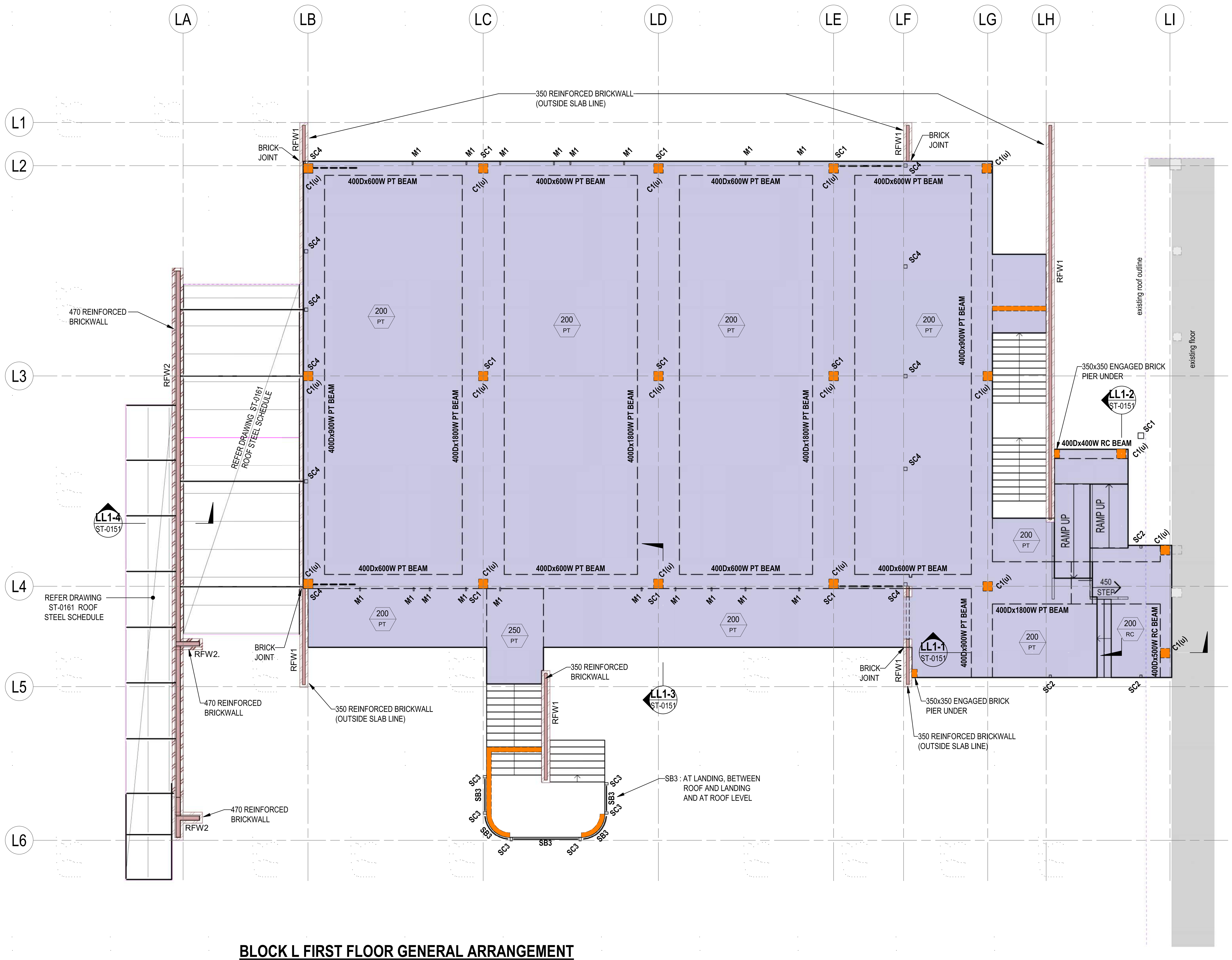

BLOCK L FIRST FLOOR GENERAL ARRANGEMENT

SCALE 1 : 100

NOTES:

- **ALL CONCRETE COLUMN 400x400**
- **ALL SLABS 200 THICK**
- **ALL SLABS AND BEAMS TO BE POST-TENSIONED UNO**
- **FOR STEEL MEMBER SCHEDULE REFER ST-0161**

NORTH

SUSPENDED LAB PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES & DRAWING LIST REFER TO DRAWING No ST-001 & ST-002
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

SLABS

1. FOR SLAB FLOOR FINISHED REFER TO ARCHITECTS DRAWINGS.
2. FOR ALL SLAB PENETRATIONS REFER TO ARCHITECTS & BUILDING SERVICES DRAWINGS.
3. SURFACE FALLS, DRAINAGE & EMERGENCY OVERFLOWS IN EXTERNAL AREAS TO ARCHITECTS DETAILS.
4. ALL WATERPROOFING TO ARCHITECTS SPECIFICATION.
5. ALL FALLS TO ARCHITECTS DETAILS/
6. FOR ADDITIONAL REINFORCEMENT REFER TO PLANS, SECTIONS AND DETAILS.

SUSPENDED SLAB PLAN LEGEND

200	SLAB THICKNESS
EB__	EDGE BEAM, REFER TO DETAILS
IB__	INTERNAL BEAM, REFER TO DETAILS
PL__	CONCRETE PLINTH REFER TO DETAILS
C	CONCRETE COLUMN OVER, REFER TO COLUMN SCHEDULE AND DETAILS
SC	STEEL COLUMN, REFER TO MEMBER SCHEDULE
●	LOADBEARING PILE UNDER PILE CAP / FOOTING, REFER TO DETAILS
-60	SETDOWN IN SLAB SURFACE TO BE CONFIRMED BY THE ARCHITECT
600 x 1200 BEAM	DENOTES SIZE OF BEAM (DEPTH x WIDTH)

STEEL COLUMN SCHEDULE

Mark	Member Size	Description
M1	150x50x4 RHS	MULLION
SC1	250x250x9 SHS	STEEL COLUMN
SC2	100x100x6 SHS	STEEL COLUMN
SC4	150x150x5 SHS	STEEL COLUMN
ST2	100x100x4 SHS	STUB COLUMN

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Checked	AK
Designed	AK
Verified	PP
Approved	

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Status: **SCHEMATIC DESIGN** NOT TO BE USED FOR CONSTRUCTION PURPOSES

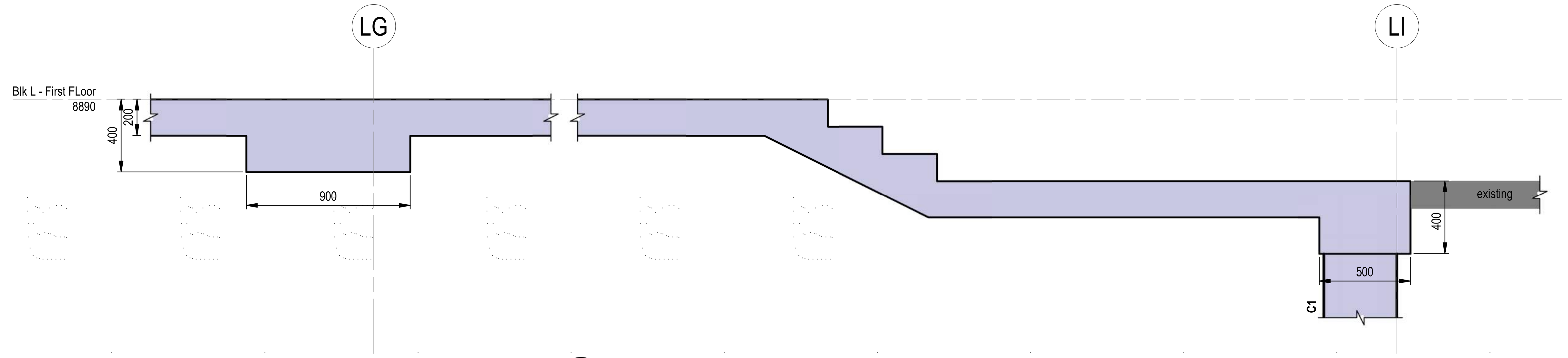
Scale: 1:100 Size: A1

Title: BLOCK L FIRST FLOOR G.A. PLAN

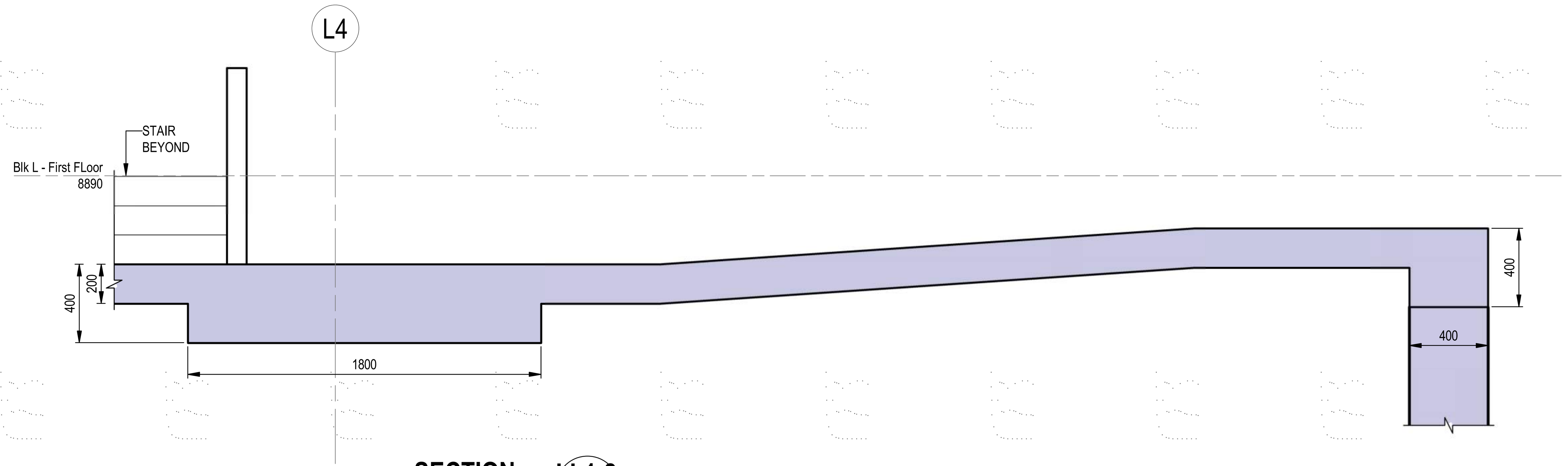
Drawing Number: 80821341-ST-0141 Revision: 7

MODEL PATH: C:\Temp\Revit\80821341 - Cronulla HS - Phase 2 to 6 (Central 2019)_amel.salonga.rvt

DATE PLOTTED: 4/07/2022 7:21:52 PM



SECTION LL1-1
SCALE 1 : 20 ST-0141



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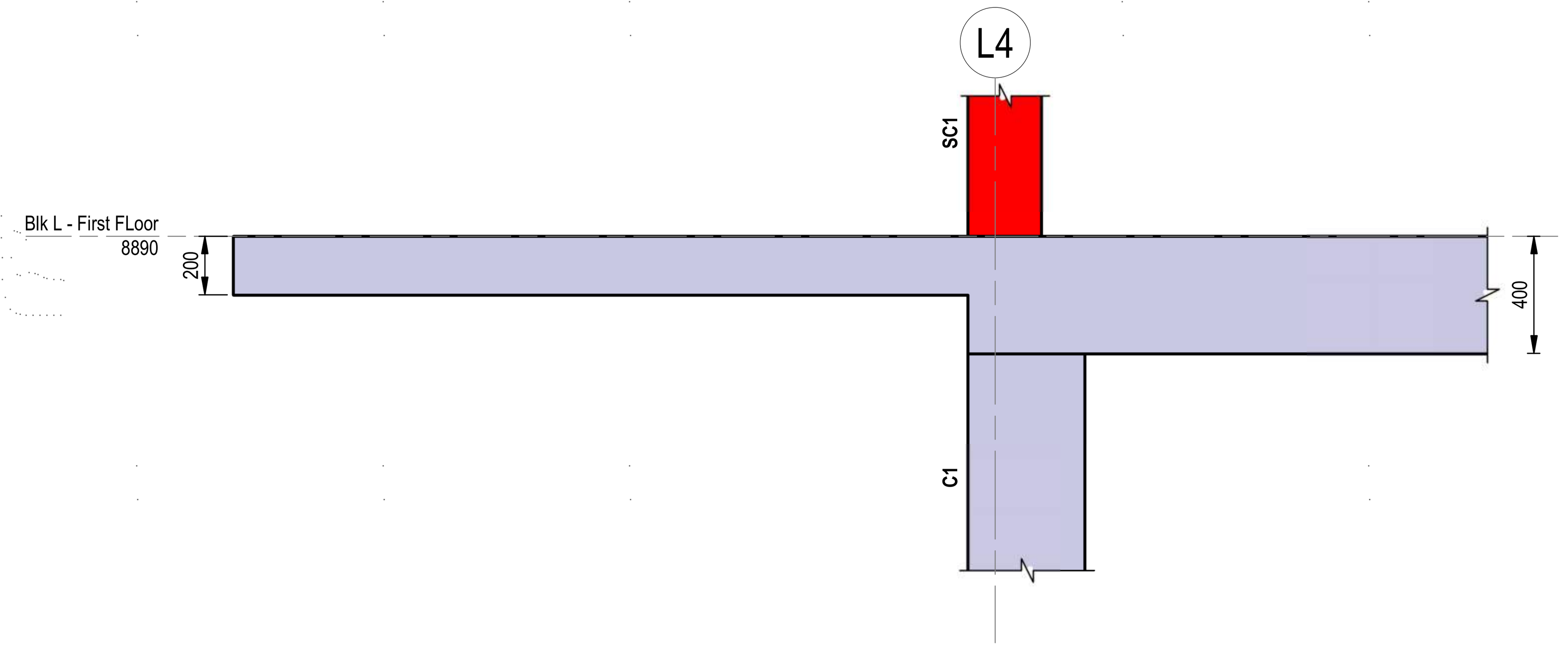
SCALE 1 : 20 ST-0141



