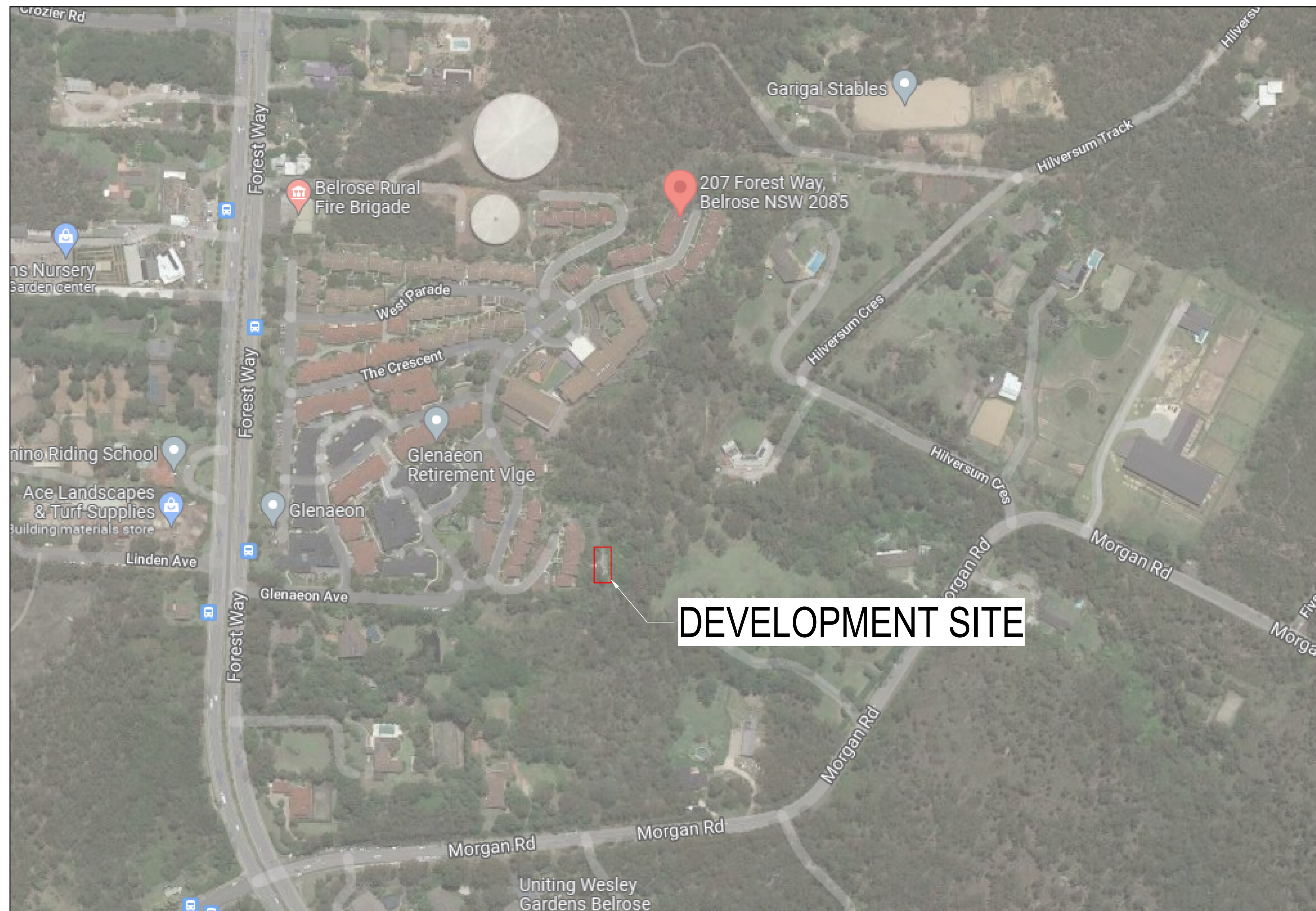


# **GLENAEON RETIREMENT VILLAGE - SPS UPGRADE**

**207 FOREST WAY, BELROSE, NSW 2085**

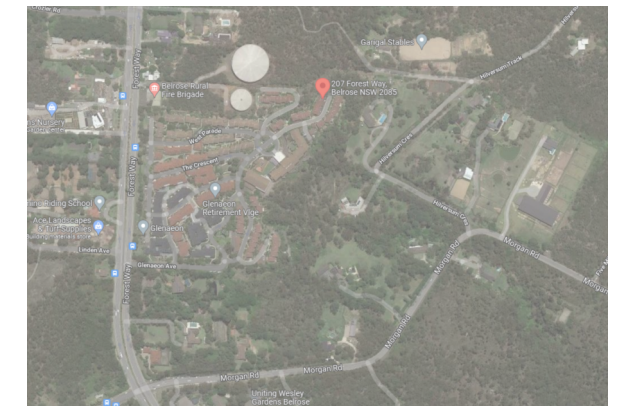


DRAWING NUMBER	DISCIPLINE	DRAWING TITLE
GLN-H-D-00000	HYDRAULIC SERVICES	COVER SHEET AND DRAWING INDEX
GLN-H-D-00001	HYDRAULIC SERVICES	HYDRAULIC SERVICES LEGEND AND NOTES
GLN-H-D-00002	HYDRAULIC SERVICES	DESIGN DATA AND PUMP CURVES
GLN-H-D-00003	HYDRAULIC SERVICES	MACERATOR DETAIL
GLN-H-D-00004	HYDRAULIC SERVICES	ACOUSTIC DOOR DETAIL
GLN-H-D-00005	HYDRAULIC SERVICES	SPOON DRAIN DETAIL
GLN-H-D-00006	HYDRAULIC SERVICES	EROSION SOIL CONTROL DETAILS
GLN-H-D-20001	HYDRAULIC SERVICES	SPS DEMOLITION AND STAGING PLAN
GLN-H-D-20002	HYDRAULIC SERVICES	SPS PROPOSED PLAN
GLN-H-D-20003	HYDRAULIC SERVICES	EROSION SOIL CONTROL PLAN
GLN-H-D-20004	HYDRAULIC SERVICES	OVERALL SITE PLAN
GLN-H-D-20005	HYDRAULIC SERVICES	ELEVATIONS
GLN-H-D-50001	HYDRAULIC SERVICES	SECTIONS 01
GLN-H-D-70001	HYDRAULIC SERVICES	DETAILS 01
GLN-H-D-90000	HYDRAULIC SERVICES	PERSPECTIVE VIEW
GLN-H-D-90001	HYDRAULIC SERVICES	HYDRAULIC SCHEMATIC

DRAWING INDEX-ELECTRICAL		
DRAWING NUMBER	DISCIPLINE	DRAWING TITLE
GLN-E-D-20001	ELECTRICAL AND ICT SERVICES	SPS ELECTRICAL DEMOLITION AND STAGING PLAN
GLN-E-D-20002	ELECTRICAL AND ICT SERVICES	SPS ELECTRICAL PROPOSED PLAN
GLN-E-D-90000	ELECTRICAL AND ICT SERVICES	ELECTRICAL SERVICES SCHEMATIC MSB PH
GLN-E-D-90001	ELECTRICAL AND ICT SERVICES	ELECTRICAL SERVICES SCHEMATIC MSB AND METERING PANE

DRAWING INDEX-STRUCTURE		
DRAWING NUMBER	DISCIPLINE	DRAWING TITLE
GLN-S-D-20001	STRUCTURE	GENERAL NOTES SHEET 1
GLN-S-D-20002	STRUCTURE	GENERAL NOTES SHEET 2
GLN-S-D-20101	STRUCTURE	TANK PLANS
GLN-S-D-20201	STRUCTURE	TANK DETAIL SHEET 1
GLN-S-D-20301	STRUCTURE	PIPE SUPPORT DETAILS SHEET 1

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E	TENDER ADDENDUM	13/05/2022
D	TENDER ADDENDUM	04/04/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022
A	DRAFT SCHEMATIC DESIGN	27/01/2022
Rev	Revision Description	Date

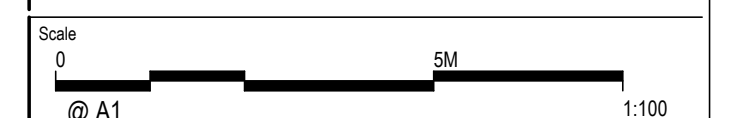


Client

LENDLEASE

Project  
GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

## COVER SHEET AND DRAWING INDEX



Drawn KN	Checked VP	Approved HW	
Project Number S210157		Drawing Number GLN-H-D-00000	Revision E



1. THE WHOLE OF THE PLUMBING AND DRAINAGE WORKS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING:
  - NSW HEALTH ADVISORY NOTE 3: DESTRUCTION, REMOVAL OR REUSE OF SEPTIC TANKS, COLLECTION LINES, AERATED WASTEWATER TREATMENT SYSTEMS (AWTS) AND OTHER SEWAGE MANAGEMENT FACILITIES (SMF).
  - WSA02-2002-1. PLANNING AND DESIGN.
2. THE DRAWINGS ARE A GUIDE ONLY FOR THE POSITIONS, LAYOUT AND SIZING OF THE SERVICE PIPES. FINAL LOCATIONS OF ALL FIXTURES AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE ARCHITECTS DRAWINGS. ANY DISCREPANCIES SHALL BE REPORTED TO THE PROJECT MANAGER.
3. THE CONTRACTOR IS TO VERIFY THE POSITIONS OF ALL DRAINAGE PIPES AND SERVICE LINES AND THAT THE INVERT AND SURFACE LEVELS ARE CORRECT BEFORE COMMENCING WORK.
4. ALL MATERIALS WILL BE IN ACCORDANCE WITH THE BCA AND THE REQUIREMENTS OF THE BUILDING CERTIFIER AND THE PLUMBING INSPECTOR. ENSURE MATERIALS MEET THE FIRE RATING REQUIREMENTS OF THE BCA.
5. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADE CONTRACTORS AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATION.
6. ALL VENT PIPES SHALL TERMINATE ABOVE THE ROOF.
7. THE WATER SUPPLY INSTALLATION AND PIPEWORK SHALL COMPLY WITH AS/NZS 3500 PART 1, CONCERNING BACKFLOW PREVENTION. ALL BACKFLOW PREVENTION VALVES SHALL COMPLY WITH AS 2845 AND BE PROVIDED WITH DRAINS WHERE REQUIRED. ALL HOSE TAPS SHALL HAVE A VACUUM BREAKER INSTALLED TO AS/NZS 3500.1, SECTION 4.
8. PENETRATIONS THROUGH FIRE RATED STRUCTURES SHALL HAVE FIRE COLLARS INSTALLED AS NECESSARY TO PRESERVE THE INTEGRITY OF THE STRUCTURE.
9. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS NECESSARY TO COMPLETE AN OPERATIONAL SYSTEM AS THOUGH SHOWN IN THE DOCUMENTS IN FULL.
10. WATER PIPE SIZES ON DRAWINGS ARE BASED ON COPPER PIPE DIMENSIONS.
11. ABOVE GROUND PIPEWORK SHALL BE MARKED SHOWING SERVICE AND FLOW DIRECTION. LABELS SHALL BE AT A MAXIMUM 6 METERS APART. NON-POTABLE WATER SHALL BE IDENTIFIED AND MARKED AS PER CODE REQUIREMENTS.
12. APPROVED AS INSTALLED DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR.
13. ALLOW TO SUPPLY AND INSTALL SANITARY FIXTURES, TAPWARE AND FITTINGS COMPLETE WITH ALL BRACKETS, SEALANTS, UNIONS, ETC.
14. PROPRIETARY BRAND NAMES USED ARE DESCRIPTIVE. EQUAL QUALITY AND PERFORMANCE APPROVED ALTERNATIVE MAKES MAY BE USED.
15. ACOUSTIC RATINGS SHALL BE ACHIEVED IN COMPLIANCE WITH THE BCA.
16. ISOLATION VALVES ARE TO BE LOCATED IN ACCESSIBLE LOCATION OR BE PROVIDED WITH ACCESS PANEL.
17. TANK BASE TO BE EPOXY LINED WITH FLEXIBLE WATERPROOFING MEMBRANE THROUGHOUT WET WELL AND EMERGENCY LINK UNDERGROUND. CONTRACTOR TO ALLOW FOR RE-COATING OF WATERPROOFING MEMBRANE. CONTRACTOR TO UTILISE SPECIALIST CONTRACTOR FOR TREATMENTS TO BE INCORPORATED AS A COMPLETE WATERPROOF SYSTEM.
18. ALL PENETRATIONS SHALL BE SEALED WITH CHAIN LINK AND HYDROPHILIC SEALANT.
19. PAINT EXTERIOR WALL AND DRY WELL WALLS WITH HYDROPHOBIC PAINT AND SEALANT (3 LAYERS)


ABBREVIATIONS	
AAV	AIR ADMITTANCE VALVE
ADWF	AVERAGE DRY WEATHER FLOW
AP	ACCESS PANEL
C	CONDUIT
CO	CLEAR OUT
CP	CONTROL PANEL
CU	COPPER
CVP	CHAMBER VENT PIPE
CW	COLD WATER
FFL	FINISHED FLOOR LEVEL
FW	FLOOR WASTE
G	GULLY
GL	GROUND LEVEL
HT	HOSE TAP
KGV	KNIFE GATE VALVE
N/C	NORMALLY CLOSED
PDWF	PEAK DRY WEATHER FLOW
PWWF	PEAK WET WEATHER FLOW
OFG	OVER FLOW GULLY
RPZD	REDUCED PRESSURE ZONE DEVICE
SPS	SEWER PUMP STATION
SRM	SEWER RISING MAIN
SS/EW	SAFETY SHOWER / EYE WASH
SW	STORM WATER
SV	STOP VALVE
TBC	TO BE CONFIRMED
Typ	TYPICAL
UG	UNDER GROUND
VP	VENT PIPE

25	CHECK NOISE LEVELS FOR PUMPING STATION AND ALTERNATING SET
26	CONDUCT PRE-COMMISSIONING TESTS IN CONJUNCTION WITH THE WATER AGENCY RECORDING ALL TEST RESULTS OBSERVATIONS AND PROVIDING RELEVANT COMMENT AS REQUIRED
27	CHECK THAT ALL O&M MANUALS, AND EQUIPMENT FACTORY TEST REPORTS ARE AVAILABLE

58	CHECK ALL CONTROL SWITCHES AND SEQUENCES OPERATE AS SPECIFIED
59	CHECK CALIBRATION OF ALL ANALOGUE SIGNALS (INCLUDING FLOW AND PRESSURE TRANSMITTERS)
60	CHECK SETTING OF ALL PRESSURE SWITCHES
61	CHECK THAT ALL ALARMS ARE TRANSMITTED BACK TO CENTRAL ALARM MONITORING POINT
62	CHECK SIGNAL STRENGTH AND FADE MARGINS ON RADIO TX/RX IF INSTALLED
63	CHECK AERIAL SUPPORTS AND MAST IF RADIO COMMUNICATIONS ARE SPECIFIED
64	MEASURE THE VOLTAGES BOTH PHASE TO PHASE AND PHASE TO NEUTRAL. COMPARE THE ACTUAL VOLTAGES RELATIVE TO TYPICAL NO-LOAD VOLTAGE OF 435/250V, AND THE VOLTAGE VARIATION BETWEEN PHASES SHOULD BE LESS THAN 2%
65	WITH THE MAIN SWITCH, PUMP CIRCUIT BREAKERS AND CONTROL ISOLATING SWITCHES OFF, MEGGER ALL MOTORS AT 500V. THIS MUST GIVE GREATER THAN 1 Mohm, AND IDEALLY GREATER THAN 30 Mohm RECORD RESULTS: PUMP 1.....Mohm PUMP 2.....Mohm PUMP 3.....Mohm
66	IF THERMISTORS ARE FITTED, USE A LOW VOLTAGE OHMMETER TO CHECK THAT THE RESISTANCE T1 TO T2 IS BETWEEN 150 AND 600 ohms RECORD RESULTS: PUMP 1.....ohm PUMP 2.....ohm PUMP 3.....ohm
67	WITH S1 DISCONNECTED, CHECK FOR A RESISTANCE OF ABOVE 40 Kohm BETWEEN CONTROL CORES S1 AND S2 (OR S1 AND EARTH WITH FLYGT PUMPS) AGAIN USING A LOW VOLTAGE OHMMETER RECORD RESULTS: PUMP 1.....Kohm PUMP 2.....Kohm PUMP 3.....Kohm
68	WITH FLYGT PUMPS, ENSURE THAT AN EARTH HAS BEEN PUT ON S2
69	CHECK OPERATION OF ALL LOCKS ON SWITCHBOARDS
70	CHECK THAT UPDATED ELECTRICAL DRAWINGS ARE STORED ON SITE
71	SIMULATE A MAINS POWER FAILURE, AND CHECK THAT ALTERNATOR STARTS AUTOMATICALLY (IF SPECIFIED)
72	TEST RUN ALTERNATOR ON FULL STATION LOAD, AND MEASURE NOISE LEVEL AT 1 M AND PROPERTY BOUNDARY

		AND/OR COLLECTION TO BE REMOVED. APPROVAL OF THE LOCAL COUNCIL UNDER SECTION 68 OF THE LOCAL GOVERNMENT ACT IS TO BE OBTAINED BEFORE THE VESSEL IS REINSTALLED INCLUDING REQUIRED COUNCIL INSPECTIONS DURING DECOMMISSIONING AND PUMP OUT.
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Client

LENDELEASE

Project


GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

Title

HYDRAULIC SERVICES  
LEGEND AND NOTES

Scale

0



5M

1:100

1 : 1 @ A1

Drawn KN	Checked VP	Approved HW	
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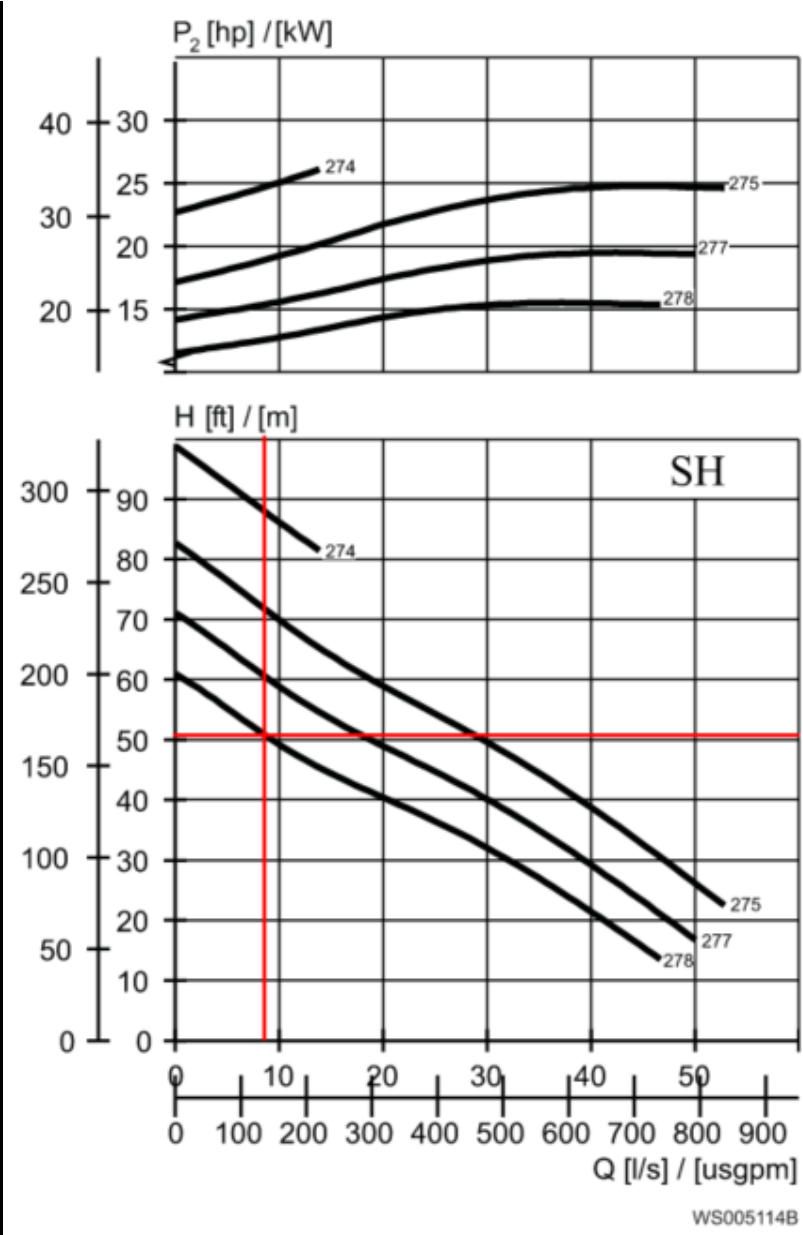
Project Number	Revision
S210157 GLN-H-D-00001	D



DESIGN DATA

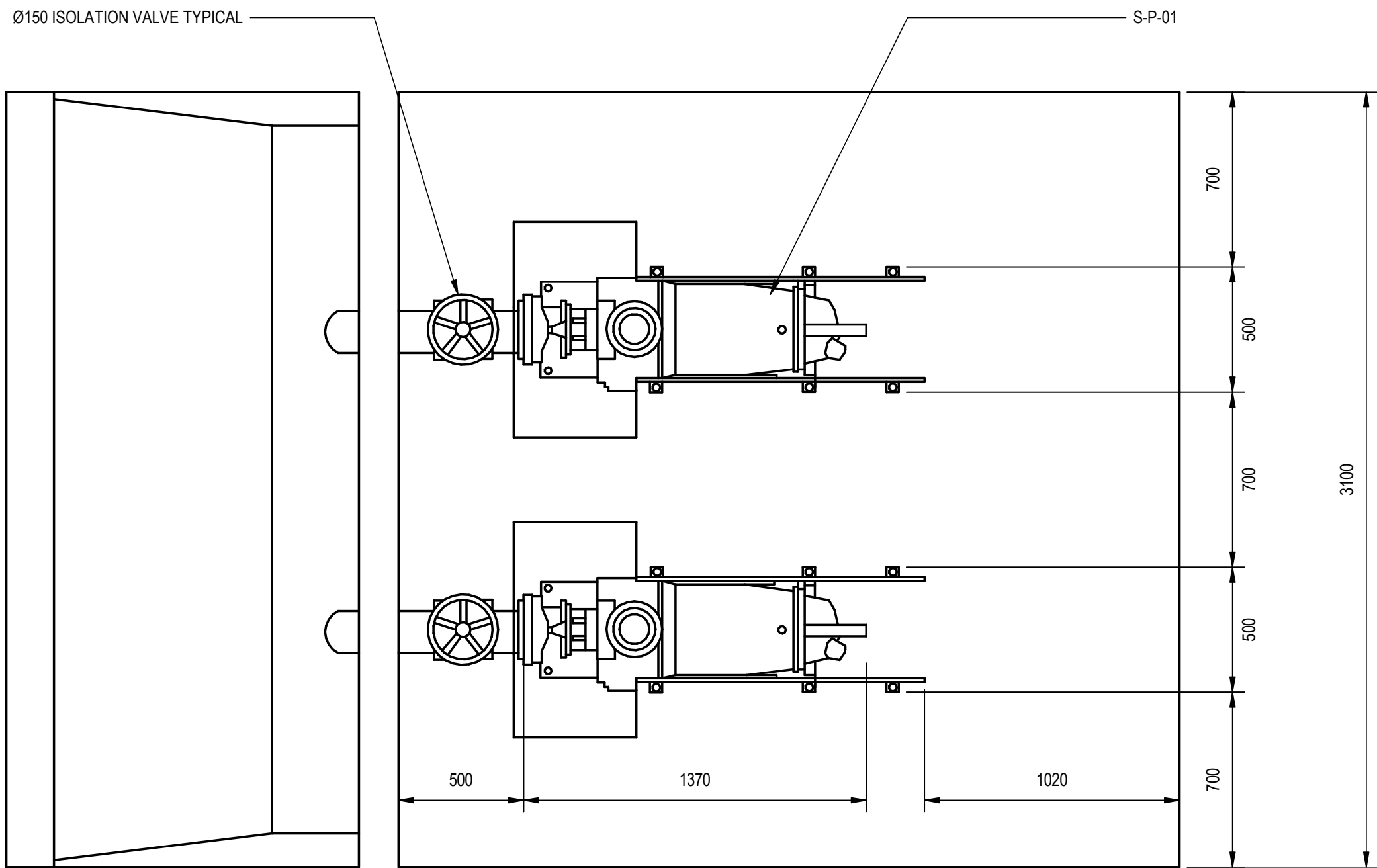
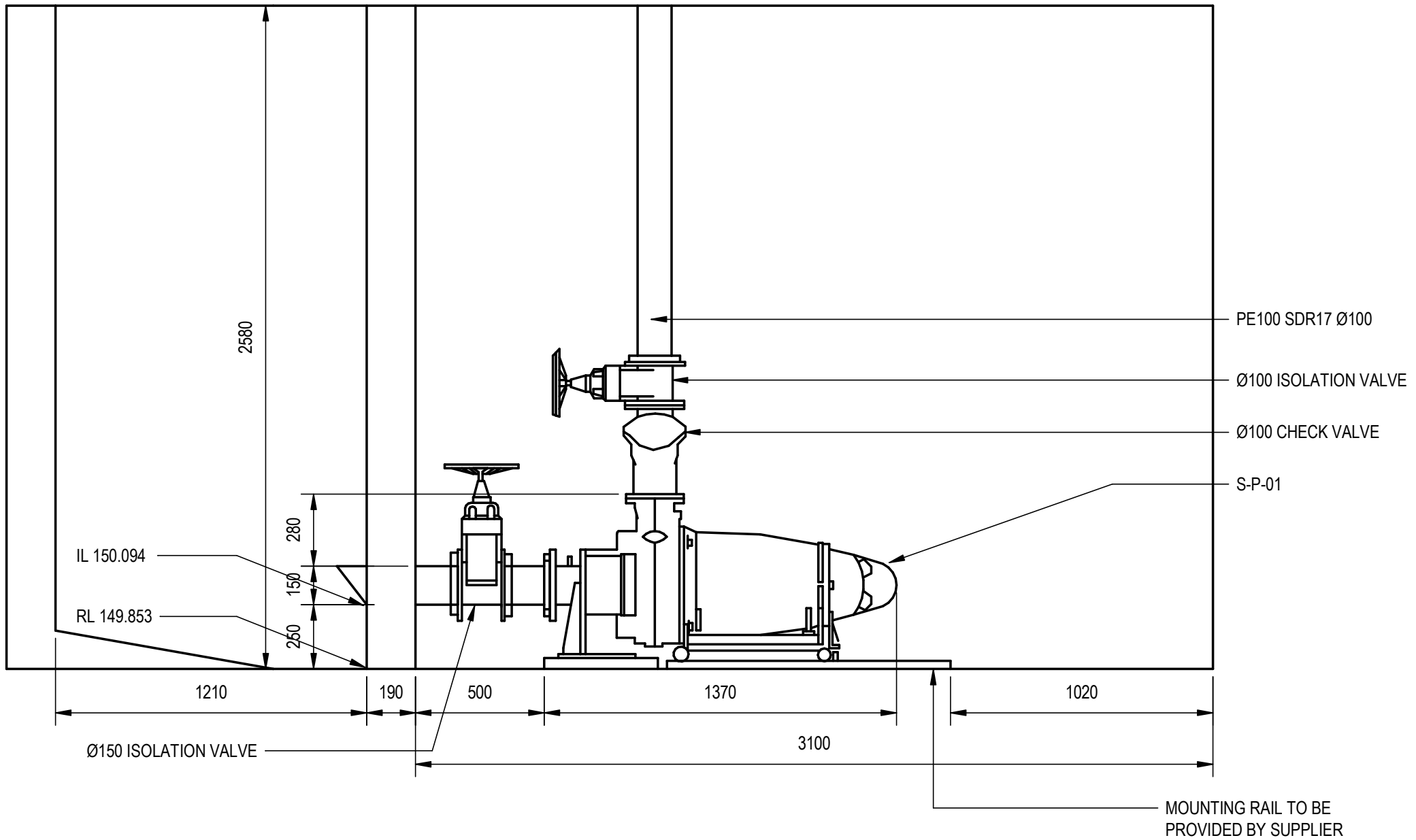
FLOW ESTIMATION		
ADWF:	1.76	l/s
PDWF:	4.79	l/s
PWWF:	8.85	l/s
WET WELL		
PUMP ARRANGEMENT:	DUTY/STANDBY	
PUMP MAKE:	FLYGT FP-3171	
PUMP MODEL:	SH3~ 278	
PUMP IMPELLER:	213	mm
OPERATING POINT - NORMAL OPERATION:	9l/s @51m.hd.	
WET WELL CHAMBER VOLUME:	3140	L
MAX. PUMP STARTS PER HOUR	2.02	
CUT-IT/CUT-OUT TIME AT ADWF:	21.10	min
CUT-IT/CUT-OUT TIME AT PDWF:	7.76	min
CUT-IT/CUT-OUT TIME AT PWWF:	4.20	min
VALVE CHAMBER		
PIPING:	PVC	
PIPE INTERNAL DIAMETER:	225	mm
DESIGN SPECIFIC ROUGHNESS:	0.0015	mm
VELOCITY	0.45	m/s
PRESSURE MAIN		
PIPE:	DICL	
PIPE INTERNAL DIAMETER:	100	mm
LENGTH TO DISCHARGE MAINTENANCE HOLE:	~400	m
DESIGN SPECIFIC ROUGHNESS:	0.0015	mm
VELOCITY	1.15m/s @9l/s	
EMERGENCY STORAGE		
EQUIVALENT PERSONS	634	EP
WASTE WATER LOAD	150	l/p/d
VOLUME	50720	L
STORAGE CAPACITY	8	hours

