EMULSION TANK BUND & SLAB

MT. MAGOMETON QUARRY, COONAMBLE NSW 2829

ENGINEERING DESIGN FOR:
COONAMBLE SHIRE COUNCIL

PROJECT MANAGEMENT BY: *CONSETH SOLUTIONS*
0408 611 653
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PROJECT NUMBER	SHEET NUMBER	SHEET TITLE	ISSUE	ISSUE DATE
23010	S00	ENGINEERING COVERSHEET	A	16.02.2023
23010	S01	SITE PLAN	A	16.02.2023
23010	S02	PARTIAL SITE PLAN	A	16.02.2023
23010	S03	INDICATIVE SITE TERRAIN	A	16.02.2023
23010	S04	INDICATIVE SLAB SECTIONS	A	16.02.2023
23010	S05	FOOTING & SLAB PLAN	A	16.02.2023
23010	S06	APPENDIX A	A	16.02.2023
23010	S07	APPENDIX B	A	16.02.2023

Approved

Issue for Tender

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

CONSULTING ENGINEERS

PROJECT
EMULSION TANK BUND & SLAB

MT. MAGOMETON QUARRY
COONAMBLE NSW 2829

DRAWING TITLE
ENGINEERING COVERSHEET

CLIENT
COONAMBLE SHIRE COUNCIL

DATE // TIME
16/02/2023 10:06:35 AM

SCALE
AS SHOWN

REVISION
A

PROJECT ID
23010

DRAWN BY: VMC, NJM, GW

CHECKED BY: SJL

Principal: Shane Lutze
B.Eng [Mech] - M.Eng.Sci [Struct]
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SJL Consulting Engineers Pty Limited
ABN: 20 651 944 151

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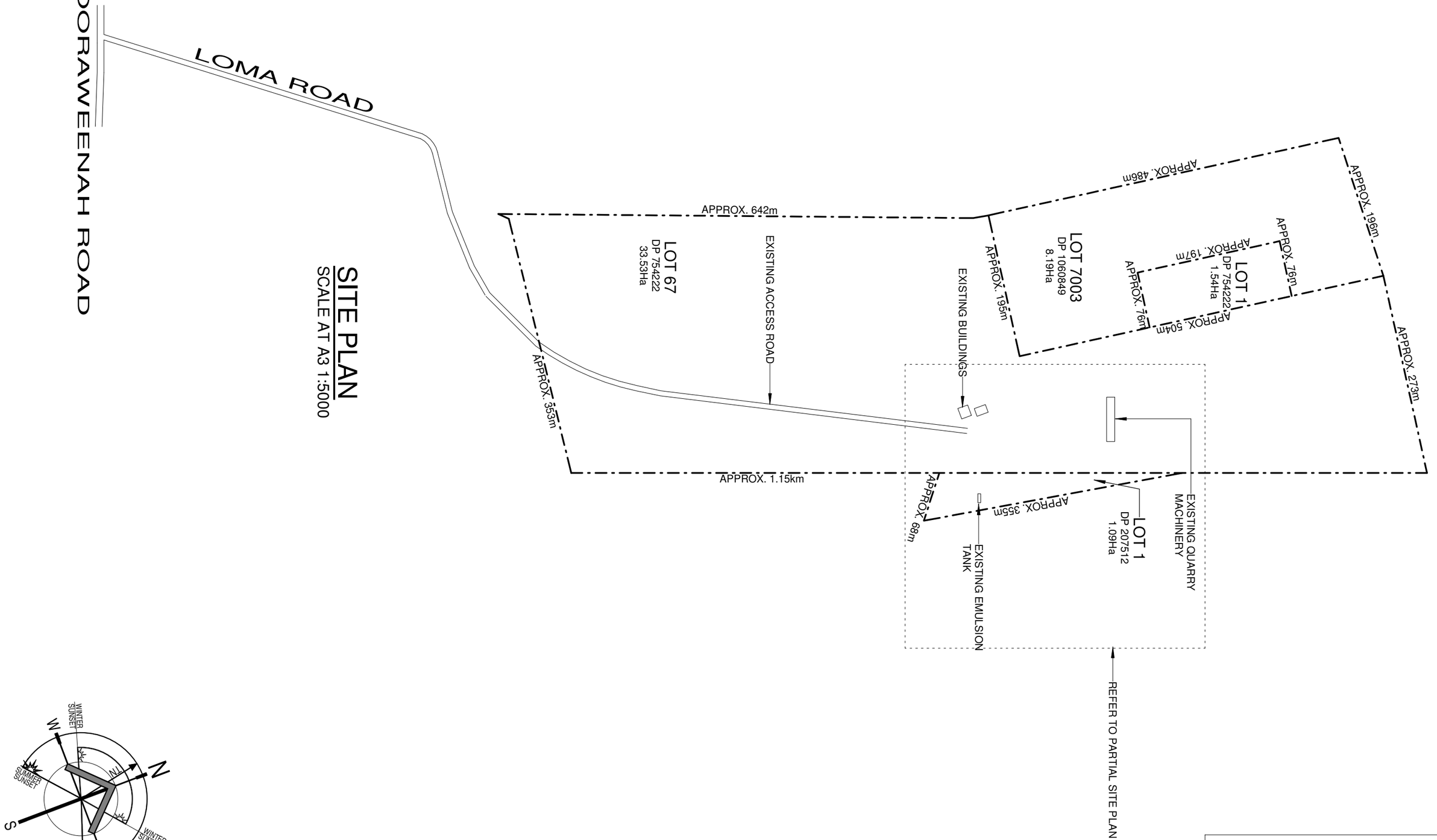
A	ISSUED FOR REVIEW	16.02.23

DRAWING NO.
S00



SITE PLAN

SCALE AT A3 1:5000

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DRAWING NO. **S01**

PARTIAL SITE PLAN

SCALE AT A3 1:1000

EXISTING BUILDINGS

EXISTING ACCESS TRACK

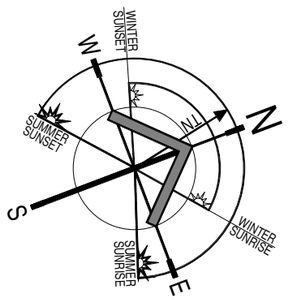
EXISTING QUARRY MACHINERY

APPROX. 68m

LOT 1
DP 207512
1.09Ha

APPROX. 355m

EXISTING EMULSION TANK



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SJL CONSULTING ENGINEERS

PROJECT
EMULSION TANK BUND & SLAB

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COONAMBLE NSW 2829

DRAWING TITLE
PARTIAL SITE PLAN

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DRAWING NO. **S02**

NOTE: INFORMATION DISPLAYED IN DIGITAL ELEVATION MODEL IS INDICATIVE ONLY, AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES. A DETAILED GROUND SURVEY IS REQUIRED FOR ACCURATE SETOUT.