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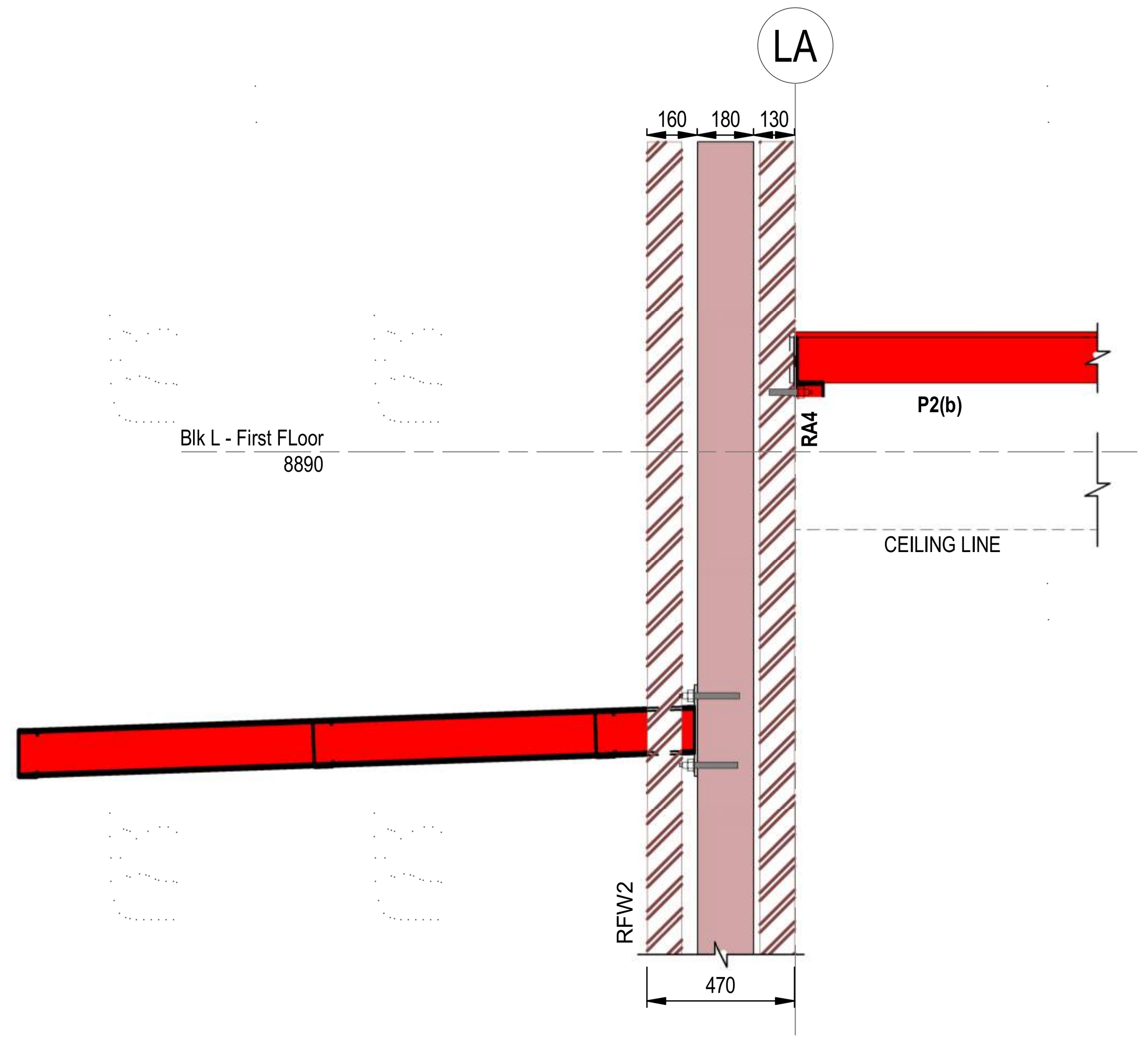
SCALE 1 : 20 ST-0141



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SCALE 1 : 20 ST-0141

Rev	Date		Des.	Ver.	Appr.
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4	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	27-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
Project: CRONULLA HIGH SCHOOL
Title: BLOCK L FIRST FLOOR SECTIONS

Status: SCHEMATIC DESIGN
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Datum	Date	Scale	Size
		1:20	A1

Drawing Number	Revision
80821341-ST-0151	5

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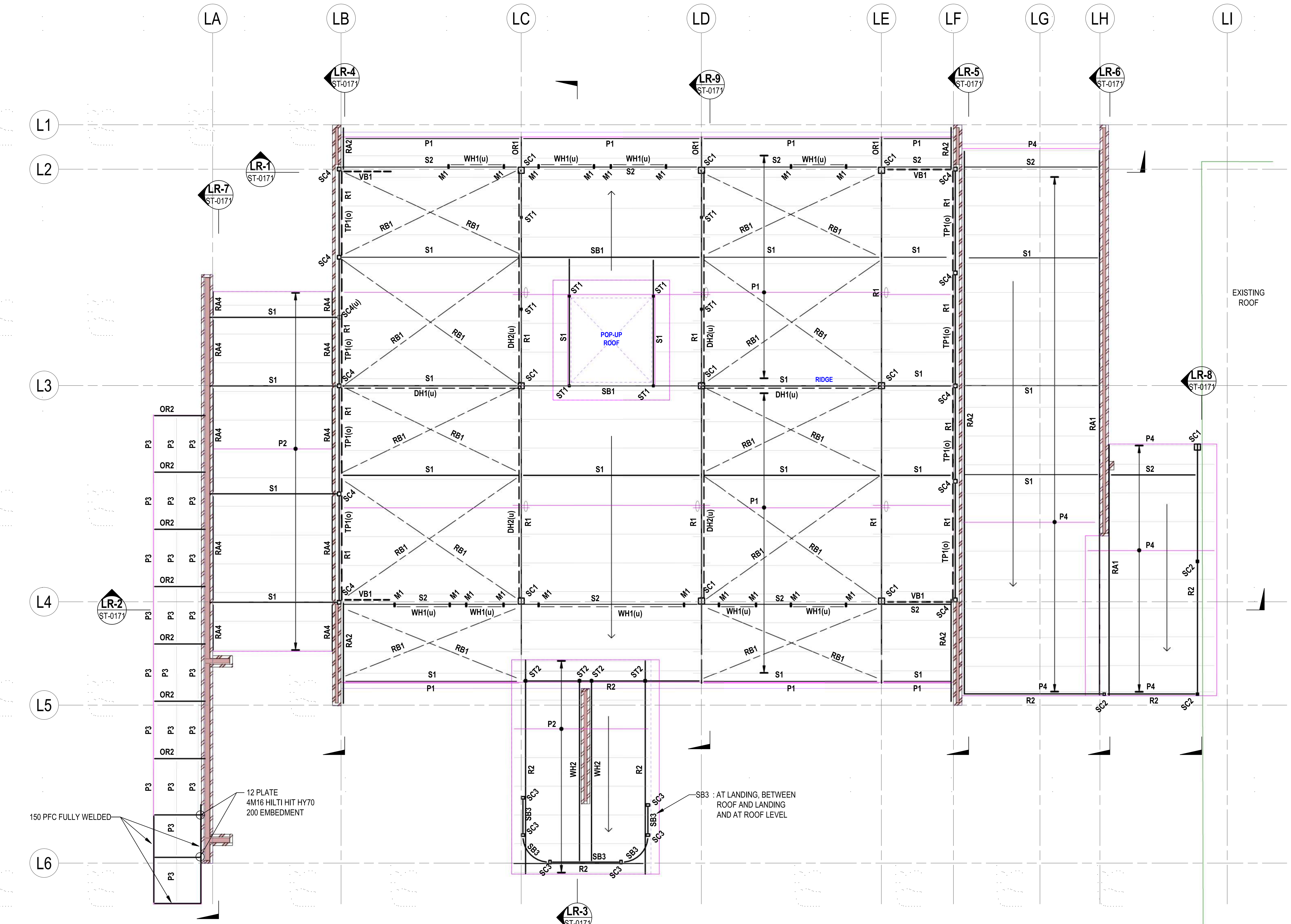


BLOCK L ROOF FRAMING PLAN

SCALE 1 : 100

ROOF FRAMING PLAN NOTES

- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS
- FOR ALL ROOF PENETRATIONS REFER TO ARCHITECT AND SERVICE ENGINEERS DRAWINGS
- ALL WATERPROOFING, FLASHING, GUTTERING AND SHEETING ARCHITECTS SPECIFICATION
- ALL FALLS AND LEVELS TO ARCHITECTS DETAILS
- ALL CONNECTIONS NOT DETAILED SHALL BE IN ACCORDANCE WITH AISC STANDARDIZED STRUCTURAL STEEL CONNECTIONS U.N.O.
- FOR SURFACE TREATMENT TO ALL STRUCTURAL STEELWORK REFER TO CONSTRUCTION NOTES DRAWING
- CONTRACTOR SHALL GIVE DUE CONSIDERATION TO ACCURACY OF FABRICATION AND PLANNING OF ERECTION PROCEDURE
- FOR FIREPROOFING REQUIREMENTS REFER TO ARCHITECTS DRAWINGS

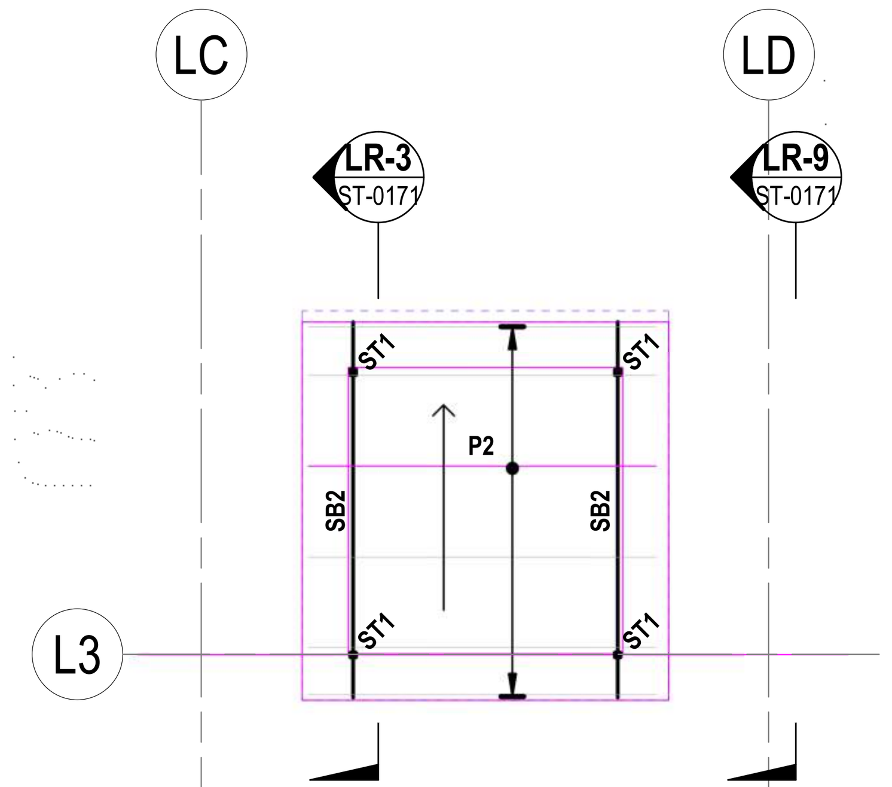
LEGEND:

(u) : DENOTES MEMBER UNDER

(o) : DENOTES MEMBER OVER

(b) : DENOTES MEMBER BEYOND

NORTH



BLOCK L POP-UP ROOF STEEL PLAN

SCALE 1 : 100

STEEL ROOF MEMBER SCHEDULE (BLOCK L)

Mark	Member Size	MemberDescription_CDD	Comments
SC1	250x250x9 SHS	STEEL COLUMN	
SC2	100x100x6 SHS	STEEL COLUMN	
SC3	150x100x6 RHS	STEEL COLUMN	
SC4	150x150x5 SHS	STEEL COLUMN	
ST1	75x75x3 SHS	STUB COLUMN	
ST2	100x100x4 SHS	STUB COLUMN	
M1	150x50x4 RHS	MULLION	
R1	460UB67	RAFTER	FLY BRACING AT EVERY 2nd PURLIN
R2	200 PFC	RAFTER	
SB1	200 PFC	STEEL BEAM	
SB2	200 PFC	STEEL BEAM	
SB3	100x50x3 RHS	STEEL BEAM	
RA1	200 PFC	RACKING BEAM	
RA2	200 PFC	RACKING BEAM	TOES DOWN
RA4	150x90x8 UA	RACKING ANGLE	LOWER ROOF (FIRST FLOOR)
OR1	TW 100x200	OUTRIGGER	
S1	89x89x5 SHS	STRUT	
S2	200 PFC	STEEL BEAM	TOES DOWN
DH1	310UB40	DOOR HEADER	
DH2	200 PFC	DOOR HEADER	
WH1	200 PFC	WINDOW HEAD	TOES UP
WH2	150 PFC	WINDOW HEAD	TOES DOWN
P1	Z20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P2	Z15015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P4	C20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
TP1	C20015	PURLIN	GIRT (PARAPET) TOES DOWN
RB1	20 DIA ROD	ROOF BRACING	
VB1	150x100x5 RHS	VERTICAL BRACING	

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Rev	Date		Des.	Ver.	Appr.
7	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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5	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	27-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Designed AK — Date

Verified PP — Date

Approved — Date

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Title: BLOCK L ROOF FRAMING PLAN

Status: **SCHEMATIC DESIGN**

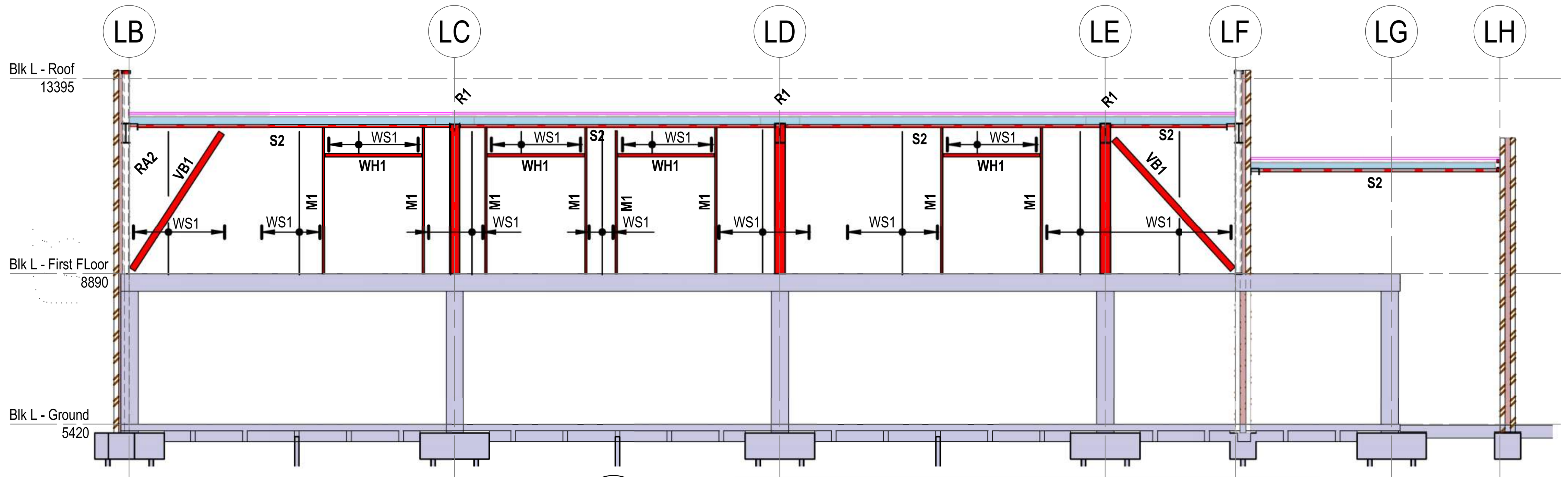
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum | Date | Scale 1:100 | Size A1