N 3171 SH 3 phase 2 poles 60hz; 278mm impeller



DESIGN DATA AND PUMP CURVES

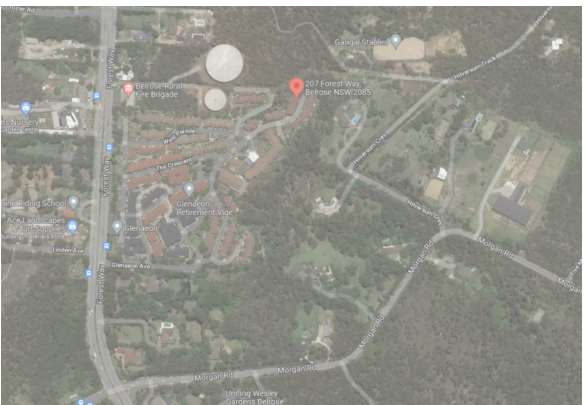
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DETAIL FLYGT PUMP INSTALLATION

1 : 20

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Rev	Revision Description	Date
D	TENDER ADDENDUM	24/03/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022

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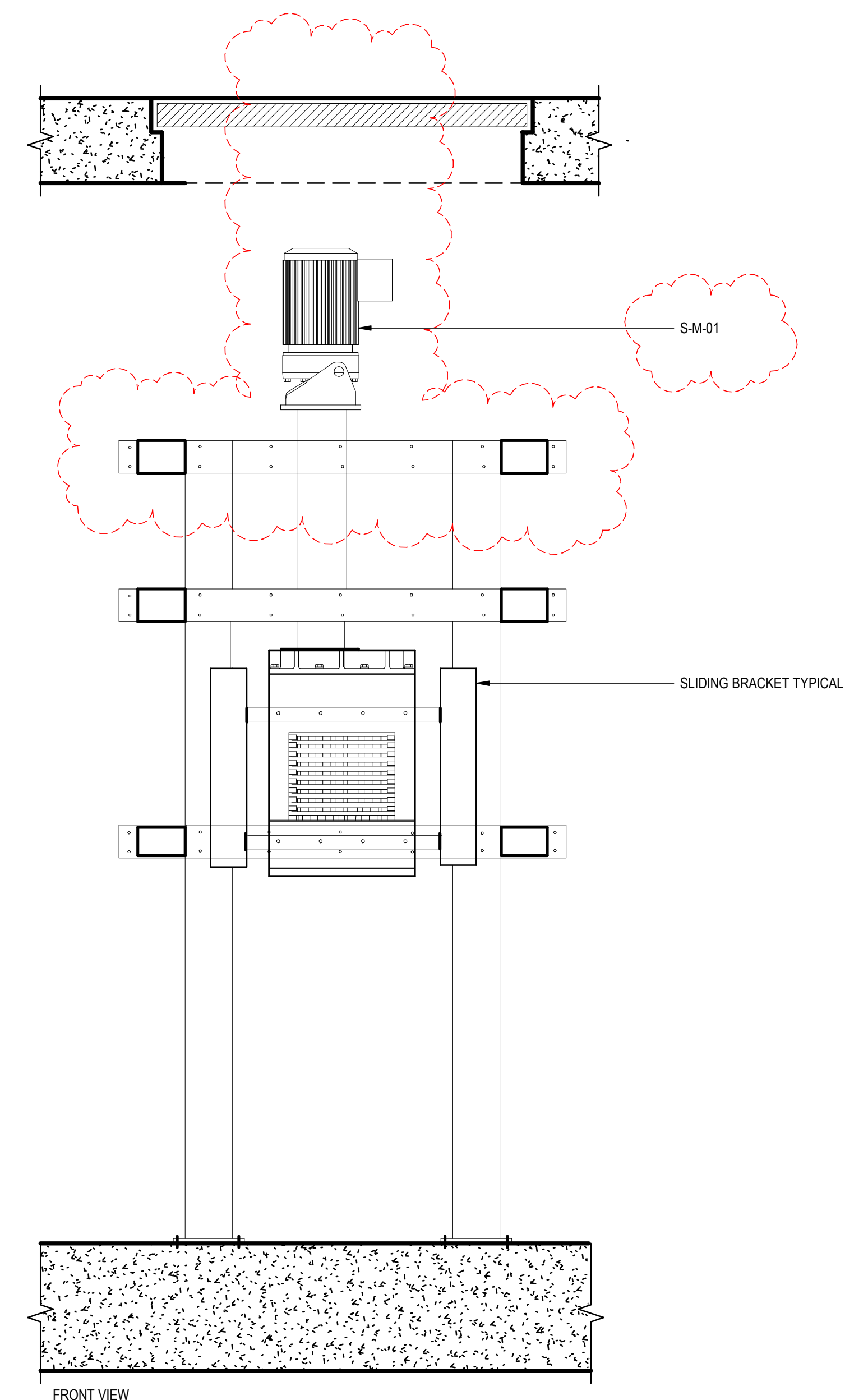
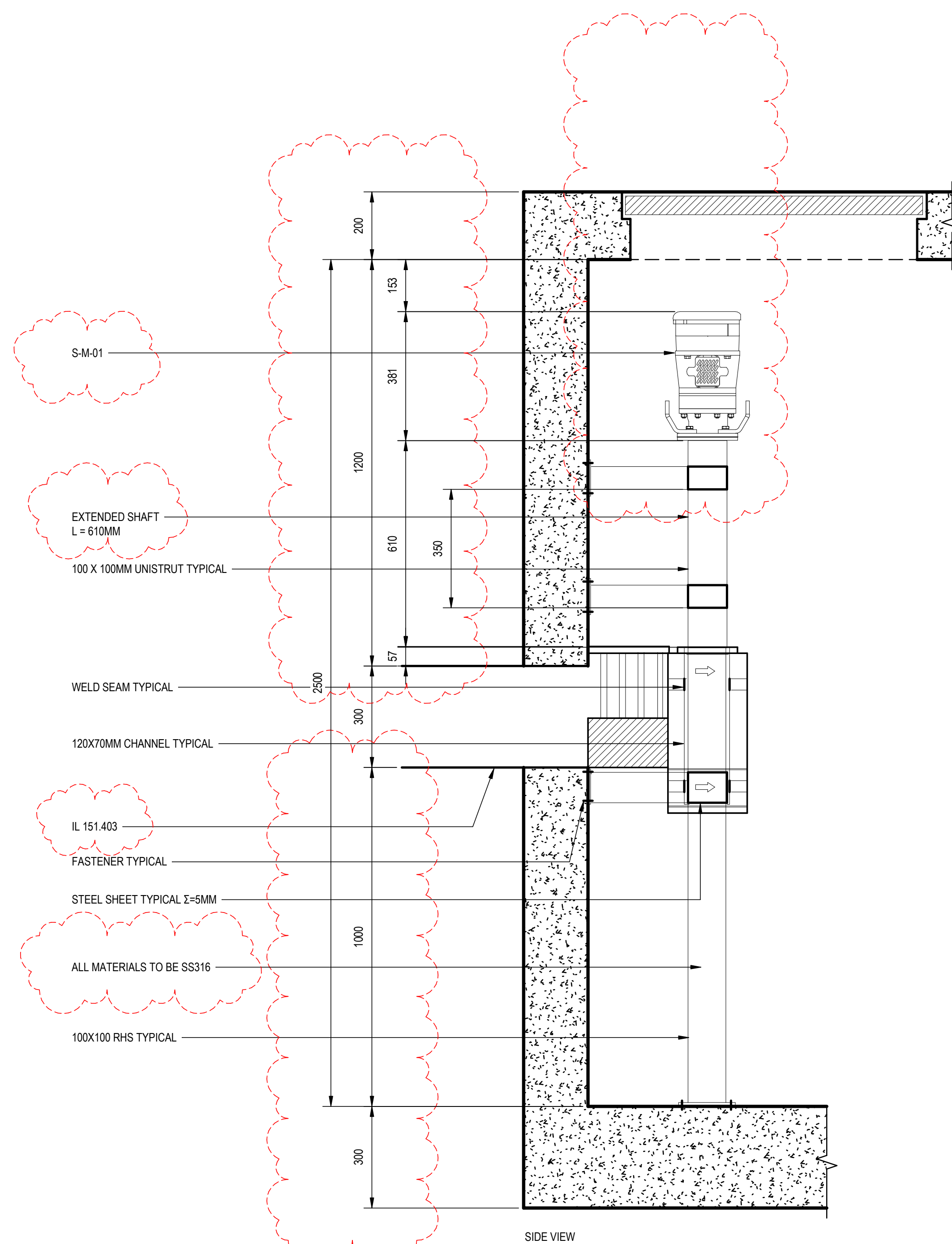
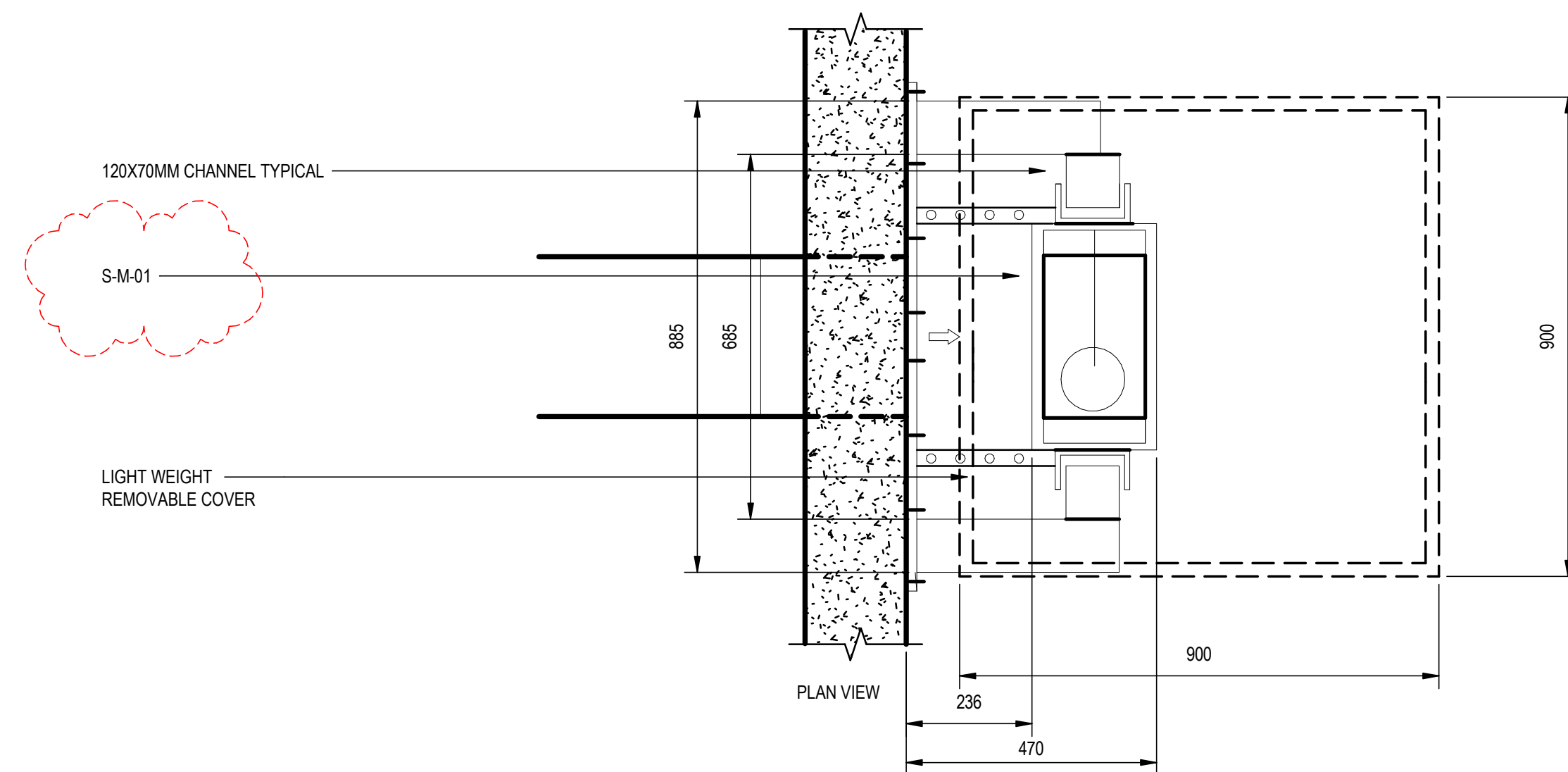
Project  
**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

Title  
**DESIGN DATA AND PUMP CURVES**

Scale  
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As indicated @ A1

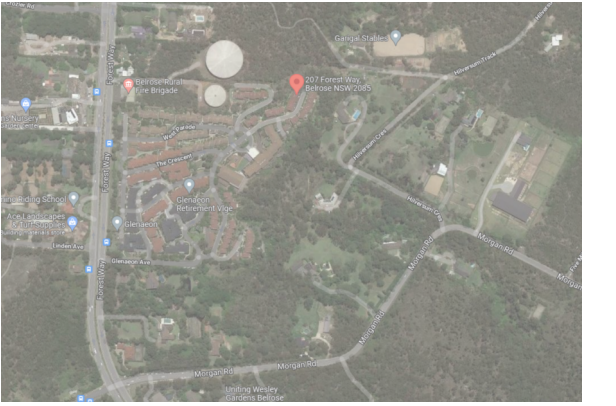
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Project Number <b>S210157</b>	Drawing Number <b>GLN-H-D-00002</b>	Revision <b>D</b>
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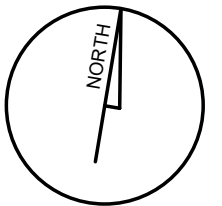


## NOTES

- SUB-CONTRACTOR TO UTILISE THIS PLAN AS A DESIGN INTENT. FINAL FABRICATION AND ENGINEERING OF THE SUPPORTING STRUCTURE SHALL EITHER BE PROPRIETARY OR PURPOSE BUILT.



## Key Plan



D	TENDER ADDENDUM	24/03/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022
Rev	Revision Description	Date



Client	
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LENDLEASE

Project  
GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

Title  
MACERATOR DETAIL

Scale  
0 5M 1:100  
1:10 @ A1

Drawn AT	Checked VP	Approved HW	
Project Number S210157 GLN-H-D-00003			Revision D



DIMENSIONS SHOWN ON THIS DOCUMENT MAY BE SUBJECT  
TO CHANGE PENDING SUPPLIER SELECTION. TREAT  
INDICATIVELY



AD1 - ACOUSTIC DOOR DETAIL  
N.T.S.

NOISE REDUCTION (dB)							
MODEL	OCTAVE BAND CENTRE FREQUENCIES (Hz)						
	125	250	500	1000	2000	4000	
SERIES 100	14	14	16	21	27	27	dB

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Title  
**ACOUSTIC DOOR DETAIL**

Drawn AT	Checked VP	Approved HW	
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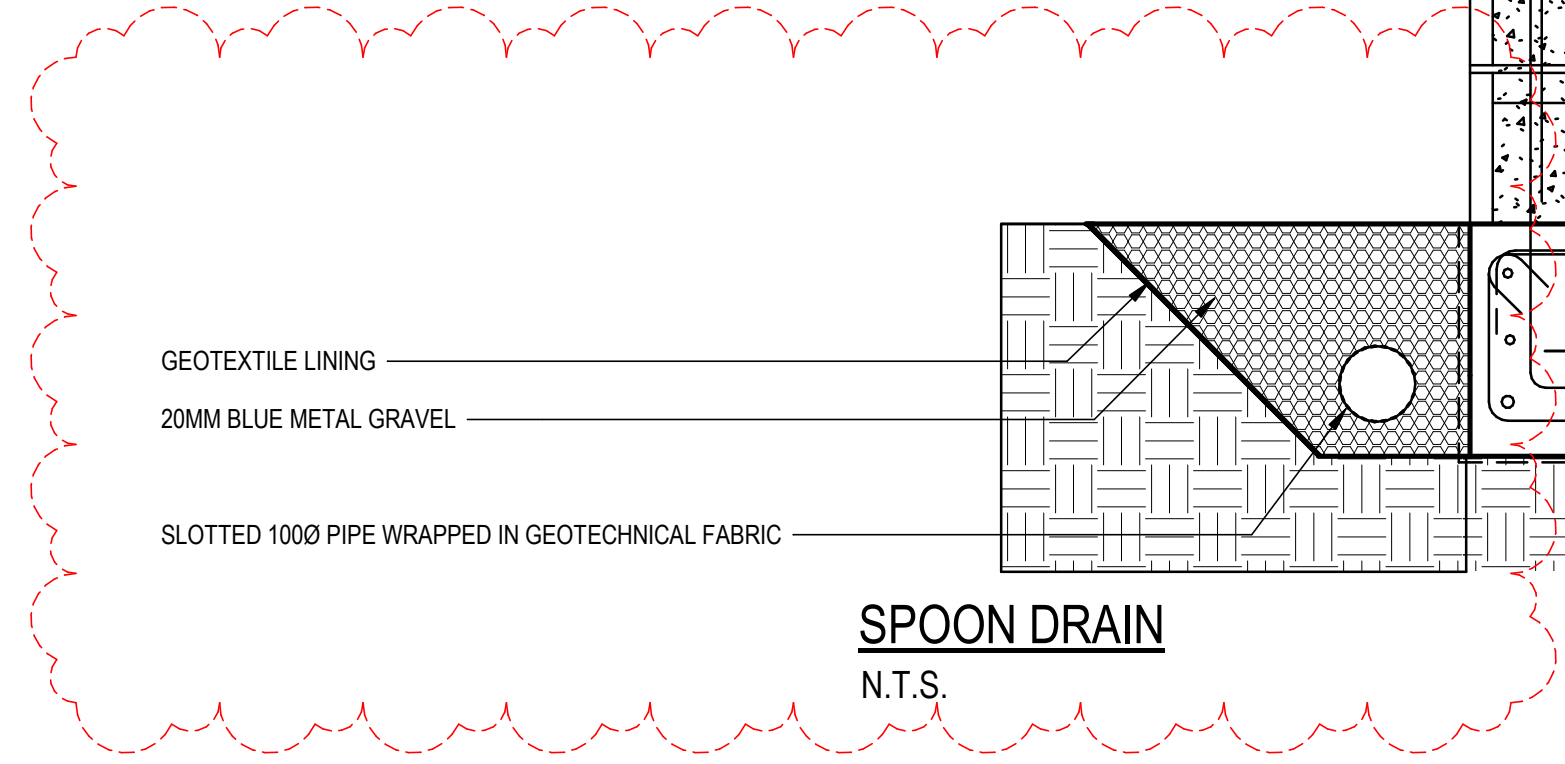


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## SPOON DRAIN DETAIL





## GENERAL INSTRUCTIONS

1. THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
2. CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 1998 (BLUE BOOK).
3. ALL SUBCONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN REDUCING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.

## LAND DISTURBANCE INSTRUCTIONS

1. DISTURBANCE TO BE NO FURTHER THAN 5 (PREFERABLY 2) METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
2. ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES. THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
3. ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
4. WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
  - a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
  - b. CONSTRUCT THE STABILISED SITE ACCESS.
  - c. CONSTRUCT DIVERSION DRAINS AS REQUIRED.
  - d. INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
  - e. INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
  - f. CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
  - g. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
  - h. GRADE LOT AREAS TO FINAL GRADINGS AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
  - i. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
5. SENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING. 6. ON COMPLETION OF MAJOR WORKS LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.

## SITE INSPECTION AND MAINTENANCE INSTRUCTIONS

1. THE SITE SUPERINTENDENT WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
  - a. ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
  - b. REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
  - c. REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED.
  - d. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
  - e. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE SUBJECT WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
  - f. MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
2. THE SITE SUPERINTENDENT WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
  - a. THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
  - b. THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
  - c. THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
  - d. THE NEED FOR DUST PREVENTION STRATEGIES.
  - e. ANY REMEDIAL WORKS TO BE UNDERTAKEN. THE LOGBOOK WILL BE KEPT ON SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.

## SEDIMENT CONTROL INSTRUCTIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
3. SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
4. STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
5. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE. B. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

## SOIL EROSION CONTROL INSTRUCTIONS

- a. 2(H)/1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
- b. 2.5(H)/1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
- c. 3(H)/1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
- d. 4(H)/1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
2. ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1.20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
3. WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5.1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 1998 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
4. STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.1 (60% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
5. ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
6. FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER: JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
7. PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
8. RE-VEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTENT ANNUAL COVER CROPS SHOULD BE USED.

## WASTE CONTROL INSTRUCTIONS

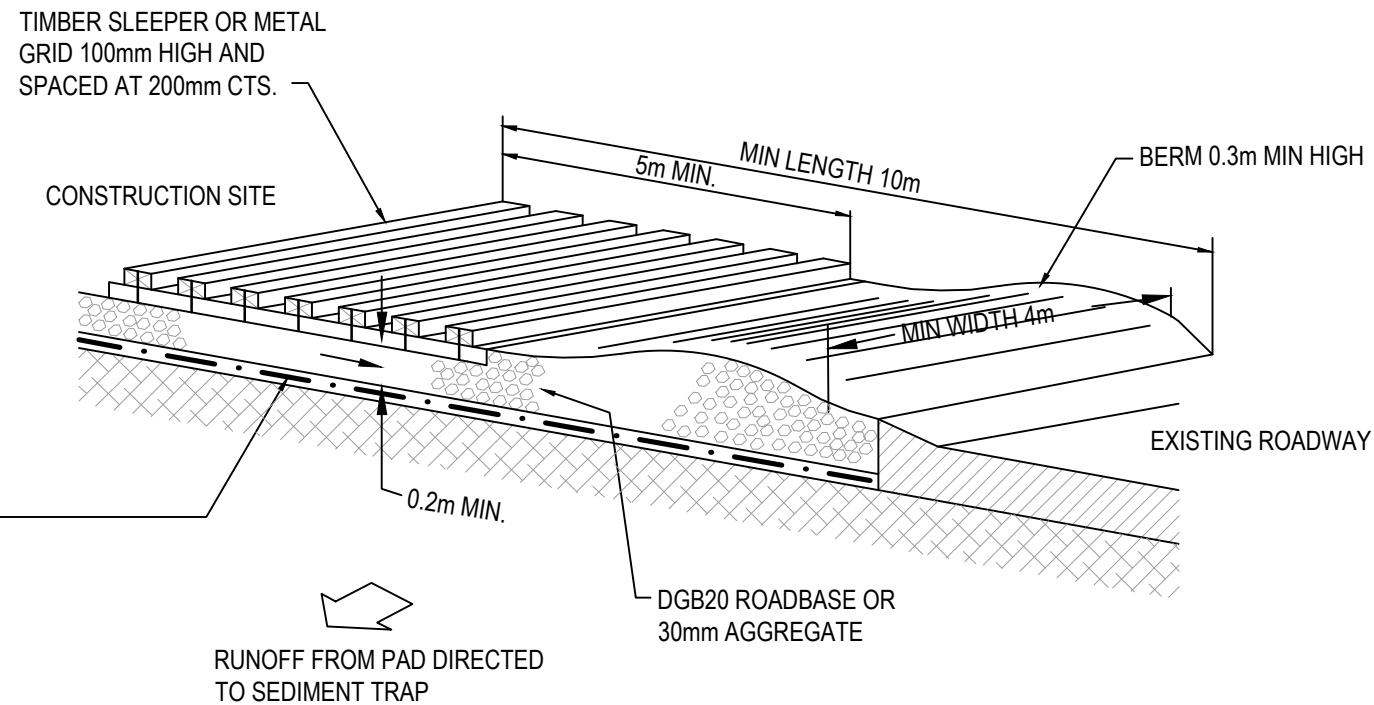
1. ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SURFACES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
2. ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINAGE AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
3. ALL SITE STAFF AND SUB-CONTRACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
4. ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
5. PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

NOTE:

1. CONTRACTOR SHALL CONDUCT A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF ANY WORK
2. ENSURE THAT ALL COUNCIL AND PUBLIC UTILITY ASSETS ARE MAINTAINED AND PROTECTED AT ALL TIMES IN THE VICINITY OF THE TEMPORARY CONSTRUCTION EXIT



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOTEXTILE MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500N.



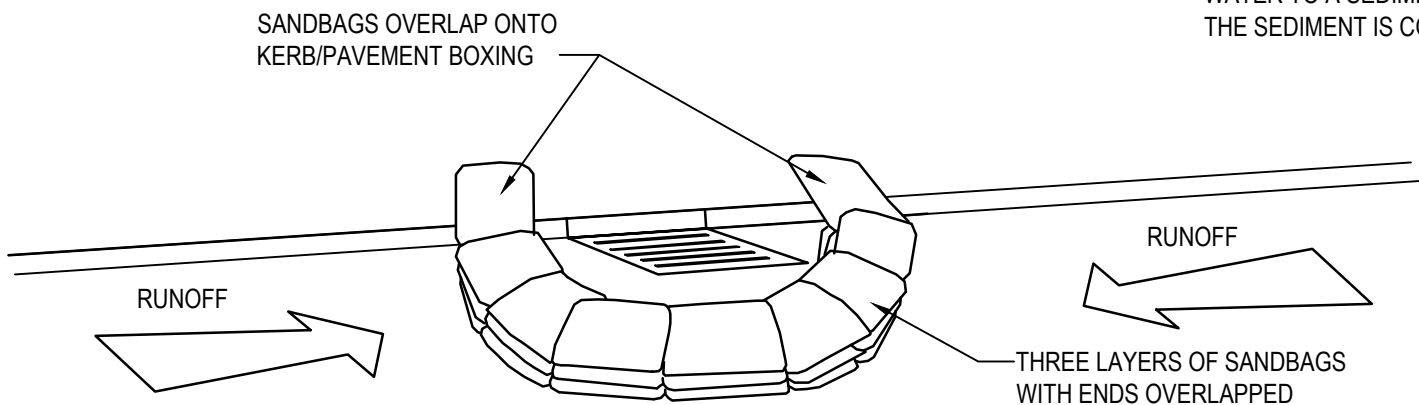
## CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200MM THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30MM AGGREGATE.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP WHERE THE SEDIMENT IS COLLECTED AND REMOVED.

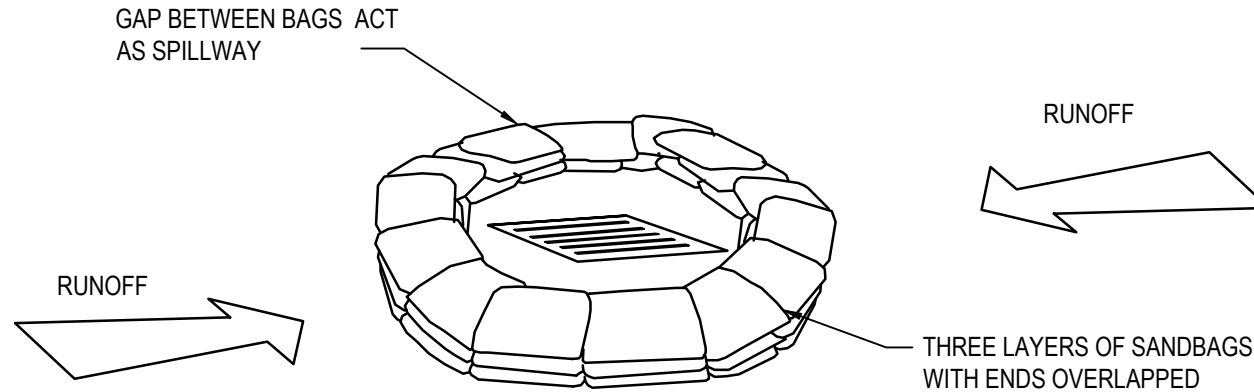
## MAINTENANCE NOTES

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT OFF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED OFF THE CONSTRUCTION SITE MUST BE REMOVED IMMEDIATELY.