Issue for Tender

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SJL CONSULTING ENGINEERS

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COONAMBLE NSW 2829

DRAWING TITLE
INDICATIVE SITE TERRAIN

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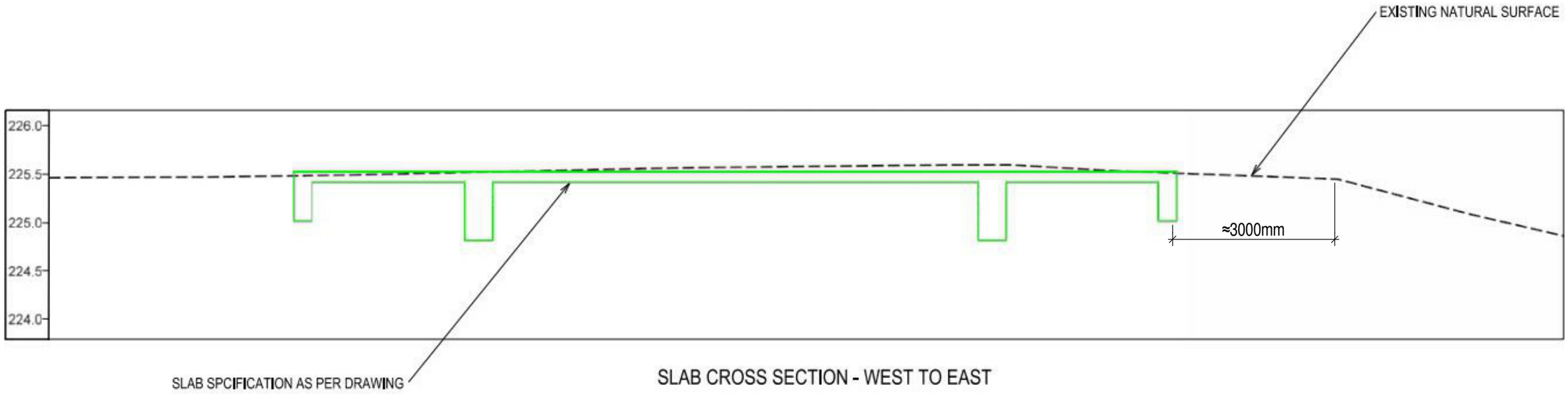
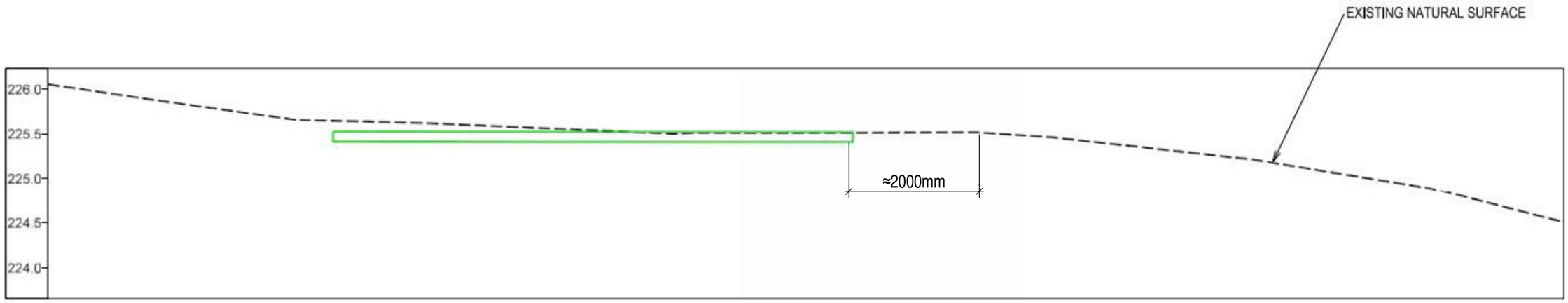
DRAWING NO. **S03**



SLAB CROSS SECTION - WEST TO EAST



SLAB CROSS SECTION - NORTH TO SOUTH

Issue for Tender

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INDICATIVE SLAB SECTIONS

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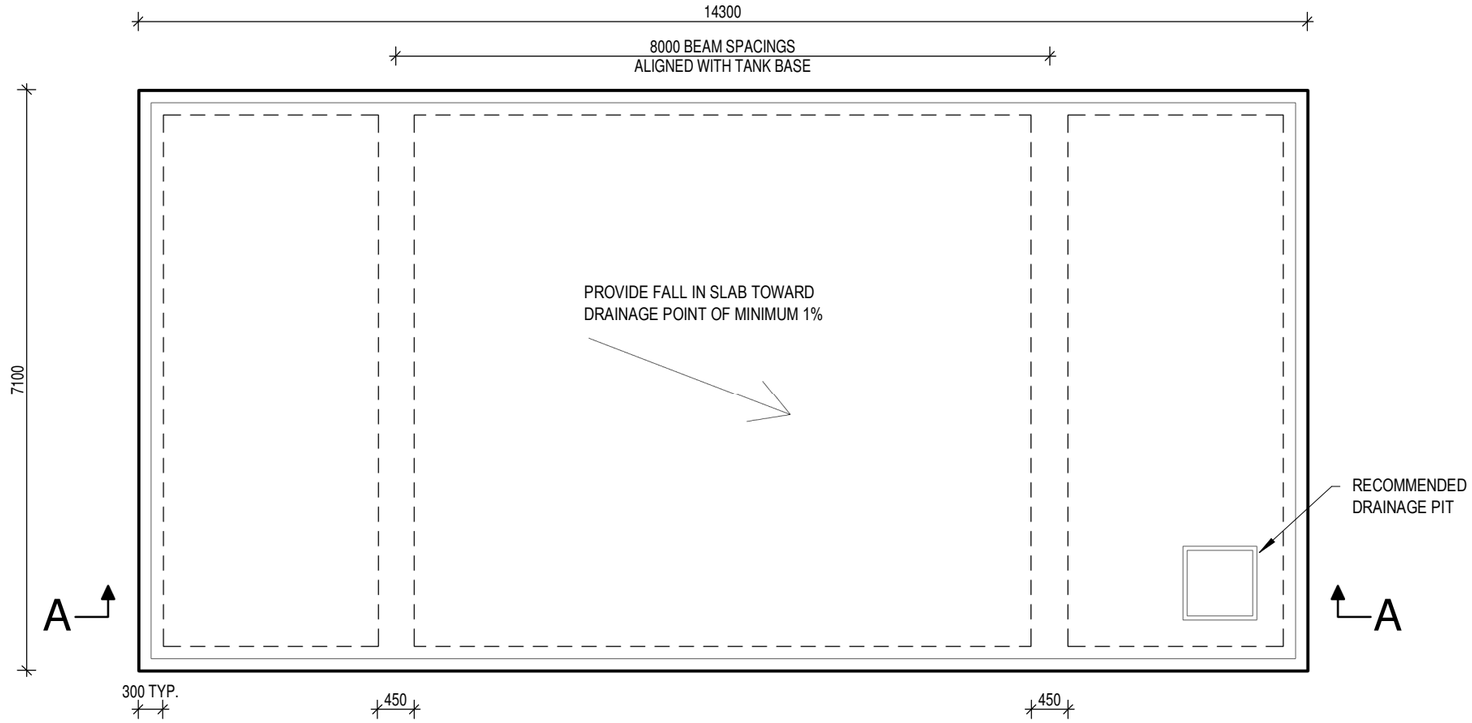
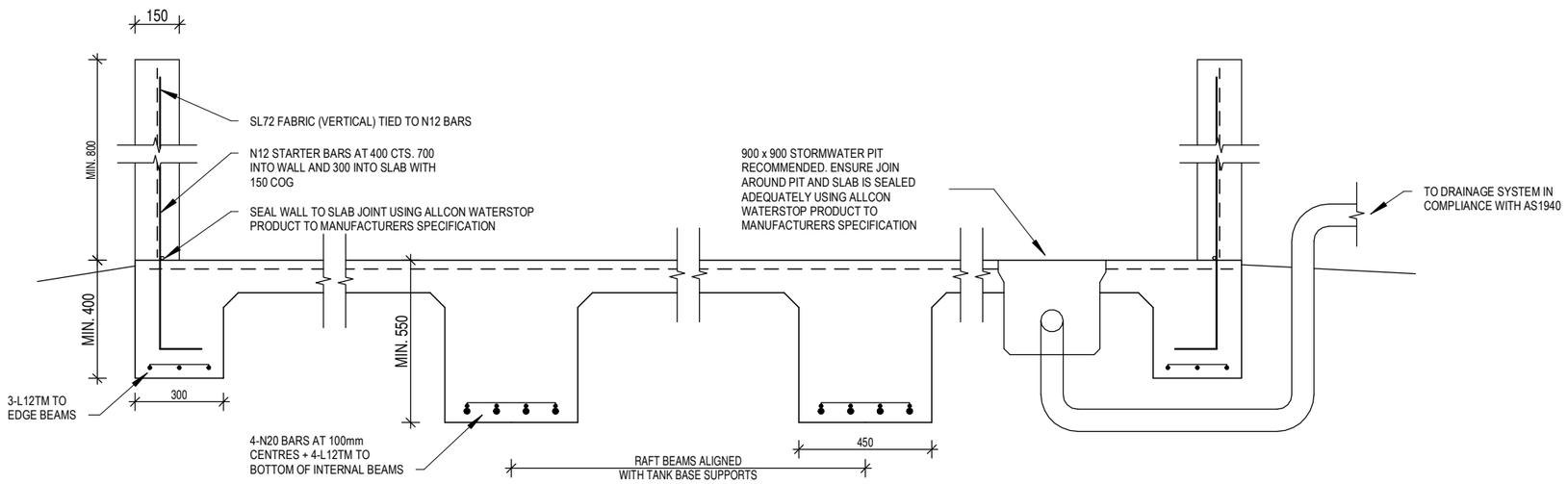
DRAWING NO. **S04**