Drawing Number: 80821341-ST-0161

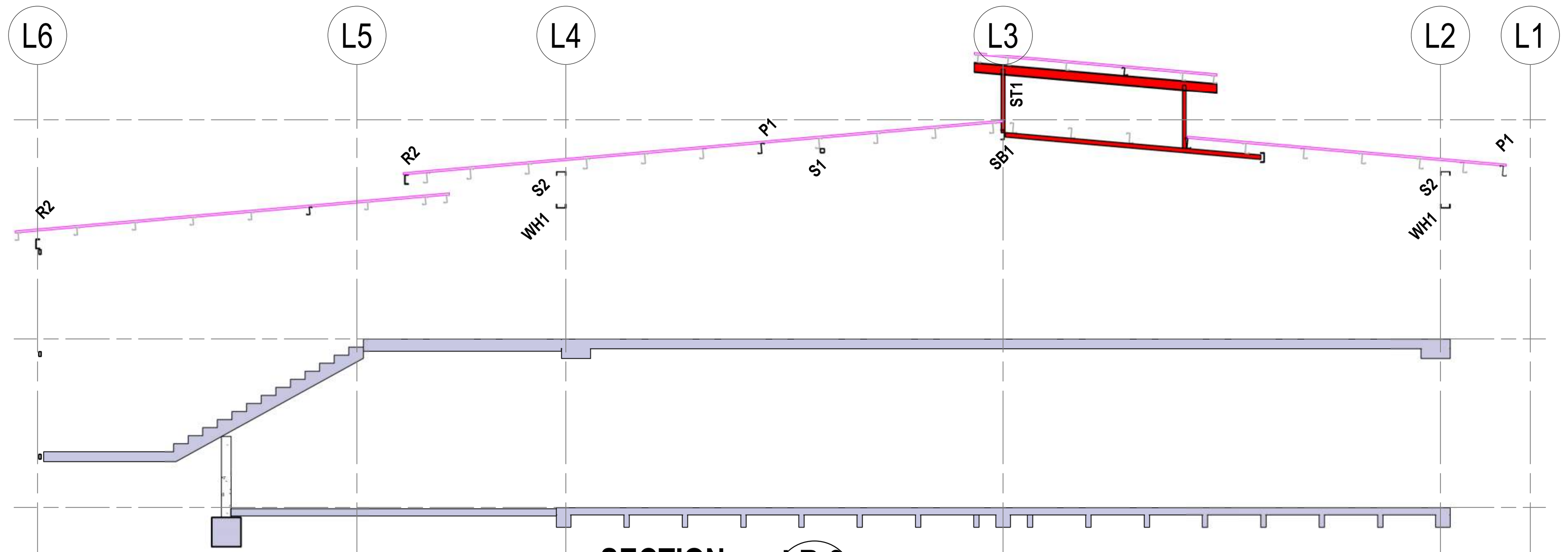
Revision: 7

DATE PLOTTED: 4/07/2022 7:22:05 PM



SECTION LR-1
SCALE 1 : 100 ST-0161

NOTE:
- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- WS1 : RONDO OR SIMILAR APPROVED WALL STUDS



SECTION LR-3
SCALE 1 : 100 ST-0161

ROOF FRAMING PLAN NOTES
- FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
- FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS
- FOR ALL ROOF PENETRATIONS REFER TO ARCHITECT AND SERVICE ENGINEERS DRAWINGS
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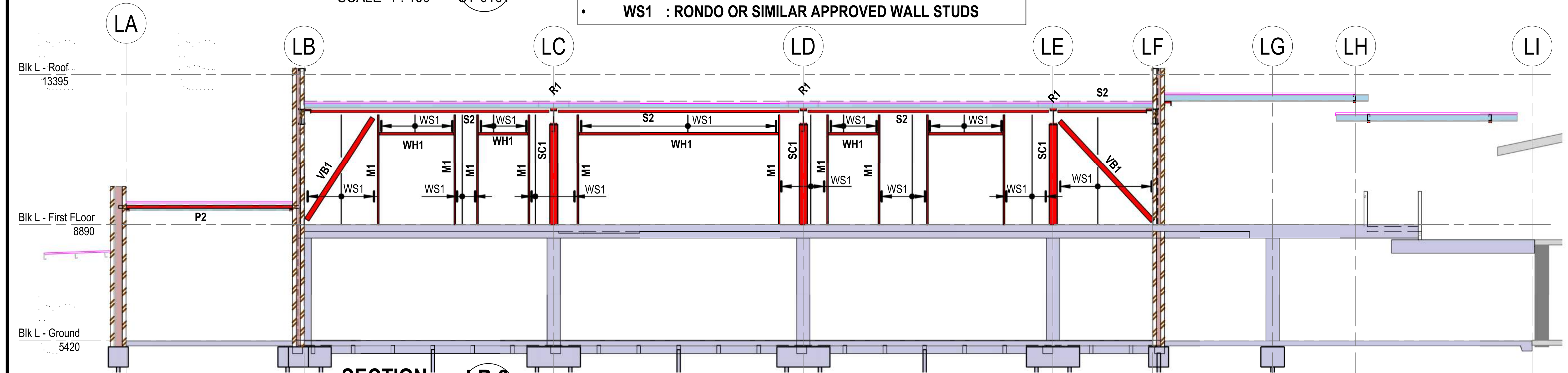
- FOR FIREPROOFING REQUIREMENTS REFER TO ARCHITECTS DRAWINGS

LEGEND:

(u) : DENOTES MEMBER UNDER

(o) : DENOTES MEMBER OVER

(b) : DENOTES MEMBER BEYOND



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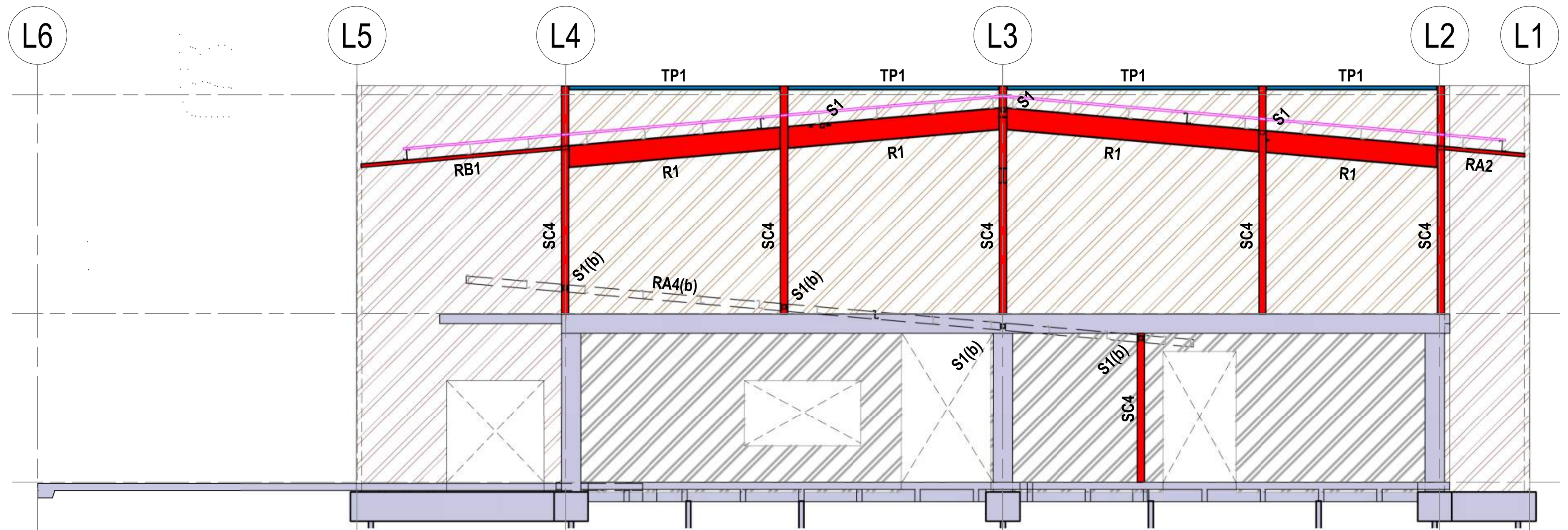
SCALE 1 : 100 ST-0161



SECTION LR-4
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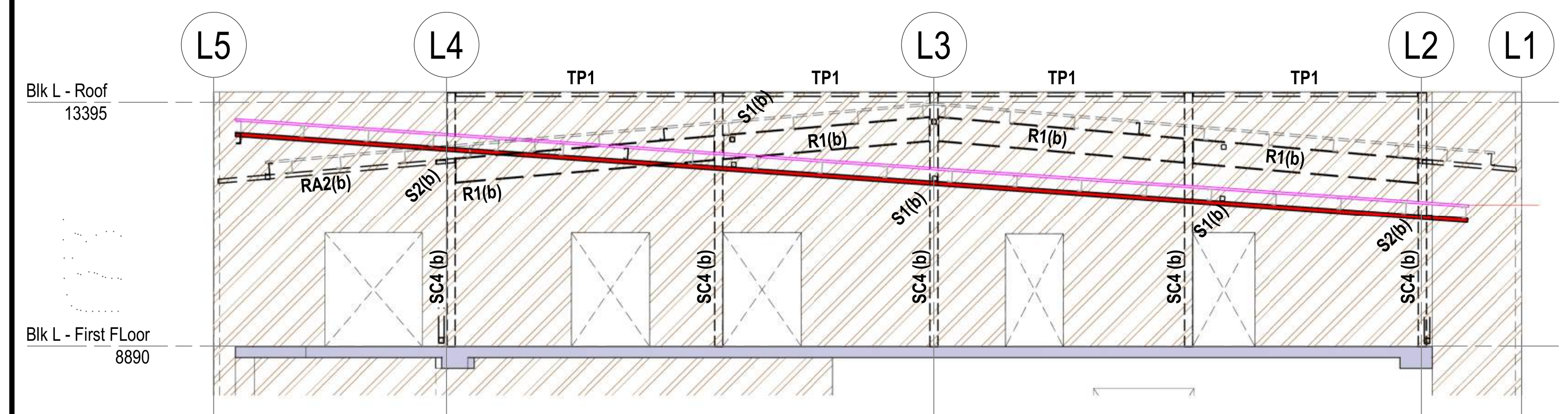

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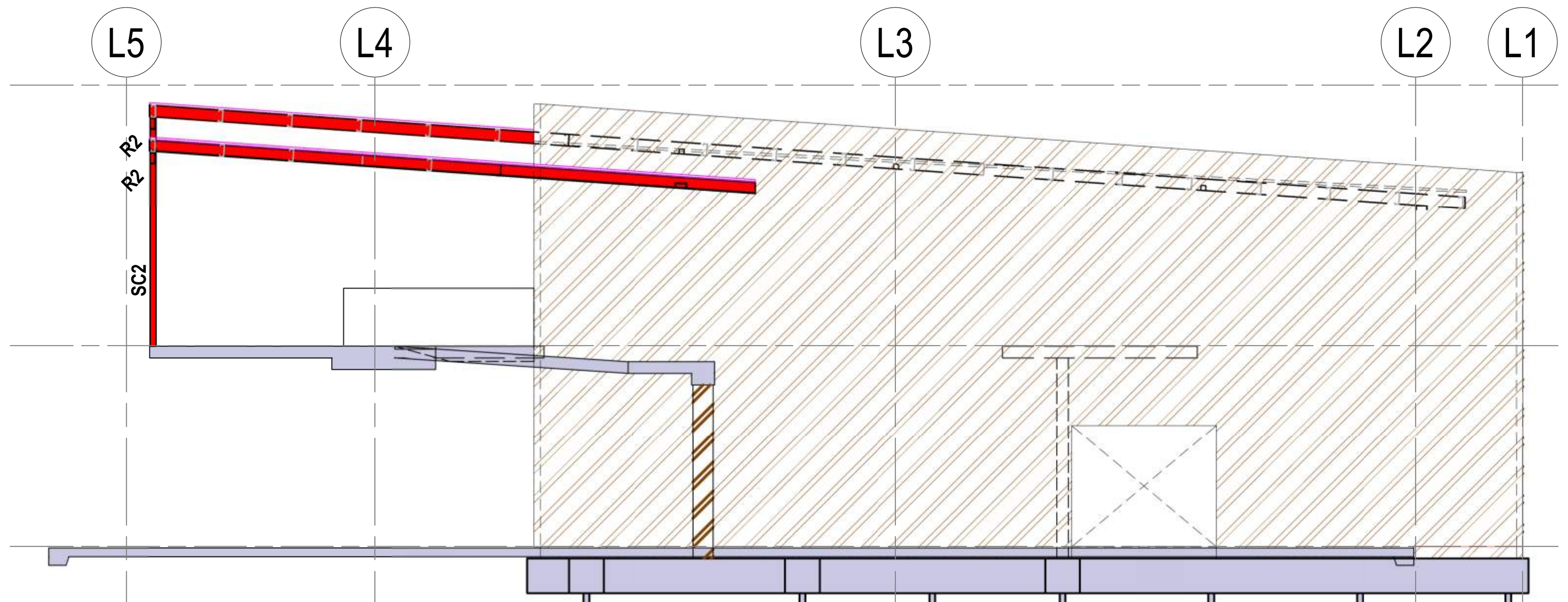
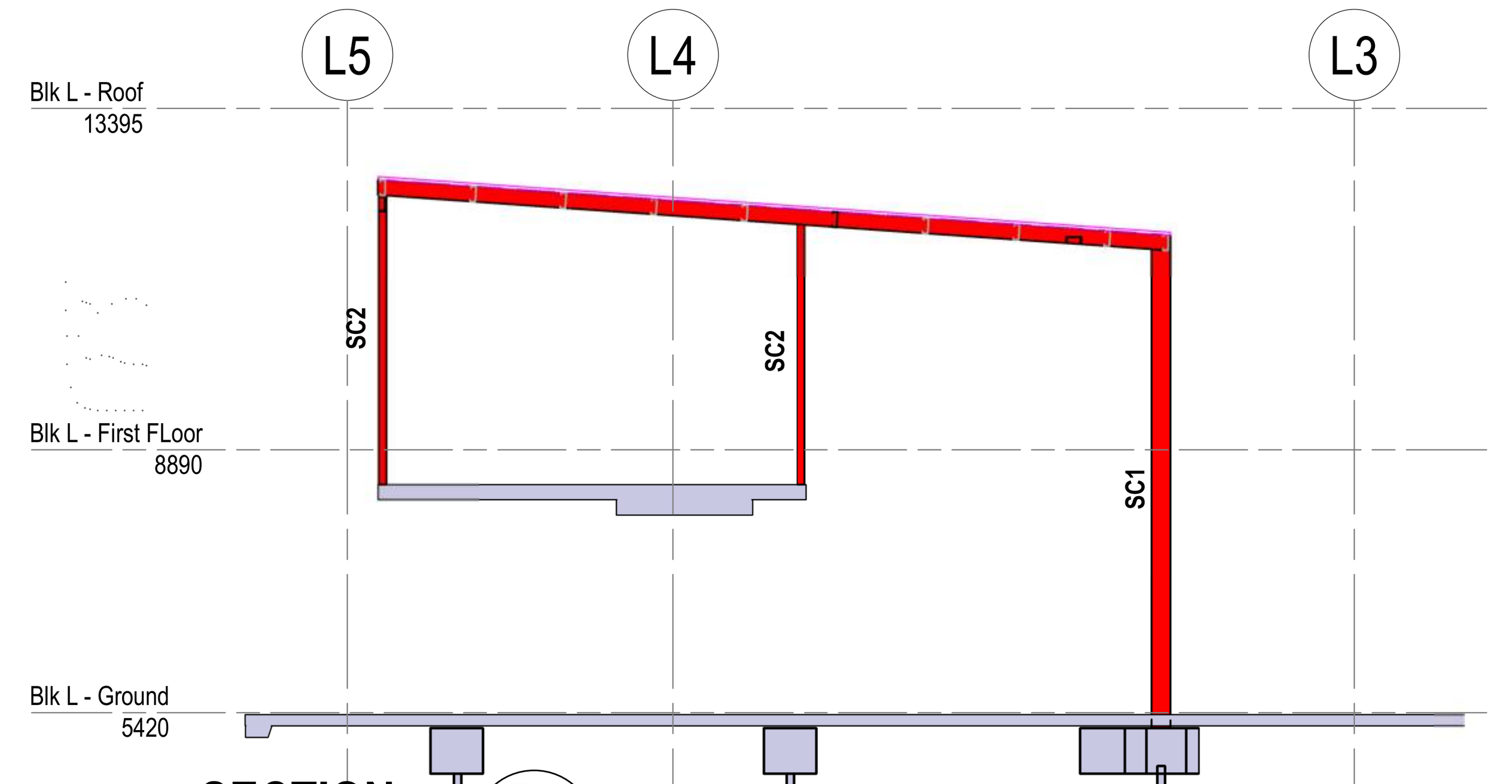
SCALE 1 : 100 ST-0161