## TEMPORARY STABILISED CONSTRUCTION EXIT



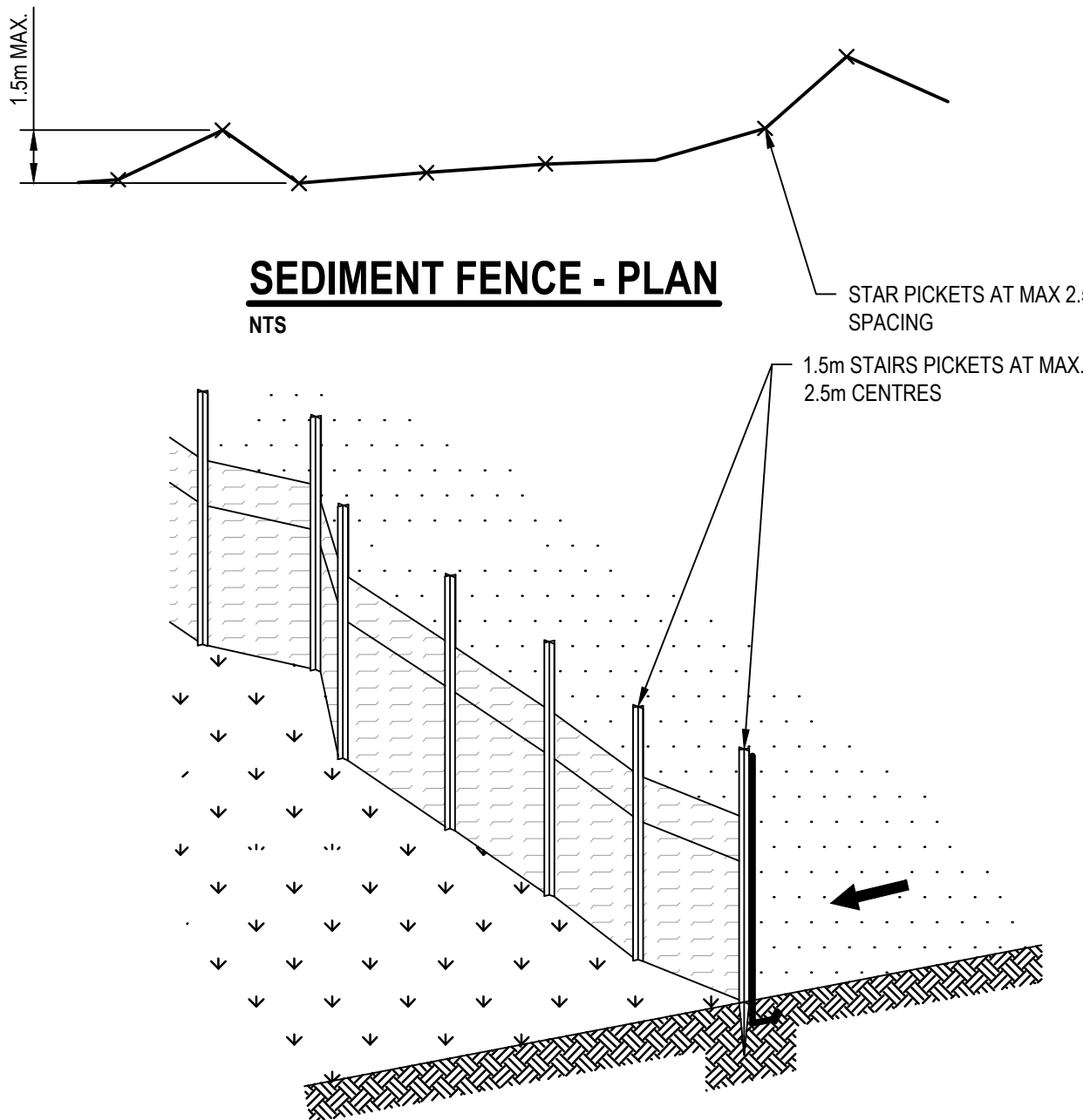
### SANDBAG SEDIMENT TRAP - AT KERB SAG PIT



### SANDBAG SEDIMENT TRAP - AT OTHER THAN KERB SAG PIT

## SANDBAG SEDIMENT TRAP DETAILS

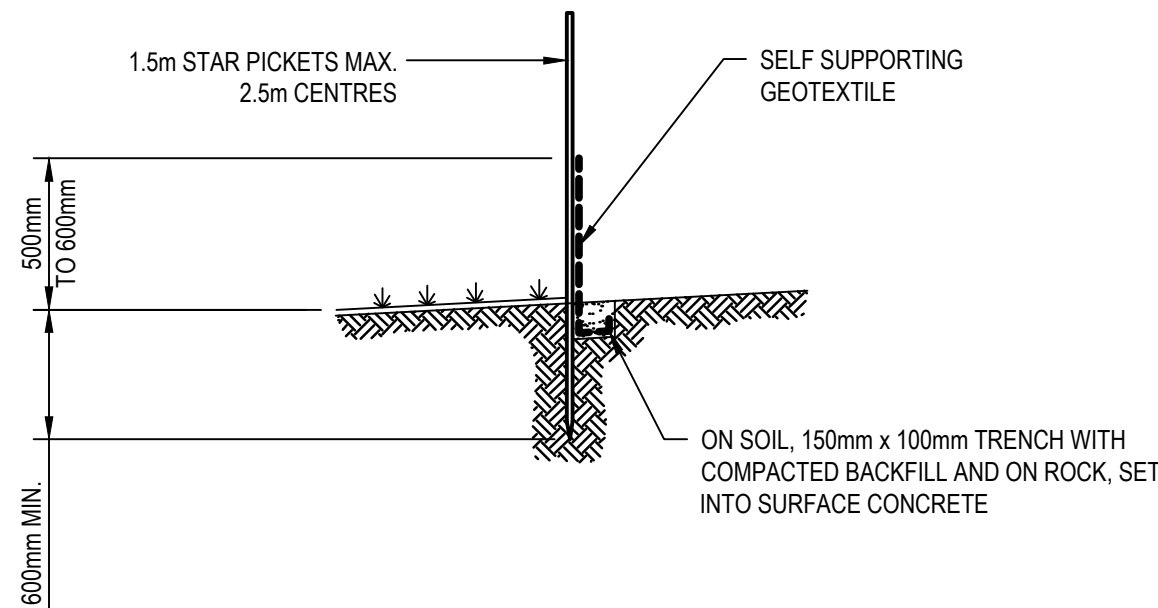
NTS



## SEDIMENT FENCE

NTS

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BE PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING, TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 litres/sec IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METER LONG STAR PICKETS INTO GROUND AT 2.5 METER INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS, ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES, OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



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A	TENDER ADDENDUM	24/03/2022
Rev	Revision Description	Date



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Client  
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Project	<b>GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT</b>
Title	<b>EROSION SOIL CONTROL DETAILS</b>

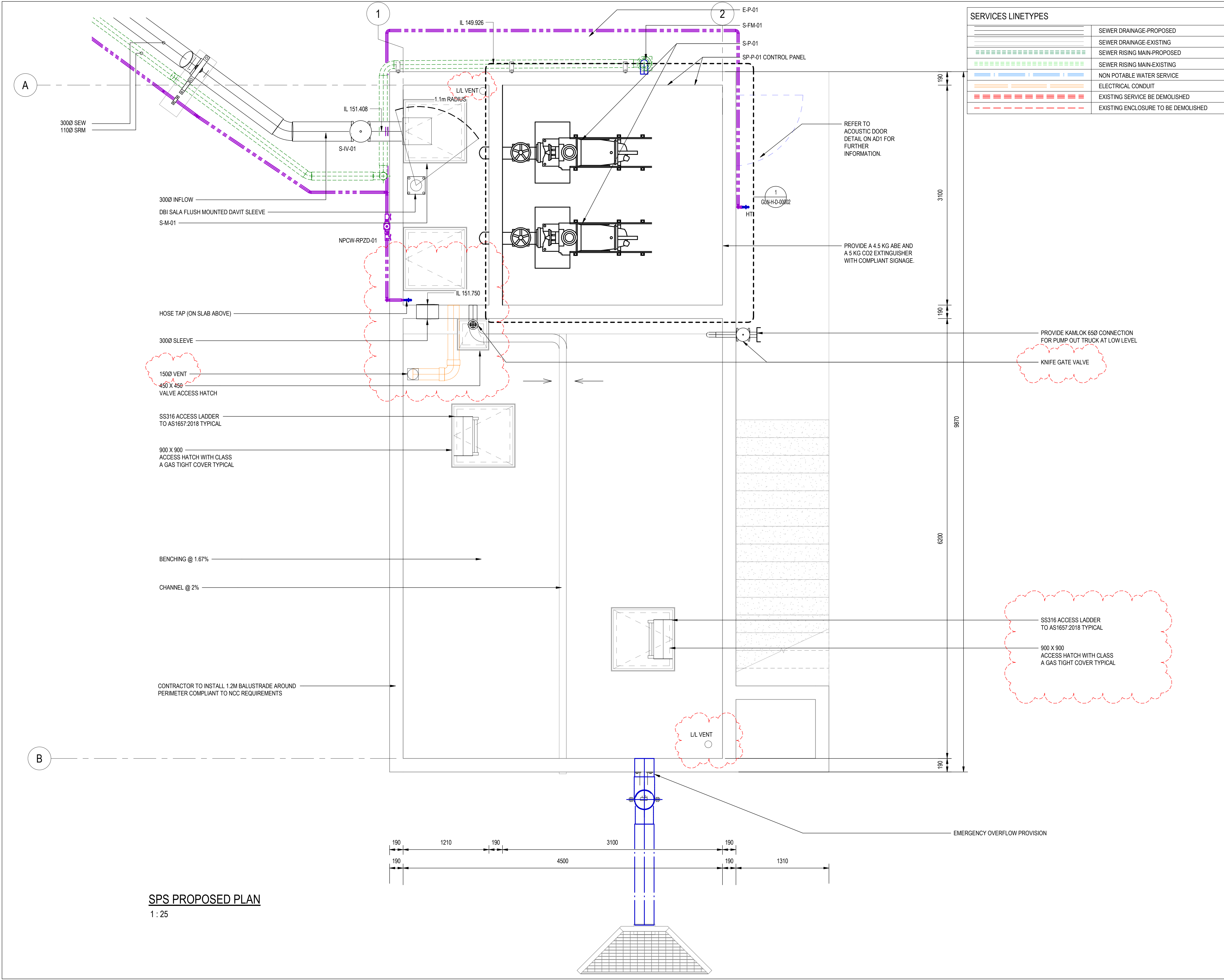
Scale:  
**AS SHOWN**

Drawn <b>AT</b>	Designed	Checked <b>VP</b>	Approved <b>HW</b>
Project Number <b>S210157 GLN-H-D-00006</b>		Drawing Number	Revision <b>A</b>



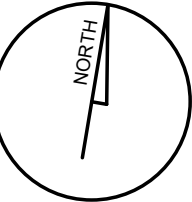
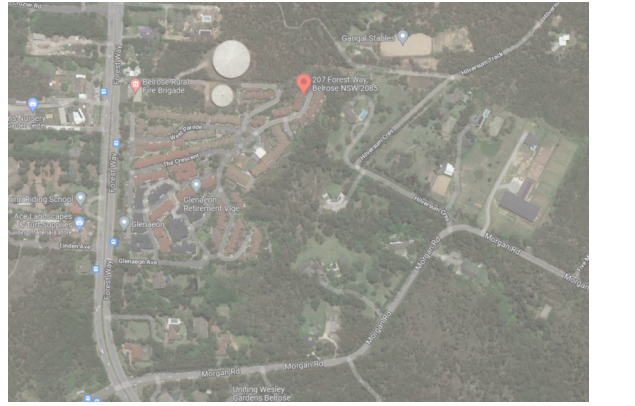






SERVICES LINETYPES	
	SEWER DRAINAGE-PROPOSED
	SEWER DRAINAGE-EXISTING
	SEWER RISING MAIN-PROPOSED
	SEWER RISING MAIN-EXISTING
	NON POTABLE WATER SERVICE
	ELECTRICAL CONDUIT
	EXISTING SERVICE BE DEMOLISHED
	EXISTING ENCLOSURE TO BE DEMOLISHED

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Rev	Revision Description	Date
D	TENDER ADDENDUM	04/04/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022
A	DRAFT SCHEMATIC DESIGN	27/01/2022



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Project  
**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

Title  
**SPS PROPOSED PLAN**

Scale  
0 5M 1:100  
As indicated @ A1

Drawn  
KN

Checked  
VP

Approved  
HW

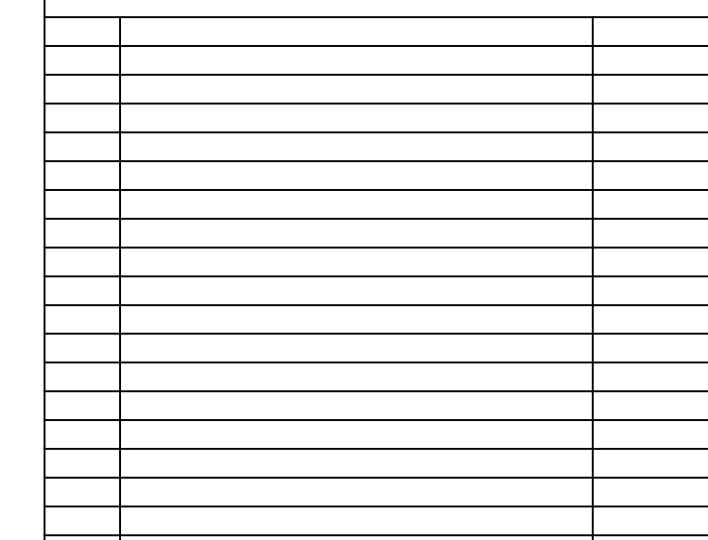
Project Number  
**S210157**

Drawing Number  
**GLN-H-D-20002**

Revision  
**D**

**SPS PROPOSED PLAN**  
1 : 25



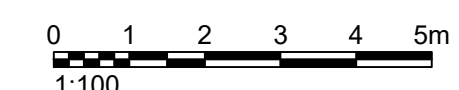


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Project  
**GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT**

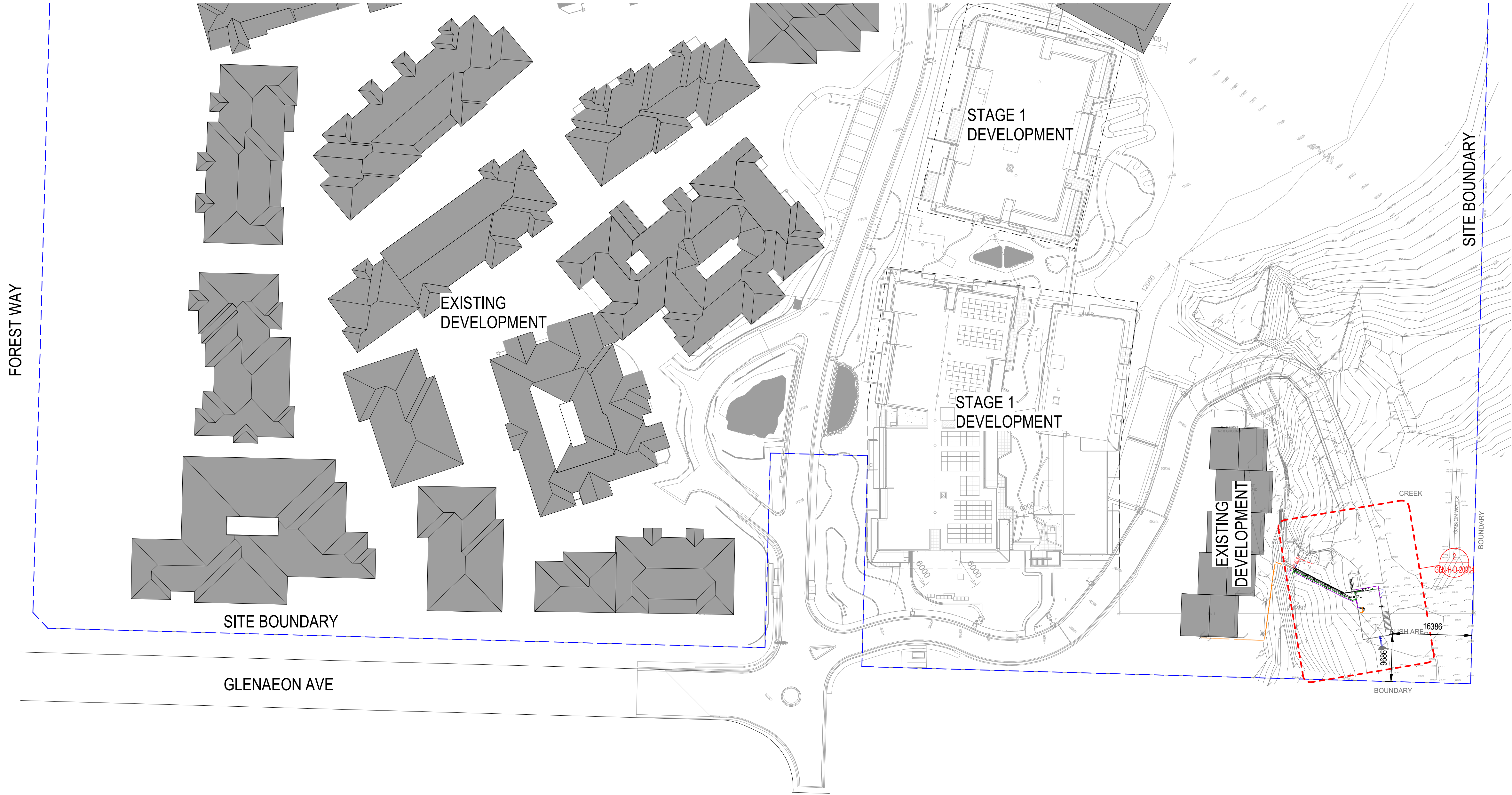
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**EROSION SOIL CONTROL PLAN**

Scale:  
AS SHOWN

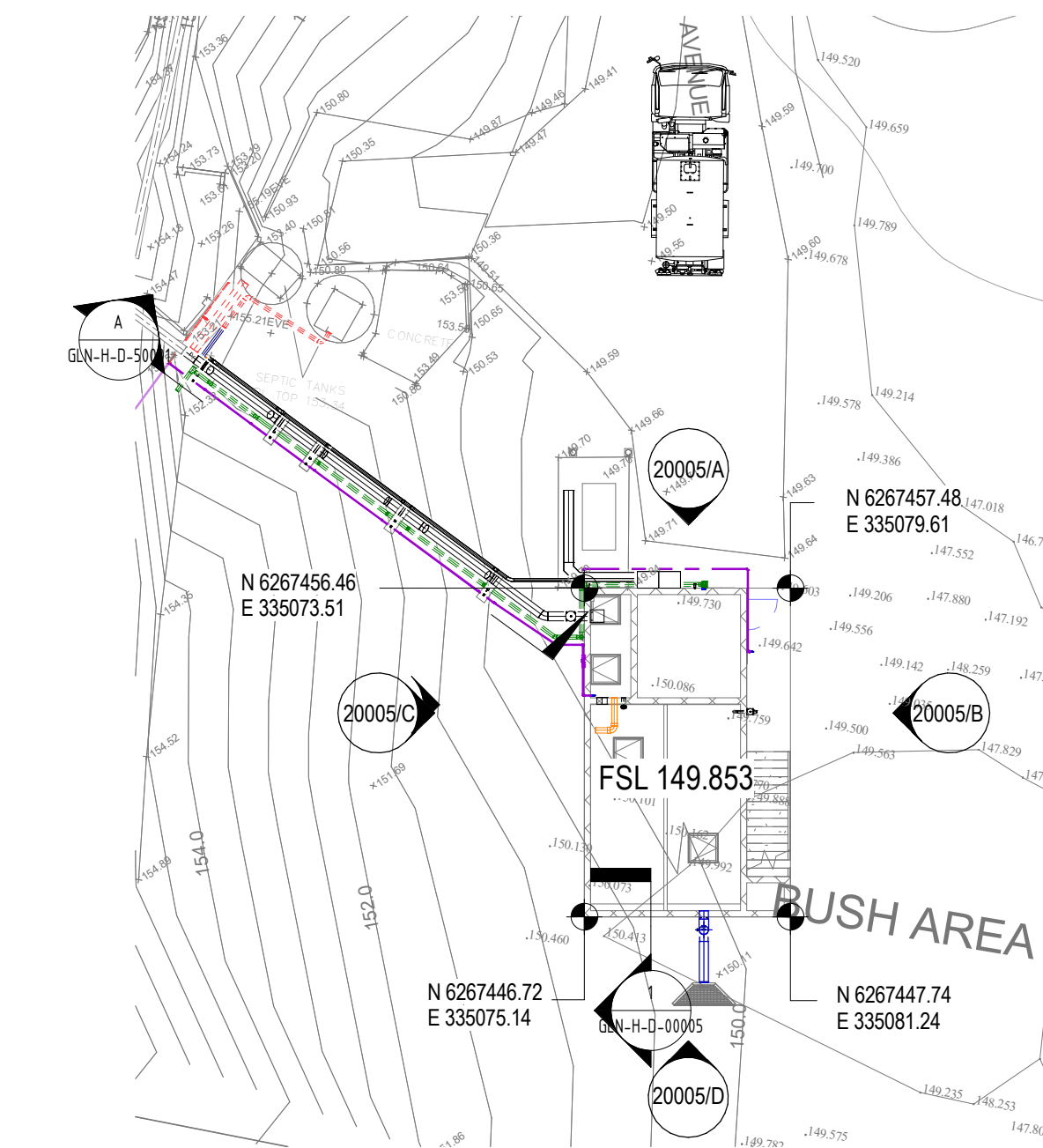
Drawn	Designed	Checked <b>VP</b>	Approved <b>HW</b>
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		VP	THW
Project Number	Drawing Number		Revision



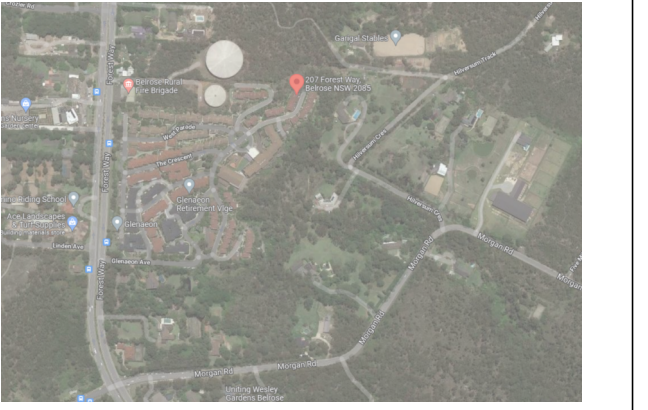


1 OVERALL SITE PLAN  
1:500

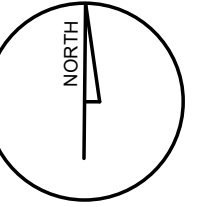


2 SPS CALLOUT / SETOUT  
1:200

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Key Plan



Rev	Description	Date
A	TENDER ADDENDUM	13/05/2022

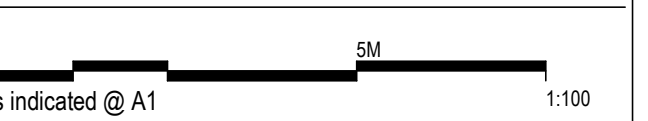
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Project  
**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

Title  
**OVERALL SITE PLAN**



Drawn	Checked	Approved	Revision
CC	VP	HW	
Project Number	Drawing Number	Revision	
S210157	GLN-H-D-20004	A	



A	TENDER ADDENDUM	13/05/2022
Rev	Revision Description	Date



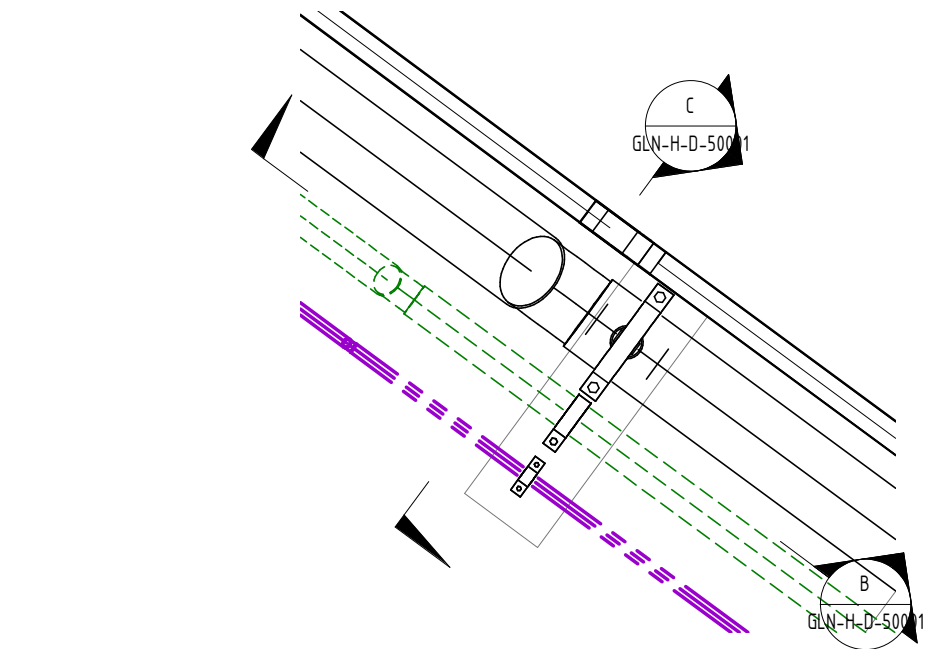
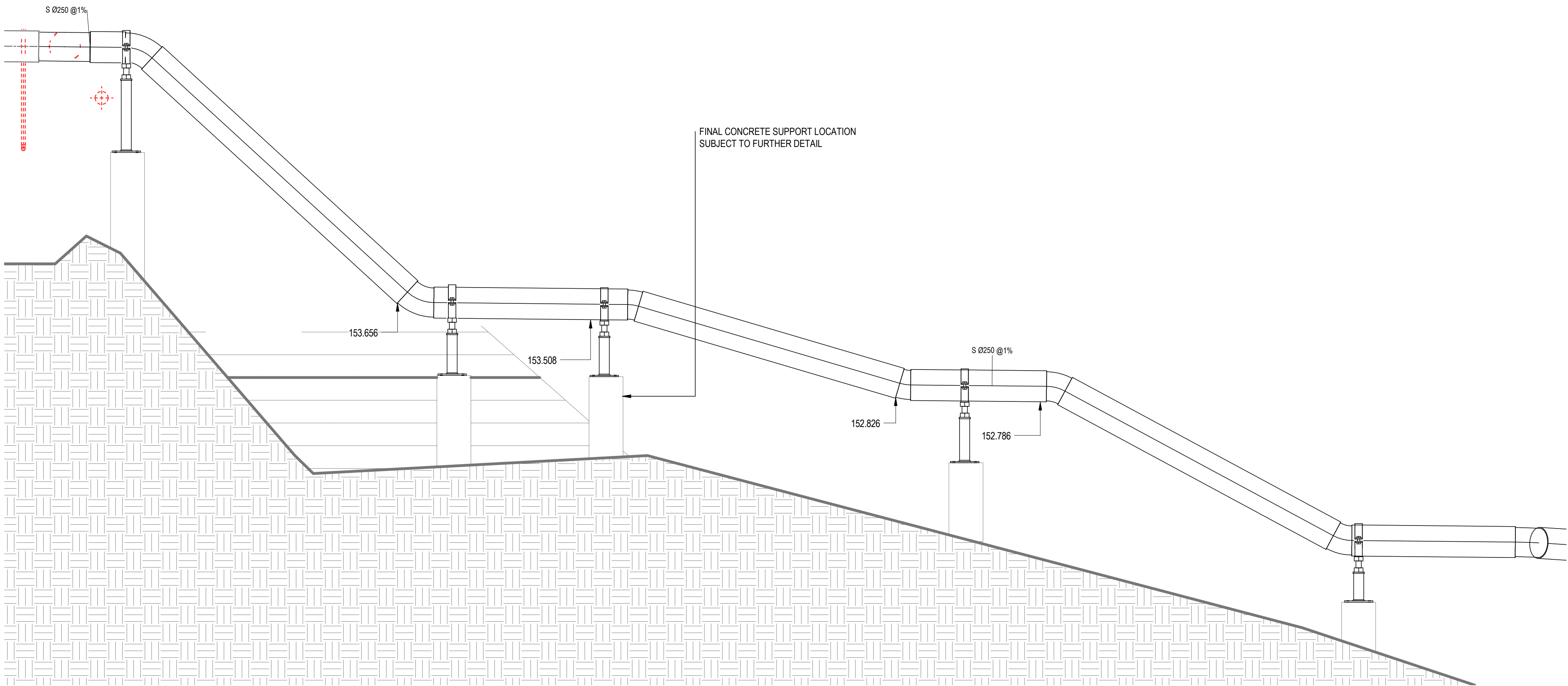
Project  
GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

Drawn	Checked	Approved	
CC	VP	HW	

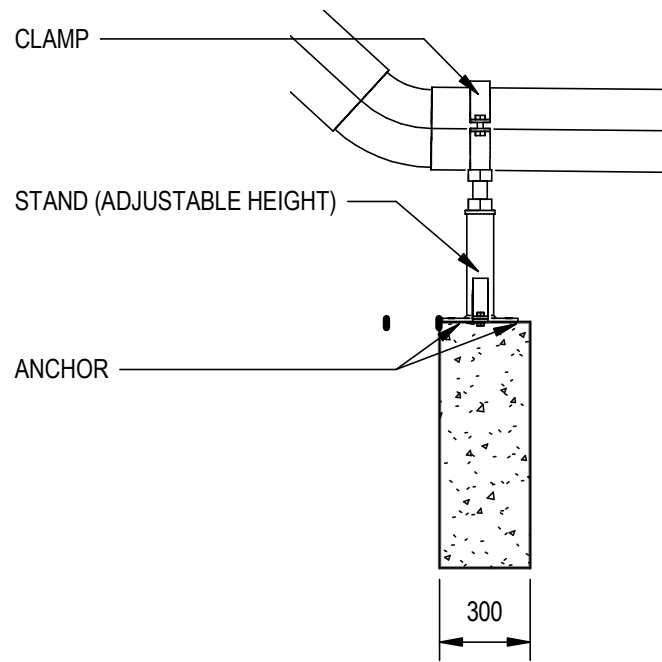
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S210157	GLN-H-D-20005	A



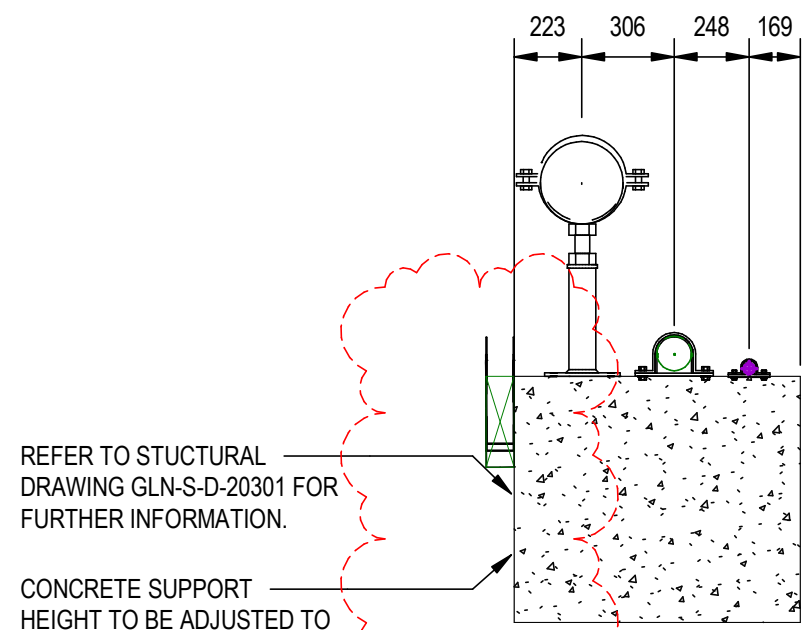




1 CONCRETE PIPE SUPPORT  
1:25



B CONCRETE PIPE SUPPORT-A-SIDE  
1:25

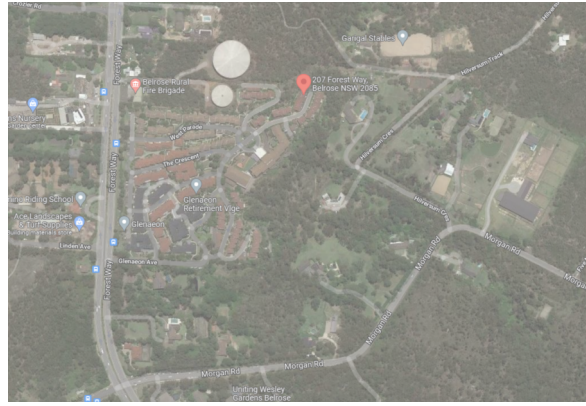


REFER TO STRUCTURAL  
DRAWING GLN-S-D-20301 FOR  
FURTHER INFORMATION.