1 SLAB & FOOTING PLAN

1 : 75



2 SECTION A-A THROUGH SLAB

1 : 20

CONCRETE FOOTING SPECIFICATIONS

CONSTRUCTION DESIGN: REINFORCED RAFT SLAB WITH VERTICAL BUNDING WALLS FOR EMULSION TANK.

FOOTING SPECIFICATIONS BASED ON GEOTECHNICAL REPORT BY MACQUARIE GEOTECH REF# 01-LT, DATED 24/11/2022.

FOOTINGS ARE TO BE FOUNDED BELOW THE TOPSOIL/FILL, AND ANY UNCONTROLLED FILL, IF ENCOUNTERED, AND ONTO THE NATURAL BEARABLE MATERIAL @ OR BELOW 200MM WHERE AN ALLOWABLE BEARING CAPACITY OF 200kPa HAS BEEN ASSUMED.

CONCRETE STRENGTH:	32 MPa
GENERAL SLAB THICKNESS:	UNLESS NOTED OTHERWISE, SLAB TO BE MINIMUM 110mm THICK ON 50mm SAND BLINDING, COMPACTED FILL AND REINFORCED WITH 1 LAYER OF FABRIC PLACED 25mm FROM TOP, ADDITIONAL REINFORCEMENT AS SHOWN.
GENERAL SLAB MESH	SL102 FABRIC PLACED 25mm FROM TOP
RAFT EDGE BEAMS:	300 WIDE x 400 DEEP, 3-L12TM TO BOTTOM
RAFT INTERNAL BEAMS:	450 WIDE x 550 DEEP, 4-N20 & 4-L12TM TO BOTTOM
DAMP PROOF MEMBRANE:	PROVIDE A 0.2mm THICK HIGH IMPACT RESISTANT DAMP PROOFING MEMBRANE TO THE UNDERSIDE OF SLAB AND FOOTINGS

FOOTING PLAN

1. SITE TO BE STRIPPED OF VEGETATION AND EXPOSED SURFACE PROOF ROLLED. ANY SOFT OR HEAVING AREAS SHALL BE EXCAVATED AND REPLACED AND COMPACTED WITH GRANULAR SELECT FILL AS REQUIRED.

2. WHERE FILL IS REQUIRED - IT IS TO BE ROLLED FILL THAT CONSISTS OF MATERIAL COMPACTED IN LAYERS BY REPEATED ROLLING WITH AN EXCAVATOR.
ROLLED FILL SHALL NOT EXCEED 600 COMPACTED IN LAYERS NOT MORE THAN 300 THICK FOR SAND MATERIAL OR 300 COMPACTED IN LAYERS NOT MORE THAN 150 THICK FOR OTHER MATERIAL

3. DEPTH OF FILL IS NOT TO EXCEED THESE LIMITS WITHOUT PRIOR APPROVAL FROM SJL CONSULTING ENGINEERINGS.

4. IF UNKNOWN FILL IS FOUND OR IN DOUBT DURING EXCAVATION, CONTACT SJL CONSULTING ENGINEERS IMMEDIATELY.

CONTAMINATED WATER MANAGEMENT NOTES

BUNDED AREA MUST BE SLOPED TOWARDS CONTAMINATED WATER DRAINAGE POINTS WITH MINIMUM 2% FALL, TO DRAINAGE PIT AND/OR PIPING BELOW.

THE CAPACITY OF THE CONTAMINATED WATER DISCHARGE PUMP MUST BE SUFFICIENT TO REMOVE WATER IN THE EVENT OF AUTOMATED AND/OR MANUAL FIREFIGHTING EFFORTS OR HEAVY RAINFALL, TO PREVENT SPILLAGE OVER TOP OF BUNDING. THE BUND AND DRAINAGE SYSTEM MUST COMPLY WITH AS1940:2017 'THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTABLE LIQUIDS'.

VOLUME OF BUNDED AREA ABOVE SLAB LEVEL IS APPROXIMATELY 76,000L, EQUIVALENT TO 120% OF THE FULL VOLUME OF THE TANK PLUS THE 1% AEP RAINFALL FOR A 24-HOUR PERIOD.

Issue for Tender

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DRAWING NO. **S05**

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE PRINCIPAL FOR DECISION BEFORE PROCEEDING WITH THE WORK.

2. ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION AND FABRICATION IS COMMENCED. THE ENGINEER'S DRAWINGS SHALL NOT BE SCALED.

3. WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, BUILDING CODE OF AUSTRALIA, CURRENT S.A.A. CODES INCLUDING AMENDMENTS, BUILDING REGULATIONS, AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

4. THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR A VARIATION. ANY VARIATION INVOLVED MUST BE TAKEN UP WITH THE PRINCIPAL BEFORE THE WORK COMMENCES.

5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE. ALL LEVELS ARE EXPRESSED IN METRES.

6. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNTIL ISSUED AS "FOR CONSTRUCTION" BY THIS OFFICE.

7. ALL DISCREPANCIES SHALL BE REFERRED TO THE PRINCIPAL FOR RESOLUTION BEFORE PROCEEDING WITH THE WORKS.

8. THE STRUCTURAL DRAWINGS DO NOT SHOW ALL DETAILS OF FIXTURES, INSERTS, SLEEVES, OPENINGS, RECESSES, CHASES, ETC REQUIRED BY THE VARIOUS TRADES. ALL SUCH DETAILS MUST BE APPROVED BY THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.