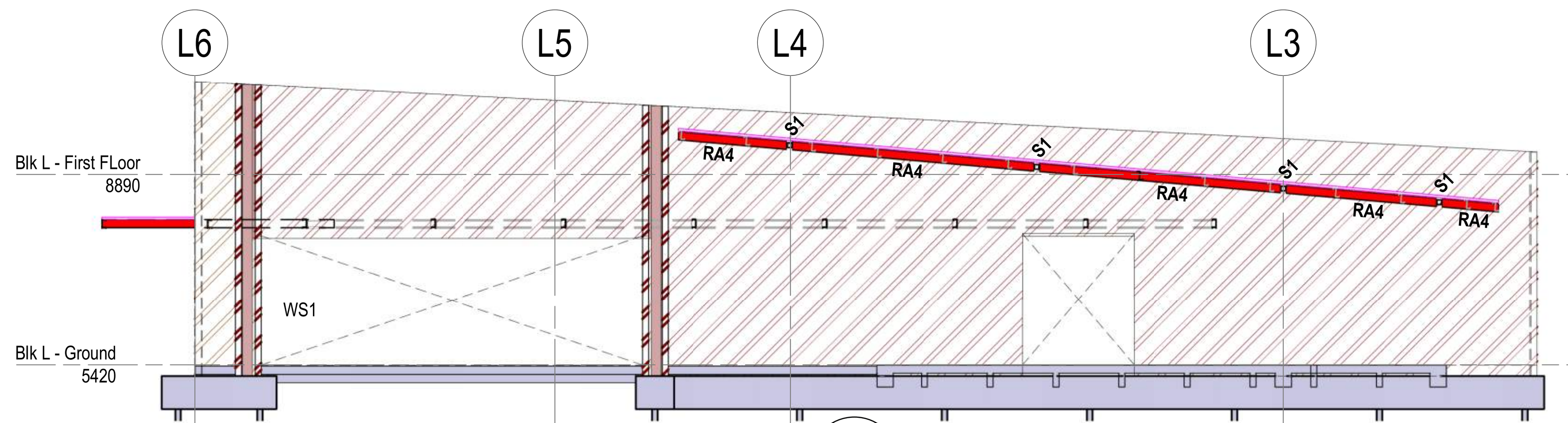
SECTION LR-6
SCALE 1 : 100 ST-0161



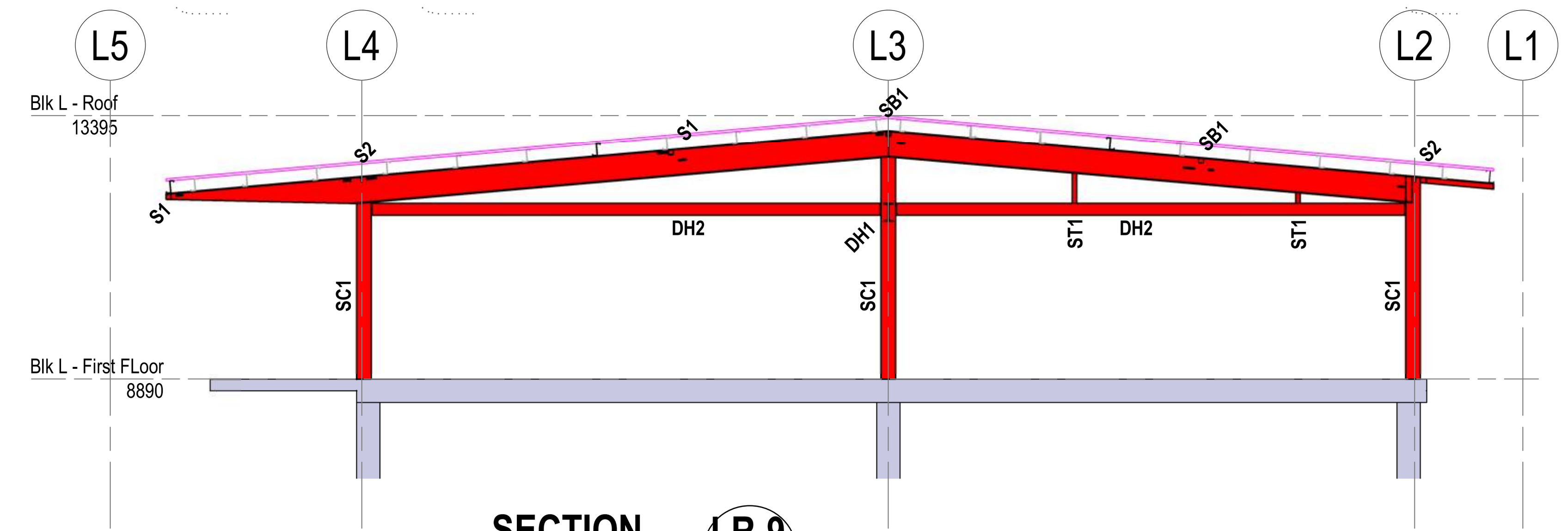
SECTION LR-8
SCALE 1 : 100 ST-0161

STEEL ROOF MEMBER SCHEDULE (BLOCK M)

Mark	Member Size	MemberDescription_CDD	Comments
SC1	250x250x9 SHS	STEEL COLUMN	
SC4	150x150x5 SHS	STEEL COLUMN	
ST1	75x75x3 SHS	STUB COLUMN	
M1	150x50x4 RHS	MULLION	
R1	460UB67	RAFTER	FLY BRACING AT EVERY 2nd PURLIN
R3	310UB32	RAFTER	
EB1	200 PFC	STEEL BEAM	IN PURLIN DEPTH
SB1	200 PFC	STEEL BEAM	
SB2	200 PFC	STEEL BEAM	
RA1	200 PFC	RACKING BEAM	
RA2	200 PFC	RACKING BEAM	TOES DOWN
RA3	150 PFC	RAFTER	
RA4	150x90x8 UA	RACKING ANGLE	LOWER ROOF (FIRST FLOOR)
RA5	300PFC	RACKING BEAM	
OR1	TW 100x200	OUTRIGGER	
S1	89x89x5 SHS	STRUT	
S2	200 PFC	STEEL BEAM	TOES DOWN
DH1	310UB40	DOOR HEADER	
DH2	200 PFC	DOOR HEADER	
DH3	200 PFC	DOOR HEADER	
WH1	200 PFC	WINDOW HEAD	TOES UP
P1	Z20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P2	Z15015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
P4	C20015	PURLIN	@ 1200 MAX CTS. 900 AT END SPANS. LAP 900 OVER SUPPORTS, 2 ROWS OF BRIDGIING
TP1	C20015	PURLIN	GIRT (PARAPET) TOES DOWN
RB1	20 DIA ROD	ROOF BRACING	
VB1	150x100x5 RHS	VERTICAL BRACING	



SECTION LR-7
SCALE 1 : 100 ST-0161



SECTION LR-9
SCALE 1 : 100 ST-0161

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5	23-06-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
4	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
3	27-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn	AS
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Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Title: STEEL FRAMING ELEVATION

Status: **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
		1:100	A1

Drawing Number	Revision
80821341-ST-0171	7

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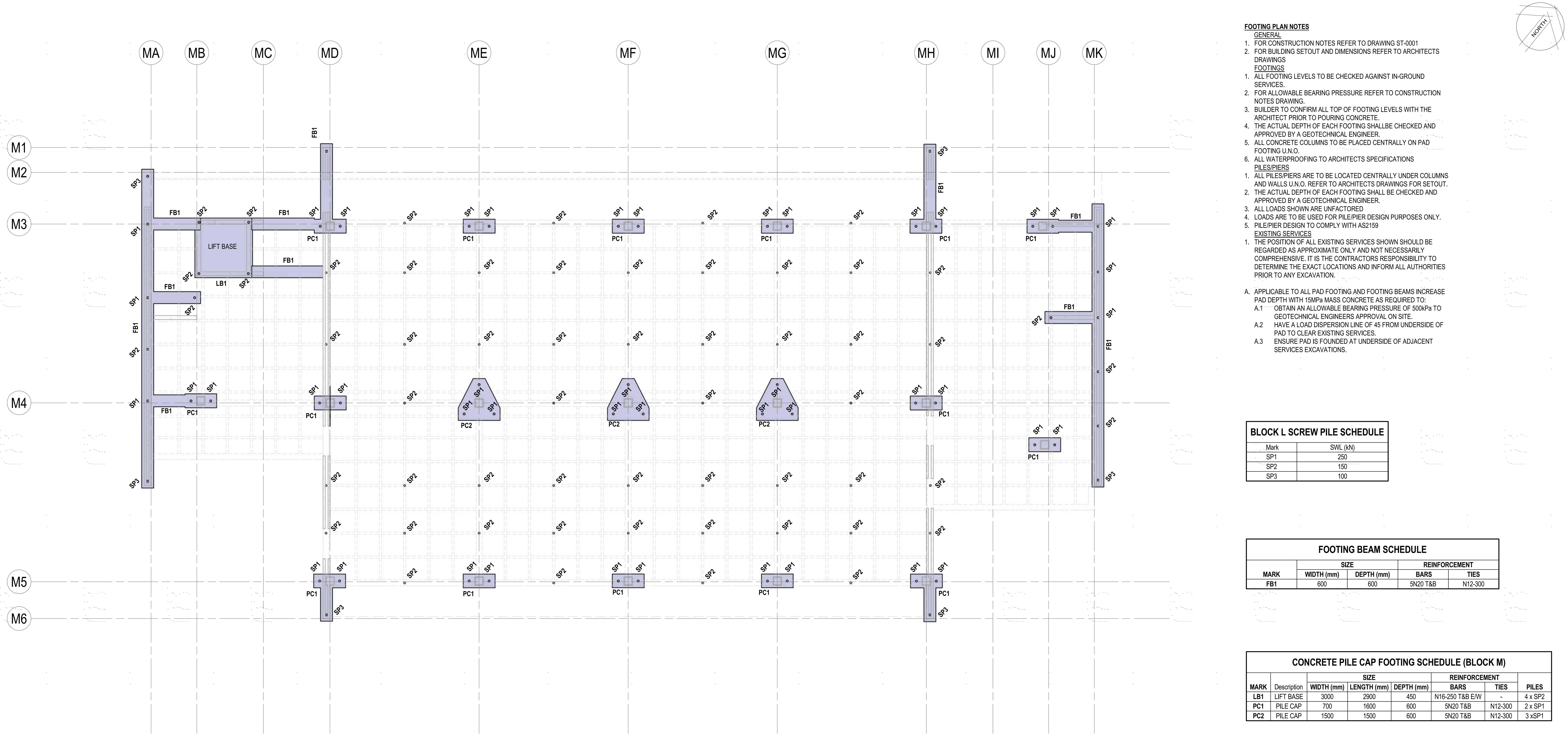


BLOCK M FOUNDATION PLAN

SCALE 1 : 100

FOOTING PLAN NOTES

GENERAL

1. FOR CONSTRUCTION NOTES REFER TO DRAWING ST-0001
2. FOR BUILDING SETOUT AND DIMENSIONS REFER TO ARCHITECTS DRAWINGS

FOOTINGS

1. ALL FOOTING LEVELS TO BE CHECKED AGAINST IN-GROUND SERVICES.
2. FOR ALLOWABLE BEARING PRESSURE REFER TO CONSTRUCTION NOTES DRAWING.
3. BUILDER TO CONFIRM ALL TOP OF FOOTING LEVELS WITH THE ARCHITECT PRIOR TO POURING CONCRETE.
4. THE ACTUAL DEPTH OF EACH FOOTING SHALLBE CHECKED AND APPROVED BY A GEOTECHNICAL ENGINEER.
5. ALL CONCRETE COLUMNS TO BE PLACED CENTRALLY ON PAD FOOTING U.N.O.
6. ALL WATERPROOFING TO ARCHITECTS SPECIFICATIONS

PILES/PIERS

1. ALL PILES/PIERS ARE TO BE LOCATED CENTRALLY UNDER COLUMNS AND WALLS U.N.O. REFER TO ARCHITECTS DRAWINGS FOR SETOUT.
2. THE ACTUAL DEPTH OF EACH FOOTING SHALL BE CHECKED AND APPROVED BY A GEOTECHNICAL ENGINEER.
3. ALL LOADS SHOWN ARE UNFACTORED
4. LOADS ARE TO BE USED FOR PILE/PIER DESIGN PURPOSES ONLY.
5. PILE/PIER DESIGN TO COMPLY WITH AS2159

EXISTING SERVICES

1. THE POSITION OF ALL EXISTING SERVICES SHOWN SHOULD BE REGARDED AS APPROXIMATE ONLY AND NOT NECESSARILY COMPREHENSIVE. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS AND INFORM ALL AUTHORITIES PRIOR TO ANY EXCAVATION.