CONCRETE SUPPORT  
HEIGHT TO BE ADJUSTED TO  
FIT TERRAIN

C CONCRETE PIPE SUPPORT-A-FRONT  
1:25

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Rev	Revision Description	Date
D	TENDER ADDENDUM	24/03/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022

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Project

GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

Title

SECTIONS 01

Scale

0

5M

1:100

1:25 @ A1

Drawn

Checked

Approved

KN

VP

HW

Project Number

Drawing Number

Revision

S210157

GLN-H-D-50001

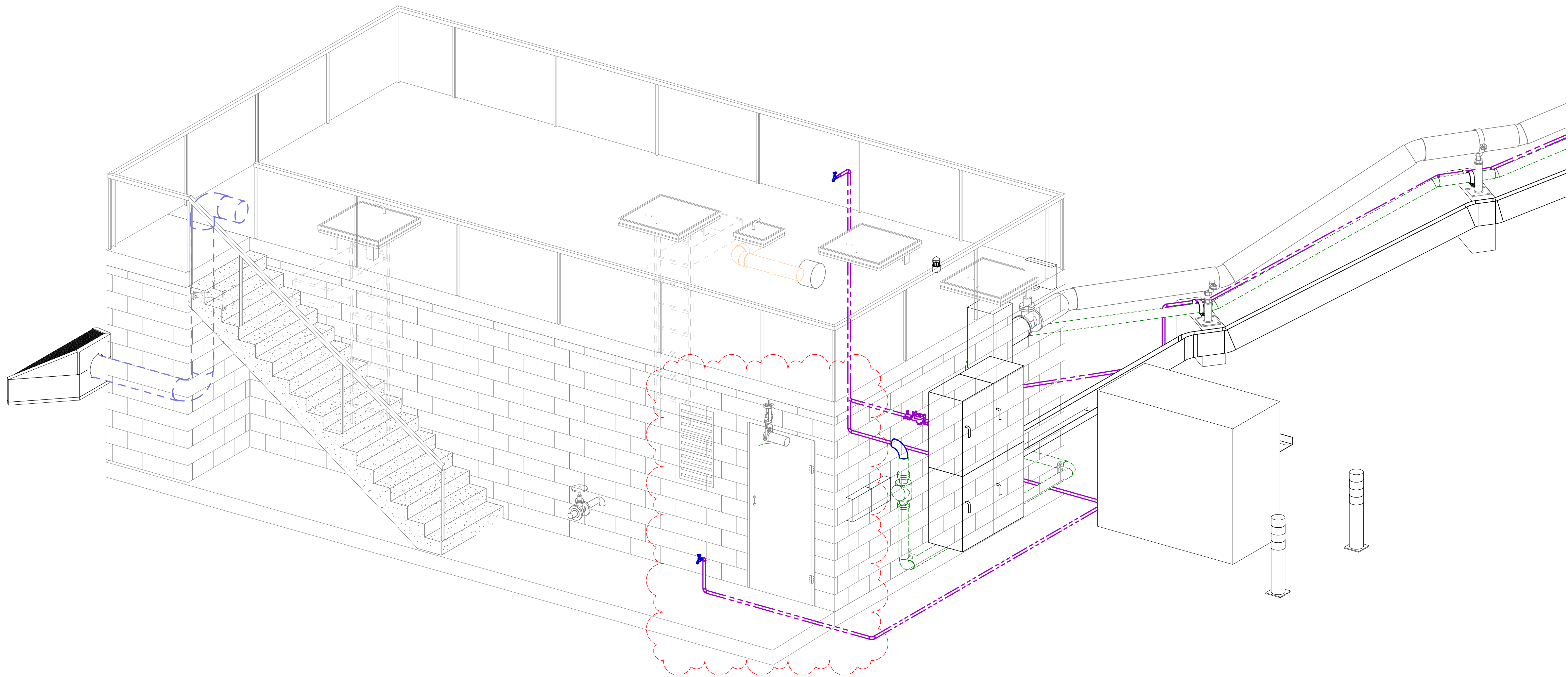
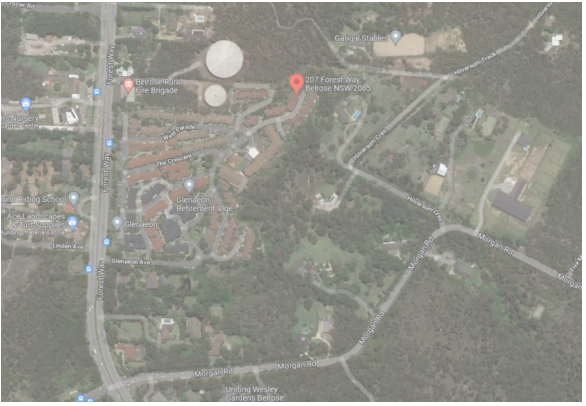
D







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PERSPECTIVE VIEW  
N.T.S.

Rev	Revision Description	Date
D	TENDER ADDENDUM	13/05/2022
C	TENDER ADDENDUM	04/04/2022
B	TENDER ISSUE	16/03/2022
A	ISSUED FOR DRAFT TENDER	09/03/2022



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Project  
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LIVING - SPS UPGRADE  
PROJECT

Title  
PERSPECTIVE VIEW

Scale  
0 5M  
@ A1 1:100

Drawn  
KN

Checked  
VP

Approved  
HW

Revision  
D

Project Number  
S210157

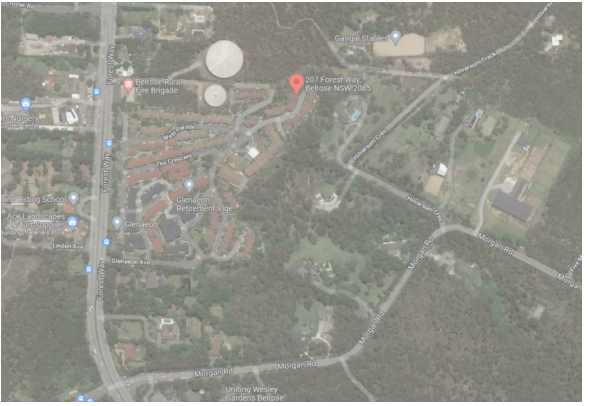
Drawing Number  
GLN-H-D-90000





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D	TENDER ADDENDUM	24/03/2022
C	TENDER ISSUE	16/03/2022
B	ISSUED FOR DRAFT TENDER	09/03/2022
Rev	Revision Description	Date

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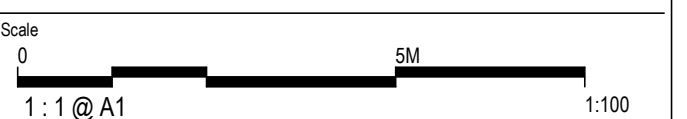
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LENDLEASE

Project  
GLENAEON RETIREMENT  
LIVING - SPS UPGRADE  
PROJECT

# Title HYDRAULIC SCHEMATIC



Drawn KN	Checked VP	Approved HW	
Project Number S210157		Drawing Number GLN-H-D-90001	Revision D



STAGING & MIGRATION OF ELECTRICAL WORKS

PHASE 1

COMPLETE ALL ELECTRICAL WORKS INCLUDING EARTHING WITHIN NEW PUMP HOUSE

EXTERNAL WORKS

- SUPPLY AND INSTALL:
- ELECTRICAL PITS/CONDUITS CABLE TRAY AND SUPPORTS BETWEEN PUMP HOUSE MSB AND EXTERNAL CUPBOARD IN TOWNHOUSE
  - LV SUBMAIN + EARTH BETWEEN MSB PH AND EXTERNAL CUPBOARD IN TOWNHOUSE
  - CONTROL CABLE BETWEEN MSB PH AND EXTERNAL CUPBOARD IN TOWNHOUSE

PHASE 2

PRIOR TO DISCONNECTING EXISTING SEWER PUMP INCOMING SUPPLY AT DB

- CHECK AND VERIFY
- FUEL AND TOP UP IN DG DAY TANK
  - AUTO OPERATION OF EXISTING DG SET ON LOSS OF MAINS AND VERIFY PUMPS ARE RUNNING

PHASE 3

INSTALL NEW INCOMING MAINS AT THE EXISTING CUPBOARD

ISOLATE AND DECOMMISSION EXISTING METERS AND DB

INSTALL NEW MSB AND METERING PANEL

- TEST AND RE-TERMINATE EXISTING:
- TOWN HOUSE SUBMAINS TO RESPECTIVE KWH METERS
  - LIGHTING CIRCUITS WITHIN DB

TEST AND TERMINATE LV SUBMAINS TO NEW MSB PH

TEST EARTHING SYSTEM

LOAD TEST NEW DG SET ON SITE AFTER PLACING IN NEW LOCATION

4HR FULL LOAD TEST AT UNITY PF UTILISING AN ADJUSTABLE TEMPORARY LOAD BANK. 110% FOR THE FINAL HOUR.

CONDUCT A STEP LOAD TEST, IN LOAD STEPS AS FOLLOWS.

- 0 - 50%
- 50 - 75%
- 75 - 100%

INCLUDING SIMULATED MAINS-FAILURE TESTS AND ACTUAL INCOMING LV MAINS FAILURE TEST TO PROVE OPERATION OF GENERATOR THROUGH ATS

USING PUMP LOAD WITH ADDITIONAL DUMMY LOAD WHERE REQUIRED TO BRING LOAD TO NO LESS THAN 75% OF RATING OF GENERATOR SET

CONTRACTOR TO INCLUDE FOR FUEL FOR THE DURATION OF THE TEST

ENERGISE THE NEW INCOMING SUPPLY AT THE METERING PANEL

ENERGISE THE NEW INCOMING SUPPLY TO MSB PH

TEST ALL ELECTRICAL WORKS WITHIN NEW PUMP HOUSE

LOSS OF MAINS TEST AND AUTO OPERATION OF DG SET.

PHASE 4

ISOLATE AND DECOMMISSION EXISTING DG SET AND ATS PANEL

MAKE SAFE EXISTING POWER AND CONTROL CABLES AND INSTALL END CAPS




COORDINATE WITH SITE MANAGER AND RELOCATE EXISTING DG SET

PUMP HOUSE ELECTRICAL SOW

SUPPLY AND INSTALL

- 3 OFF LIGHT FITTINGS (TYPE L1) C/W (1 OFF EMERGENCY VERSION) + 1 OFF EXTERNAL LIGHT FITTINGS (TYPE W1) SUBCIRCUIT WIRING IN SURFACE MOUNTED PVC CONDUITS
- 1 OFF EXIT LIGHTING WITH EMERGENCY TEST FACILITY C/W SUBCIRCUIT WIRING IN SURFACE MOUNTED PVC CONDUITS
- 2 OFF WALL MOUNTED LIGHT SWITCH IN WEATHER PROOF ENCLOSURE + 360D CEILING MOUNTED MOTION SENSOR
- 1 OFF 10A WEATHER PROOF DGPO C/W SUBCIRCUIT WIRING IN SURFACE MOUNTED PVC CONDUIT

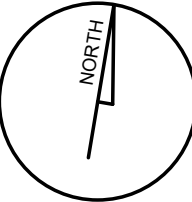
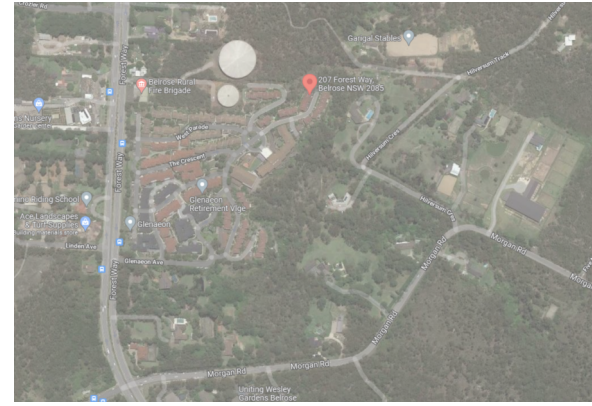
LUMINAIRE SCHEDULE

	IMAGE	DESCRIPTIONS	COLOUR	DIMENSION	CAT NO.	SUPPLIER	LAMP	CONTROL	MOUNTING	NOTES
L1		"ENERGY EFFICIENT LED WEATHERPROOF LUMINAIRE"	4000K	L 1265MM W 130MM H 92MM	BWPECO454E4	PIERLITE	45W LED	NON DIMMABLE	SURFACE MOUNTED	LUMINAIRE MUST HAVE A MINIMUM IP RATING OF IP65  ALL APPROVED LUMINAIRES ARE TO DEMONSTRATE A TOTAL HARMONIC DISTORTION (THD) OF <5% FOR EACH ELECTRICAL COMPONENT
W1		EXTERNAL WALL MOUNTED	4000K	L 362MM W 162MM H 214MM	LED TLSWM/1900NW/XC49	DESIGN PLAN	20W LED	NON DIMMABLE	SURFACE WALL MOUNTED	LUMINAIRE MUST HAVE A MINIMUM IP RATING OF IP65  ALL APPROVED LUMINAIRES ARE TO DEMONSTRATE A TOTAL HARMONIC DISTORTION (THD) OF <5% FOR EACH ELECTRICAL COMPONENT
EXIT		SURFACE/WALL MOUNTED LED BLADE EXIT 24M VIEWING PICTOGRAM DECAL OR APPROVED EQUAL	WHITE	L 355MM W 80MM H 215MM	ECFLED	CLEVERTRONICS	3W LED	NON MONITORED MAINTAINED EMERGENCY CONTROL GEAR	SURFACE MOUNTED/ WALL MOUNTED	ALL EMERGENCY EQUIPMENT IS TO BE ABLE TO DEMONSTRATE A 4 HOUR EMERGENCY BATTERY OPERATION  EXIT LUMINAIRE MUST HAVE A MINIMUM CLASSIFICATION OF E2 AND E2/5 AS PER AS2293

NOTES:

- ALL LUMINAIRES SHALL BE SUPPLIED COMPLETE WITH A COMPATIBLE DRIVER/BALLAST
- LEAD TIME AND WARRANTY PERIODS SHALL BE CONFIRMED BY CONTRACTOR
- LUMINAIRES IDENTIFIED AS PER THE SCHEDULE HAVE BEEN USED FOR THE PURPOSE OF LIGHTING CALCULATIONS ASSOCIATED WITH THE LIGHTING DESIGN. IN CASE THE CONTRACTOR WANTS TO PROPOSE AN EQUIVALENT ALTERNATIVE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE NEW LUMINAIRE CONFORMS TO THE LIGHTING PERFORMANCE REQUIREMENTS AND CONTRACTOR SHALL THEREFORE PROVIDE ALL RELEVANT CALCULATIONS TO PROVE. WE NOTE THAT THE PROCUREMENT OF ALTERNATIVE LUMINAIRE IS SUBJECT TO APPROVAL

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EXISTING ENCLOSURE TO BE DEMOLISHED  
LV SUBMAIN TO BE INSTALLED WITHIN THE CONDUIT AT THE POINT OF THE INTERFACE BETWEEN CONDUIT AND CABLE TRAY

ELECTRICAL PIT 600X600X1000MM WITH LID

EXISTING PUMP STATION AND ENCLOSURE TO BE DEMOLISHED PER DECOMMISSIONING SPECIFICATION ON DRAWING GLN-H-D-00001

ALL ELECTRICAL CABLES AND EQUIPMENT TO BE SAFELY ISOLATED AND DECOMMISSIONED

LV SUBMAINS TO INTERFACE WITH ABOVE GROUND CABLE TRAY AT THIS POINT

LV SUBMAIN AND CONTROL CABLES FROM DG SET TO MSB PH INSTALLED IN 300MM WIDE GI CABLE TRAYS WITH SUPPORTS AND GI PITCHED ROOF COVER



EXISTING METERING ARRANGEMENT TO BE REPLACED WITH NEW

EXISTING ELECTRICAL CUPBOARD WITH 12 METERS AND DB TO BE UPGRADED

1NO 1000 HDPVC INGROUND CONDUIT

PROPOSED NEW LV SUBMAINS FROM NEW SWITCHBOARD TO NEW MSB PH INSTALLED IN PIT AND CONDUITS.

CABLE INSTALLED IN PIT AND CONDUIT ARRANGEMENT.

ELECTRICAL PIT 600X600X1000MM WITH LID

1NO 1000 HDPVC INGROUND CONDUIT

EXISTING WALL MOUNTED ATS PANEL TO BE SAFELY ISOLATED AND DECOMMISSIONED

ALL POWER AND CONTROL CABLES TO BE FIXED WITH END CAPS

PROPOSED LOCATION FOR NEW DG SET INSTALLED ON CONCRETE FOUNDATION



FOR INFORMATION ONLY

EXISTING STORE HOUSE TO BE DEMOLISHED FLUSH TO EXISTING SLAB

FOUNDATION FOR DG SET

NEW MSB IN EXTERNAL WEATHERPROOF ENCLOSURE INSTALL ON 100MM HEIGHT CONCRETE PLINTH

EXISTING DG SET LOCATION

EXISTING DG SET TO BE DECOMMISSIONED AFTER COMMISSIONING OF NEW SET



LV SUBMAIN AND CONTROL CABLES FROM DG SET TO MSB PH INSTALLED IN 300MM WIDE GI CABLE TRAYS WITH SUPPORTS AND GI PITCHED ROOF COVER

SPS ELECTRICAL DEMOLITION AND STAGING PLAN

1 : 100



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Project  
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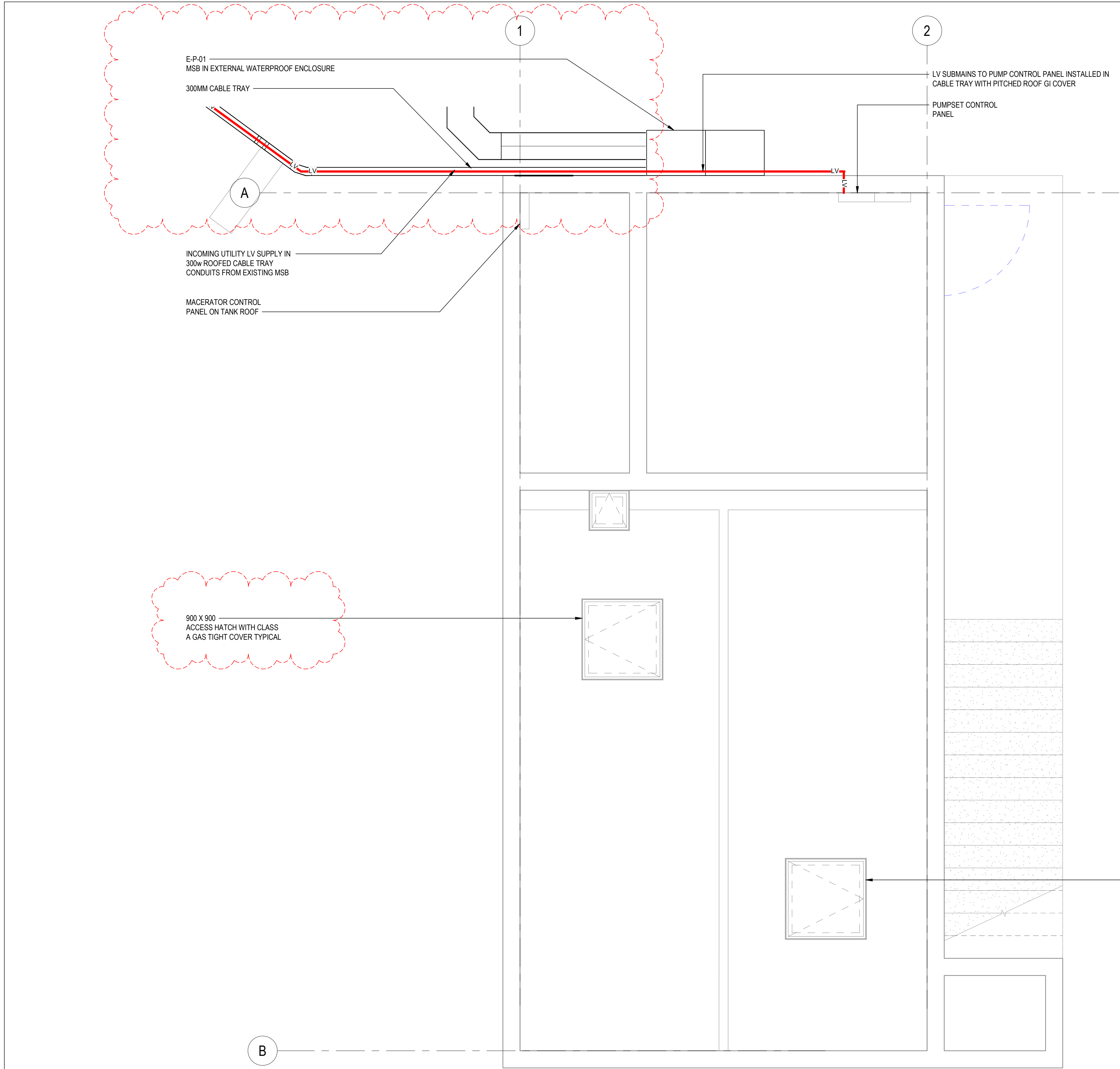
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SPS ELECTRICAL DEMOLITION AND STAGING PLAN

Scale  
0 5M 1:100 @ A1

Drawn KN | Checked KS | Approved HW

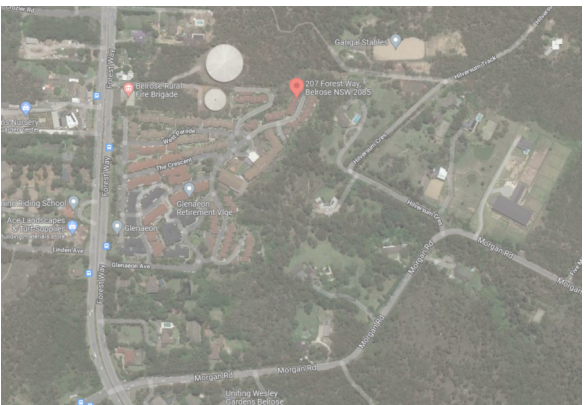
Project Number S210157 | Drawing Number GLN-E-D-20001 | Revision C



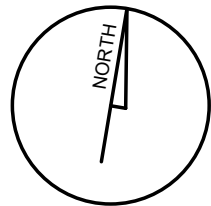


**SPS PROPOSED ELECTRICAL PLAN**  
1 : 25

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Key Plan



Rev	Revision Description	Date
C	TENDER ADDENDUM	04/04/2022
B	TENDER ISSUE	16/03/2022
A	ISSUED FOR DRAFT TENDER	09/03/2022

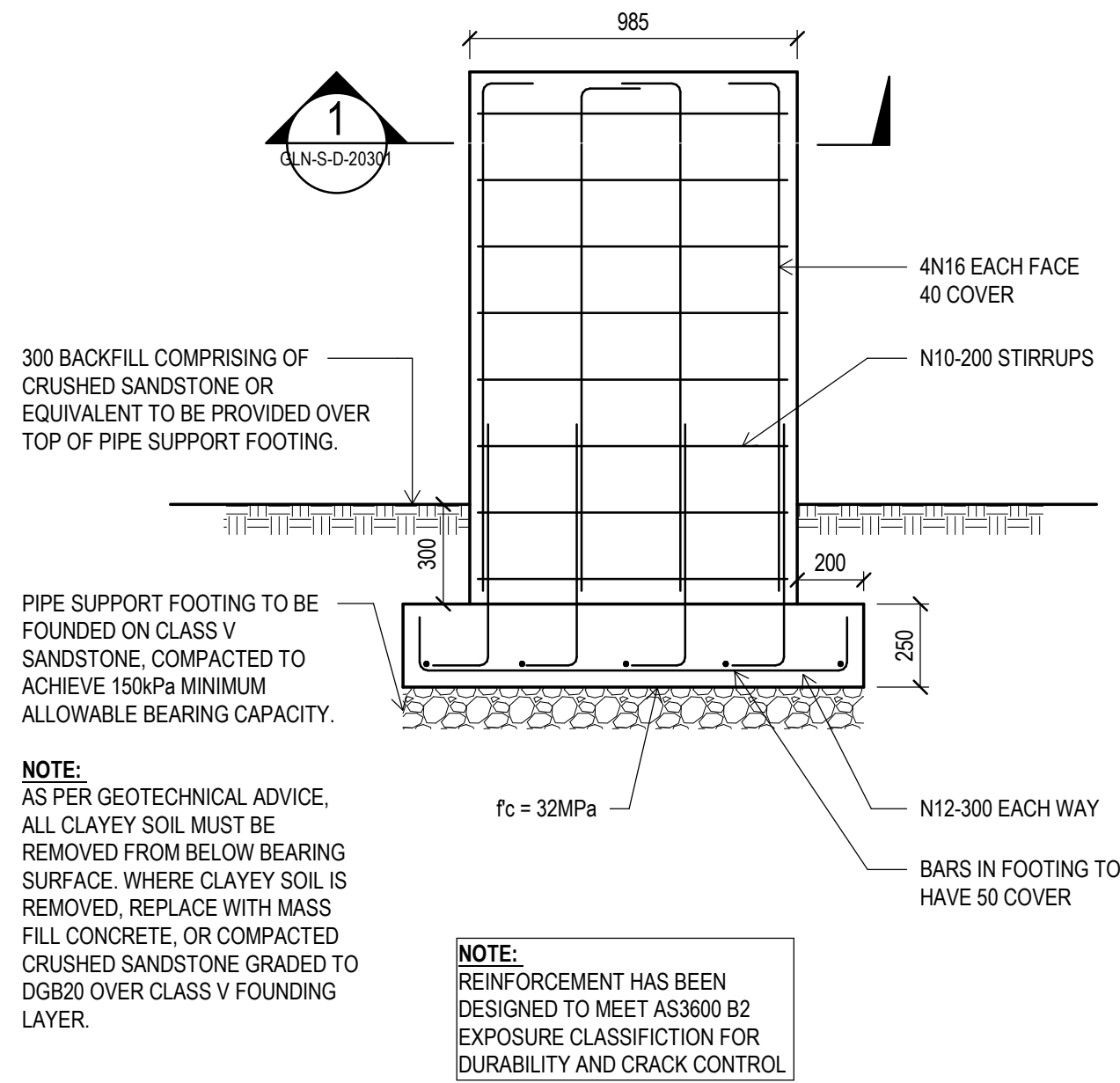
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and development  
consultants**