9. THE CONTRACTOR RETAINS RESPONSIBILITY OF THE WORKS EVEN IF THE ENGINEER HAS INSPECTED THE WORKS DURING CONSTRUCTION.

10. A COPY OF THESE DRAWINGS SHALL BE KEPT ON-SITE DURING THE CONSTRUCTION PERIOD.

11. THE DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF FORMWORK AND FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT CODES.

12. THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION PROCEDURE AND ALL LOADS DURING CONSTRUCTION. IF THE CONTRACTOR SUBMITS THIS SUGGESTED CONSTRUCTION PROCEDURE TO THE SUPERINTENDENT FOR REVIEW, THE ACCEPTANCE OF THE PROCEDURE BY THE PRINCIPAL WILL NOT ABSOLVE THE CONTRACTOR FROM HIS RESPONSIBILITY FOR THE PROCEDURE OR FROM ANY CONSEQUENCES WHICH MAY OCCUR DURING CONSTRUCTION.

13. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVER-STRESSED UNDER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DESIGN AND INSTALL TEMPORARY BRACING AS REQUIRED TO KEEP THE WORKS AND EXCAVATION STABLE AT ALL TIMES. WHEN REQUESTED, THE CONTRACTOR SHALL PROVIDE CALCULATIONS TO JUSTIFY THE ADEQUACY OF THE STRUCTURE TO SAFELY WITHSTAND ANY IMPOSED LOADS AND/OR CONSTRUCTION PROCEDURE.

14. WHERE ADDITIONAL CONSTRUCTION LOADS SUCH AS TEMPORARY SHORING, MOBILE CRANES, ETC ARE TO BE IMPOSED ON THE STRUCTURE, THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE PROPOSED TEMPORARY SUPPORTS TO THE ENGINEER FOR REVIEW. SUCH INFORMATION MUST BE PROVIDED A MINIMUM OF 7 WORKING DAYS PRIOR TO THE PROPOSED WORKS COMMENCING.

15. IF THE CONTRACTOR INTENDS TO VARY THE SCOPE OR METHOD OF WORKS OR MATERIALS USED THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE PROPOSAL TO THE ENGINEER FOR CHECKING.

16. THE COST FOR CARRYING OUT THE DESIGN AND REVIEW IN CLAUSES 11, 12, 13, 14 & 15 SHALL BE AT THE CONTRACTORS EXPENSE. COSTS INCURRED BY SJL CONSULTING ENGINEERS PTY LIMITED TO CARRY OUT THE ABOVE TASKS SHALL BE RECOVERED FROM THE CONTRACTOR DETERMINED BY THE HOURLY RATES SETOUT IN THE WORKS AGREEMENT.

17. PRIOR TO ANY EXCAVATION, DRILLING OR PILE DRIVING, THE CONTRACTOR SHALL CHECK WITH ALL RELEVANT AUTHORITIES AND OBTAIN ALL NECESSARY PERMITS AND BY SITE EXPLORATION IF NECESSARY FOR THE LOCATION OF ANY EXISTING SERVICES WHICH MAY EFFECT THE WORKS. IF SERVICES ARE FOUND TO EXIST, THEN THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT AND OBTAIN INSTRUCTIONS PRIOR TO PROCEEDING.

18. ALL PROPRIETARY PRODUCTS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

19. ALL REQUIRED TESTS TO COMPLETE THE WORKS SHALL BE AT THE CONTRACTORS EXPENSE.

20. THE WORD 'ENGINEER' USED IN THESE NOTES REFERS TO AN EMPLOYEE OR NOMINATED REPRESENTATIVE OF SJL CONSULTING ENGINEERS PTY LIMITED.

21. THE CONTRACTOR SHALL ENGAGE A REGISTERED BUILDING PRACTITIONER TO CARRY OUT ALL SITE INSPECTIONS AND TO SUBMIT REPORTS TO THE CONTRACTOR AND PRINCIPAL FOR RECORD. THE BUILDING PRACTITIONER SHALL BE A PRACTICING STRUCTURAL ENGINEER / CIVIL ENGINEER WHO IS NOT INVOLVED WITH DAY TO DAY RUNNING OF THE PROJECT, WHO CAN DEMONSTRATE KNOWLEDGE AND EXPERIENCE IN BUILDINGS OF SIMILAR TYPE AND SIZE AND WHO HAS BEEN GIVEN WRITTEN APPROVAL TO CARRY OUT THE INSPECTIONS BY THE SUPERINTENDENT. ALL FOUNDATIONS, PRE-SLAB, CONCRETE REINFORCEMENT, STRUCTURAL STEELWORK, TIMBER, OR METAL FRAMING ARE TO BE INSPECTED FOR COMPLIANCE WITH STRUCTURAL DOCUMENTS. ADDITIONAL SPOT CHECKS OF MASONRY TIES AND MORTAR JOINTS BY THE REGISTERED BUILDING PRACTITIONER TO BE INCLUDED.

FOUNDATIONS - GENERAL

1. FILL CONSTRUCTION PROCEDURES:

NEW FILL SHOULD BE PLACED IN GENERAL ACCORDANCE WITH THE RECOMMENDATIONS OUTLINED IN AS3798-1996, "GUIDELINES FOR EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS". TOPSOIL, ROOT AFFECTED AND ANY ORGANIC RICH SOILS SHOULD NOT BE USED FOR NEW ENGINEERED FILLING. THE FILL MATERIALS SOURCED OUTSIDE THE SITE SHOULD BE ASSESSED FOR ITS SUITABILITY BEFORE PLACEMENT AND APPROVED BY THE CONTRACTORS GEOTECHNICAL ENGINEER.

2. THE FOLLOWING PROCEDURES ARE RECOMMENDED ASA GUIDE FOR SITE PREPARATION AND PLACEMENT OF NEW FILL:

i. EXCAVATE AND REMOVE TOPSOIL, EXISTING FILL, VEGETATION, ROOT AFFECTED OR OTHER POTENTIALLY DELETERIOUS MATERIAL AND EXCAVATE TO AT LEAST ONE METRE BEYOND THE FOOTPRINT OF THE BUILDING PLATFORM.
ii. THE EXPOSED NATURAL SOILS SHOULD THEN BE SCARIFIED TO A DEPTH OF 150mm, MOISTURE CONDITIONED TO WITHIN 1% DRY AND 2% WET OF STANDARD OPTIMUM MOISTURE CONTENT (SOMC) AND THEN RECOMPACTED UP TO 125mm BELOW UNDERSIDE CONCRETE SLAB FORMATION TO A MINIMUM DRY DENSITY RATIO OF 98% STANDARD IN ACCORDANCE WITH AS1289 CLAUSE 5.1.1, 5.4.1 OR 5.7.1 FOR ALL AREAS.
iii. PROOF ROLLING SHALL IDENTIFY ANY SOFT OR WEAK AREAS DURING THE COMPACTION PROCESS. ANY AREAS THAT DO NOT RESPOND TO FURTHER COMPACTION SHOULD BE REMOVED AND REPLACED WITH SUITABLE SITE MATERIALS IN LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS AND SHOULD BE COMPACTED TO THE ABOVE CRITERIA.
iv. SUBSEQUENT LAYERS OF FILL SHOULD BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS, MOISTURE CONDITIONED AND COMPACTED TO THE ABOVE CRITERIA, OR AS APPROVED BY THE GEOTECHNICAL ENGINEER.
v. THE FINAL SURFACE SHALL THEN BE COVERED WITH A GRANULAR SUB BASE LAYER MINIMUM 100mm THICK TO PREVENT DRYING OUT PRIOR TO CONSTRUCTION OF SLAB AND PROVIDE AN ADEQUATE WORKING PLATFORM. THE GRANULAR SUB BASE SHALL BE OF DG20 OR DB40 MATERIAL AND COMPACTED TO 100% SMDD. AN ADDITIONAL BLINDING LAYER OF 25mm MINIMUM SHALL BE LAID IN SAND OR CONCRETE TO PROTECT ANY WATERPROOF MEMBRANES.
vi. THE TOP 150mm OF NATURAL SUB GRADE BELOW PAVEMENTS OR AT THE TOP 250mm THICKNESS OF SUBGRADE FILL SHOULD BE COMPACTED TO A MINIMUM DENSITY RATIO OF 100% STANDARD COMPACTION OR EQUIVALENT WITHIN THE ABOVE STATED MOISTURE RANGE, OR AS APPROVED BY GEOTECHNICAL ENGINEERS.