A. APPLICABLE TO ALL PAD FOOTING AND FOOTING BEAMS INCREASE PAD DEPTH WITH 15MPa MASS CONCRETE AS REQUIRED TO:
   - A.1 OBTAIN AN ALLOWABLE BEARING PRESSURE OF 500kPa TO GEOTECHNICAL ENGINEERS APPROVAL ON SITE.
   - A.2 HAVE A LOAD DISPERSION LINE OF 45 FROM UNDERSIDE OF PAD TO CLEAR EXISTING SERVICES.
   - A.3 ENSURE PAD IS FOUNDED AT UNDERSIDE OF ADJACENT SERVICES EXCAVATIONS.

BLOCK L SCREW PILE SCHEDULE

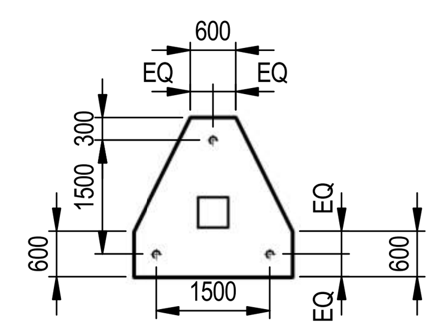
Mark	SWL (kN)
SP1	250
SP2	150
SP3	100

FOOTING BEAM SCHEDULE

MARK	SIZE		REINFORCEMENT	
	WIDTH (mm)	DEPTH (mm)	BARS	TIES
FB1	600	600	5N20 T&B	N12-300

CONCRETE PILE CAP FOOTING SCHEDULE (BLOCK M)

MARK	Description	SIZE			REINFORCEMENT		PILES
		WIDTH (mm)	LENGTH (mm)	DEPTH (mm)	BARS	TIES	
LB1	LIFT BASE	3000	2900	450	N16-250 T&B E/W	-	4 x SP2
PC1	PILE CAP	700	1600	600	5N20 T&B	N12-300	2 x SP1
PC2	PILE CAP	1500	1500	600	5N20 T&B	N12-300	3 xSP1



PC2 : PILES AT 1500 CENTRES AT 60 DEGREES

PILE CAP (PC2) DETAIL

SCALE 1 : 100

Rev	Date		Des.	Ver.	Appr.
7	04-07-2022	RE-ISSUED FOR SCHEMATIC DESIGN	AK	PP	
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3	01-06-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
2	20-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	
1	12-05-2022	ISSUED FOR SCHEMATIC DESIGN	AK	PP	

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Drawn AS Date
Checked AK Date
Designed AK Date
Verified PP Date
Approved Date

Client: NSW DEPARTMENT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

Project: CRONULLA HIGH SCHOOL

Title: BLOCK M FOUNDATION PLAN

Status: **SCHEMATIC DESIGN**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum | Date | Scale 1:100 | Size **A1**

Drawing Number: 80821341-ST-0201 | Revision: 7

MODEL PATH: C:\Temp\Revit\80821341 - Cronulla HS - Phase 2 to 6 (Central 2019)_amel.salonga.rvt

APPENDIX

A

STORMWATER DISPOSAL PLAN

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CIVIL WORKS

NSW DEPARTMENT OF EDUCATION

CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

COVER SHEET, LOCALITY PLAN AND SCHEDULE OF DRAWINGS

SCHEDULE OF DRAWINGS

DRAWING No.	DESCRIPTION
CIVIL WORKS	
80821341-CI-0001	CIVIL COVER SHEET, LOCALITY PLAN AND SCHEDULE OF DRAWINGS
80821341-CI-0002	CIVIL CONSTRUCTION NOTES
80821341-CI-0101	CIVIL SITE AND STORMWATER DRAINAGE PLAN SHEET 1
80821341-CI-0102	CIVIL SITE AND STORMWATER DRAINAGE PLAN SHEET 2
80821341-CI-0103	CIVIL OSD TANK SECTIONS AND DETAILS
80821341-CI-0105	CIVIL SEDIMENTATION AND EROSION CONTROL PLAN SHEET 1
80821341-CI-0106	CIVIL SEDIMENTATION AND EROSION CONTROL PLAN SHEET 2
80821341-CI-0109	CIVIL CAR PARK PAVEMENT PLAN AND DETAILS
80821341-CI-0110	CIVIL SEDIMENTATION AND EROSION CONTROL DETAILS
80821341-CI-0111	CIVIL STORMWATER STANDARD DETAILS SHEET 1
80821341-CI-0112	CIVIL STORMWATER STANDARD DETAILS SHEET 2

INDICATIVE AREA OF WORKS

LOCALITY PLAN

Rev.	Date	Description	Des.	Verif.	Appd.
1	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP

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Role	Name	Date
Drawn	GM	MAY 2022
Checked	MR	MAY 2022
Designed	VJ	MAY 2022
Verified	PP	MAY 2022
Approved		

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		NTS	A1

Drawing Number	Revision
80821341-CI-0001	1

DATE PLOTTED: 4 July 2022 6:00 PM BY : GORAN MILENKOVIC

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CAD File: \\cardno.corp\global\au\nsw\DirectoryStructure\Projects\808\FY21\341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0001.dwg

CIVIL CONSTRUCTION NOTES

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

G2. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE CORRECTNESS OF ALL DIMENSIONS AND ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.

G3. STABILITY OF THE BUILDING DURING CONSTRUCTION AND EXCAVATION IN THE VICINITY OF ADJACENT BUILDINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO PART OF THE STRUCTURE SHALL BE OVER STRESSED. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.

G4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER FORTY EIGHT (48) HOURS BEFORE THE REINFORCEMENT IS COMPLETED. THE CONTRACTOR SHALL ALLOW TWO (2) HOURS AFTER THE COMPLETION OF THE REINFORCEMENT FOR THE ENGINEER'S INSPECTION. CONCRETE SHALL NOT BE ORDERED UNTIL THE REINFORCEMENT IS APPROVED BY THE ENGINEER.

G5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT SAA CODES, THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY AND THE SPECIFICATION.

G6. NO CHANGES SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

G7. U.N.O. DENOTES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

SITE PREPARATION

ROAD WORKS

SP1. REMOVE TOP SOIL, ROOT AFFECTED SOIL, FILL AND OTHER DELETERIOUS MATERIAL TO EXPOSE NATURAL SUBGRADE.

SP2. THE EXPOSED SUBGRADE SHOULD THEN BE PROOF ROLLED WITH AT LEAST EIGHT (8) PASSES OF A 10 TONNE MIN. DEAD WEIGHT ROLLER. ANY SOFT OR HEAVING AREAS SHOULD BE REMOVED TO A MAXIMUM DEPTH OF 300mm AND REPLACED WITH CLEAN WELL GRADED MATERIAL SUCH AS RIPPED OR CRUSHED SANDSTONE COMPACTED TO AT LEAST 100% OF STANDARD MAXIMUM DRY DENSITY (SMDD) AT ±2% OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH AS1289.

SP3. COMPACTED FILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 150mm THICK AND COMPACTED TO AT LEAST 100% SMDD. FILL SHALL CONSIST OF CLEAN WELL GRADED MATERIAL SUCH AS RIPPED OR CRUSHED SANDSTONE WITH A MIN. CBR OF 15%.

SP4. DENSITY TESTING SHALL BE CARRIED OUT TO LEVEL 2 CERTIFICATION IN ACCORDANCE WITH AS3798.

SP5. SUB-BASE COURSE - TO BE DGS20 OR DGS40 OR RIPPED OR CRUSHED SANDSTONE WITH A CBR GREATER THAN 40%, MAXIMUM PARTICLE SIZE OF 60mm, WELL GRADED WITH A PLASTIC INDEX LESS THAN 10. COMPACT TO AN AVERAGE OF NOT LESS THAN 100% SMDD WITH A MINIMUM VALUE OF 98% SMDD.

SP6. ALL KERBS TO BE FORMED BY KERB MACHINE AND NOT BY HAND.

EXTERNAL FOOTPATHS/PAVEMENTS

SP7. REMOVE TOP SOIL, ROOT AFFECTED SOIL, FILL AND OTHER DELETERIOUS MATERIAL TO EXPOSE NATURAL SUBGRADE.

SP8. THE EXPOSED SUBGRADE SHOULD BE PROOF ROLLED. ANY SOFT OR HEAVING AREAS SHOULD BE REPLACED WITH CLEAN WELL GRADED MATERIAL. FILL IF REQUIRED, SHOULD BE CLEAN AND WELL GRADED. COMPACT TO 100% SMDD.

STORMWATER CONSTRUCTION NOTES

SW1. ESTABLISH EXACT LOCATION AND INVERT OF EXISTING SERVICES PRIOR TO COMMENCING WORKS.

SW2. ALLOW TO PAY ALL LOCAL AUTHORITY FEES AS REQUIRED FOR PERIODIC INSPECTIONS/APPROVALS.

SW3. ALL WORK TO BE IN ACCORDANCE WITH THE LOCAL COUNCIL STORMWATER POLICY.

SW4. MINOR FLOW ARI = 10 YEARS
MAJOR FLOW ARI = 100 YEARS

PIPEWORK

SW5. ALL WORKS TO COMPLY TO AS3500

SW6. ALL NEW PIPES 300 DIA. & LARGER SHALL BE REINFORCED CONCRETE CLASS 2 WITH RUBBER RING JOINTS. WHERE ANGLED THE MINIMUM RADIUS SHALL BE 152m. 150/225mm DIA. STORMWATER PIPES SHALL BE SEWER CLASS UPVC.
MINIMUM PIPE SIZE FOR AN UNDERGROUND PIPE TO BE 150mm. MINIMUM PIPE GRADIENTS 1% U.N.O.

SW7. ALL DRAINAGE TRENCHES SHALL BE IN SOUND EXCAVATED MATERIAL. IF SOFT SPOTS EXIST, REMOVE AND BACKFILL WITH COMPACTED ROAD BASE (DGS40) WITH A MINIMUM CBR OF 25 COMPACT TO 98% STANDARD MAXIMUM DRY DENSITY TO AS 1289 E1.1.

SW8. ALL PIPES SHALL BE BEDDED ON 100mm SAND BED AND BACKFILLED WITH SAND TO 150mm ABOVE BARREL OF PIPE. THE REMAINDER OF THE TRENCH WILL BE BACKFILLED IN 150mm COMPACTED LAYERS IN GRANULAR FILL NON DISPERSIVE (EMERSON CLASS 5 OR 6) MATERIAL - NO TOP SOIL, GRASS, ROOTS, OR DELETERIOUS MATERIAL. COMPACT TO 98% STANDARD MAXIMUM DRY DENSITY AT ±2% OMC.

SW9. PROVIDE A 100mm DIA. UPVC. SLOTTED DRAINAGE PIPE 3000 LONG WRAPPED IN FILTER FABRIC SOCK IN ALL TRENCHES ADJACENT TO INLET PIPES TO PITS & CONNECTED TO PIT.

SW10. OTHER SUB SOIL DRAINAGE PIPES SHALL BE 100mm DIA. UPVC SLOTTED BEDDED AND BACKFILLED WITH 20mm GAUGE BLUE METAL. CLEAN OUTS SHALL BE EXTENDED TO THE SURFACE AND PROVIDED WITH A SCREWED COVER PLATE FLUSH WITH THE FINISHED SURFACE LEVEL.

SW11 ALL CONCRETE PITS CONSTRUCTED SHALL BE BEDDED AS PER PIPE SPECIFICATION. PIT BASES SHALL BE SMOOTH CONTOURED WITH MASS CONCRETE BENCHING PROVIDE STEP IRONS AS PER PIT SCHEDULE, PROVIDE HEAVY, MEDIUM OR LIGHT DUTY GALVANISED GRATE COVERS AS SPECIFIED IN SCHEDULE. ALL DRAINAGE WORKS ARE TO BE COMPLETED TO THE SATISFACTION OF THE SUPERVISING CIVIL ENGINEER. ALL WORKS TO COMPLY TO AS3500. HEADWALLS SHALL BE PRECAST CONCRETE BY 'BCP PRECAST' OR EQUAL. ALL PITS SHALL BE PRECAST CONCRETE TYPE DPT FOR DEEP PITS BY ICON INDUSTRIES OR EQUAL. PRECAST DRAINAGE PITS DEEPER THAN 1800mm SHALL HAVE 150mm MIN. WALL THICKNESS. 20mm DIA. GALV. MS. STEP IRONS SHALL BE INSTALLED IN PITS 1200mm AND DEEPER.

SW12 UNLESS NOTED OTHERWISE ON THE PLANS, PROVIDE THE FOLLOWING MIN. COVER TO PIPE:
- UNDER LANDSCAPE & PAVEMENT - 300mm
- UNDER ROAD (TRAFFIC) - 600mm

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT SAA CODE AS3600, WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. CONCRETE QUALITY:

ELEMENT	SLUMP (MAX)	MAX AGG. SIZE	CEMENT TYPE	ADMIX.	CONCRETE GRADE
CONCRETE DRIVEWAYS	60	20mm	A	N/A	40 MPa
CONCRETE KERBS, RETAINING WALLS	80	20mm	A	N/A	32 MPa
FOOTPATHS	80	20mm	A	N/A	25 MPa
PIERS	80	20mm	A	N/A	25 MPa

SUSPENDED CONCRETE FLOORS :-
MIN. CEMENT CONTENT = 300 kg/m^3
MAX. PERMISSIBLE DRYING SHRINKAGE = 750 MICROSTRAIN AT 56 DAYS.

