

GENERAL WORKS

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH GMW TECHNICAL STANDARD TS 35 31 26.50. THESE DRAWING DETAILS ARE GENERIC ONLY AND ARE APPLICABLE TO THE SOIL CONDITIONS IN NOTE F4. THESE DESIGN DRAWINGS SHOULD BE CERTIFIED BY A QUALIFIED ENGINEER TO ENSURE THE GROUND AND LOADING CONDITIONS ARE SUITABLE FOR EACH INDIVIDUAL SITE.
- G2 UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETRES.
- G3 THESE DRAWINGS SHALL NOT BE USED FOR FINAL SET OUT FOR THE PROJECT. THE PROPONENT SHALL CHECK OR OBTAIN ALL DIMENSIONS RELEVANT TO SETTING OUT OF THE SITE WORKS, AND THE PROVISION OF ANY TEMPORARY BRACING, INCLUDING DESIGN, IN ACCORDANCE WITH THE SPECIFICATION.
- G4 SETTING OUT DIMENSIONS AND SIZES OF STRUCTURAL MEMBERS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS. ANY SETTING OUT DIMENSIONS INCLUDING LEVELS SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE CHECKED BY THE PROPONENT BEFORE CONSTRUCTION COMMENCES.
- G5 THESE ENGINEERING DRAWINGS HAVE BEEN PREPARED FROM INFORMATION STATED ON THE DRAWINGS. AS THIS INFORMATION MAY BE SUBJECT TO CHANGE PRIOR TO OR DURING CONSTRUCTION THE PROPONENT IS TO INFORM GMW WHERE DISCREPANCIES OCCUR.
- G6 PRIOR TO THE COMMENCEMENT OF WORKS THE PROPONENT IS TO IDENTIFY ALL EXISTING SERVICES, ANY DAMAGE TO EXISTING SERVICES TO BE RECTIFIED AT THE PROPONENT'S EXPENSE.
- G7 DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A SAFE AND STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE PROPONENT AS REQUIRED TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G8 THE STRUCTURAL COMPONENTS DETAILED ON THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND LOCAL AUTHORITY ORDINANCES FOR THE FOLLOWING LOADINGS:
LIVE LOADS : SURCHARGE 3 kPa
- G9 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES.

REINFORCEMENT

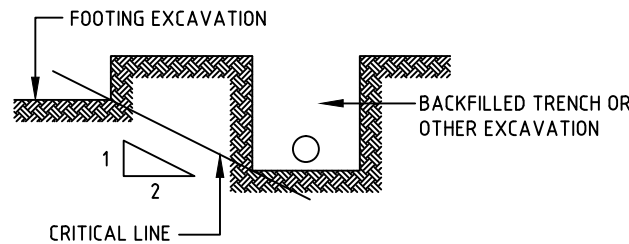
- R2 BAR LAP LENGTHS SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. BAR LAPS IN MILLIMETRES ARE TO BE AS SHOWN BELOW (APPLICABLE FOR 32MPa CONCRETE STRENGTH):-

N12 600	N28 1550
N16 800	N32 1900
N20 1050	N36 2300 FOR COMPRESSION LAP
N24 1300	MECHANICAL SPLICE FOR TENSION LAP
- R3 BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF TIE WIRE.
- R4 REINFORCEMENT SYMBOLS :-
 R - DENOTES GRADE 250R HOT ROLLED PLAIN BARS TO AS 4671
 N - DENOTES GRADE 500N HIGH YIELD DEFORMED BARS TO AS 4671

FOUNDATIONS

- F1 THE PROJECT GEOTECHNICAL ENGINEER (PGE) SHALL BE PRESENT FOR ALL EXCAVATIONS FOR BUILDING FOUNDATIONS. SOIL TESTS MUST BE CARRIED OUT AND THE FOUNDATION MATERIAL SHALL BE APPROVED BY THE PGE BEFORE PLACING BLINDING AND/OR REINFORCEMENTS.
- F2 ALL EXCAVATIONS SHALL BE MAINTAINED FREE OF WATER BY PROVISION OF RELIEF DRAINS, OR DRAINAGE TO SUITABLE COLLECTION SUMPS FOR REMOVAL BY PUMPING OR MANUAL MEANS.
- F3 ALL EXCAVATIONS SHALL BE INSPECTED & APPROVED BY PGE. SO AS TO ENSURE DESIGN ASSUMPTIONS ARE MET.
- F4 FOUNDING MATERIAL ON SITE SHALL HAVE MINIMUM CHARACTERISTIC AS LISTED BELOW:

MATERIALS:	CI/CH/SM/SC
UNIT WEIGHT:	20kN/m ³ FOR BACKFILL AND 18kN/m ³ FOR NATURAL SOILS
DRAINED:	PHI'=28 DEGREES MIN. AND C'=0
UNDRAINED:	PHI=0 AND SU=100kPa MIN.
KAH:	0.41
- F5 REMEDIATION OF ANY IDENTIFIED SOFT AND/OR ORGANIC MATERIAL, OR HARD LAYERS SHALL BE PERFORMED UNDER THE SUPERVISION OF THE ATTENDING PGE & APPROVED BY THE PGE.
- F6 ALL TRENCHES SHALL BE TEMPORARILY PROPPED PRIOR TO BACKFILLING, WITH PROPS BEING RETAINED UNTIL COMPLETION OF CURING OF SUPPORTING FOOTING.
- F7 BACKFILL WITHIN A MINIMUM OF 400mm OF THE BACKFACE OF ANY FOOTING SHALL BE AN APPROVED NON-PLASTIC, FREE DRAINING GRAVEL MATERIAL, FREE OF DELETERIOUS AND ORGANIC MATTER UNLESS NOTED OTHERWISE. OTHER FILL MATERIAL MAY BE MATERIAL AS EXCAVATED, COMPACTED TO 95% OF MAXIMUM DRY DENSITY (STANDARD COMPACTION TEST AS PER AS1289).
- F8 PGE TO INSPECT BATTERS AND ADJUST SLOPES AS NECESSARY DURING CONSTRUCTION TO ENSURE ADEQUATE STABILITY OF BATTERS.
- F9 FOUNDING MATERIAL FORMING BASE ARE TO BE CLEAN AND FREE OF ANY LOOSE MATERIAL SO AS TO ACHIEVE NOMINATED BEARING CAPACITY GIVEN ON THE DRAWINGS.
- F10 UNLESS APPROVED BY THE PGE EXCAVATIONS NEAR FOOTINGS SHALL NOT GO BELOW THE CRITICAL LINE AS SHOWN BELOW.