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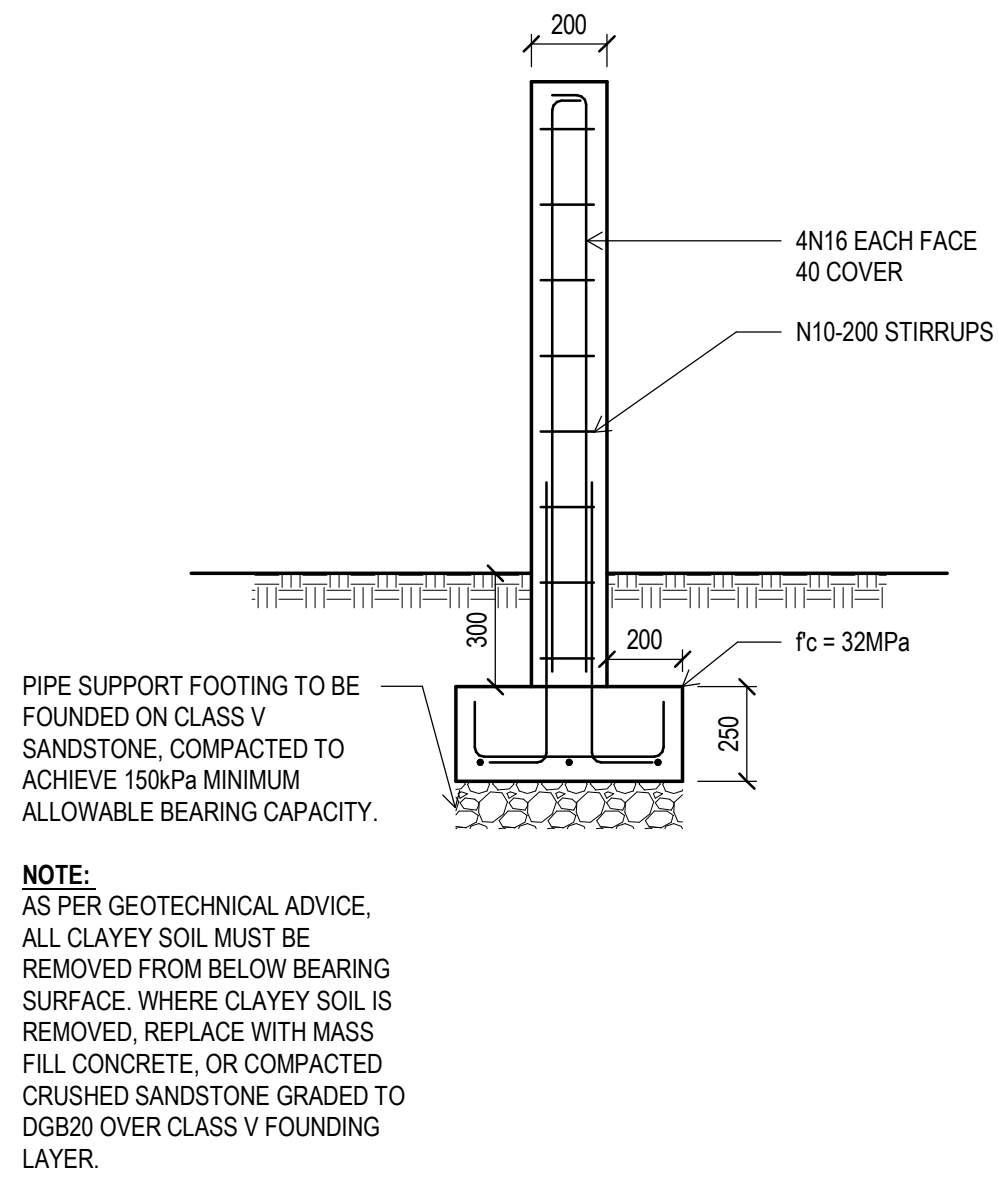
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Client <b>LENDELEASE</b>			
Project <b>GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT</b>			
Title <b>SPS ELECTRICAL PROPOSED PLAN</b>			
Scale 0 5M 1:25 @ A1 1:100			
Drawn KN	Checked KS	Approved HW	Revision
Project Number <b>S210157</b>	Drawing Number <b>GLN-E-D-20002</b>	Revision <b>C</b>	

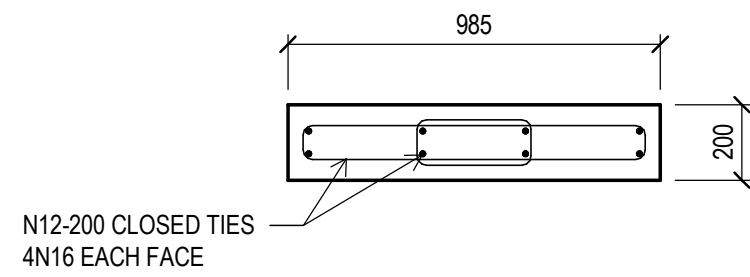




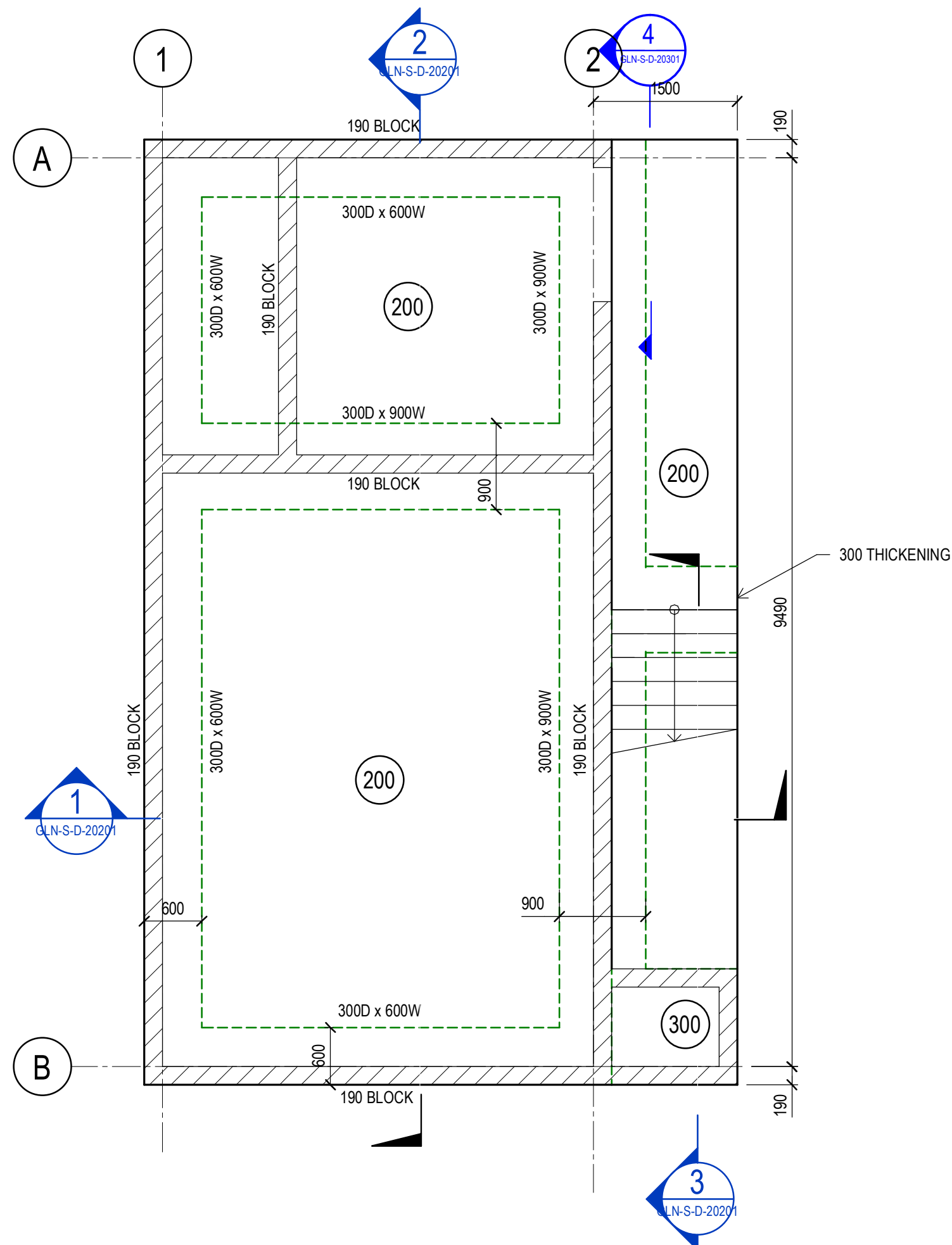
**PIPE SUPPORT COLUMN TYPICAL  
ELEVATION LONG SIDE**  
SCALE 1:20



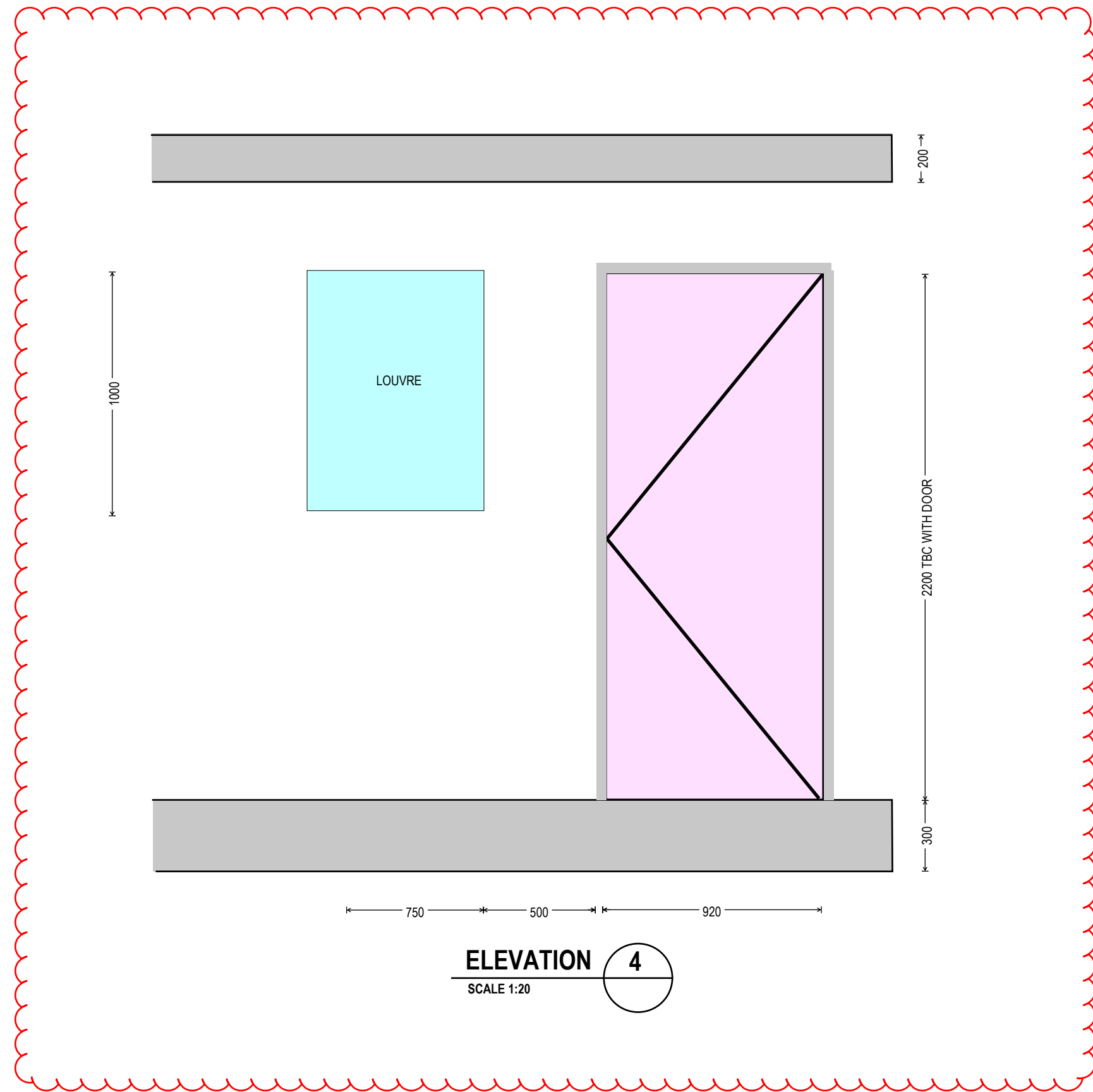
**PIPE SUPPORT COLUMN TYPICAL  
ELEVATION SHORT SIDE**  
SCALE 1:20



**1 SECTION**  
SCALE 1:20

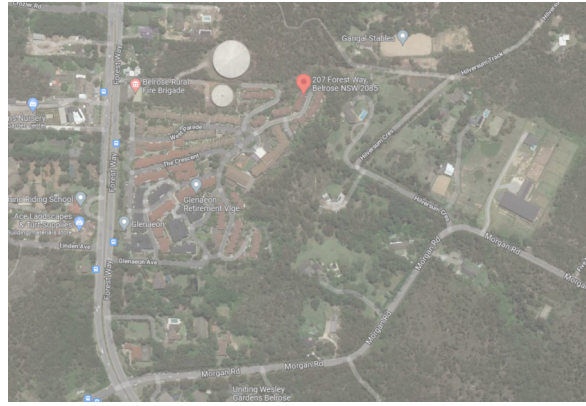


**TANK SLAB GENERAL ARRANGEMENT**  
SCALE 1:50

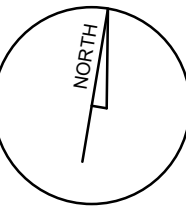


**ELEVATION 4**  
SCALE 1:20

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**Key Plan**



Rev	Revision Description	Date
C	TENDER ADDENDUM	12.06.22
B	TENDER ADDENDUM	13.04.22
A	TENDER ISSUE	14.03.22

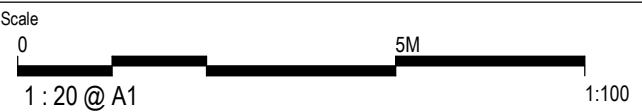
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Project  
**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

Title  
**DETAILS SHEET 1**



Drawn	Checked	Approved
LC	KD	HW

Project Number	Drawing Number	Revision
S210157	GLN-S-D-20301	C



NOTES (DISTRIBUTION BOARD)

- THE NEW SWITCHBOARD IS TO BE FLOOR MOUNTED ON THE WALL AT LOCATION SHOWN ON THE FLOOR PLANS.
- ALL DIMENSIONS SHOWN ARE THE MAXIMUM ALLOWED - THE DEPTH OF THE BOARD IS NOT TO EXCEED 250mm.
- THE BOARD IS TO BE TOP AND BOTTOM ENTRY WITH FRONT ACCESS ONLY.
- THE BOARD IS TO BE DEAD FRONT ESCUTCHEON TYPE - ALL ESCUTCHEONS SHALL HAVE LOCATING PINS.
- THE SWITCHBOARD IS TO BE COMPLETE WITH ITS OWN DOORS, LOCK KEYED TO LOCKWOOD KEY No 42886 (THE FRONT ELEVATION IS SHOWN WITH THE DOORS REMOVED).
- FABRICATE THE ENCLOSURE FROM MINIMUM 2.5mm THICK MARINE GRADE ALUMINIUM REINFORCED AS NECESSARY TO INCREASE RIGIDITY AND TO SUPPORT HEAVY EQUIPMENT.
- THE EXTERIOR AND INTERIOR OF THE SWITCHBOARD IS TO HAVE AN EPOXY POWDERCOAT FINISH - THE EXTERIOR FINISH COLOUR IS TO BE 'WHITE' (TO THE DULUX POWDERCOAT CARD) AND THE INTERIOR FINISH COLOUR IS TO BE 'GLOSS WHITE'.
- THE MCB CHASSIS ARE TO BE THREE PHASE BUSBAR CHASSIS ASSEMBLIES CAPABLE OF ACCEPTING COMBINED MCB/RCD UNITS WHICH OCCUPY ONLY ONE POLE (NHP TERASAKI DIN-T/250A CHASSIS) FITTED WITH THE NUMBER OF MCB'S OR MCB/RCD UNITS AS SHOWN AND BLANK OFF SPARE POLES WITH PVC BLANKS.
- DO NOT FIT FUSE CARTRIDGES TO THE SPARE FUSE BASES
- RATED SHORT TIME WITHSTAND CURRENT = 10kA FOR 1 SECOND.
- DEGREE OF PROTECTION = IP42 - AS.1939
- SEGREGATION = FORM 1 - AS.3439
- REFER TO THE SPECIFICATION FOR FURTHER CONSTRUCTION DETAILS

NOTES (MSB PH)

- THE SWITCHBOARD IS TO BE GROUND MOUNTED ON A CONCRETE BASE AT LOCATION SHOWN ON THE DRAWINGS
- THE SWITCHBOARD IS TO BE FOR BOTTOM ENTRY ONLY
- THE SWITCHBOARD IS TO HAVE FRONT ACCESS ONLY
- THE SWITCHBOARD IS TO BE FITTED WITH HINGED AND LOCKABLE FRONT DOORS. THE DOORS ARE TO BE FITTED WITH - TWO LOCKABLE "L" HANDLES KEYED TO THE SUPPLY AUTHORITY REQUIREMENTS/APPROVAL (THE FRONT ELEVATION IS SHOWN WITH THE DOOR REMOVED)
- PROVIDE LOCATING PINS FOR THE ESCUTCHEON PANELS
- FABRICATED THE ENCLOSURE FROM MINIMUM 2.5mm THICK MARINE GRADE ALUMINIUM EQUAL TO COMALCO 5552/H34, WELDED, MACHINE BENT AND FOLDED TO FORM A WEATHERPROOF CABINET NO LESS THAN IP56
- THE EXTERIORS AND INTERIORS OF THE SWITCHBOARD ARE TO HAVE AN EPOXY POWDERCOAT FINISH (THE EXTERIORS FINISH IS TO MATCH THE COLOUR OF THE NEW TRANSFORMER AND THE INTERIORS FINISH COLOUR IS TO BE GLOSS WHITE)

NOTES (EXISTING INCOMING SUPPLY)

- THE CONTRACTOR TO VERIFY THE FOLLOWING WITH RESPECT TO THE EXISTING INCOMING SUPPLY AT THE TOWN HOUSE CUPBOARD.
- CABLE SIZE
  - SOURCE OF INCOMING SUPPLY
  - CIRCUIT BREAKER RATING AT THE SWITCHBOARD SOURCE
  - APPROXIMATE CABLE LENGTH BETWEEN THE SOURCE SWITCHBOARD AND THE BOARD NEAR THE TOWN HOUSE CUPBOARD
  - THE METHOD OF CABLE INSTALLATION
- ALLOW FOR UPGRADING
- EXISTING LV SUBMAINS IF FOUND NON COMPLIANT TO AS
  - REPLACE THE EXISTING CIRCUIT BREAKER WITH NEW
  - MODIFICATIONS TO THE EXISTING SOURCE SWITCHBOARD INTERNAL BUSBAR TO FIT NEW CIRCUIT BREAKER
- CONTRACTOR TO SUBMIT LOW VOLTAGE CABLE CALCULATIONS TAKING INTO CONSIDERATION THE LOAD/ACCUMULATIVE VOLTAGE DROP/SOURCE AND DESTINATION THREE-PHASE FAULT CURRENT/EARTH FAULT LOW IMPEDENCE.

SCHEMATIC DIAGRAM INDICATED CONCEPTUAL DESIGN INTENT ONLY. ELECTRICAL CONTRACTOR TO COMPLETE FINAL

FINAL ELECTRICAL LOADS TO BE CONFIRMED BY ELECTRICAL CONTRACTORS. FAULT RATING OF SUBSTATION AND MAIN SWITCH BOARD TO BE CONFIRMED

ALL DISTRIBUTION BOARDS AND MS 3 HAVE BEEN PROVIDED WITH FAULT CURRENT LIMITER (FCL). THE ELECTRICAL CONTRACTOR TO CONFIRM REQUIREMENT OF FCL AFTER CALCULATING THE ACTUAL THREE PHASE FAULT CURRENT AT THE DESTINATION BOARDS TAKING INTO CONSIDERATION THE THREE PHASE FAULT CURRENT AT THE SOURCE AND IMPEDENCE OF SUBMAINS.

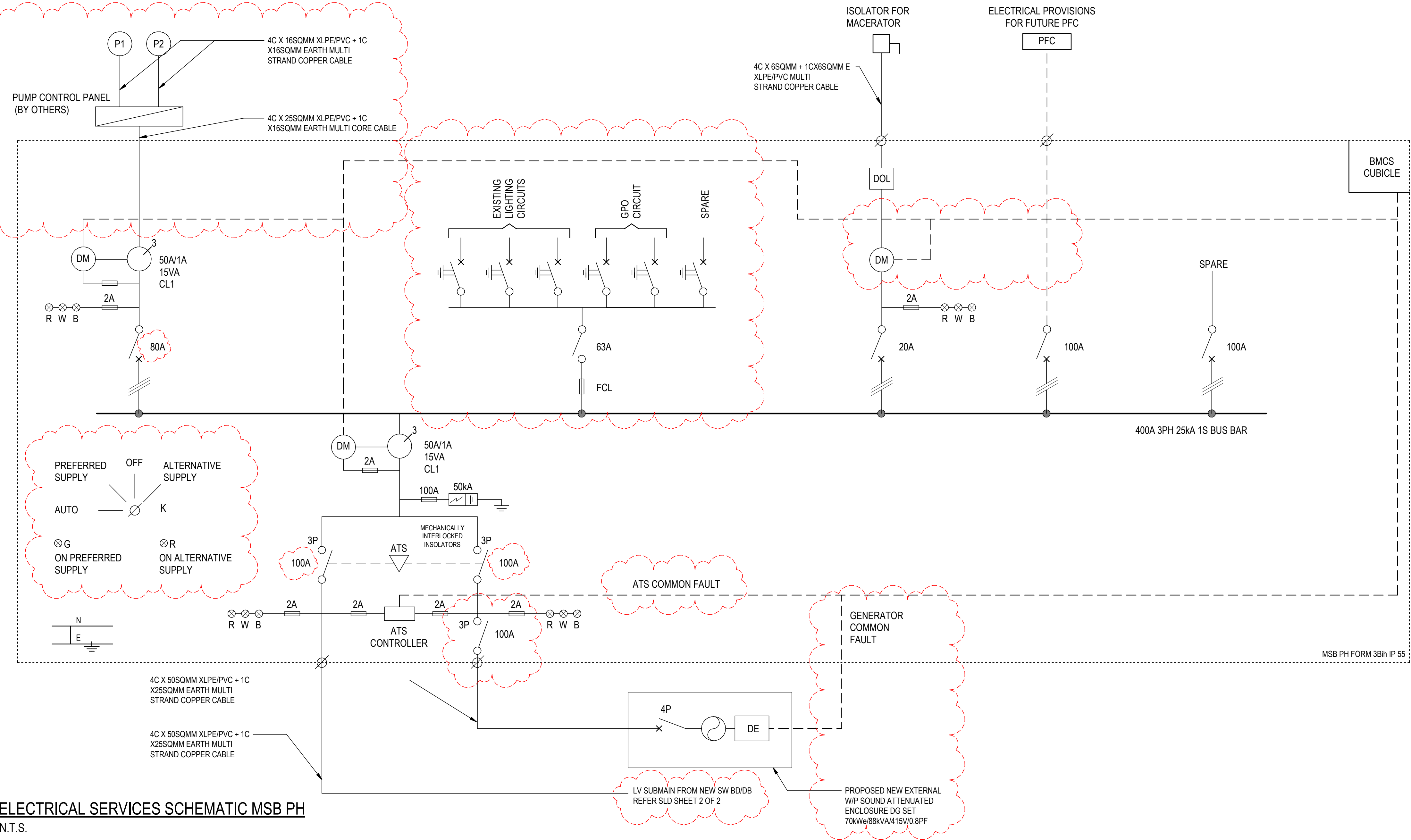
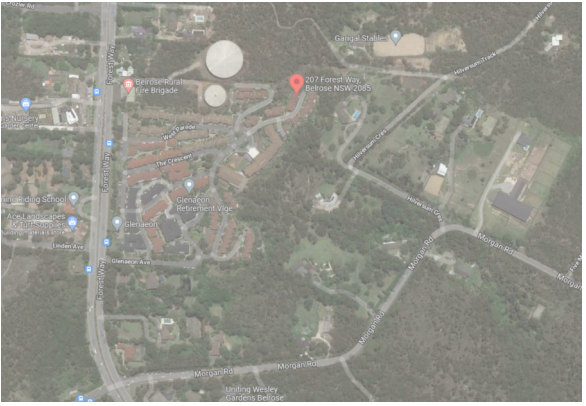
ALL CABLE SIZES SHALL BE VERIFIED FOR SHORT CIRCUIT CAPACITY, CUMULATIVE VOLTAGE DROP, SELECTIVITY, EARTH LOOP IMPEDANCE AND OTHER PARAMETERS AS PER AS 3000 THE CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WITH CASTLE KEY FOR MANUAL CHANGEOVER FOR GENERATION OPERATION UNDER MAINS FAILURE.

ELECTRICAL LEGEND

	DISTRIBUTION BOARD
	PUMP MOTOR
	DIRECT ON LINE STARTER
	CURRENT TRANSFORMER
	DIGITAL POWER METER
	FUSE
	MCCB
	THREE PHASE
	AUTOMATIC TRANSFER SWITCH
	BUILDING MANAGEMENT & CONTROL SYSTEM
	EXISTING DG SET
	POWER FACTOR CORRECTION UNIT
	SURGE ARRESTER
	PHASE INDICATION LAMPS
	CT WITH LINKS

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ELECTRICAL SERVICES SCHEMATIC MSB PH

N.T.S.

Rev	Revision Description	Date
C	TENDER ADDENDUM	04/04/2022
B	TENDER ISSUE	16/03/2022
A	ISSUED FOR DRAFT TENDER	09/03/2022

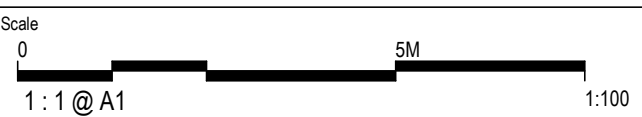


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Project  
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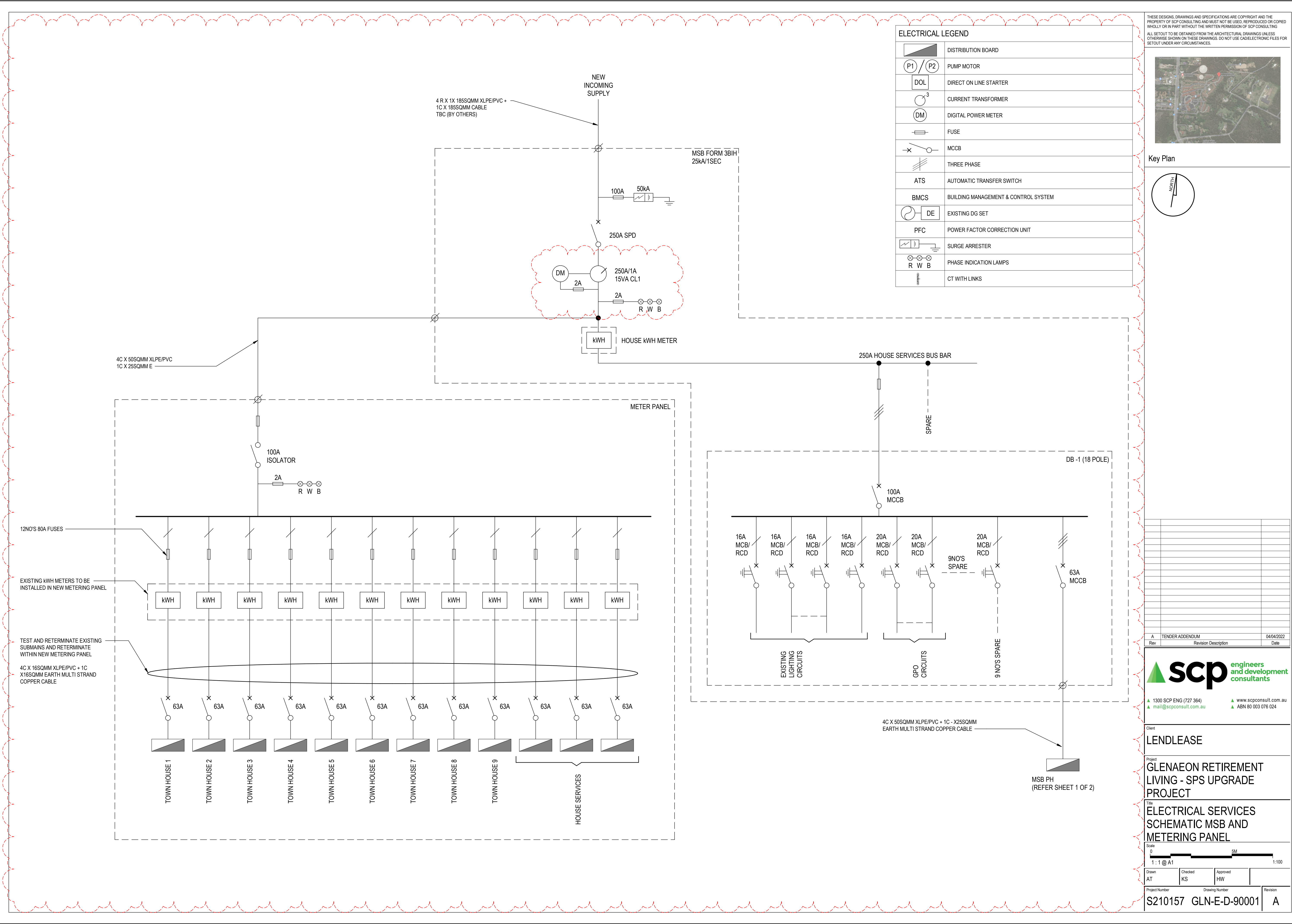
Title  
**ELECTRICAL SERVICES SCHEMATIC MSB PH**



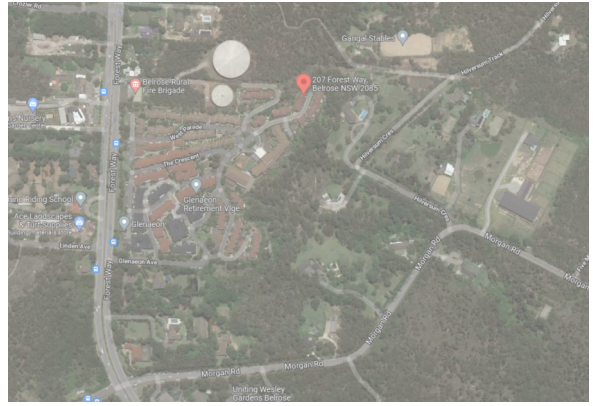
Drawn AT	Checked KS	Approved HW
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Project Number <b>S210157</b>	Drawing Number <b>GLN-E-D-90000</b>	Revision <b>C</b>
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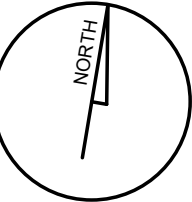




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Key Plan



Rev	Description	Date
A	TENDER ADDENDUM	04/04/2022



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Client: LENDLEASE

Project: GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT

Title: ELECTRICAL SERVICES SCHEMATIC MSB AND METERING PANEL

Scale: 1:1 @ A1

Drawn: AT Checked: KS Approved: HW

Project Number: S210157 Drawing Number: GLN-E-D-90001 Revision: A



STRUCTURAL DRAWING LIST		
DRAWING No.		DRAWING TITLE
Series 00 - General		
GLN-S-D-20001	GENERAL NOTES SHEET 1	
GLN-S-D-20002	GENERAL NOTES SHEET 2	
Series 09 - General Arrangement Plans		
GLN-S-D-20101	TANK PLANS	
GLN-S-D-20201	TANK DETAILS SHEET 1	
GLN-S-D-20301	PIPE SUPPORT DETAILS SHEET 1	