C3. CLEAR CONCRETE COVER IN mm TO REINFORCEMENT U.N.O. SHALL BE AS FOLLOWS:-

STRUCTURAL ELEMENT	REINFORCEMENT COVER			
	INTERNAL		EXTERNAL	
	TOP	BTM.	TOP	BTM.
FOOTINGS & PIERS	-	-	50	50
DRAINAGE PITS			50	
CONCRETE DRIVEWAY			40	

NOTES:
1. CONCRETE POURED OVER A MEMBRANE ON THE GROUND IS INCLUDED AS INTERNAL.
2. CONCRETE EXPOSED TO CORROSIVE VAPOURS, CORROSIVE GROUND WATER, SEA WATER OR SPRAY IS TO HAVE REINFORCEMENT COVER AS NOTED ON THE DRAWINGS.
3. CONCRETE REQUIRING A FIRE RESISTANCE RATING SHALL HAVE REINFORCEMENT COVER AS NOTED ON THE DRAWINGS.
4. EXTERNAL ABOVE GROUND ELEMENTS ARE CLASSIFIED IN NEAR COASTAL ENVIRONMENT.

C4. CONDUITS, PIPES, ETC., SHALL NOT BE PLACED IN THE CONCRETE COVER TO REINFORCEMENT AND NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT.

C5. CONCRETE SIZES DO NOT INCLUDE THE THICKNESS OF APPLIED FINISHES.

C6. THE DEPTH OF BEAMS IS GIVEN FIRST AND INCLUDES THE SLAB THICKNESS.

C7. CONSTRUCTION JOINTS, WHERE NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE SUPERINTENDENT.

C8. FORMWORK SHALL REMAIN IN POSITION FOR THE TIME SPECIFIED. WHERE SLABS AND BEAMS ARE TO SUPPORT MASONRY OVER, FORMWORK AND PROPS MUST BE REMOVED PRIOR TO THE CONSTRUCTION OF MASONRY.

C9. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.

C10. CONCRETE SHALL BE CURED IN ACCORDANCE WITH AS3600 WITH A PRODUCT COMPATIBLE WITH THE APPLIED FINISHES. CURING COMPOUNDS SHALL COMPLY WITH AS3799. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE

C11. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C12. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

C13. SPLICES IN THE MAIN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. SPLICES IN THE DISTRIBUTION REINFORCEMENT MAY BE POSITIONED AS NECESSARY WITH SPLICES OF SUFFICIENT LENGTH TO DEVELOP THE FULL STRENGTH OF THE BARS. MINIMUM LAPS TO FABRIC SHALL BE TO OVER LAP TWO CROSS WIRES PLUS 50mm U.N.O. REINFORCEMENT SHALL BE SECURELY TIED AT ALL LAPS AND INTERSECTIONS WITH 1.25mm BLACK ANNEALED WIRE. THE WRITTEN APPROVAL OF THE SUPERINTENDENT SHALL BE OBTAINED FOR OTHER SPLICES WHERE THE LAP LENGTH IS NOT SHOWN. IT SHALL DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.

C14. ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH N12-300 U.N.O.

C15. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED PLASTIC OR PLASTIC TIPPED WIRE STOOLS AT NOT MORE THAN 600mm CENTRES BOTHWAYS IN SLABS AND AT 1000mm CENTRES IN BEAMS.

C16. DENOTES MAIN WIRES OF RECTANGULAR FABRIC TO AS 4671.
DENOTES SQUARE FABRIC TO AS 4671
SL...... DENOTES GRADE 500 DEFORMED WIRE REINFORCING SQUARE FABRIC OF DUCTILITY CLASS L TO AS 4671.
RL...... DENOTES GRADE 500 DEFORMED WIRE REINFORCING RECTANGULAR FABRIC OF DUCTILITY CLASS L TO AS 4671.
R ...... DENOTES GRADE 250 ROUND BARS OF DUCTILITY CLASS N TO AS 4671.
N ...... DENOTES GRADE 500 DEFORMED BARS OF DUCTILITY CLASS N TO AS 4671.
S ...... DENOTES GRADE 250 DEFORMED BARS OF DUCTILITY CLASS N TO AS 4671.

C17. FABRIC SHALL BE SUPPLIED IN FLAT SHEETS, ROLLS WILL NOT BE ACCEPTED

C18. TYPICAL REINFORCEMENT NOTATION:-
5N24-200 INDICATES
5 .... DENOTES NUMBER OF BARS REQUIRED
N .... DENOTES GRADE OF REINFORCEMENT
24..... DENOTES BAR DIAMETER IN MILLIMETRES
200... DENOTES BAR SPACING IN MILLIMETRES
TYPICAL ABBREVIATIONS:-
B .... DENOTES BARS IN BOTTOM LAYER
T .... DENOTES BARS IN TOP LAYER
ALT.... DENOTES BARS ALTERNATING
NF .... DENOTES BARS IN NEAR FACE
FF .... DENOTES BARS IN FAR FACE
EF .... DENOTES BARS IN EACH FACE

C19. FOR SLAB FALLS, CHAMFERS, REGLETS, DRIP GROOVES, ETC., REFER TO THE ARCHITECT'S DRAWINGS.

C20. LAP LENGTHS FOR DEFORMED BARS AS FOLLOWS:

BAR TYPE AND SIZE	VERTICAL BARS	HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE BELOW BAR	OTHER LOCATIONS	90° COG LENGTH
N12	500	550	500	200
N16	700	800	700	200
N20	1000	1250	1000	250
N24	1200	1500	1200	300
N28	1400	1750	1400	350

SEDIMENT RUN-OFF CONTROL NOTES

SR1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SOIL EROSION AND SEDIMENT CONTROL MEASURES GENERALLY IN ACCORDANCE WITH GUIDELINES OF THE LANDCOM MANAGING URBAN STORMWATER MANUAL AND AS NECESSARY TO PREVENT RUN-OFF FROM SITE OF SEDIMENT RESULTING FROM THE WORKS. SUCH MEASURES SHALL ALSO COMPLY WITH REQUIREMENTS OF COUNCIL, LANDCOM "BLUE BOOK" AND EPA . THIS WORK SHALL BE DONE PRIOR TO ANY EARTHWORKS COMMENCING ON SITE.

SR2. GRADE FINISHED SURFACE TO SHED WATER EVENLY WITHOUT CHANNELLING (UNTIL PIPED STORMWATER SYSTEM IS CONSTRUCTED). NOMINAL GRADIENTS FROM HIGH POINT OF 0.2%.

SR3. MAINTAIN THE EROSION CONTROL DEVICES INDICATED ON THE DRAWINGS TO THE SATISFACTION OF THE SITE SUPERINTENDENT AND THE LOCAL AUTHORITIES.

SR4. WHEN PROPOSED STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SILT FENCES ARE ERECTED AROUND PITS AND ON ROAD.

SR5. STREET PROTECTION WITH SHAKER EXIT GRIDS & STREET PIT INLET PROTECTION TO BE MAINTAINED FOR THE DURATION OF THE CONTRACT.

WARNING

UNLESS NOTIFIED TO THE CONTRARY IN WRITING, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY BREACHES OF THE PROTECTION OF ENVIRONMENT OPERATIONS ACT 1997. PLEASE NOTE FAILURE TO IMPLEMENT OR MAINTAIN APPROPRIATE EROSION/SEDIMENT CONTROL MEASURES IS A BREACH OF THE ACT. SUCH A BREACH IS LIABLE FOR A ON-THE SPOT FINE AND /OR PENALTY.

Rev.	Date	Description	Des.	Verif.	Appd.
1	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP

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Drawn GM Date MAY 2022
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Client NSW DEPARTMENT OF EDUCATION

Project
CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title
CIVIL
CONSTRUCTION NOTES

Status
SCHEMATIC DESIGN
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Datum AHD | Scale N/A | Size A1

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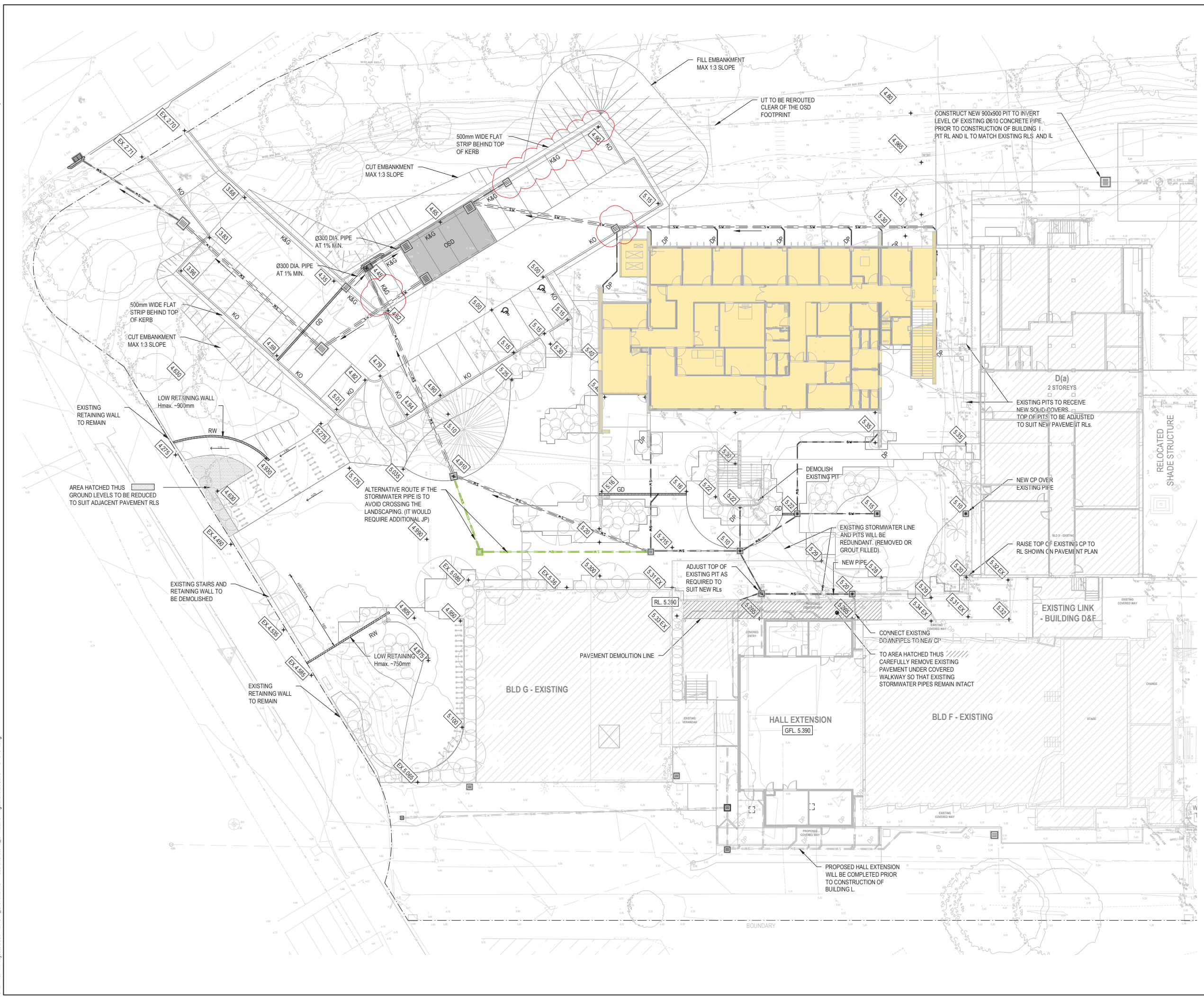

FOR CONTINUATION REFER TO DRAWING CI-0102

ALL PITS TO BE FITTED WITH WITH OCEANGUARD BASKET OR APPROVED EQUIVALENT

THE RL'S IN THE VICINITY OF THE HALL EXTENSION SHOWN AS EXISTING, ARE BASED ON THE ASSUMPTION THAT THE DESIGN RL'S OF THE HALL EXTENSION PROJECT HAVE BEEN ACHIEVED - TO BE CONFIRMED ON SITE.

LEGEND EXISTING:

- EXISTING CONTOURS
- UT EXISTING TELECOMMUNICATIONS (SURVEY)
- UE EXISTING ELECTRICITY (SURVEY)
- UG EXISTING GAS (SURVEY)
- UW EXISTING WATER MAIN
- US EXISTING SEWER
- UOF EXISTING OPTICAL FIBRE
- UU EXISTING UNKNOWN SERVICE
- USW EXISTING STORMWATER LINE
- UFH EXISTING FIRE HYDRANT
- EXISTING DOOR / GATE
- EXISTING SURFACE AMENITIES / SERVICES
- EXISTING BOLLARDS
- EXISTING STORMWATER PIT

LEGEND PROPOSED:

- PROPOSED GRATED SURFACE INLET PIT
- SS PROPOSED SUBSOIL DRAINAGE
- SW ALTERNATIVE STORMWATER LINE
- SW PROPOSED STORMWATER LINE
- SW EXISTING STORMWATER/DOWNPIPE LINE
- DP PROPOSED DOWN PIPE
- DP EXISTING DOWN PIPE

Rev.	Date	Description	Des.	Verif.	Appd.
4	14/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2022	ISSUED FOR COORDINATION	VJ	VJ	PP
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Client: NSW DEPARTMENT OF EDUCATION