ALL FILL MATERIAL SHALL BE TESTED BY A NATA REGISTERED LABORATORY TO ENSURE WITH THE ABOVE REQUIREMENTS TO THE SATISFACTION OF A GEOTECHNICAL ENGINEER APPOINTED BY THE CONTRACTOR. AT LEAST 3 TESTS TO BE CARRIED OUT PER LAYER. EARTHWORKS SHOULD BE CARRIED OUT DURING DRY WEATHER CONDITIONS. PROVISION SHOULD BE MADE FOR EFFECTIVE DIVERSION OF SURFACE WATER FROM OUTSIDE THE SITE.

3. FOUNDATION MATERIAL SHALL BE APPROVED FOR ALLOWABLE BEARING INTENSITY BY A REGISTERED BUILDING PRACTITIONER BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE. NOTIFY THE ENGINEER IF CONDITIONS OTHER THAN THOSE DESCRIBED IN THE SOIL REPORT ARE ENCOUNTERED.

4. ALL FOUNDATIONS ARE TO BE FREE OF WATER AND LOOSE MATERIAL AT THE TIME OF POURING CONCRETE.

5. ALL FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS U.N.O.

6. THE ENGINEER SHALL BE ADVISED IMMEDIATELY IF ANY UNEXPECTED GROUND WATER IS ENCOUNTERED ON-SITE SO THAT A DECISION CAN BE MADE AS TO WHETHER LOCAL DEWATERING IS REQUIRED.

FOUNDATIONS - RESIDENTIAL AS2870-2011 CLAUSE 6.4

1. CLAUSE **6.4.2 FILLING** USED IN THE CONSTRUCTION OF A SLAB, EXCEPT WHERE THE SLAB IS SUSPENDED, SHALL CONSIST OF CONTROLLED FILL OR ROLLED FILL AS FOLLOWS:

a. CONTROLLED FILL IS MATERIAL THAT HAS BEEN PLACED AND COMPACTED IN LAYERS BY COMPACTION EQUIPMENT WITHIN A DEFINED MOISTURE RANGE TO A DEFINED DENSITY REQUIREMENT. EXCEPT AS PROVIDED BELOW, CONTROLLED FILL SHALL BE PLACED IN ACCORDANCE WITH AS3798.

SAND FILL UP TO 800mm DEEP, WELL COMPACTED IN NOT MORE THAN 300mm THICK LAYERS BY A VIBRATING PLATE OR VIBRATING ROLLER, SHALL BE DEEMED TO COMPLY WITH THIS REQUIREMENT. A SATISFACTORY TEST FOR SAND FILL NOT CONTAINING GRAVEL SIZED MATERIAL IS THE ACHIEVEMENT OF A BLOW COUNT 0F 7 OR MORE PER 300mm USING THE PENETROMETER TEST DESCRIBED IN AS1289.6.3.3.

NON-SAND FILL UP TO 400mm DEEP, WELL COMPACTED IN NOT MORE THAN 150mm LAYERS BY A MECHANICAL ROLLER, SHALL BE DEEMED TO COMPLY WITH THIS REQUIREMENT. CLAY FILL SHALL BE MOIST DURING COMPACTION.

b. ROLLED FILL CONSISTS OF MATERIAL COMPACTED IN LAYERS BY REPEATED ROLLING WITH AN EXCAVATOR. ROLLED FILL SHALL NOT EXCEED 600mm COMPACTED IN LAYERS NOT MORE THAN 300mm THICK FOR SAND MATERIAL OR 300mm COMPACTED IN LAYERS NOT MORE THAN 150mm FOR OTHER MATERIAL.

NOTE: THE DEPTH OF FILL GIVEN IN THIS CLAUSE ARE THE DEPTHS MEASURED AFTER COMPACTION.

2. CLAUSE **6.4.3 FOUNDATIONS FOR SLABS:**

a. TOP SOIL CONTAINING GRASS ROOTS OR OTHER ORGANIC MATERIAL SHALL BE REMOVED FROM THE AREA ON WHICH THE SLAB IS TO BE REST.

b. ON SITES SUBJECT TO WIND OR WATER EROSION, THE FOUNDATION OF THE EDGE BEAM OR FOOTING SHALL BE PROTECTED.

c. THE SLAB, INCLUDING EDGE AND INTERNAL BEAMS, SHALL BE FOUNDED AS FOLLOWS:
i. SLAB PANELS, EDGE BEAMS, INTERNAL BEAMS AND LOAD SUPPORT THICKENINGS ARE TO BE SUPPORTED ON NATURAL SOIL WITH AN ALLOWABLE BEARING PRESSURE NOT LESS THAN 50kPa.
ii. SLAB PANELS, INTERNAL BEAMS AND LOAD SUPPORT THICKENINGS ARE TO BE SUPPORTED ON CONTROLLED OR ROLLED FILL COMPACTED IN ACCORDANCE WITH CLAUSE 6.4.2
iii. EDGE BEAMS SHALL NOT BE FOUNDED ON ROLLED FILL. EDGE BEAMS MAY BE FOUNDED ON CONTROLLED FILL COMPACTED IN ACCORDANCE WITH CLAUSE 6.4.2(a). THIS FILL SHALL CONTINUE PAST THE EDGE OF THE BUILDING BY AT LEAST 1 METRE AND SHALL BE RETAINED OR BATTERED BEYOND THIS POINT BY A SLOPE NOT STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL.
iv. EDGE FOOTINGS NOT TIED TO A FOOTING SLAB SHALL BE FOUNDED IN NATURAL SOIL WITH AN ALLOWABLE BEARING PRESSURE OF 100kPa OR MAY BE FOUNDED ON CONTROLLED SAND FILL ON A CLASS A OR S SITE.

d. THE BASE OF THE EDGE BEAMS AND FOOTINGS MAY BE STEPPED OR SLOPED NOT MORE THAN 1 IN 10 AS SHOWN BELOW.

e. A BLINDING LAYER OF SAND IS NOT REQUIRED BUT WHERE USED SHALL COMPLY WITH CLAUSE 6.4.2 IF DEEPER THAN 100mm.

BULK EXCAVATION

1. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM APPROPRIATE AUTHORITIES FOR DISCONTINUANCE OF SERVICES IF IT IS REQUIRED. COST OF CUTTING, SEALING AND RECONNECTION IS TO BE BORN BY THE CONTRACTOR. THE CONTRACTOR MUST PROVIDE ADEQUATE PROTECTION FOR ALL SERVICE ON-SITE.