## GENERAL

- G01.** THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH:-
- DESIGN CONSULTANTURAL AND OTHER CONSULTANTS DRAWINGS
  - ALL RELEVANT REFERENCE DRAWINGS AND SPECIFICATIONS
  - OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF CONSTRUCTION.
- ALL DISCREPANCIES IN THESE DRAWINGS SHALL BE REFERRED TO SCP CONSULTING FOR DECISION BEFORE PROCEEDING.
- G02.** DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS OR ELECTRONIC FILES. FIGURED DIMENSIONS ONLY SHALL BE USED, UNLESS NOTED OTHERWISE, ALL REDUCED LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES
- G03.** SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE BUILDER FROM SETOUT DRAWINGS.
- THE LOCATION OF ALL STRUCTURAL ELEMENTS, INCLUDING FOUNDATIONS, ANCHOR-BOLTS, CORE HOLES ETC. SHALL BE SET-OUT BY A LICENSED SURVEYOR WHO SHALL PROVIDE WRITTEN CERTIFICATION OF SETTING-OUT AFTER INSTALLATION AND CONSTRUCTION.
- G04.** DURING CONSTRUCTION STRUCTURES SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERLOADED. TEMPORARY SUPPORT SHALL BE PROVIDED BY THE BUILDER IN ORDER TO KEEP THE BUILDING WORKS AND ANY EXCAVATIONS STABLE AT ALL TIMES.
- G05.** ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CURRENT AUSTRALIAN STANDARDS AND CURRENT BUILDING CODE OF AUSTRALIA.
- G06.** THE STRUCTURAL COMPONENTS DETAILED ON THE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR THE FOLLOWING LOADS:
- LIVE LOADS IN ACCORDANCE WITH AS 1170 - PART 1 AS SPECIFIED ON THE STRUCTURAL PLANS.
  - WIND LOADS IN ACCORDANCE WITH AS 1170 - PART 2, (UNO)
  - IMPORTANCE LEVEL: 2
  - TERRAIN CATEGORY: 2.5 MIN.
  - RETURN PERIOD: 1 / 1000
  - LOCATION: SYDNEY
  - REGION: A
  - BASIC WIND VELOCITY: 46m / SEC.
- G07.** THE RELEVANT PROVISIONS OF AS 1170.4 - 2007 HAVE BEEN APPLIED FOR THE FOLLOWING PARAMETERS:
- RETURN PERIOD: 1 / 1000
  - HAZARD FACTOR: 0.08
  - SUBSOIL CLASS: BE
  - IMPORTANCE LEVEL: 2
  - EARTHQUAKE DESIGN CATEGORY: 2
- G08.** CONSTRUCTION USING ANY STRUCTURAL DRAWINGS SHALL NOT COMMENCE UNTIL A CONSTRUCTION CERTIFICATE IS ISSUED BY THE PRINCIPAL CERTIFYING AUTHORITY AND ONLY IF THAT STRUCTURAL DRAWING IS DESIGNATED 'ISSUED FOR CONSTRUCTION'.
- G09.** THE CONTRACTOR SHALL GIVE AT LEAST FORTY-EIGHT HOURS NOTICE OF ANY INSPECTIONS OF STRUCTURAL WORK THAT ARE REQUIRED TO BE MADE BY SCP CONSULTING. SCP CONSULTING ACCEPTS NO RESPONSIBILITY FOR CONSTRUCTION WORK NOT INSPECTED AND APPROVED BY SCP CONSULTING DURING CONSTRUCTION.
- G10.** THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT DOCUMENTED ON THE STRUCTURAL DRAWING PRESENTS DIFFICULTY IN TERMS OF CONSTRUCTABILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO SCP CONSULTING FOR RESOLUTION BEFORE PROCEEDING. THE DETERMINATION OF A SAFE WORK METHOD IS THE RESPONSIBILITY OF THE BUILDER.
- G11.** NO CHANGES IN ANY STRUCTURAL ELEMENT DOCUMENTED IN THE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT REFERENCE TO SCP CONSULTING.
- G12.** PROPRIETARY ITEMS SPECIFIED ON THE STRUCTURAL DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN RECOMMENDATIONS.
- G13.** THE BUILDER SHALL ARRANGE SEPARATE CERTIFICATION OF ANY DESIGN AND CONSTRUCT ITEMS BY AN NPER REGISTERED STRUCTURAL ENGINEER.
- G14.** ALL DESIGN CONSULTANTURAL FITMENTS (GLAZING, PARTITIONS, CEILINGS) SHOULD ALLOW FOR SHORT TERM AND LONG TERM MOVEMENT OF STRUCTURAL ELEMENTS. THE BUILDER SHOULD CONSULT SCP CONSULTING FOR THE ALLOWANCE TO BE MADE.
- G15.** ALL STRUCTURAL ELEMENTS HAVE BEEN DESIGNED FOR EARTHQUAKE FORCES IN ACCORDANCE WITH AS1170.4. THE DESIGN REQUIREMENTS OF AS1170.4 ARE BASED ON A PROBABILISTIC EARTHQUAKE EVENT. THE STRUCTURE HAS BEEN DESIGNED AND DETAILED TO RESIST THE PROBABILISTIC EARTHQUAKE EVENT AND NOT COLLAPSE, HOWEVER SOME DAMAGE TO THE STRUCTURE WILL GENERALLY OCCUR. REPAIR OR DEMOLITION OF THE STRUCTURE MAY BE REQUIRED.
- G16.** THE BUILDER AND ASSOCIATED SUB CONTRACTORS SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND TEMPORARY WORKS (INCLUDING COST, DESIGN IMPLEMENTATION AND CERTIFICATION BY A NPER REGISTERED TEMPORARY WORKS ENGINEER).
- G17.** THE DESIGN LIFE OF THE WORKS SHALL BE 50 YEARS.
- G18.** PRIOR TO COMMENCEMENT OF SITE WORKS, THE BUILDER SHALL LOCATE AND CONFIRM ALL EXISTING SERVICES AND SEEK DIRECTION FROM SCP CONSULTING SHOULD ANY EXISTING SERVICES OR ASSETS AFFECT THE DOCUMENTED STRUCTURAL ELEMENTS.

## GROUNDWORKS/SITE PREPARATION

- E01.** A GEOTECHNICAL INVESTIGATION OF THE SITE HAS BEEN MADE AND A COPY OF THE REPORT HAS BEEN MADE AVAILABLE FOR INFORMATION ONLY. THE GEOTECHNICAL INFORMATION GIVEN IN THIS REPORT, OR SHOWN ON THE STRUCTURAL DRAWINGS, OR BOTH, IS INFORMATION ON THE NATURE OF THE GROUND AT EACH TESTED PART. IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS EXISTING AT OR BELOW GROUND LEVEL.
- E02. TOLERANCES**
- SURFACES: FINISH GROUNDWORKS TO REASONABLY SMOOTH AND UNIFORM SURFACES.
- SUBGRADES: THE FOLLOWING TOLERANCES APPLY TO FINISHED SUBGRADE LEVELS UNLESS OVERRIDDEN BY SPECIFIC REQUIREMENTS ELSEWHERE ON THE DRAWINGS.
- | ITEM          | LEVEL TOLERANCE ABSOLUTE | (MAXIMUM) RELATIVE |
|---------------|--------------------------|--------------------|
| FILL SUBGRADE | + 0 - 10                 | 20mm               |
| CUT SUBGRADE  | + 0 - 20                 | 20mm               |
- ABSOLUTE LEVEL TOLERANCE: MAXIMUM DEVIATION FROM DESIGN LEVEL. RELATIVE LEVEL TOLERANCE: MAXIMUM DEVIATION FROM 3m STRAIGHT EDGE LAID ANYWHERE ON EACH PLANE SURFACE.
- E03.** TESTING FOR COMPLIANCE SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1289 AS SET OUT BELOW. LEVEL 2 CERTIFICATION IN ACCORDANCE WITH AS 3798, SHALL APPLY. FIELD DRY DENSITY: TO ONE OF THE METHODS OF AS 1289 CLAUSES 5.1.1, 5.3.5 OR 5.8.1. CALIBRATE THE SURFACE MOISTURE - DENSITY GAUGE PRIOR TO USE ON SITE.
- FILLING INDEX: TO AS 1289 CLAUSE 5.6.1
- STANDARD MAXIMUM DRY DENSITY: TO AS 1289 CLAUSE 5.1.1
- MODIFIED MAXIMUM DRY DENSITY: TO AS 1289 CLAUSE 5.2.1
- FILLING SAMPLE TO AS 1141.2 AND AS 1178 AND TEST TO AS 1141 OR AS 1289, AS APPROPRIATE, FOR COMPLIANCE WITH THE CRITERIA STATED ON THE STRUCTURAL DRAWINGS.
- CALIFORNIA BEARING RATIO: SAMPLE AND TEST TO AS 1289 CLAUSES 6.6.1-6.1.3 AS APPROPRIATE.
- E04.** KEEP GROUNDWORKS FREE OF SURFACE WATER. PLACE WALL FILLING, PAVING, STRUCTURES, SERVICES, AND THE LIKE ON GROUND FROM WHICH SURFACE WATER HAS BEEN REMOVED. PROTECT FRESH WORK FROM WATER DAMAGE.
- E05.** REMOVE THE FOLLOWING FROM THE SITE: EXCAVATED MATERIAL NOT RE-USABLE AS TOPSOIL, FILLING, MULCH, OR THE LIKE AND DEBRIS RESULTING FROM SITE CLEARING.
- E06.** EXCAVATE AS REQUIRED OR AS SHOWN ON THE STRUCTURAL DRAWINGS, INCLUDING BUT NOT NECESSARY LIMITED TO THE FOLLOWING:
- SITE SURFACE:**
- EXCAVATE OVER THE SITE TO GIVE CORRECT LEVELS AND PROFILES AS THE BASIS FOR CONSTRUCTION, PAVING, FILLING, LANDSCAPING AND THE LIKE. MAKE ALLOWANCE FOR COMPACTION OR SETTLEMENT.
- FOOTINGS:**
- EXCAVATE FOR FOOTINGS, PITS, WELLS, SHAFTS AND THE LIKE, TO THE REQUIRED SIZES AND DEPTHS.
- PROOF ROLLING:**
- PROOF ROLL EXCAVATED SURFACES TO DETERMINE EXTENT OF ANY UNSUITABLE GROUND. PROOF ROLLING TO BE IN ACCORDANCE WITH INSTRUCTIONS FROM THE GEOTECHNICAL ENGINEER ENGAGED SPECIFICALLY FOR THIS PURPOSE. REPLACE UNSUITABLE MATERIAL WITH APPROVED FILLING COMPACTED IN ACCORDANCE WITH INSTRUCTIONS FROM THE GEOTECHNICAL ENGINEER.
- E07. PLACING FILLING**
- EXTENT:**
- PLACE AND COMPACT FILLING APPROVED BY THE GEOTECHNICAL ENGINEER TO THE DIMENSIONS, LEVELS, GRADES, AND CROSS SECTIONS AS SHOWN ON THE STRUCTURAL DRAWINGS, SO THAT THE SURFACE IS ALWAYS STAY DRAINING.
- LAYERS:**
- PLACE FILLING APPROVED BY THE GEOTECHNICAL ENGINEER IN LOOSE LAYERS NOT EXCEEDING 200mm OR THE SPECIFIED MAXIMUM LAYER THICKNESS, AND COMPACT EACH LAYER AS SPECIFIED IN CLAUSE E9 IN LOOSE TO THE REQUIRED DENSITY OR IN ACCORDANCE WITH GEOTECHNICAL ENGINEERS REQUIREMENTS.
- PLACING AGAINST CONCRETE:**
- DO NOT PLACE FILLING AGAINST CONCRETE UNTIL THE CONCRETE HAS BEEN IN PLACE FOR MINIMUM OF FOURTEEN DAYS.
- PLACING AT STRUCTURES:**
- PLACE AND COMPACT FILLING IN LAYERS SIMULTANEOUSLY ON BOTH SIDES OF STRUCTURES, COLVERTS AND PIPELINES TO AVOID DIFFERENTIAL LOADING.
- MATERIAL:**
- INORGANIC NON-PERISHABLE MATERIAL, OF THE TYPE SPECIFIED ON THE STRUCTURAL DRAWINGS. SUBMIT DETAILS OF PROPOSED FILLING IF NO MATERIAL SPECIFIED TO SCP CONSULTING.
- E08.** COMPACTION LEVELS UNLESS SPECIFIED ELSEWHERE ON THE DRAWINGS, OR BY THE GEOTECHNICAL ENGINEER, SHALL BE EITHER 100% STANDARD COMPACTION OR 98% MODIFIED COMPACTION.
- E09.** SUB-BASE TO CONCRETE SLABS SHALL BE MATERIAL COMPLYING WITH DGS40 TO RMS SPECIFICATIONS. SUB-BASE SHALL BE COMPACTED TO 100% STANDARD COMPACTION, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- E10.** COMPACTION TEST RESULTS SHALL BE SUBMITTED TO SCP CONSULTING FOR REVIEW.
- FOOTINGS**
- F01.** A GEOTECHNICAL INVESTIGATION OF THE SITE HAS BEEN MADE AND A COPY OF THE REPORT HAS BEEN MADE AVAILABLE FOR INFORMATION ONLY. THE GEOTECHNICAL INFORMATION GIVEN IN THIS REPORT, OR SHOWN ON THE DRAWINGS, OR BOTH, IS INFORMATION ON THE NATURE OF THE GROUND AT EACH TESTED PART. IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS EXISTING AT OR BELOW GROUND LEVEL.
- F02.** ALL EXCAVATIONS AND FOUNDING MATERIAL SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER AS HAVING THIS BEARING CAPACITY BEFORE PLACING MEMBRANES OR REINFORCEMENT OR CONCRETE. A COPY OF THE REPORT ON THE FOUNDING MATERIAL SHALL BE SUPPLIED TO SCP CONSULTING. SPOON TEST AS REQUIRED.
- F03.** FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS.
- F04.** FOOTINGS SHALL BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION. FOUNDATION MATERIAL SHALL NOT BE PERMITTED TO SOFTEN OR DRY OUT. IF CONCRETE IS NOT PLACED IMMEDIATELY AFTER EXCAVATION OF FOOTING, PROVIDE A 50mm BLINDING LAYER OF WEAK (15MPa) CONCRETE TO THE BASE OF EXCAVATION.
- F05.** EXCAVATE FOR FOUNDATIONS TO THE REQUIRED SIZES AND DEPTH. FOOTING FOUNDING LEVELS ARE PROVISIONAL SUBJECT TO ACTUAL SITE CONDITIONS.
- F06.** ANY RESIDENTIAL SLABS AND FOOTINGS HAVE BEEN DESIGNED FOR REACTIVITY CLASS \*\*\* TO AS 2870.
- F07.** THE BUILDER SHALL ENSURE THE STABILITY OF ADJACENT BUILDINGS AND SERVICES DURING EXCAVATION FOR FOOTINGS. IF IN DOUBT AS TO REQUIREMENTS CONSULT GEOTECHNICAL ENGINEER AND SCP CONSULTING.
- F08.** FOOTINGS NEAR BOUNDARIES SHALL HAVE THE BASE OF THE FOOTING LEVEL HIGHER THAN THE EXISTING ADJACENT FOOTING.
- RETAINING WALLS**
- RW1.** BACKFILLING BEHIND RETAINING WALLS SHALL BE WELL-GRADED NON-COHESIVE GRANULAR MATERIAL APPROVED BY SCP CONSULTING. COMPACT IN 150MM LAYERS WITH A 2 TONNE STATIC ROLLER. IF LARGER ROLLERS ARE USED, PROP RETAINING WALL.
- RW2.** UNLESS NOTED OTHERWISE ON DRAWINGS, ALL RETAINING WALLS SHALL BE PROVIDED WITH A FREE DRAINING NON-COHESIVE COARSE GRANULAR DRAINAGE LAYER MINIMUM 300MM WIDE AT THE BACK OF THE WALL WITH AN AGRICULTURAL DRAINAGE PIPE AT THE BASE 50mm DIA. WEEP HOLES SHALL BE PROVIDED AT 1.0 METRE CENTRES MAXIMUM.
- RW3.** WHERE RETAINING WALLS ARE SUPPORTED BY FLOORS BUILT AGAINST THEM OR INTO THEM, DO NOT BACKFILL RETAINING WALLS UNTIL FLOOR CONSTRUCTION AND CONNECTIONS TO RETAINING WALL AT TOP AND BOTTOM IS IN PLACE, UNLESS THE RETAINING WALL IS TEMPORARILY PROPPED.
- RW4.** ALL WALLS TO HAVE EXPANSION JOINTS AT 6m MAX CTS OR AS PER SCP CONSULTING DETAILS.

## FORMWORK

- FW1.** THE DESIGN CERTIFICATION & ERECTION INSPECTION OF AND PERFORMANCE OF THE FORMWORK AND FALSEWORK IS THE RESPONSIBILITY OF THE FORMWORK SUB-CONTRACTOR. NOT OF SCP CONSULTING. FORMWORK SHALL BE CERTIFIED BY A NPER REGISTERED STRUCTURAL ENGINEER EXPERIENCED IN FORMWORK DESIGN IN ACCORDANCE WITH STATE REGULATIONS AND STATE SAFETY CODE OF PRACTICE.
- FW2.** THE FORMWORK SHALL NOT BE DESIGNED TO RELY ON RESTRAINT OR SUPPORT FROM THE PERMANENT STRUCTURE WITHOUT PRIOR APPROVAL FROM SCP CONSULTING. POST TENSIONING REACTIONS TO BE CONSIDERED AS REQUIRED.
- FW3.** STRIPPING TIMES SHALL COMPLY WITH AS 3610 AND AS 3600 (WHERE MORE STRINGENT) UNLESS OTHERWISE APPROVED BY SCP CONSULTING.
- FW4.** DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN LOAD FOR STRENGTH OR SERVICEABILITY AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT ON THE STRUCTURAL DRAWINGS.
- FW5.** CONSTRUCTION SUPPORT PROPPING IS TO BE LEFT IN PLACE WHERE NEEDED TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. NO BRICKWORK OR PARTITION WALLS ARE TO BE CONSTRUCTED ON SUSPENDED LEVELS UNTIL ALL PROPPING IS REMOVED AND THE SLAB HAS ABSORBED ITS DEAD LOAD. DEFLECTION, PROP REMOVAL, SHALL BE PROGRAMMED TO AVOID DISTRESS TO PREVIOUSLY CAST FLOORS. RE-SHORING OR BACK-PROPPING SHALL BE SUBMITTED BY THE FORMWORK CONTRACTOR FOR APPROVAL OF SCP CONSULTING.
- FW6.** DIMENSIONAL TOLERANCES SHALL COMPLY WITH AS 3610 CLAUSE 3.4 OR AS 3600 CLAUSE 17.5. FOR THE APPROPRIATE FINISH CLASS. FINISH CLASS TO DESIGN CONSULTANT'S SPECIFICATIONS. IN ANY CASE MAXIMUM DEVIATION FROM CORRECT POSITION SHALL BE 10mm FOR CLASS 1, 15mm FOR CLASS 2, 20mm FOR CLASS 3, 25mm FOR CLASS 4.
- FW7.** CONCRETE FORMED SURFACES SHALL HAVE FOLLOWING FORMWORK CLASS IN ACCORDANCE WITH AS 3610, UNLESS SPECIFIED DIFFERENTLY ON THE DESIGN CONSULTANTURAL DRAWINGS.
- | CONCRETE ELEMENT OR SURFACE   | FORMWORK CLASS TO AS 3610               |
|---|---|
| NORMAL DESIGN CONSULTANTURAL & CIVIL WORKS AND SURFACES NOT OTHERWISE SPECIFIED | 2 TO 3<br>(T.B.C. BY DESIGN CONSULTANT) |
| SURFACES TO BE RENDERED OR HIDDEN BY OTHER FINISHES                             | 4                                       |
| SURFACES PERMANENTLY CONCEALED  | 4                                       |
- FW8.** BEFORE PLACING REINFORCEMENT, APPLY A RELEASE AGENT COMPATIBLE WITH THE REQUIRED SURFACE FINISH TO FACE OF FORMWORK.
- FW9.** CHAMFER AT RE-ENTRANT ANGLES AND FILLET AT CORNERS FACE OF BEVEL 25mm UNO ON DESIGN CONSULTANTURAL DRAWINGS.
- FW10.** BEFORE PLACING CONCRETE, REMOVE WATER, DUST, DEBRIS FROM THE FORMWORK.
- FW11.** FILL ALL THE HOLES LEFT BY FORM TIE BOLTS WITH MORTAR MATCHING THE SURFACE COLOUR OF THE FINISHED SURFACE. WALL PART OF WATER RETAINING STRUCTURES SHALL HAVE TIE BOLT HOLES FILLED WITH A WATERPROOF GROUT.
- FW12.** PROVIDE CHAMFERS AND DRIP GROOVES AS CLAUSE C18.
- FW13.** IF METAL DECK FORMWORK IS USED, ALL PROPPING AND BEARING DETAILS SHALL BE DETERMINED BY THE FORMWORK SUB-CONTRACTORS ENGINEERS AND SHALL BE ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. THERE SHALL BE NO PERMANENT MARKS ON THE METAL DECK SOFFIT, DUE TO PROPPING SYSTEM. THE EXTENT OF METAL DECK FORMWORK SHALL BE APPROVED BY THE DESIGN CONSULTANT WITH REGARD TO REQUIRED SOFFIT FINISH IN EXPOSED AREAS.
- FW14.** IN MULTI STOREY CONSTRUCTION, PROPPING TO EXTEND AT LEAST 3 LEVELS (OR STOREYS) BELOW THE FLOOR BEING CAST. PROP REMOVAL IS TO BE PROGRAMMED TO AVOID DISTRESS TO PREVIOUSLY CAST FLOORS. REFER TO SCP CONSULTING FOR SPECIFIC PROPPING REQUIREMENTS.
- FW15.** VOID FORMERS TO BE CERTIFIED TO SUPPORT WET CONCRETE LOAD AND PLACEMENT / COMPACTION LOAD AND DEFLECT < SPAN / 1000 FOR BEAMS AND SLABS. COLLAPSE AND LOSS OF SUPPORT TO HARDENED CONCRETE TO OCCUR WITHIN 48 HOURS AT COMPLETION OF CONCRETE BEING POURED OVER.
- FW16.** PERMANENT LOSS FORMWORK SHALL BE CHLORIDE FREE AND NOT IMPAIR STRUCTURAL PERFORMANCE.

## STRUCTURAL STEELWORK

- S01. GENERAL**
- REFER AS5131 FOR ALL DEFINITIONS, RESPONSIBILITIES AND PROCUREMENT REQUIREMENTS. ALL STEEL PURCHASED TO ACRS AND ISO14001 COMPLIANCE.
- S02. CONSTRUCTION CATEGORY**
- IN ACCORDANCE WITH THE REQUIREMENTS OF ASINZS 5131 THE CONSTRUCTION CATEGORIES FOR THIS PROJECT ARE DEFINED IN THE TABLE BELOW:
- | ELEMENT           | IMPORTANCE LEVEL | SERVICE CATEGORY | FABRICATION CATEGORY | CONSTRUCTION CATEGORY |
|-------------------|------------------|------------------|----------------------|-----------------------|
| FILLET WELD GP/SP | IL3              | SC1              | FC1                  | CC3                   |
- S03. TREATMENT GRADES**
- UNLESS NOTED OTHERWISE IN THE PROJECT DRAWINGS, FOR THE ELEMENTS ON THIS PROJECT, THE TREATMENT GRADES ACCORDING TO ASINZS 5131 SHALL BE P2 FOR ALL PAINTED STRUCTURAL STEELWORK UNO. ALL EXPOSED STEELWORK TO BE P3.
- S04. COATING QUALITY LEVEL**
- THE COATING QUALITY LEVEL ASSESSED ACCORDING TO ASINZS 5131 SHALL BE AS GIVEN IN THE TABLE BELOW:
- | ITEM                             | COATING QUALITY LEVEL |
|----------------------------------|-----------------------|
| INTERNAL STEELWORK               | PC1                   |
| EXTERNAL STEELWORK (NON COASTAL) | PC2                   |
| EXTERNAL STEELWORK (COASTAL)     | PC2                   |
- EXTERNAL STEEL MAY BE HOT DIPPED GALVANISED AT 600 g/m<sup>2</sup> (MAX) TO ASINZS 4680. ALL BOLTS TO BE HOT DIPPED GALVANISED TO ASINZS 1214 AT 330 g/m<sup>2</sup> REPAIR OF ALL GALVANISED TO ASINZS 4680.
- S05. WORKMANSHIP AND QUALITY**
- ALL STRUCTURAL STEELWORK SHALL BE FABRICATED IN ACCORDANCE WITH ASINZS 5131. ALL WORK ON THIS PROJECT SHALL BE UNDERTAKEN BY COMPETENT PERSONNEL. REQUIREMENTS AND EXAMPLES OF QUALIFICATIONS FOR COMPETENT PERSONNEL ARE CONTAINED IN ASINZS 5131. STEELWORK SHALL BE FABRICATED BY FABRICATORS CERTIFIED UNDER THE ASI NATIONAL STRUCTURAL STEELWORK COMPLIANCE SCHEME (NSSCS).
- S06. TOLERANCES**
- FABRICATION TOLERANCES SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131. THE TOLERANCE CLASS FOR FUNCTIONAL TOLERANCES SHALL BE CLASS 1 UNO.
- S07. STEEL MATERIAL GRADES**
- ALL STRUCTURAL STEEL MATERIAL SHALL CONFORM TO THE FOLLOWING TABLE UNO:
- | COMPONENT  | TO CONFORM WITH AUSTRALIAN STANDARDS | GRADE   |
|--|--------------------------------------|---|
| HOT ROLLED STEEL SECTIONS                                      | ASINZS 3679.1; TS 102                | 300/350   |
| PLATE  | ASINZS 3678; TS 102                  | 250/300/350/400/450                             |
| FLATS  | ASINZS 1594; TS 102                  | 250/300/350/400/450                             |
| HOLLOW SECTIONS: CIRCULAR (CHS) SQUARE (SHS) RECTANGULAR (RHS) | ASINZS 1163; TS 102                  | C350L0 & C250L0 C350L0 & C450L0 C350L0 & C450L0 |
| WELDED BEAMS & COLUMNS   | ASINZS 3679.2; TS 102                | 300/400/450                                     |
| SHEAR STUDS (COMPOSITE SLAB TO STEEL)                          | ASINZS 1554.2 AS 1443                | 380   |
| QUENCH & TEMPERED PLATE  | AS 3597                              | 690   |
| PURLINS & GIRTS  | AS 3597                              | 450   |
| RODS / SQUARES   | AS 3679.1; TS102                     | 250/300   |
- MEMBER SIZES SHALL BE AS SHOWN ON THE STRUCTURAL DRAWINGS. NO SUBSTITUTION IS PERMITTED WITHOUT APPROVAL IN WRITING FROM SCP CONSULTING.
- DOCUMENTATION SUPPLIED WITH MATERIALS AND COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- S08. LAMELLAR TEARING**
- JOINT DETAILS WHICH ARE SUSCEPTIBLE TO LAMELLAR TEARING (LT) ARE INDICATED ON THE PROJECT DRAWINGS AS LT SUSCEPTIBLE. WITH THE SPECIFIC PLATE WITH HIGH THROUGH-THICKNESS STRESS NOTED. THE SPECIFIC PLATE IN JOINTS THAT ARE INDICATED AS LT SUSCEPTIBLE SHALL BE SUPPLIED ULTRASONICALLY TESTED TO AS 1710 CLASS 1. ALL BUTT JOINTS AT T AND X JOINTS SHALL BE CONSIDERED LT SUSCEPTIBLE UNO.
- S09. Z-PLATE REQUIREMENT**
- JOINTS THAT ARE DESIGNATED LT SUSCEPTIBLE AND FURTHER REQUIRE PLATE TO A NOMINATED Z-VALUE ARE INDICATED ON THE PROJECT DRAWINGS WITH A DESIGNATED Z-VALUE. THE PLATE USED FOR THESE JOINTS SHALL BE ORDERED TO THE DESIGNATED Z-VALUE. ALL PLATES GREATER THAN 16mm TO BE Z35 TO AS3678. ALL PLATES TO BE ULTRA SONICALLY TESTED TO AS1710 CLASS 1 AT THE POINT OF SUPPLY.