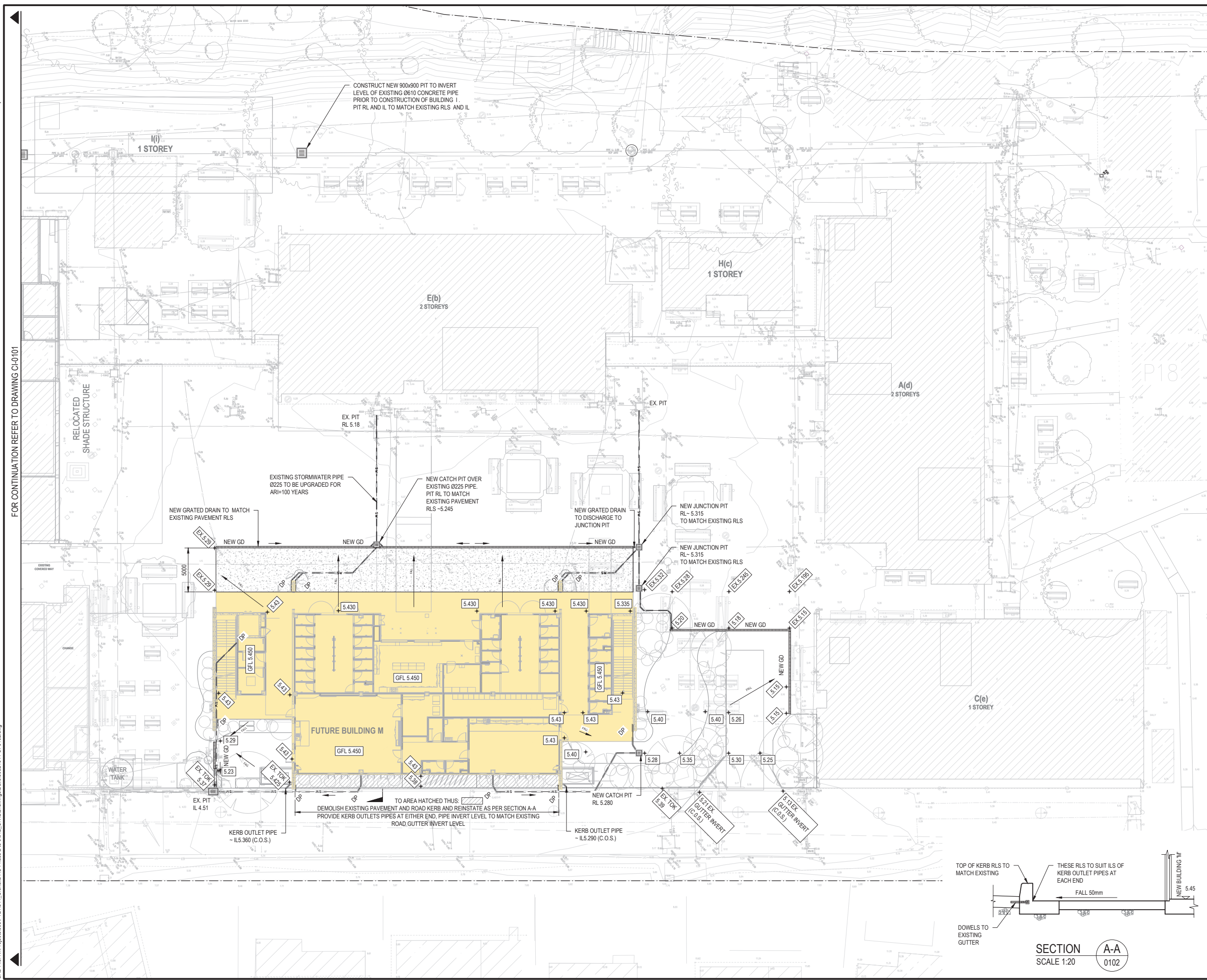
Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SITE AND STORMWATER DRAINAGE PLAN
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0101 | Revision: 4



LEGEND EXISTING:

- EXISTING CONTOURS
- EXISTING TELECOMMUNICATIONS (SURVEY)
- EXISTING ELECTRICITY (SURVEY)
- EXISTING GAS (SURVEY)
- EXISTING WATER MAIN
- EXISTING SEWER
- EXISTING OPTICAL FIBRE
- EXISTING UNKNOWN SERVICE
- EXISTING STORMWATER LINE
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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SITE AND STORMWATER DRAINAGE PLAN
SHEET 2

Status: SCHEMATIC DESIGN
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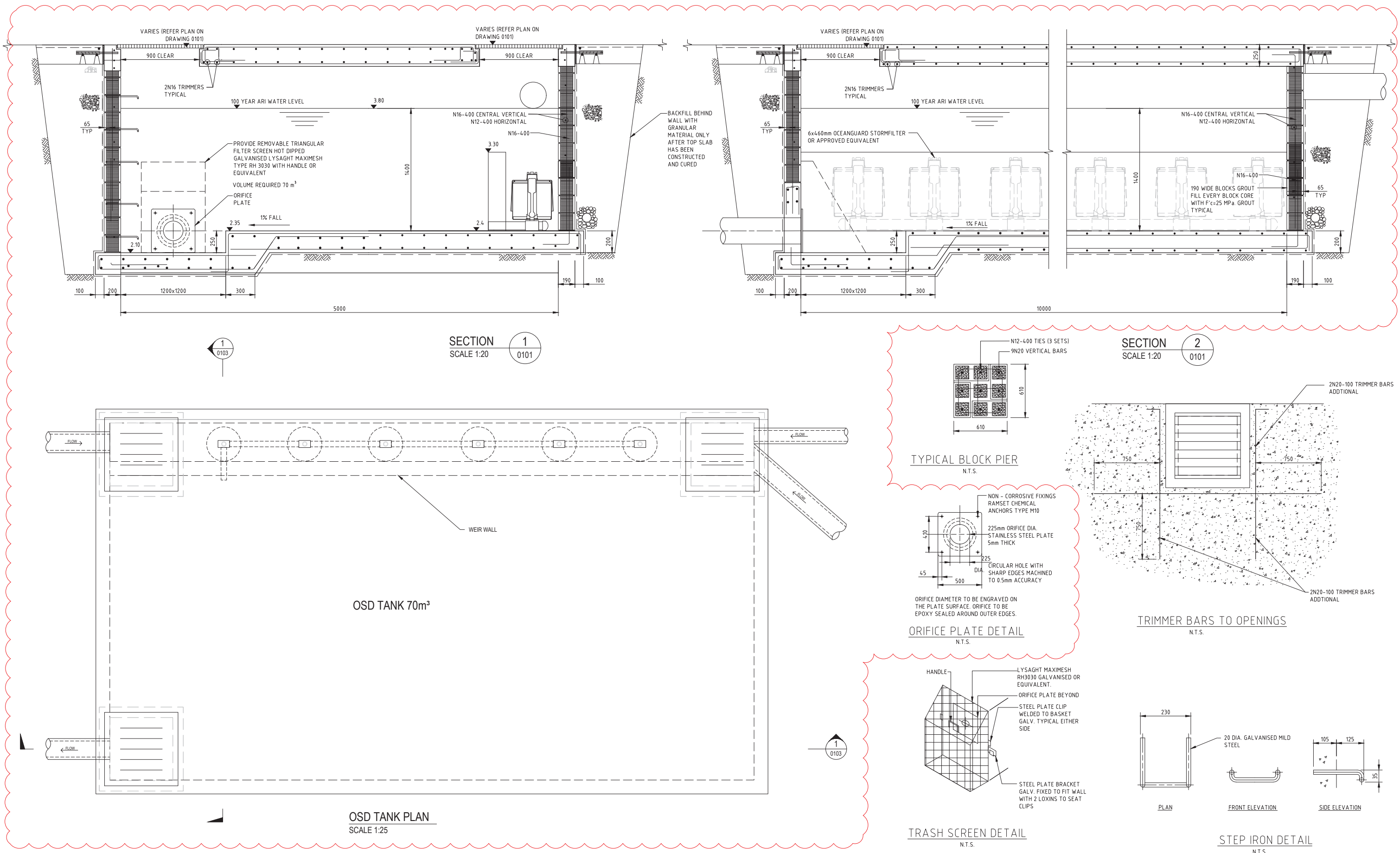

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4	14/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
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SCALE 1:20 @A1

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
OSD TANK
SECTIONS AN DETAILS

Status: SCHEMATIC DESIGN
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Datum	Scale	Size
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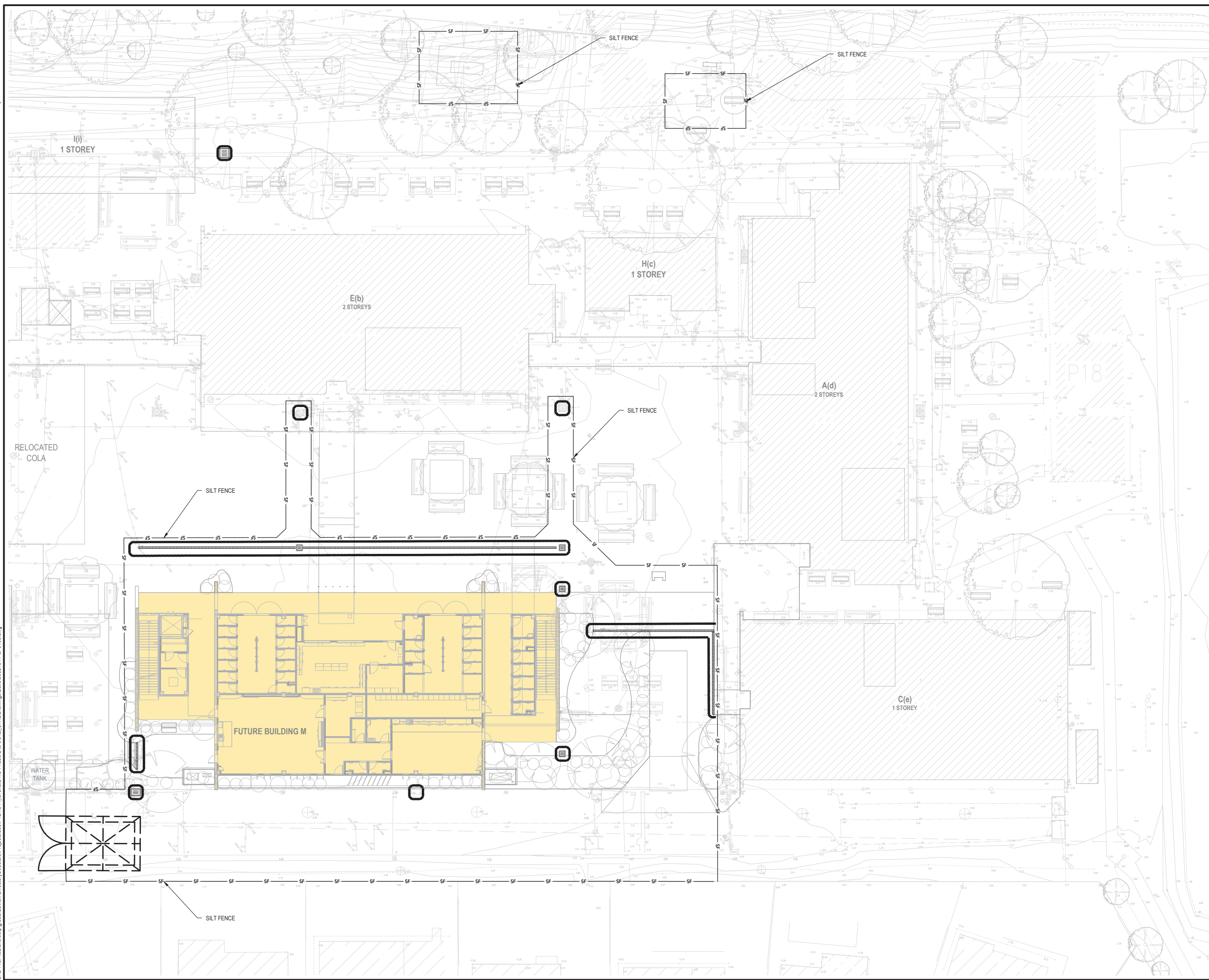

LEGEND

SITE FENCE

SILT FENCE

STORMWATER PIT

SILT TRAP/SAND BAGS

TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

SITE ACCESS AND FENCE LOCATIONS MAY CHANGE DEPENDING ON CONSTRUCTION PREFERENCE AND SCHOOL ACCESS REQUIREMENTS
FOR STAGING PLANS REFER TO ARCHITECTS DRAWINGS
FOR SEDIMENTATION AND EROSION CONTROL DETAILS REFER TO DRAWING 80821341-CI-0110.

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Client NSW DEPARTMENT OF EDUCATION

Project
CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title
CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 1

Status
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80821341-CI-0105	3

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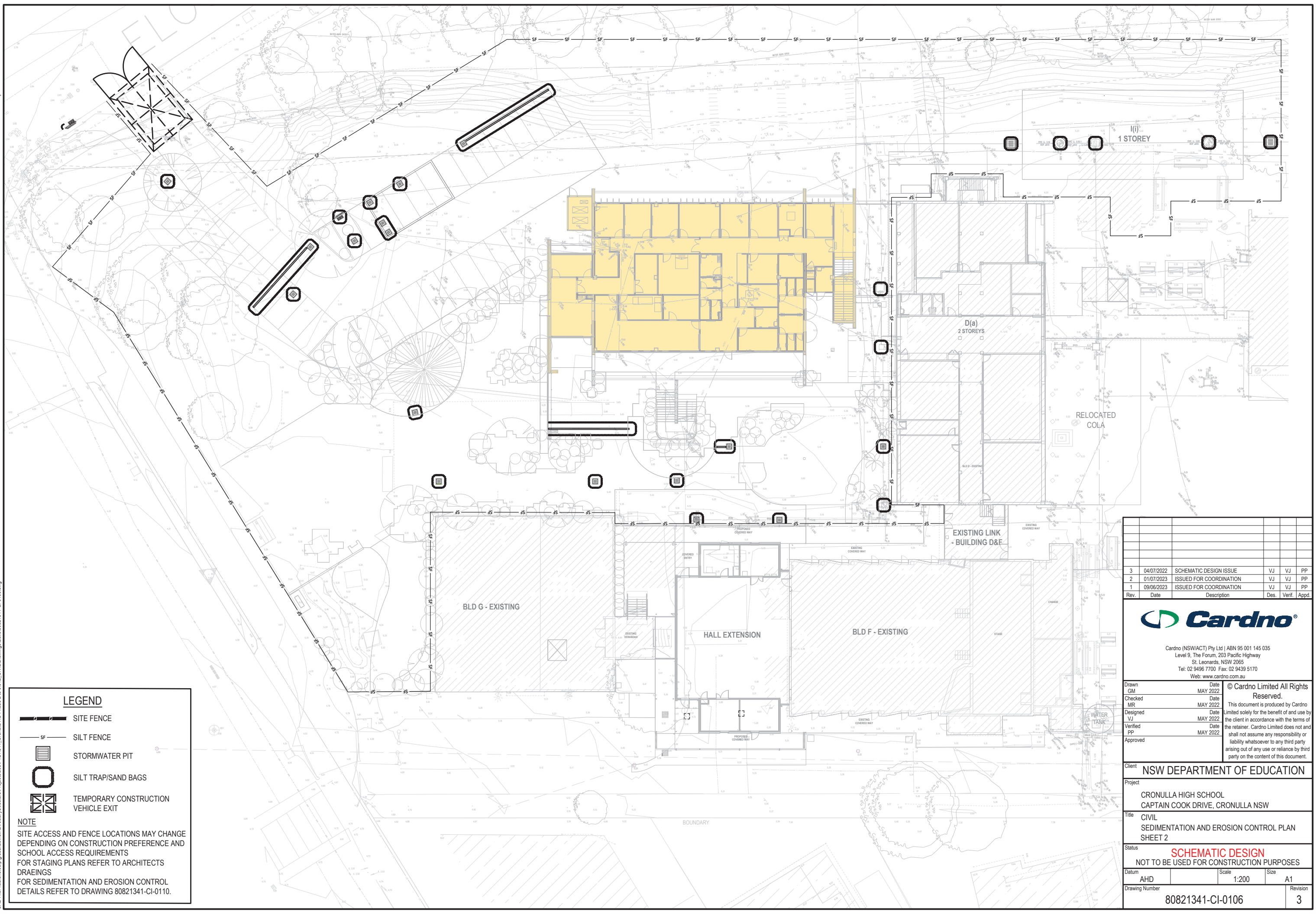

LEGEND

- SITE FENCE
- SILT FENCE
- STORMWATER PIT
- SILT TRAP/SAND BAGS
- TEMPORARY CONSTRUCTION VEHICLE EXIT

NOTE

SITE ACCESS AND FENCE LOCATIONS MAY CHANGE DEPENDING ON CONSTRUCTION PREFERENCE AND SCHOOL ACCESS REQUIREMENTS
FOR STAGING PLANS REFER TO ARCHITECTS DRAEINGS
FOR SEDIMENTATION AND EROSION CONTROL DETAILS REFER TO DRAWING 80821341-CI-0110.