2. EXCESS EXCAVATION TO BE BACKFILLED WITH 4% CEMENT STABILIZED SAND OR WITH ENGINEERED BACKFILL IF APPROVED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER AND AT THE CONTRACTOR'S COST.

3. THE CONTRACTOR MUST TAKE ALL NECESSARY MEASURES TO PREVENT ANY MOVEMENT OF THE STRUCTURES ON SURROUNDING PROPERTIES INCLUDING, BUT NOT LIMITED TO, BUILDINGS, ROADS, PAVEMENTS, FENCES, RETAINING STRUCTURES ETC. THIS INCLUDES OBTAINING ALL NECESSARY APPROVALS FOR SHORING AND ANCHOR SYSTEMS.

4. WHERE ROCK BLASTING IS PERMITTED BY THE ENGINEER AND APPROPRIATE AUTHORITY, IT SHALL BE DONE BY EXPERIENCED PERSONNEL STRICTLY ADHERING TO THE REQUIREMENTS OF RELEVANT AUTHORITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MEASURES NECESSARY FOR THE PROTECTION OF SURROUNDING PROPERTIES AND FOR PUBLIC SAFETY.

5. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM SITE. THE EXCAVATED MATERIAL CAN BE USED ON-SITE FOR BACKFILLING OR LEVELING ONLY IF APPROVED BY THE ENGINEER.

6. THE CONTRACTOR MUST ENSURE THAT NO WATER REMAINS IN THE EXCAVATION AT ANY TIME. NECESSARY PUMPS, SUMPS, TEMPORARY DRAINS ETC., REQUIRED FOR DEWATERING OF THE SITE ARE TO BE PROVIDED BY THE CONTRACTOR.

7. EXCAVATION NEAR EXISTING FOOTINGS SHALL NOT EXTEND BELOW FOUNDATION LEVEL WITHOUT THE ENGINEER'S APPROVAL. ANY SUCH POTENTIAL UNDERMINING CONDITIONS MUST BE REFERRED TO THE ENGINEER FOR RESOLUTION.

8. FOUNDATIONS ADJACENT TO SERVICES, EXCAVATIONS OR BATTER, ETC., SHALL BE EXTENDED DOWN SUCH THAT THE INFLUENCE LINE OF THE FOUNDATION IS BELOW THE ADJACENT SERVICE AS SHOWN IN THE DETAILS.

9. FOOTINGS SHALL BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID SOFTENING OR DRYING OUT BY EXPOSURE.

10. WHERE EXCAVATED SURFACES THAT ARE REQUIRED TO SUPPORT FOOTINGS BECOME SOFTENED OR LOOSENED DUE TO ADVERSE WEATHER, GROUND SEEPAGE, OR OTHER CAUSES, ALL SOFT OR LOOSE MATERIAL SHALL BE REMOVED DOWN TO ACCEPTABLE BEARING MATERIAL AND BE REPLACED IMMEDIATELY WITH A LAYER OF CONCRETE BLINDING.

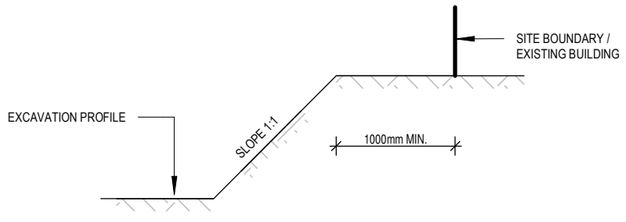
11. BULK EXCAVATION BATTERS AROUND THE PERIMETER OF THE EXCAVATION , U.N.O. ON DRAWINGS, SHALL BE AS PER SKETCH BELOW.

12. GEOTECHNICAL ENGINEER TO INSPECT BATTERS AND ADJUST SLOPES AS NECESSARY DURING CONSTRUCTION TO ENSURE ADEQUATE STABILITY OF BATTERS.

13. ADEQUATE DRAINAGE HAL BE PROVIDED TO PREVENT WATER PONDING OR COLLECTING ADJACENT TO THE WORKS.

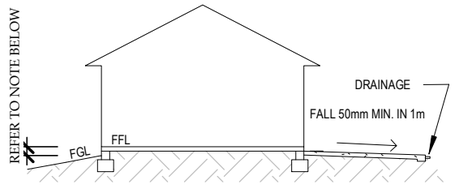
14. TRENCHES UNDER OR ADJACENT TO THE WORKS SHALL BE BACKFILLED WITH COMPACTED CLAY OR CONCRETE.

15. TRENCHES PARALLEL TO THE EDGE OF A STRUCTURE SHALL BE OFFSET A DISTANCE AT LEAST EQUAL TO THE DEPTH OF THE TRENCH EXCAVATION.



GENERAL DETAILING REQUIREMENTS

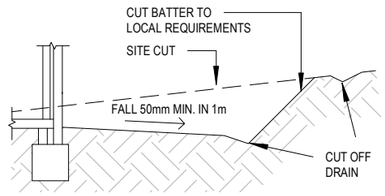
SURFACE WATER DRAINAGE
BCA - CLASUE 3.1.2.3 (b)
AS2870 - CLAUSE 5.2.2



FFL TO FGL NOTE:
THE HEIGHT OF THE F.F.L ABOVE F.G.L MUST NOT BE LESS THAN:
i. 150mm ABOVE F.G.L; OR
ii. 100mm ABOVE SANDY, WELL DRAINED AREAS; OR
iii. 50mm ABOVE PAVED OR CONCRETED AREAS THAT SLOPE 50mm MINIMUM IN ONE METRE AWAY FROM BUILDING

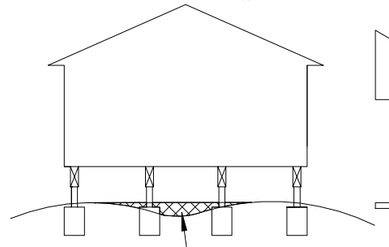
CONSIDERATION TO BE GIVEN TO THE REQUIREMENTS OF:
iv. AS3500.2 - MINIMUM OF 150mm FROM THE TOP OF THE OVERFLOW GULLY RISER TO THE LOWEST PLUMBING FIXTURE CONNECTED TO THE DRAIN;
v. AS3700 - MINIMUM HEIGHT FROM F.G.L ETC TO DAMP PROOF COURSING LEVEL;
vi. AS3660.1 - MINIMUM HEIGHT FROM F.G.L. OR PAVING TO SOME TERMITE BARRIERS.

SURFACE WATER DRAINAGE
BCA - CLASUE 3.1.2.3 (a)
AS2870 - CLAUSE 5.2.1



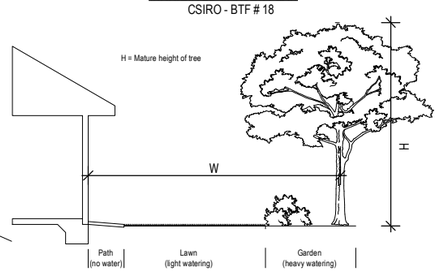
TYPICAL RESIDENTIAL FOOTING

SURFACE WATER DRAINAGE
BCA - CLASUE 3.1.2.3 (c)



FILL TO PREVENT SURFACE WATER PONDING UNDER BUILDING

SUGGESTED GARDEN PLAN
CSIRO - BTF # 18



SITE CLASS	W
A,S	0.75 x H
M	1.00 x H
H	1.50 x H

FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE

1. THE OWNER'S ATTENTION IS DRAWN TO APPENDIX B OF AS 2870 PERFORMANCE CRITERIA AND FOUNDATION MAINTENANCE AND CSIRO INFORMATION SHEET NO.BTF 18(2011) - GUIDE TO HOME OWNERS ON FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE.