- S10. SUPPLEMENTARY TESTING**
- SUPPLEMENTARY ULTRASONIC TESTING TO AS 2207 AND ASINZS 1554.1 IS REQUIRED FOR ALL PLATES 25mm THICKNESS AND OVER. ULTRASONIC TESTING TO AS 1710 CLASS 1.
- HIGHLY STRESSED JOINTS SUBJECTED TO HIGH UNIFORM STRESS AS NOMINATED ON THE DRAWINGS OR FOR ALL JOINTS WITH PLATE THICKNESS > 40mm, SHALL BE ULTRASONICALLY TESTED TO AS2207 AND AS1554.1.
- S11. STEEL QUALITY**
- ALL STRUCTURAL STEEL SHALL BE SOURCED FROM MILLS WITH A RELEVANT JAS ANZ ACCREDITED THIRD-PARTY CERTIFICATION SCHEME SUCH AS THE ACRS SCHEME. NO ALTERNATIVE SOURCING OF STEELWORK WITHOUT AN JAS ANZ ACCREDITED THIRD-PARTY SCHEME IS PERMITTED. CURRENT ACRS CERTIFICATE TO BE SUPPLIED TO SCP FOR REVIEW PRIOR TO ERECTION. SCP RESERVES THE RIGHT TO REJECT NON ACRS CERTIFIED BOLT ASSEMBLIES UNLESS NOTED OTHERWISE ALL T/F/TB BOLTS TO BE HOBSON BRAND.
- S12. SPACING OF STRUCTURAL MEMBERS**
- ALL STRUCTURAL STEELWORK MEMBERS SHALL BE SUPPLIED IN A SINGLE LENGTH, EXCEPT WHERE OTHERWISE INDICATED WITH SPLICE LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION COMMENCING.
- S13. CUTTING, HOLDING AND SHAPING**
- ALL CUTTING, HOLDING AND SHAPING OF STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131. PENETRATIONS OR CUT-OUTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL NOT BE MADE WITHOUT PRIOR APPROVAL.
- S14. BOLT DESIGNATION**
- ALL BOLTS TO BE 8.8/S TYPE UNLESS NOTED OTHERWISE.
- | 4.6/S  | COMMERCIAL GRADE 4.6 BOLTS TO AS 1111, TIGHTENED TO A SNUG TIGHT CONDITION TO ASINZS 5131                         |
|--------|---|
| 8.8/S  | HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO ASINZS 1252.1, TIGHTENED TO A SNUG TIGHT CONDITION TO ASINZS 5131  |
| 8.8/TB | HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO ASINZS 1252.1, FULLY TENSIONED TO ASINZS 5131 AS A BEARING JOINT.  |
| 8.8/TF | HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO ASINZS 1252.1, FULLY TENSIONED TO ASINZS 5131 AS A FRICTION JOINT. |
- S15. BOLT QUALITY**
- ALL BOLTS TO BE SOURCED FROM SUPPLIERS WITH A RELEVANT JAS ANZ ACCREDITED THIRD-PARTY CERTIFICATION SCHEME, SUCH AS THE ACRS SCHEME. NO ALTERNATIVE SOURCING OF BOLTS WITHOUT A JAS ANZ ACCREDITED THIRD-PARTY SCHEME IS PERMITTED. CURRENT ACRS CERTIFICATE TO BE SUPPLIED TO SCP FOR REVIEW PRIOR TO ERECTION. SCP RESERVES THE RIGHT TO REJECT NON ACRS CERTIFIED BOLT ASSEMBLIES UNLESS NOTED OTHERWISE ALL T/F/TB BOLTS TO BE HOBSON BRAND.
- S16. METHOD OF TENSIONING**
- T/B AND T/F BOLT CATEGORIES SHALL BE INSTALLED USING EITHER THE PART TURN METHOD OR THE DIRECT TENSION INDICATOR METHOD TO ASINZS 5131.
- S17. CONTACT SURFACES IN TENSIONED CONNECTIONS**
- FOR CONNECTIONS WHERE 8.8/TB BOLTS ARE SPECIFIED, A FRICTION COEFFICIENT OF 0.35 HAS BEEN ASSUMED FOR THE DESIGN. THE CONTACT SURFACES SHALL BE PREPARED ACCORDING TO ASINZS 5131 AND BE FREE FROM PAINT, LACQUER OR OTHER APPLIED FINISHES UNLESS THE APPLIED FINISH HAS BEEN TESTED IN ACCORDANCE WITH ASINZS 5131 APPENDIX G AND A FRICTION COEFFICIENT OF 0.35 OR HIGHER IS DETERMINED.
- S18. BOLT FINISH**
- ALL BOLTS SHALL BE HOT-DIP GALVANISED TO ASINZS 1214.
- S19. WELDING CONSUMABLES**
- WELDING CONSUMABLES SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 1554, BASED ON THE YIELD STRENGTH OF THE STEEL TO BE WELDED, AS DEFINED IN THE TABLE BELOW:
- | NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED | TO CONFORM WITH AUSTRALIAN STANDARDS |
|--|--------------------------------------|
| <500 MPa                                     | ASINZS 1554.1                        |
| >500 MPa, <690 MPa                           | ASINZS 1554.4                        |
- | NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED | NOMINAL TENSILE STRENGTH OF WELD METAL, (MPa) |
|--|---|
| ALL STEEL WITH GRADE<300 MPa                 | 430   |
| ALL STEEL WITH 300 < GRADE <450 MPa          | 490   |
| QUENCH & TEMPERED STEEL TO GRADE 690 MPa     | 760   |
- | ELEMENT   | WELD CATEGORY |
|-----------|---------------|
| SHOP WELD | SP            |
| SITE WELD | SP            |
- WELDS SUBJECT TO FATIGUE LOADING TO BE FP WELD CATEGORY

- NON-DESTRUCTIVE EXAMINATION**
- ALL WELDS 100% VISUALLY SCANNED / EXAMINED TO AS1554.1
- THE EXTENT OF NON-DESTRUCTIVE SC1 & SC2 EXAMINATION (NDE) SHALL BE AS DEFINED IN TABLE 13.6.2.2(A) OF ASINZS 5131.
- SHOP OR SITE FILLET WELD TO BE 10% MAGNETIC PARTICLE OR LIQUID PENETRANT.
- SHOP OR SITE BUTT WELDS TO BE 100% ULTRASONICALLY OR RADIOGRAPHY TESTED.
- ALL WELD TEST CERTIFICATION TO BE NATA CERTIFIED AND SUBMITTED TO SCP CONSULTING.
- S20. MINIMUM CONNECTION DETAILING GUIDELINES**
- UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH THE FOLLOWING MINIMUM REQUIREMENTS:
- S21.**
- a) ALL WELDS SHALL BE 6mm CONTINUOUS FILLET WELD (CFW) 4E8XX SP ALL ROUND
  - b) ALL STEEL TO STEEL BOLTED CONNECTIONS SHALL BE MINIMUM TWO M20 GRADE 8.8/S AT 70 PITCH UNO
  - c) A MINIMUM OF TWO THREADS SHALL EXTEND PAST THE NUT
  - d) ALL PLATES SHALL BE 10mm MINIMUM THICK GR250, 8CFW 4E8SP
  - e) ALL PURLIN AND GIRT CLEATS SHALL BE 8mm MINIMUM THICK GR250, 4CFW
  - f) ALL SHEAR STUDS WELDED TO AS2327.1 AND AS1554.2
- ALL DETAILING WHERE NOT SPECIFICALLY SHOWN SHALL BE IN ACCORDANCE WITH THE AUSTRALIAN STEEL INSTITUTE (ASI) CURRENT EDITIONS OF THE DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL AND THE ASI STANDARDISED STRUCTURAL CONNECTION DETAILS CONTAINED THEREIN.
- THE ENDS OF HOLLOW SECTION MEMBERS SHALL BE SEALED WITH NOMINAL THICKNESS PLATES AND CONTINUOUS SEAL WELDED UNLESS NOTED OTHERWISE. IF HOLLOW SECTIONS ARE TO BE HOT-DIP GALVANISED, VENT AND DRAINAGE HOLES SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131 IN NON-VIEWABLE LOCATIONS.
- S22. SURFACE TREATMENT AND CORROSION PROTECTION**
- UNLESS NOTED OTHERWISE IN THE CONTRACTUAL DOCUMENTATION, THE MINIMUM SURFACE TREATMENT OF BOTH INTERNAL AND EXTERNAL STEELWORK SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- STRUCTURAL STEELWORK TO BE GALVANISED SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- UNLESS NOTED OTHERWISE IN THE CONTRACTUAL DOCUMENTATION, THE CORROSION PROTECTION WHEN SELECTING A PAINT SYSTEM SHALL BE AS SPECIFIED IN THE TABLE BELOW:
- | DESIGNATION | LOCATION   | MINIMUM PROTECTIVE COATING SYSTEM   | ASINZS 2312.1 REF. |
|-------------|--|---|--------------------|
| INT1        | INTERNAL STEELWORK - HIDDEN  | ALKYD PRIMER SYSTEM   | ALK1               |
| INT2        | INTERNAL STEELWORK - REQUIRING COLOR FINISH                          | ALKYD PRIMER WITH ACRYLIC LATEX TOP COAT SYSTEM                                   | AQL1               |
| EXT1        | INTERNAL STEELWORK - COLOUR NOT REQUIRED                             | HOT DIPPED GALVANISED OR SINGLE COAT SOLVENT BORNE INORGANIC ZINC SILICATE SYSTEM | IZS1               |
| EXT2        | EXTERNAL STEELWORK IN INDUSTRIAL ENVIRONMENT - MIO FINISH ACCEPTABLE | HOT DIPPED GALVANISED OR MICACEOUS IRON OXIDE (MIO) SYSTEM                        | EHB6               |
| EXT3        | EXTERNAL STEELWORK - COLOUR AND GLOSS FINISH REQUIRED                | HOT DIPPED GALVANISED OR HIGH BUILD POLYURETHANE SYSTEM                           | PUR4               |
- ALL DESIGN CONSULTANTUALLY EXPOSED STEEL SHALL BE AS SPECIFIED BY THE DESIGN CONSULTANT AND CONFORM TO AS5131 AND THE ARCH SPECIFICATION.
- MEMBERS EMBEDDED IN CAVITY WALLS SHALL BE HD GALVANISED TO AS 4791 AND AS 4792, 500g/m<sup>2</sup>
- ALL HD GALV COATING REPAIR TO AS4680 APPENDIX E. TO SCP APPROVAL.
- FIRE PROTECTION COATINGS PREPARATION AND SURFACE FINISHED SHALL BE COMPATIBLE WITH THE FIRE PROTECTION SYSTEM, APPROVED AND LICENSED APPLICATORS ONLY TO BE ENGAGED BY THE FABRICATOR. THE REQUIRED COATING THICKNESS SHALL BE ADVISED BY THE SUPPLIER BASED ON A 450°C AT 120 MIN FRL. CLEARANCE ZONES SHALL BE ADVISED TO THE DESIGN CONSULTANT.

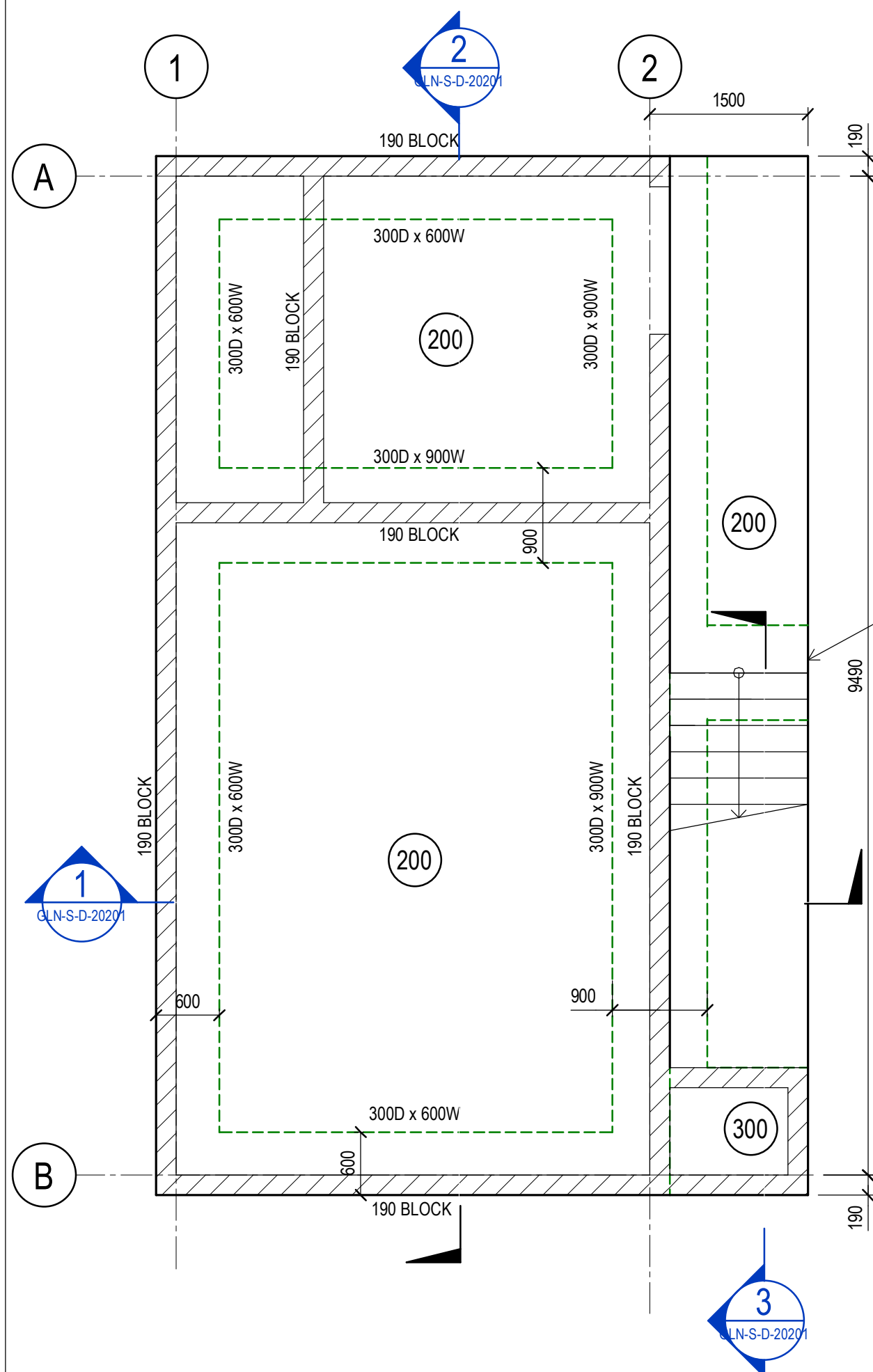
- S23. DESIGN CONSULTANTUALLY EXPOSED STRUCTURAL STEELWORK**
- DESIGN CONSULTANTUALLY EXPOSED STRUCTURAL STEEL (AESS) SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- AREAS TO BE TREATED AS AESS, THE AESS CATEGORY 2 FOR HIGH LEVEL AND AESS CATEGORY 3 FOR LOW LEVEL UNLESS SPECIFIED BY THE PROJECT DESIGN CONSULTANTS ARE DESIGNATED FOR THE PROJECT.
- DESIGN CONSULTANTUALLY SENSITIVE CONNECTION DETAILS ARE INDICATED ON THE PROJECT DRAWINGS. AESS COMPONENTS SHALL BE AESS 2 UNO. CONFIRM WITH DESIGN CONSULTANT.
- S24. LIGHT GAUGE STEEL MEMBERS**
- LIGHT GAUGE STEEL MEMBERS, COMPRISING PURLINS, GIRTS, INCLUDING ASSOCIATED FASTENERS AND STRUCTURAL DECKING, SHALL CONFORM TO THE REQUIREMENTS OF ASINZS5131.
- S25. MECHANICAL AND CHEMICAL ANCHORS**
- MECHANICAL AND CHEMICAL ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- S26. STRUCTURAL STEELWORK ERECTION**
- STRUCTURAL STEELWORK ERECTION SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131, AND THE AUSTRALIAN STEEL INSTITUTE GUIDE "PRACTICAL GUIDE & PLANNING AND SAFE ERECTION OF STEEL STRUCTURES".
- S27. CAMBER**
- ALL MEMBERS HAVING A NATURAL CAMBER WITHIN THE STRAIGHTNESS TOLERANCE SHALL BE ERECTED WITH THE NATURAL CAMBER UP.
- S28. TOLERANCES**
- ERECTION TOLERANCES SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131. THE TOLERANCE CLASS FOR FUNCTIONAL TOLERANCES SHALL BE CLASS 1 UNO.
- S29. POST-INSTALLED ANCHORS**
- THE INSTALLATION OF MECHANICAL AND CHEMICAL ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131.
- DESIGN OF ANCHORS TO ASS216.2018
- SITE TESTING SHALL BE PERFORMED ON MECHANICAL AND CHEMICAL ANCHORS TO VALIDATE CORRECT INSTALLATION (PROOF TESTING). A MINIMUM TEST SAMPLE POPULATION SHALL BE THREE SPECIMENS OR 2.5% OF THE TOTAL RELEVANT ANCHOR POPULATION, WHICHEVER IS GREATER. IF A SINGLE FAILURE IS RECORDED, THE MINIMUM TEST SAMPLE POPULATION SHALL BE INCREASED TO SIX TEST SPECIMENS OR 5% OF THE TOTAL RELEVANT ANCHOR POPULATION, WHICHEVER IS GREATER. IF TWO OR MORE TEST SAMPLES FAIL, ALL ANCHORS IN THE RELEVANT ANCHOR POPULATION SHALL BE TESTED.
- THE TEST SAMPLE POPULATION IS DEFINED AS A GROUP OF ANCHORS REPRESENTATIVE OF THE RELEVANT ANCHOR POPULATION, HAVING THE SAME TYPE OF ANCHOR, THE SAME BASE MATERIAL (THAT HAS NOT EXPERIENCED DIFFERENT ENVIRONMENTAL EXPOSURE), SAME INSTALLATION METHOD AND SAME INSTALLATION PERSONNEL. WHERE ANY OF THESE VARIABLES CHANGE, THIS GROUP OF ANCHORS SHALL BE CONSIDERED A SEPARATE ANCHOR POPULATION.
- ALL SITE TESTING OF POST-INSTALLED ANCHORS SHALL BE UNDERTAKEN ACCORDING TO THE REQUIREMENTS OF BAREFAEC TECHNICAL NOTE - SITE TESTING GUIDELINES VOLUMES 1 TO 4.
- S30. CONNECTION TO FOOTINGS**
- FOOTING BOLTS SHALL MEET THE REQUIREMENTS OF ASINZS 5131. PROVIDE 6mm PLATE WASHER OR HARDENED WASHERS. MATERIALS USED FOR GROUTING UNDER STEEL BASE PLATES AND BEARING PLATES SHALL MEET THE REQUIREMENTS DEFINED IN ASINZS 5131. GROUT UNDER ALL BASE PLATES. BEFORE GROUTING, SUPPORT BASE PLATES ON STEEL PACKERS OR WEDGES. GROUT UNDER BASE PLATES AND INTO CORED HOLES WITH MASTERFLOW 870 NON-SHRINK GROUT OR EQUIVALENT. MINIMUM COMPRESSIVE STRENGTH 80MPa AT 28 DAYS, MIN. THICKNESS 15mm, MAX. THICKNESS 40mm.
- S31. CAST-IN COMPONENTS**
- ALL BOLTS, NUTS AND WASHERS, INCLUDING HOLD DOWN BOLTS, CAST-IN FERRULES AND MASONRY ANCHORS ARE TO BE HOT-DIP GALVANIZED UNLESS NOTED OTHERWISE. ALL GALVANIZED COMPONENTS TO BE CAST INTO CONCRETE MUST BE PASSIVATED.
- S32. ERECTION SEQUENCE METHODOLOGY**
- WHERE ASSESSED AS REQUIRED FROM THE RISK PLANNING WORKSHOPS, SUBMIT THE ERECTION SEQUENCE METHODOLOGY (ESM) FOR APPROVAL. IN ACCORDANCE WITH THE ASI PRACTICAL GUIDE TO PLANNING THE SAFE ERECTION OF STEEL STRUCTURES.
- THE ERECTION SEQUENCE METHODOLOGY (ESM) IS RECOMMENDED FOR PROJECTS WHERE AT A RISK ASSESSMENT HAS BEEN UNDERTAKEN AND INDICATES THE NEED. THE SCOPE AND EXTENT OF THE ESM IS AN OUTCOME OF THE RISK PLANNING WORKSHOPS. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY STABILITY.
- S33. PROPRIETARY ITEMS**
- PROPRIETARY ITEMS (e.g. PURLINS, ROOF/WALL SHEETING, FERRULES) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
- S34. STRUCTURAL STEELWORK INSPECTION, TESTING AND CORRECTION**
- INSPECTION, TESTING AND CORRECTION SHALL CONFORM TO THE REQUIREMENTS OF ASINZS 5131. INSPECTION AND TEST PLANS (TP) SHALL BE PREPARED, AS LISTED IN THE TABLE BELOW:
- | ITEM                   | ITP      |
|------------------------|----------|
| MATERIALS & COMPONENTS | REQUIRED |
| PREPARATION & ASSEMBLY | REQUIRED |
| WELDING                | REQUIRED |
| MECHANICAL FASTENING   | REQUIRED |
| SURFACE TREATMENT      | REQUIRED |
| PAINT COATINGS         | REQUIRED |
| GALVANISED COATINGS    | REQUIRED |
| ERECTION               | REQUIRED |

- S35.** THE CONTRACTOR SHALL PREPARE WORKSHOP (SHOP DETAIL) DRAWINGS AND SHALL SUBMIT EITHER AN ELECTRONIC PDF FILE OR TWO HARD COPIES OF EACH DRAWING FOR EXAMINATION OF CONNECTION DETAILS. FABRICATION SHALL NOT COMMENCE UNTIL THE WORKSHOP DRAWINGS HAVE BEEN REVIEWED. A REVIEW WILL BE PROVIDED FOR MEMBER SIZES AND CONNECTION DETAILS, BUT WILL NOT EXTEND TO DIMENSIONS. ALL DIMENSIONS AND SETOUTS SHALL BE OBTAINED FROM DESIGN CONSULTANTURAL DRAWINGS.
- SHOULD VARIATIONS BE NECESSARY TO THE STRUCTURAL DETAILS PROVIDED, THESE SHALL BE REFERRED TO SCP CONSULTING FOR APPROVAL BEFORE BEING INCLUDED ON SHOP DETAIL DRAWINGS. SHOP DETAILS SHALL PROVIDE FOR FIXING OR SUPPORT OF ANY BUILDING ELEMENTS SHOWN ON DESIGN CONSULTANTURAL DRAWINGS.
- S36. SHOP DETAIL DRAWINGS SHALL CLEARLY INDICATE:**
- DIMENSIONS OF ITEMS, IDENTIFICATION, STEEL GRADE
  - PROCEDURES NECESSARY FOR SHOP AND SITE ASSEMBLY
  - LOCATION, TYPE AND SIZE OF WELDS AND BOLTS
  - ORIENTATION OF MEMBERS
  - CAMBER OR PRESENT (IF ANY)
  - LOCATION OF TEMPORARY CONNECTIONS AND BRACING
  - SURFACE PREPARATION METHOD AND COATING SYSTEM
  - WELDING AND BOLTING CATEGORIES

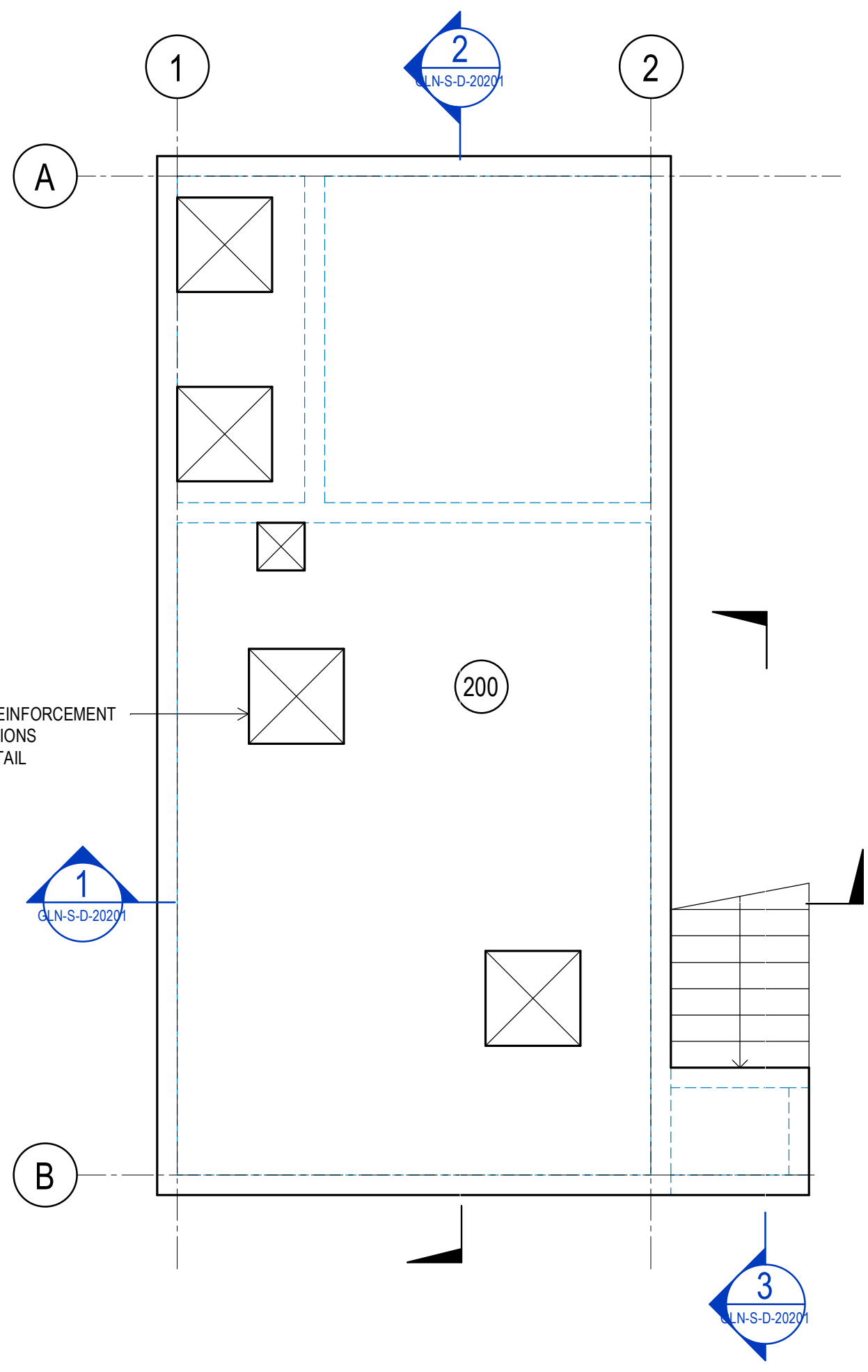




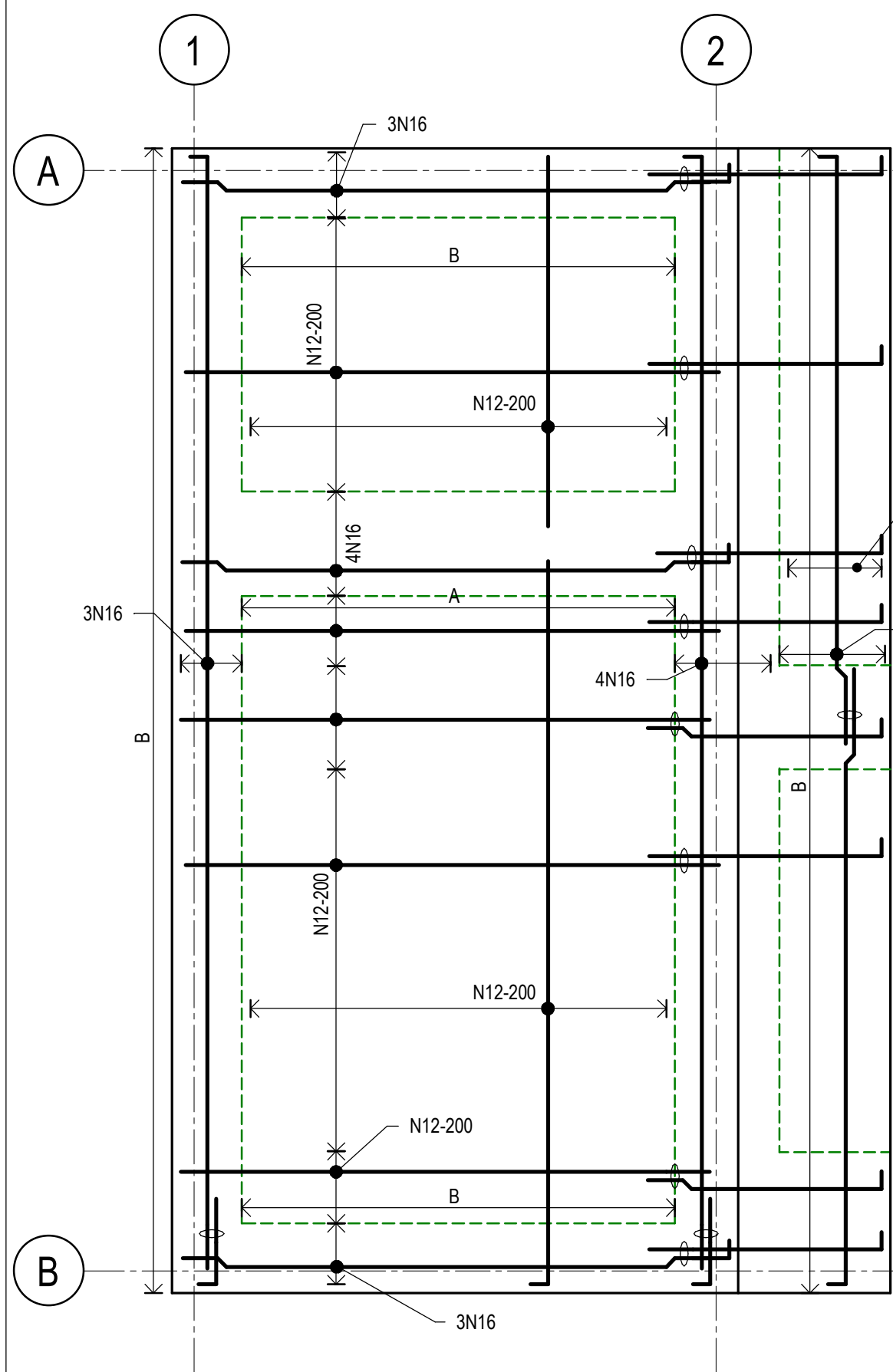




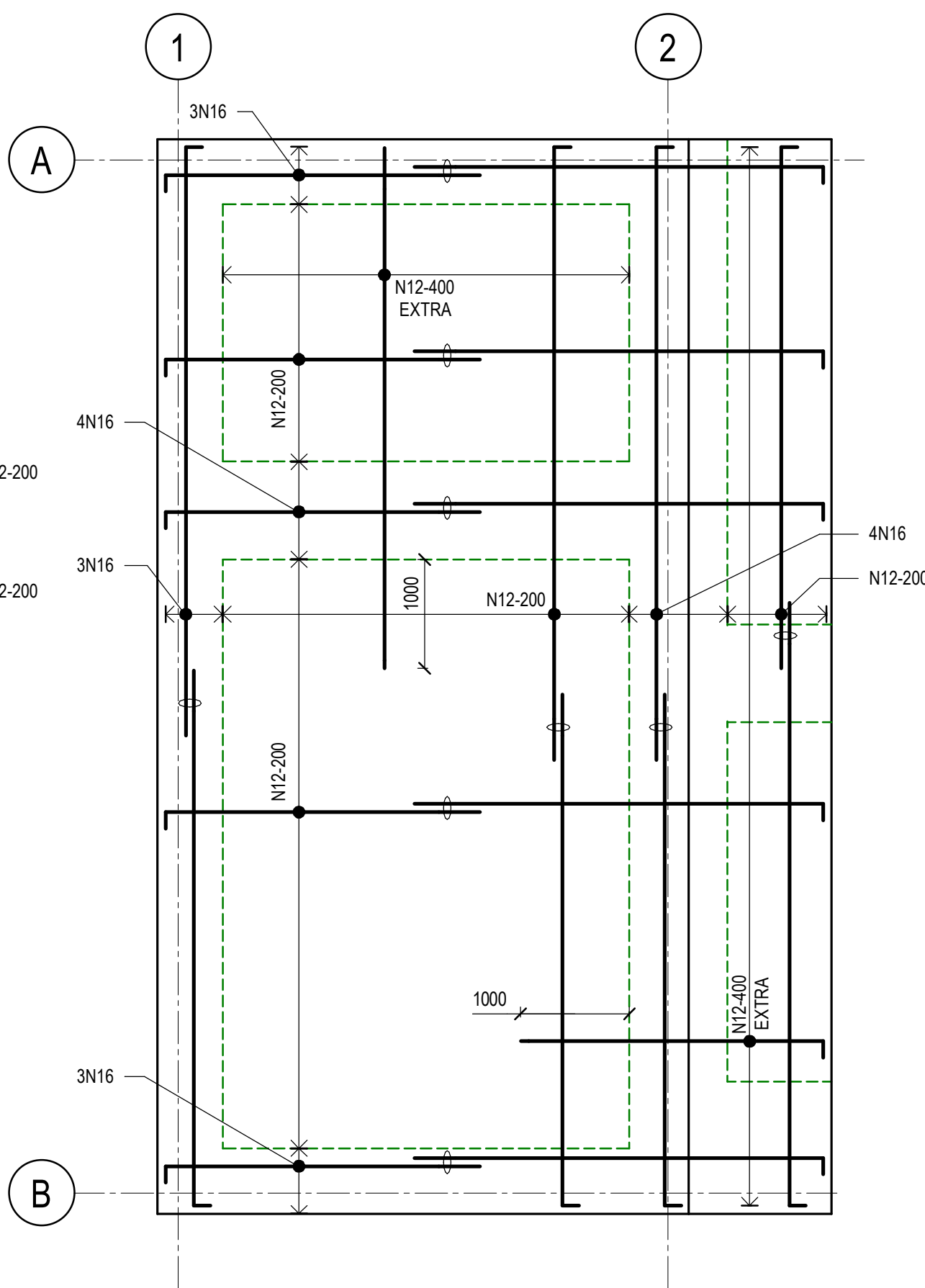
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SCALE 1 : 50