Rev.	Date	Description	Des.	Verif.	Appd.
3	04/07/2022	SCHEMATIC DESIGN ISSUE	VJ	VJ	PP
2	01/07/2023	ISSUED FOR COORDINATION	VJ	VJ	PP
1	09/06/2023	ISSUED FOR COORDINATION	VJ	VJ	PP

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Verified	PP	MAY 2022
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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

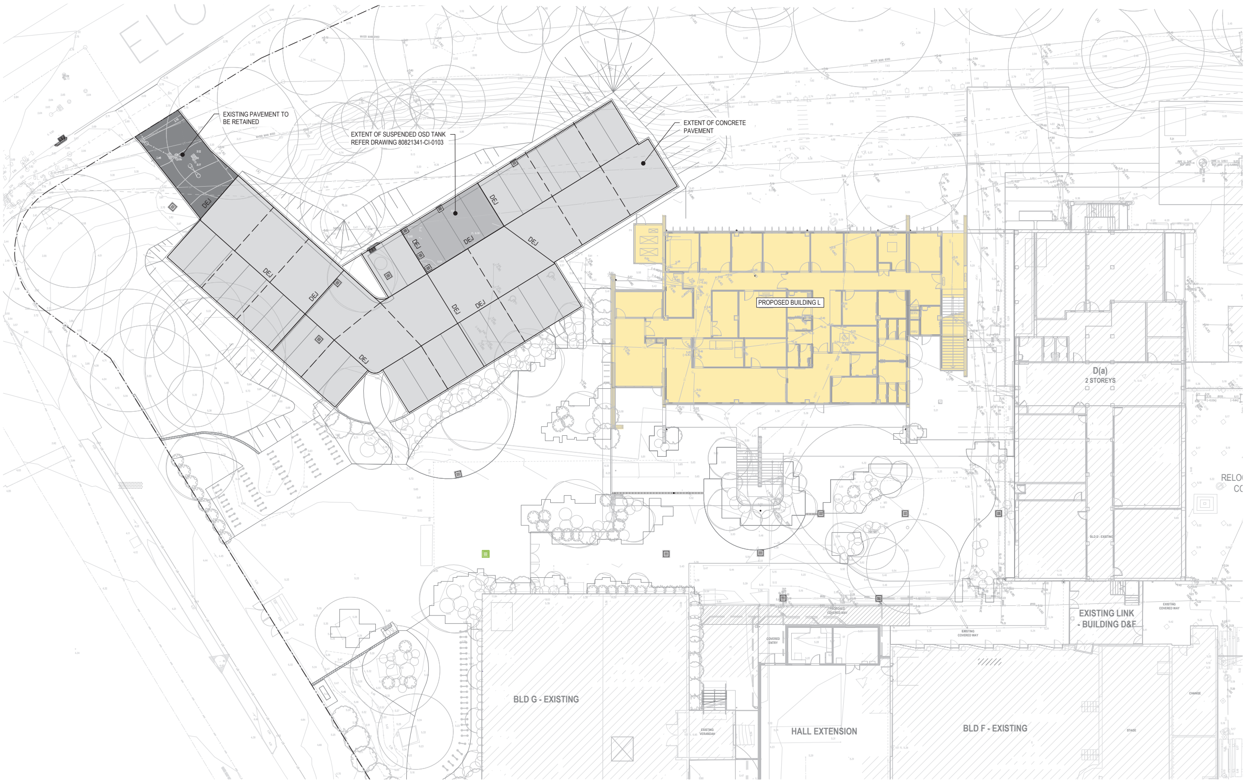
Title: CIVIL
SEDIMENTATION AND EROSION CONTROL PLAN
SHEET 2

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum		Scale	Size
AHD		1:200	A1

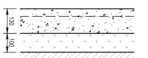
Drawing Number	Revision
80821341-CI-0106	3

XREFs: X-ARCH-SITE; X-Survey; X-CI-STORMWATER; X-ARCH-GROUND FLOOR PLAN; X-CI-PAVEMENT
CAD File: \\cardno.corp\global\au\nsw\DirectoryStructure\Projects\808\FY21\341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0106.dwg



LEGEND:

- EXISTING PAVEMENT TO REMAIN
- PROPOSED CONCRETE PAVEMENT
- SUSPENDED OSD TANK SLAB

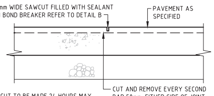


130MM SLAB, REINFORCED WITH SL82 MESH POURED ON 5MM SAND BLINDING OVER VAPOUR PROOF MEMBRANE ON 100MM DGB20 COMPACTED TO 98% SMDD. INCREASE SLAB THICKNESS TO 220MM FOR AT LEAST 1.5M FROM THE ENDS.

SUBGRADE TO BE PREPARED FOR A CBR OF 10% IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT

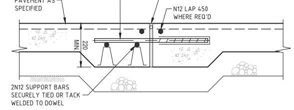
JOINTS AS SHOWN SHALL BE SAWN JOINTS UNLESS NOTED OTHERWISE

CONCRETE PAVEMENT
SCALE 1:10



NOTE: SAWCUT TO BE MADE 24 HOURS MAX. AFTER SLAB IS POURED

SAWN JOINT (TYPICAL)
SCALE 1:10



DOWELLED EXPANSION JOINT (DEJ1) (TYPICAL UNO)
SCALE 1:10

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Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

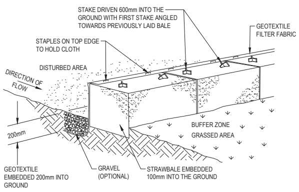
Title: CIVIL
CAR PARK PAVEMENT PLAN AND DETAILS

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

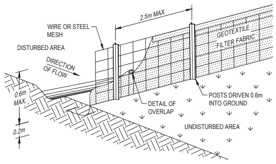
Datum		Scale	Size
AHD		1:200	A1

Drawing Number	Revision
80821341-CI-0109	2

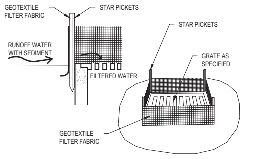
DATE PLOTTED: 4 July 2022 6:13 PM BY: GORAN MILENKOVIC



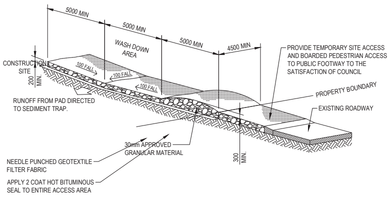
STRAWBALE AND GEOTEXTILE SEDIMENT FILTER
NTS



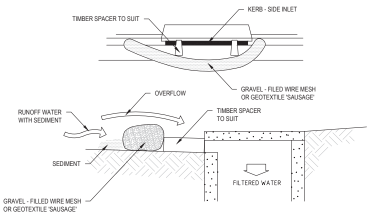
SEDIMENT FENCE
NTS



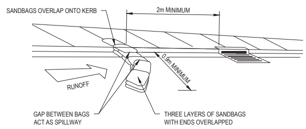
GEOTEXTILE FILTER PIT SURROUND
NTS



STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
NTS



MESH AND GRAVEL INLET FILTER
NTS



SANDBAG SEDIMENT TRAP FOR KERB INLET ON GRADE
NTS

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Designed	VJ	Date MAY 2022
Verified	PP	Date MAY 2022
Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
SEDIMENTATION AND EROSION CONTROL
DETAILS

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number	Revision
80821341-CI-0110	3

DATE PLOTTED: 4 July 2022 6:13 PM BY : GORAN MILENKOVIC
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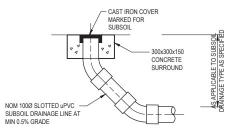
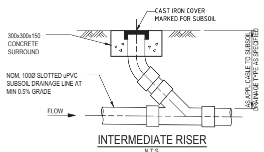
XREFs:

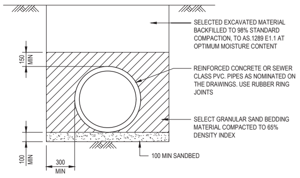
DATE PLOTTED: 4 July 2022 6:15 PM BY : GORAN MILENKOVIC



HIGH END RISER
N.T.S.

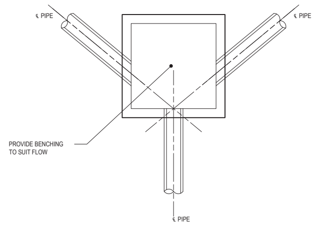


INTERMEDIATE RISER
N.T.S.
(TYPICAL AT 25m. INTERVALS UNLESS OTHERWISE NOTED ON PLAN)

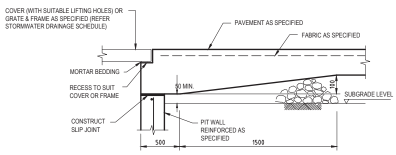


TYPICAL PIPE LAYING DETAIL U.N.O.

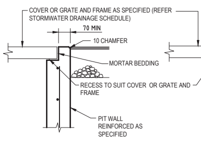
NOTE:
ALLOW TO BUILD 100Ø AG. DRAIN IN THE LAST 3.0m OF DRAINAGE PIPE, UPSTREAM OF ALL DRAINAGE PITS.



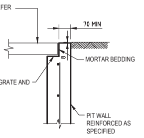
JUNCTION PIT SET OUT DETAILS
N.T.S



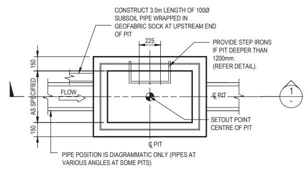
DETAIL "A"
N.T.S



DETAIL "B"
SCALE 1:10

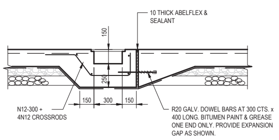


DETAIL "C"
SCALE 1:10

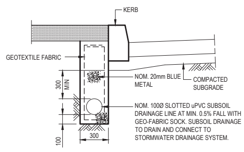


PLAN
NTS

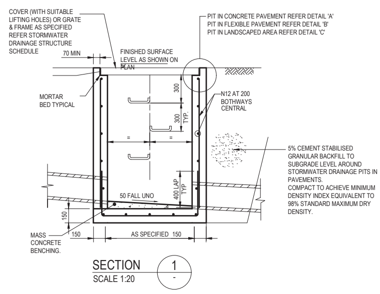
PIT EDGE TREATMENT FOR STORMWATER DRAINAGE AND OTHER SERVICES PITS IN ROAD PAVEMENTS AND LANDSCAPED AREAS



GRATED DRAIN DETAIL
SCALE 1:20



SUBSOIL DRAINAGE LINE IN LANDSCAPED AREAS ADJACENT TO ROADS



SECTION 1 -
SCALE 1:20

SURFACE INLET/JUNCTION PIT (SIP/JP)

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Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

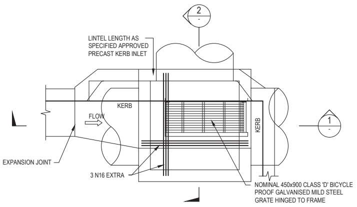
Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 1

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

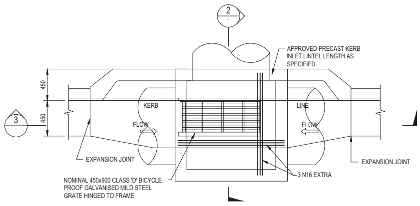
Drawing Number: 80821341-CI-0111 | Revision: 2

XREFs:
CAD File: \\cardno.corp\global\au\nsw\Directory\Structure\Projects\808\FY21\341_Cronulla HS-Phase 2 to 6\012_CIVIL\Drawings\Build\80821341-CI-0111.dwg



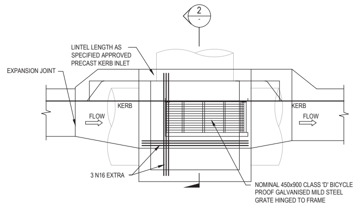
PLAN
NTS

KERB INLET PIT (KIP-A)
(CORNER)



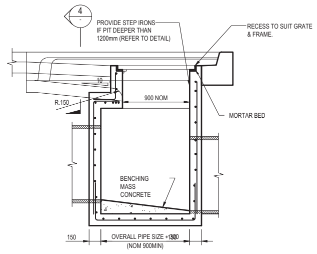
PLAN
NTS

KERB INLET PIT (KIP-B)
(SAG)



PLAN
NTS

KERB INLET PIT (KIP-C)
(ON GRADE)



SECTION 1
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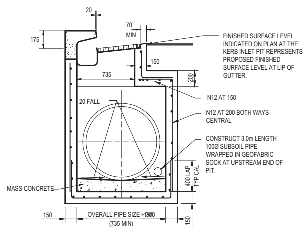
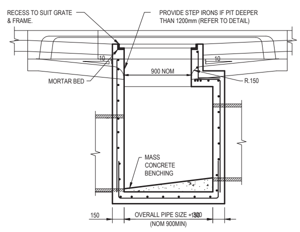
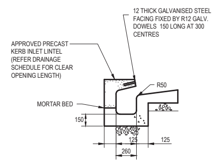


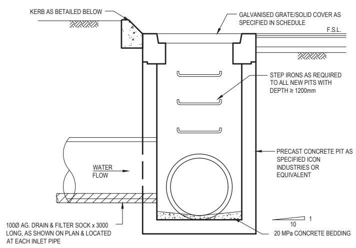
SECTION 2
SCALE 1:20



SECTION 3
SCALE 1:20



SECTION 4
SCALE 1:20



PRECAST STORMWATER PIT

TO BE INSTALLED AND BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. PROVIDE GALVANISED IRON STEP IRONS EPOXIED INTO CONCRETE FOR PITS DEEPER THAN 1200mm.

Rev.	Date	Description	Des.	Verif.	Appd.
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Approved		

Client: NSW DEPARTMENT OF EDUCATION

Project: CRONULLA HIGH SCHOOL
CAPTAIN COOK DRIVE, CRONULLA NSW

Title: CIVIL
STORMWATER STANDARD DEAILS
SHEET 2

Status: SCHEMATIC DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Scale	Size
AHD	1:200	A1

Drawing Number: 80821341-CI-0112 | Revision: 2