2. ATTENTION IS DRAWN IN PARTICULAR TO THE EXISTENCE OF TREES ON CLAY SITES AND PROVISION OF SURFACE DRAINAGE.

Issue for Tender

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

SJL CONSULTING ENGINEERS

PROJECT
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APPENDIX A

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COONAMBLE SHIRE COUNCIL

DATE // TIME
16/02/2023 10:06:36 AM

SCALE
AS SHOWN

REVISION
A

PROJECT ID
23010

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CONCRETE

1. ALL CONCRETE, WORKMANSHIP AND MATERIALS SHALL BE FROM AN APPROVED SOURCE AND IN ACCORDANCE WITH THE FOLLOWING STANDARDS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS:

- AS3600 CONCRETE STRUCTURES
- AS4671 STEEL REINFORCING MATERIALS
- AS3972 PORTLAND CEMENT
- AS1379 READY-MIXED CONCRETE
- AS2758.1 CONCRETE AGGREGATE

THE CONCRETE SHALL BE SUBJECT TO PRODUCT ASSESSMENT FOR COMPLIANCE.

2. U.N.O., CONCRETE QUALITY SHALL BE AS TABULATED BELOW :

ELEMENT	MINIMUM 28 DAY F'c (MPa) INTERNAL	MINIMUM 28 DAY F'c (MPa) EXTERNAL	SLUMP (mm)	MAX. NOMINAL AGGREGATE SIZE (mm)
FOOTINGS	25	25	80	20
SLABS/BAND BEAMS	25	32	80	20

3. U.N.O. ALL CEMENT SHALL BE "GP" GENERAL PURPOSE OR "GB" GENERAL PURPOSE BLENDED CEMENT OR "SR" SULPHATE RESISTANT CEMENT, AS REQUIRED.
4. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING. FLY ASH AND SILICA FUME CAN BE USED ONLY IN QUANTITIES ALLOWED BY "GB" CEMENT DESIGN CONCRETE MIX.
5. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
6. DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
7. FOR CHAMFERS, DRIP GROOVES, REGLETS ETC., REFER TO ARCHITECTURAL DETAILS. MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
8. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
9. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS (HONEY COMBING).
10. ALL CONCRETE, INCLUDING SLABS ON-GROUND AND FOOTINGS, SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
11. U.N.O., MINIMUM COVER (mm) SHALL BE AS TABULATED BELOW :

AS3600 TABLE 4.3 EXPOSURE CLASSIFICATION

SURFACE & EXPOSURE ENVIRONMENT	REINFORCED OR PRESTRESSED CONCRETE MEMBERS
1 SURFACE OF MEMBERS IN CONTACT WITH THE GROUND	
(A) MEMBERS PROTECTED BY A DAMP-PROOF MEMBRANE	A1
(B) RESIDENTIAL FOOTINGS IN NON-AGGRESSIVE SOILS	A1
(C) OTHER MEMBERS IN NON-AGGRESSIVE SOILS	A2
(D) MEMBERS IN AGGRESSIVE SOILS (PERMEABLE SOILS WITH A PH<4.0, OR WITH GROUND WATER CONTAINING MORE THAN 1G PER LITRE OF SULPHATE IONS, WOULD BE CONSIDERED AGGRESSIVE)	REFER TO ENGINEER
2 SURFACE OF MEMBERS IN INTERIOR ENVIRONMENTS	
(A) FULLY ENCLOSED WITHIN A BUILDING EXCEPT FOR A BRIEF PERIOD OF WEATHER EXPOSURE DURING CONSTRUCTION	A1
(B) IN INDUSTRIAL BUILDINGS, THE MEMBER BEING SUBJECT TO REPEATED WETTING & DRYING	B1
3 SURFACE OF MEMBERS IN ABOVE-GROUND EXTERIOR ENVIRONMENT, IN AREAS THAT ARE:	
(A) INLAND (>50KM FROM COASTLINE) ENVIRONMENT BEING -	
(I) NON-INDUSTRIAL AND ARID CLIMATIC ZONE	A1
(II) NON-INDUSTRIAL AND TEMPERATE CLIMATIC ZONE	A2
(III) NON-INDUSTRIAL AND TROPICAL CLIMATIC ZONE	B1
(IV) INDUSTRIAL AND ANY CLIMATIC ZONE	B1
(B) NEAR COASTAL (1KM TO 50KM FROM COASTLINE) ANY CLIMATIC ZONE	B1
(C) COASTAL (UP TO 1KM FROM COASTLINE BUT EXCLUDING TIDAL AND SPLASH ZONE) ANY CLIMATIC ZONE	B2
4 SURFACE OF MEMBERS IN WATER	
(A) IN FRESH WATER	B1
(B) IN SEA WATER -	
(I) PERMANENTLY SUBMERGED	B2
(II) IN TIDAL OR SPLASH ZONES	REFER TO ENGINEER
(C) IN SOFT OR RUNNING WATER	REFER TO ENGINEER
5 SURFACE OF MEMBERS IN OTHER ENVIRONMENTS	
ANY EXPOSURE ENVIRONMENT NOT OTHERWISE DESCRIBED IN ITEMS 1 TO 4	REFER TO ENGINEER

AS3600 TABLE 4.10.3.2 REQUIRED COVER (mm) WHERE STANDARD FORMWORK AND COMPACTION ARE USED

EXPOSURE CLASSIFICATION	CHARACTERISTIC STRENGTH F'c							
	CAST AGAINST DAMP-PROOF MEMBRANE				CAST AGAINST GROUND			
	20MPa	25MPa	32MPa	40MPa	20MPa	25MPa	32MPa	40MPa
A1	30	30	30	30	40	40	40	40
A2	-	40	35	30	-	50	45	40
B1	-	-	50	40	-	-	60	50
B2	-	-	-	55	-	-	-	65

NOTE:

(i) COVER IS THE CLEAR DISTANCE BETWEEN ANY REINFORCING (INCLUDING FITMENTS) AND THE FACE OF THE STRUCTURAL ELEMENT
(ii) COVER REQUIREMENTS MAY NEED TO BE INCREASED TO SUIT FIRE RATING REQUIREMENTS
(iii) FOR ALL EXTERNAL SURFACES PROVIDE FULLY PLASTIC BAR CHAIRS. TIE WIRE SHALL NOT BE NAILED TO THE FORMS. REINFORCING BARS SHALL NOT BE USED TO KEEP FORMS APART AND THROUGH TIE STEEL SYSTEM SHALL BE USED TO TIE THE FORMS.
(iv) PROVIDE AN APPROVED VAPOUR BARRIER FOR SLABS, BEAMS AND THICKENING CAST AGAINST THE GROUND. IN ACCORDANCE TO AS2870 CLAUSE 5.3.3 FOR RESIDENTIAL SLABS, 0.2mm THICK POLYETHYLENE FILM SHALL BE USED, AND SHALL BE BRANDED CONTINUOUSLY TOGETHER WITH MANUFACTURER'S OR DISTRIBUTOR'S NAME, TRADEMARK OR CODE AND COMPLY IN ACCORDANCE TO THE FOLLOWING:
- VAPOUR BARRIER - MEDIUM IMPACT RESISTANCE
- DAMP PROOFING - HIGH IMPACT RESISTANCE; THE MEMBRANE SHALL EXTEND UNDER THE EDGE BEAM TO GROUND LEVEL. LAPPING AT JOINTS SHALL NOT BE LESS THAN 200mm FOR CONTINUITY.