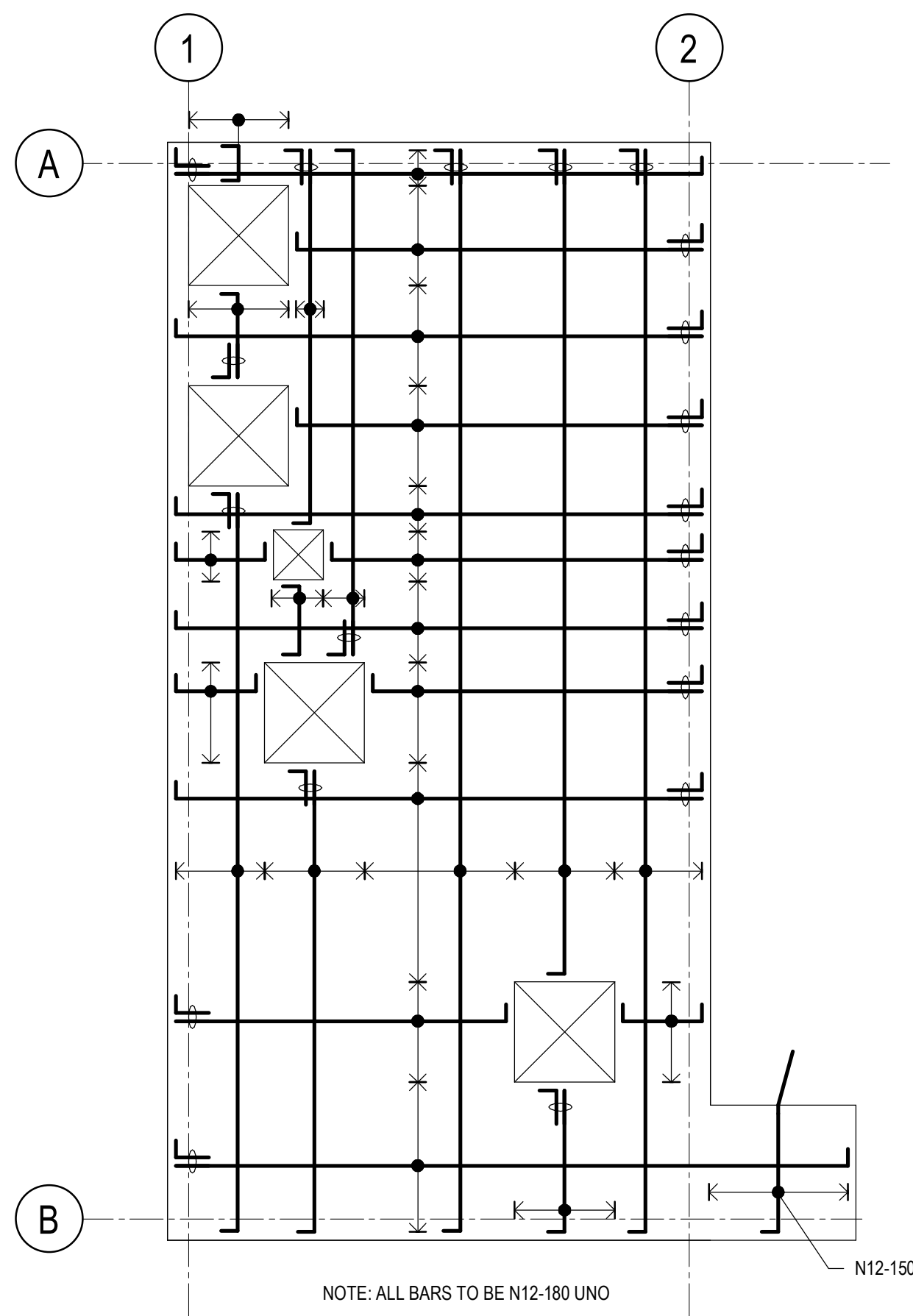
**TANK LID GENERAL ARRANGEMENT PLAN**  
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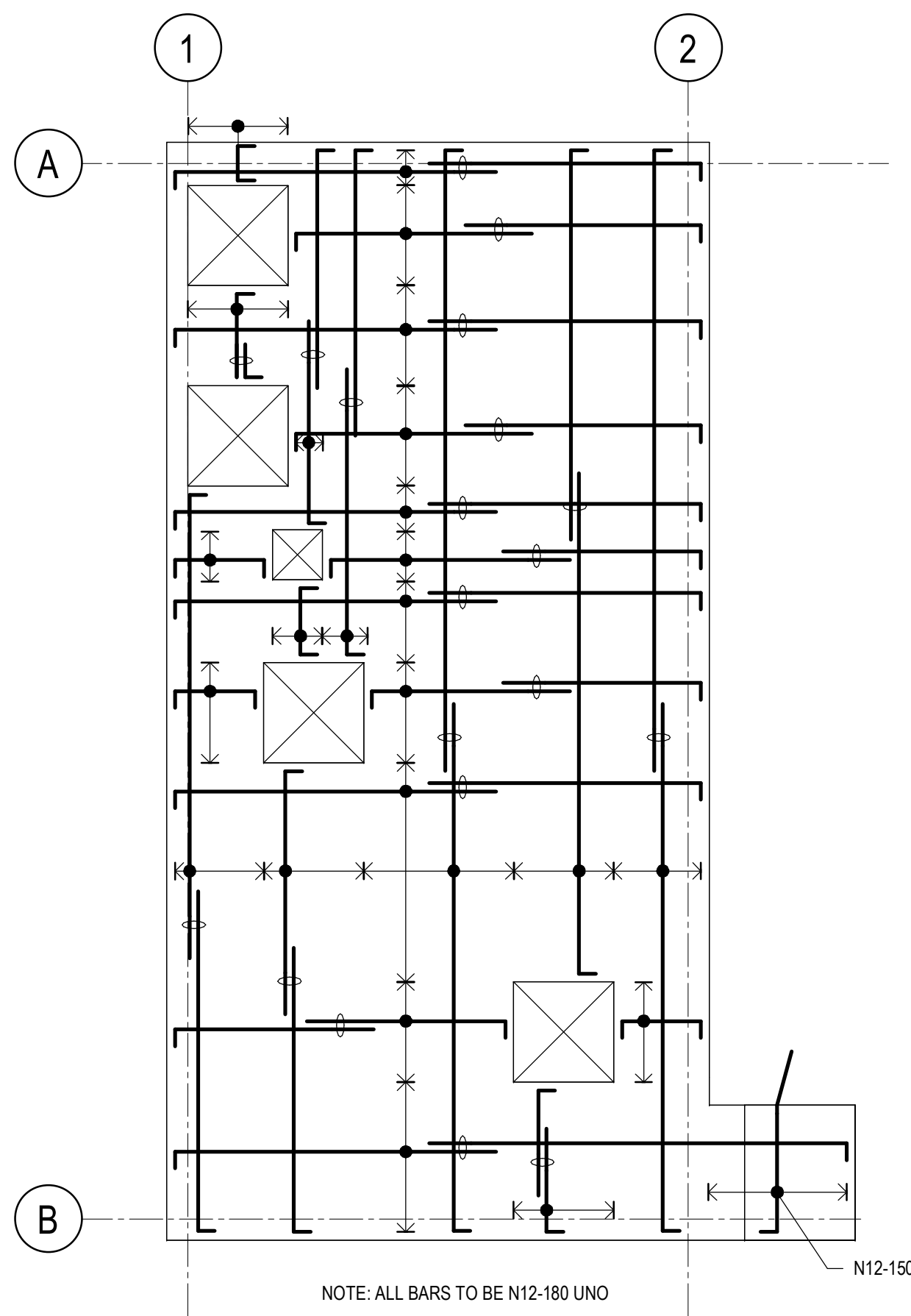
**TANK SLAB REINFORCEMENT BOTTOM PLAN**  
SCALE 1 : 50



**TANK SLAB REINFORCEMENT TOP PLAN**  
SCALE 1 : 50



**TANK ROOF SLAB REINFORCEMENT BOTTOM PLAN**  
SCALE 1 : 50



**TANK ROOF SLAB REINFORCEMENT TOP PLAN**  
SCALE 1 : 50

**LAP SCHEDULE - SLABS (LESS THAN 300 THICK)**

BAR DIAMETER	CONCRETE STRENGTH $f_c =$				
	32 MPa	40 MPa	50 MPa	65 MPa	80 MPa
N12	500	450	400	350	350
N16	700	650	600	500	500
N20	950	850	800	700	700
N24	1250	1100	1000	900	900
N28	1550	1350	1250	1100	1100
N32	1850	1650	1500	1300	1300
N36	2200	1950	1750	1550	1550

NOTE: FOR SLABS GREATER THAN 300 THICK, USE BEAM LAP SCHEDULE

**LAP SCHEDULE - BEAMS**

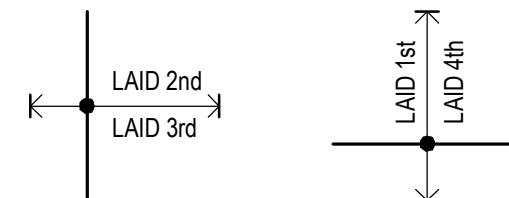
BAR DIAMETER	CONCRETE STRENGTH $f_c =$				
	32 MPa	40 MPa	50 MPa	65 MPa	80 MPa
N12	500	450	450	450	450
N16	800	750	650	600	600
N20	1150	1000	900	800	800
N24	1500	1350	1200	1050	1050
N28	1850	1650	1500	1300	1300
N32	2250	2000	1800	1600	1600
N36	2700	2400	2150	1900	1900

**TIE SCHEDULE**

TIE TYPE	REINFORCEMENT	TIE ARRANGEMENT
'A'	N12-400	
'B'	N12-400	

**LAYERING SEQUENCE**

UNLESS NOTED OTHERWISE ON PLAN



**REINFORCEMENT NOTES**

DISTRIBUTION BARS TO BE N12-500 U.N.O. ON PLAN EX. DENOTES EXTRA BARS

PROVIDE SL72 MESH OVER TOP FOR BEAMS 450 DEEP OR DEEPER. NOT SHOWN ON PLAN TYP.

PROVIDE SL72 MESH OVER TOP FOR ALL EXTERNAL SLABS & BEAMS. NOT SHOWN ON PLAN TYP.

FOR ADDITIONAL REINFORCEMENT NOT SHOWN ON PLAN REFER SLAB SECTION DETAILS, TYPICAL STRESSING ANCHORAGE DETAILS & SLAB DOWEL DETAILS

BAR LAPS FOR ALL OUTSIDE BARS IN BEAMS BANDS SHALL BE JOGGLED

CUT CROSS RODS AND LAP TO ALLOW MAXIMUM TENDON DRAPE

ALL REINFORCEMENT SUPPLIED SHALL BE ACRS CERTIFIED. AN ACRS CERTIFICATE SHALL BE SUBMITTED TO SCP CONSULTING FOR VERIFICATION

TOP REINFORCEMENT IN BEAMS AT BEAM INTERSECTIONS SHALL HAVE TOP BARS CRANKED OR LIGATURE HEIGHT LOWERED TO AVOID REINFORCEMENT CLASH.

MINIMUM CLEAR COVER TO REINFORCEMENT;

: 40mm BOTTOM (INTERNAL)

: 40mm BOTTOM (EXTERNAL)

: 40mm SIDES (INTERNAL)

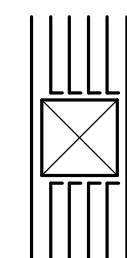
: 40mm SIDES (EXTERNAL)

: 40mm TOP (INTERNAL)

: 40mm TOP (EXTERNAL)

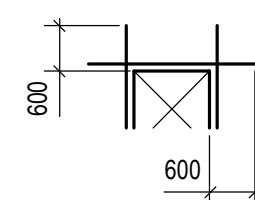
REFER TO SECTIONS FOR ANY ADDITIONAL REINFORCEMENT THAT MAY NOT BE SHOWN ON PLANS

**BARS AT PENETRATIONS**



REINFORCEMENT THAT RUNS INTO A PENETRATION IS TO BE TERMINATED EACH SIDE OF PENETRATION & COGGED

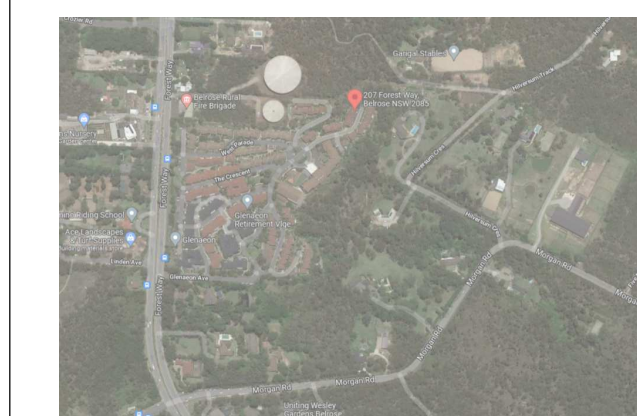
**TRIMMER DETAIL**



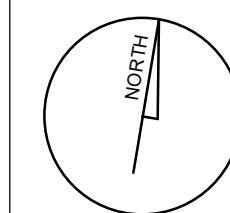
PROVIDE 2N16 TOP & BTM TRIMMER BARS EXTENDING 600mm PAST EACH EDGE OF OPENINGS / PENETRATIONS, UNLESS NOTED OTHERWISE ON PLAN.

LAYERING TO SUIT ADJACENT REINFORCEMENT.

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Key Plan



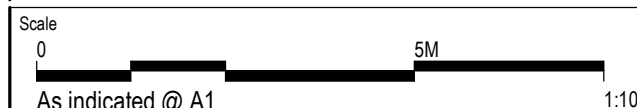
A	TENDER ISSUE	14.03.22
Rev	Revision Description	Date



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**LENLELEASE**

Project  
**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

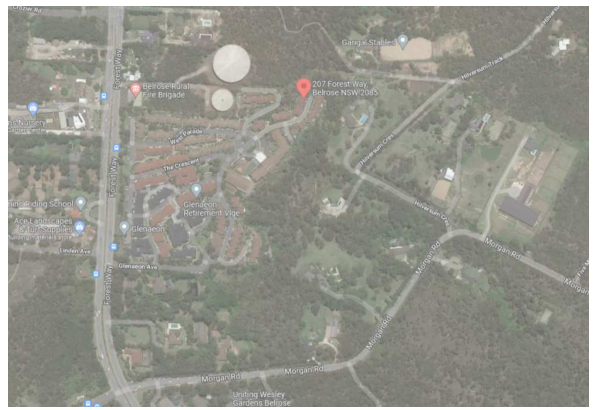
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**TANK PLANS**



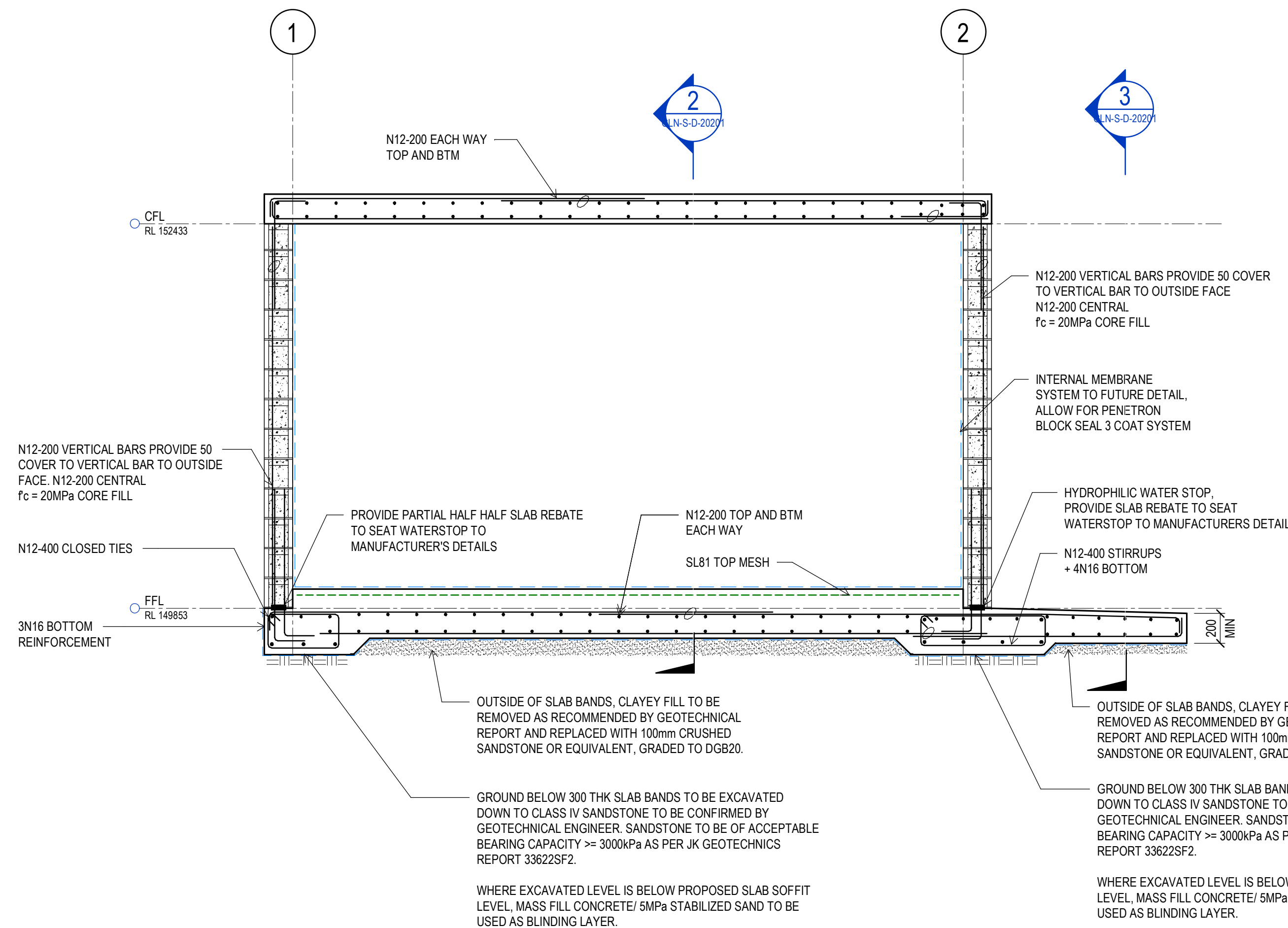
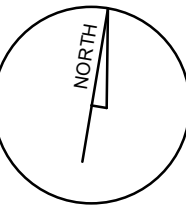
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Project Number S210157	Drawing Number GLN-S-D-20101		



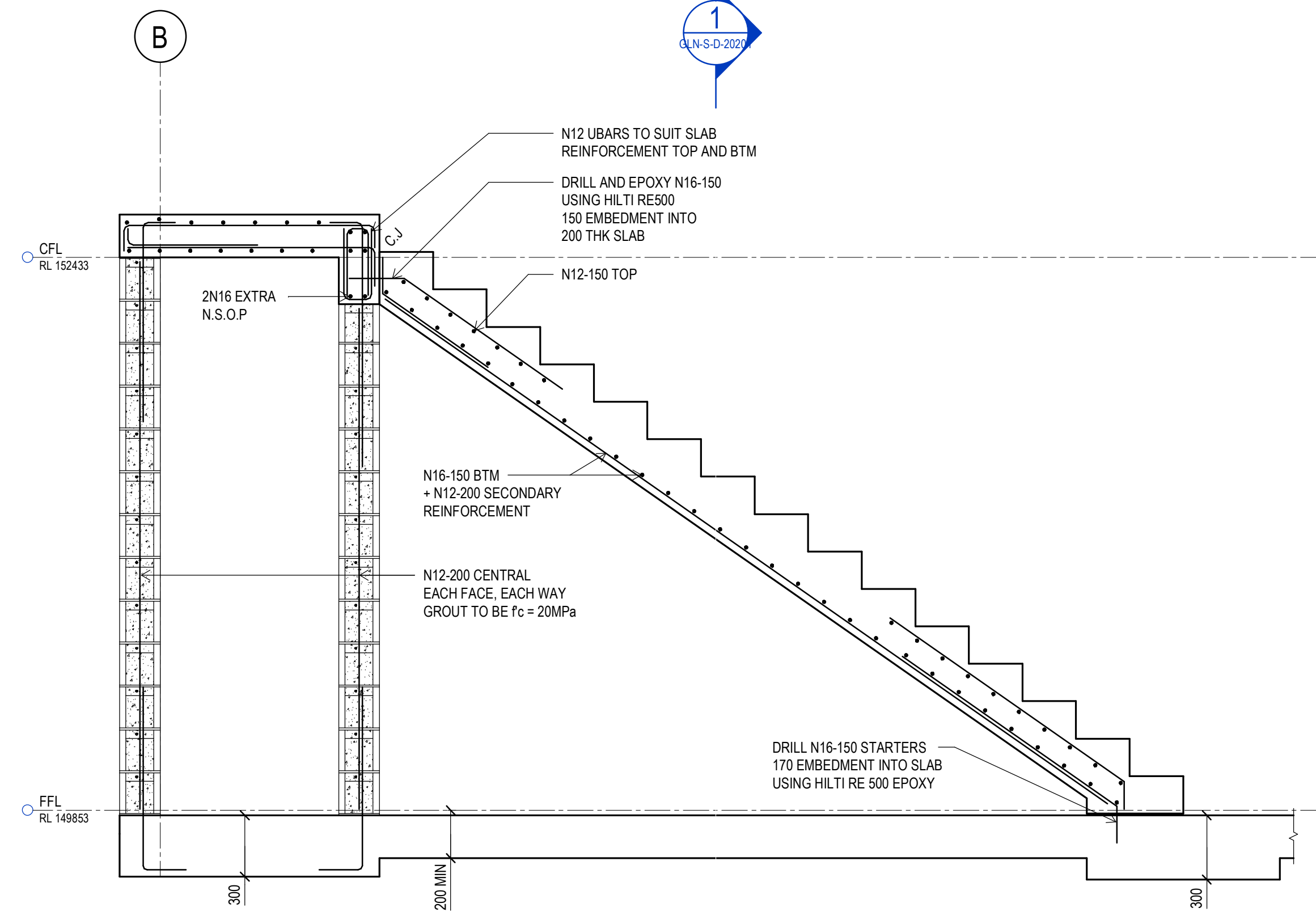
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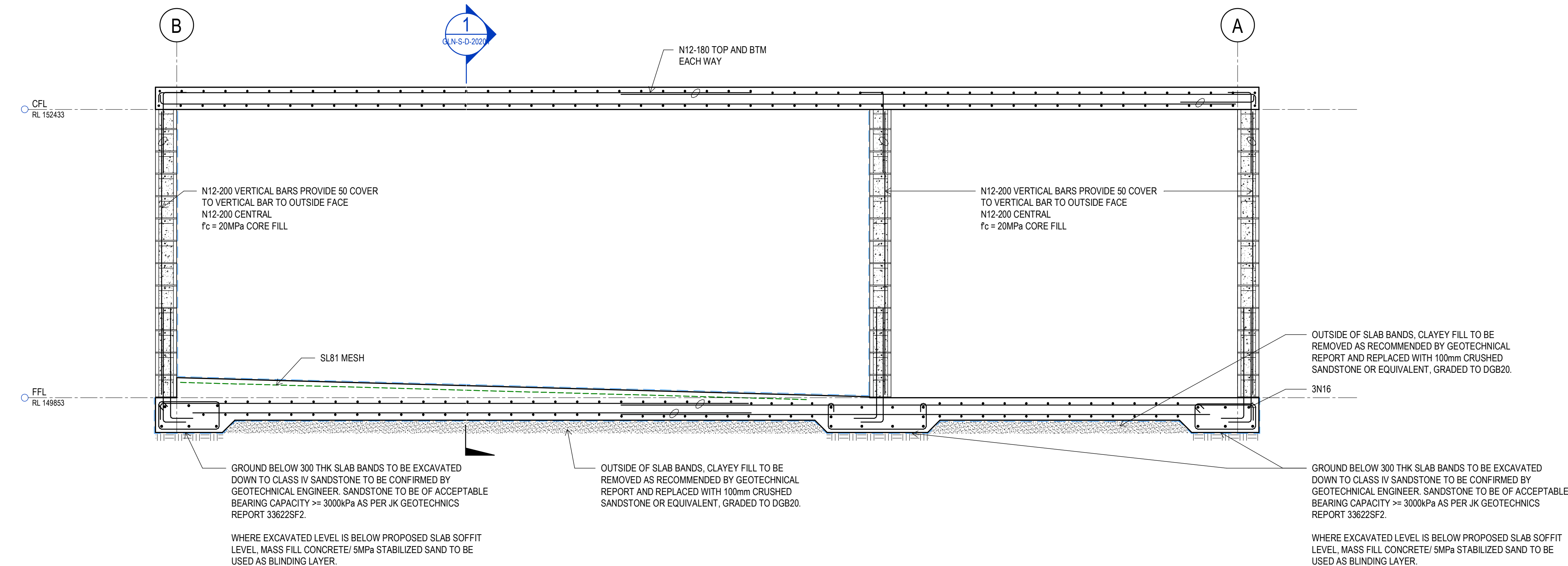
Key Plan



1 SECTION  
SCALE 1:25



3 SECTION  
SCALE 1:20



2 SECTION  
SCALE 1:25

Rev	Revision Description	Date
A	TENDER ISSUE	14.03.22

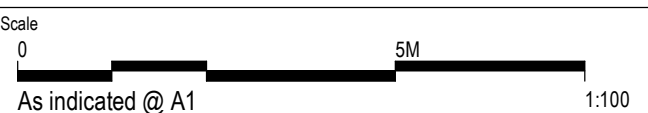
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**GLENAEON RETIREMENT LIVING - SPS UPGRADE PROJECT**

Title  
**TANK DETAILS SHEET 1**



Drawn LC	Checked KD	Approved HW	Revision A
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Project Number  
**S210157**

Drawing Number  
**GLN-S-D-20201**