(v) IF WEEP HOLES ARE USED, THEY SHALL BE SPACED AT NOT MORE THAN 1200mm APART AND BE LOCATED ABOVE THE F.G.L. ANY PORTION OF THE DEEPENED REBATE THAT CANNOT BE DRAINED SHALL BE MORTAR FILLED.
(vi) THE COVERS SHALL BE MAINTAINED USING APPROVED BAR CHAIRS. IN SLABS, BAR CHAIRS SHALL BE AT 1000 x 1000mm MAXIMUM CENTRES. BARS CHAIRS SHALL BE PROVIDED ALONG THE EDGES OF ALL CONSTRUCTION JOINTS.

12. THE CONTRACTOR SHALL ALLOW FOR ALL NECESSARY CONSTRUCTION JOINTS. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.
13. MAXIMUM ALLOWED FREE DROP OF CONCRETE DURING PLACING IS 1000mm.
14. CONDUITS, PIPES ETC., WHEN CAST IN SLABS & WALLS ARE TO BE PLACED AT MIDDLE THIRD OF THICKNESS OF MEMBERS AND SPACED AT NOT LESS THAN 3 TIMES DIAMETER. THE CONDUITS, PIPES ETC. SHALL BE BETWEEN TWO REINFORCEMENT LAYERS AS SHOWN BELOW. WHERE THERE IS ONLY ONE LAYER OF REINFORCEMENT, PROVIDE 50mm COVER TO THE CONDUIT.
15. CURING OF CONCRETE SHALL COMMENCE NO LATER THAN 2 HOURS AFTER FINISHING OPERATIONS HAVE BEEN COMPLETED. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY GRADUAL DRYING OUT. CURING MAY BE PERFORMED BY ONE OF THE FOLLOWING METHOD:
- PONDING OR CONTINUOUS SPRINKLING OF WATER;
- USE OF ABSORPTIVE COVER KEPT CONTINUOUSLY WET;
- COATING WITH AN APPROVED SPRAYED MEMBRANE CURING COMPOUND COMPATIBLE WITH FINISHES;
- USE OF AN APPROVED MOISTURE RETAINING COVERING SUCH AS POLYTHENE OR WET HESSIAN, WHICH SHALL BE PROTECTED FROM WIND, TRAFFIC ETC., AND REMAIN UNDAMAGED DURING THE CURING PERIOD.

16. MINIMUM STRIPPING TIMES FOR FORMWORK SHALL BE RECOMMENDED IN ACSE CONCRETE SPECIFICATION OR AS DIRECTED BY THE ENGINEER.
17. THE ENGINEER SHALL BE GIVEN 24 HOURS NOTICE FOR WITHIN TOWN PROJECTS AND 3 DAYS NOTICE FOR OUT OF TOWN PROJECTS FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL OBTAINED.

SALT AFFECTED AREAS

MINIMUM REQUIREMENTS IN SALT AFFECTED AREAS:
- 25MPa CONCRETE (W/C = 0.45)
- 50mm COVER
- MECHANICAL VIBRATION
- 0.2mm HIGH IMPACT RESISTANT DAMP-PROOFING MEMBRANE
- TYPE SR CEMENT
- DAMP CURE FOR 3 DAYS

TERMITE AND DAMP PROOFING

1. TERMITE PROTECTION NEEDS TO BE IN ACCORDANCE WITH NCC REQUIREMENTS AND AS 3660 PROTECTION OF BUILDINGS FROM SUBTERRANEAN TERMITES.

2. DAMP PROOFING TO BE IN ACCORDANCE WITH NCC. REQUIREMENTS.

REINFORCEMENT

1. REINFORCEMENT SYMBOLS:

N	DENOTES GRADE 500 DEFORMED REINFORCING BARS TO AS4671
R	DENOTES GRADE 230 R HOT ROLLED PLAIN BARS TO AS1302
SL/RL	DENOTES GRADE 500 REINFORCING FABRIC TO AS4671
TM	DENOTES GRADE 500 HARD DRAWN STEEL TRENCH MESH TO AS4671

REINFORCEMENT DESIGNATION:

xN12	WHERE x IS THE NUMBER OF BARS REQUIRED AND THE NUMBER PROCEEDING N IS THE NOMINATED BAR DIAMETER.
N12 - 400	WHERE THE NUMBER PROCEEDING N IS THE NOMINATED BAR DIAMETER AND THE NUMBER PROCEEDING - IS THE BAR SPACING IN MILLIMETRES.
SL92	WHERE THE NUMBER PROCEEDING SL IS THE NOMINATED FABRIC MESH SIZE
x - L12TM	WHERE x IS THE NUMBER OF MAIN LONGITUDINAL BARS REQUIRED AND THE NUMBER PROCEEDING L IS THE NOMINATED TRENCH MESH BAR DIAMETER.

REINFORCEMENT ABBREVIATION:

C	CENTRAL
EF	EACH FACE
EW	EACH WAY
T	TOP
B OR BTM	BOTTOM

2. REINFORCEMENT SHOWN ON THE DRAWINGS IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.
3. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT 1000 x 1000mm MAXIMUM CENTRES. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
4. CLEAR COVER TO REINFORCEMENT SHALL BE AS SHOWN IN STRUCTURAL DRAWINGS OR AS SPECIFIED IN CONCRETE NOTES.
5. REINFORCEMENT SHALL NOT BE CUT OR BENT ON-SITE UNLESS APPROVED BY THE ENGINEER. THE REINFORCEMENT CAN ONLY BE HEATED IF APPROVED IN WRITING BY THE ENGINEER.
6. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
7. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITION SHOWN ON THE STRUCTURAL DRAWINGS OR AS OTHERWISE APPROVED BY THE ENGINEER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. BAR LAPS IN MILLIMETRES ARE TO BE AS SHOWN BELOW U.N.O.:

N12	500 LAP
N16	650 LAP
N20	950 LAP

8. AS2870 CLAUSE 5.3.2 (b) FABRIC SHALL BE LAPPED BY ONE FULL PANEL OF MESH SO THAT THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED. ALTERNATE METHODS OF LAPPING FABRIC IS AS SHOWN BELOW.
9. AS2870 CLAUSE 5.3.2 (c) TRENCH MESH IN BEAMS SHALL BE OVERLAPPED BY THE WIDTH OF THE FABRIC AT T- AND L- INTERSECTIONS AS SHOWN BELOW. TRENCH MESH SHALL BE SPLICED, WHERE NECESSARY, BY A LAP OF 500mm.
10. AS2870 CLAUSE 5.3.2 (d) REINFORCING BARS SHALL HAVE A LAP LENGTH AT SPLICES NOT LESS THAN AS SPECIFIED ABOVE IN CONCRETE DETAILS SHEETS. AT T- AND L-INTERSECTIONS, THE BARS SHALL BE CONTINUED ACROSS THE FULL WIDTH OF THE INTERSECTION. AT L-INTERSECTIONS, ONE OUTER BAR SHALL BE BENT AND CONTINUED 500mm, OR A BENT LAP BAR 500mm LONG ON EACH LEG SHALL BE PROVIDED.

Issue for Tender

CONTACT ENGINEER IF EVER IN DOUBT REGARDING DRAWINGS OR SPECIFICATIONS

SJL CONSULTING ENGINEERS

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EMULSION TANK BUND & SLAB

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