CONCRETE

- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2 CONCRETE SHALL BE FROM AN APPROVED SOURCE AND SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING STANDARDS, UNLESS NOTED OTHERWISE :-
 AS 3600 _____ CONCRETE STRUCTURES
 AS 4671 _____ STEEL REINFORCING BARS FOR CONCRETE
 AS 3972 _____ PORTLAND CEMENT
 AS 1379 _____ READY-MIXED CONCRETE
 AS 2758.1 _____ CONCRETE AGGREGATES
- C3 CONCRETE SHALL BE SUPPLIED ON A PERFORMANCE BASIS AND HAVE THE FOLLOWING CHARACTERISTICS :-

ELEMENT	SLUMP	MAX. AGG.	CEMENT TYPE	CONC. GRADE MPa	EXPOSURE CLASSIF'N	COVER U.N.O.
FOOTINGS	80	20	G.P.	25	A2	50
SUSPENDED SLAB	100	20	G.P.	32	A1-A2	25
PILING	80	20	G.P.	40	A1	40 SIDE

- C4 CONCRETE MIX DESIGN, INCLUDING PROPORTIONS OF ADDITIVES AND CEMENTITIOUS REPLACEMENT MATERIALS, SHALL BE APPROVED BY THE CERTIFYING ENGINEER PRIOR TO THE PLACEMENT OF ANY CONCRETE. CALCIUM CHLORIDE SHALL NOT BE USED IN ANY MIX. FLYASH SHALL NOT TO BE USED AS A CEMENT REPLACEMENT BUT MAY BE ADDED FOR WORKABILITY TO A MAXIMUM 25% OF CEMENT CONTENT.
- C5 THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS.
- C6 ALL FORMED EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE CHAMFERED OR FILLETED 15mm.
- C7 FOR CHAMFERS, FILLETS ETC. REFER TO DETAILS. MAINTAIN MINIMUM COVER TO REINFORCEMENT AT THESE LOCATIONS.
- C8 NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES ARE PERMITTED IN THE CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE CERTIFYING ENGINEER.
- C9 WHEN DRILLING INTO EXISTING STRUCTURES, USE HAMMER DRILLS ONLY. DO NOT USE DIAMOND CORE DRILLS, EXCEPT WHERE SPECIFICALLY NOTED. DO NOT CUT OR DAMAGE EXISTING REINFORCEMENT UNLESS NOTED.
- C9 CHEMICAL ANCHORS FOR FIXINGS TO CONCRETE SHALL BE 'HILTI' CHEMSET ANCHORS OR APPROVED SIMILAR.
- C10 ALL CONCRETE, INCLUDING SLABS ON GROUND & FOOTINGS, SHALL BE COMPACTED USING VIBRATION EQUIPMENT.
- C11 THE CONCRETE SHALL BE TESTED FOR COMPLIANCE WITH SPECIFIED STRENGTH & SLUMP IN ACCORDANCE WITH AS3600.
- C12 PROPONENT SUPPORT PROPPING SHALL BE LEFT IN PLACE TO AVOID OVERSTRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. IT IS THE PROPONENT'S RESPONSIBILITY TO ENSURE THAT STRIPPING AND BACKPROPPING COMPLIES WITH THE REQUIREMENTS OF AS.3610 - FORMWORK FOR CONCRETE.
- C13 NO CONCRETE TO BE POURED WHEN SITE TEMPERATURE EXCEEDS 35°C OR FALLS BELOW 5°C.
- C14 NO WATER SHALL BE ADDED TO CONCRETE ON SITE WITHOUT PRIOR APPROVAL. ANY SAMPLE SHALL HAVE WATER ADDED ONLY TO THE AMOUNT ALLOWED ON THE SUPPLY DOCKET AND SHALL BE TESTED AFTER THE ADDITION OF THE WATER.

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REV	DATE	REFERENCES	DRAWN	CHECKED	MANAGER	GMW CORR. NO. 2001/956/2	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX 485814	SHEET NUMBER 01 of 03	DRAWING NUMBER 485814	REVISION
			SURVEYED	SURVEY MANAGER	SENIOR SURVEYOR						

TIMBER

- T1 ALL TIMBER WORKMANSHIP SHALL BE IN ACCORDANCE TO AS1720.
- T2 ALL TIMBER SHALL BE SEASONED AUSTRALIAN HARDWOOD AND SHALL CONFORM TO REQUIREMENTS OF AS2082.
- T3 ALL TIMBER SHALL HAVE A MINIMUM STRESS GRADE OF F22.
- T4 ALL TIMBER SHALL BE OF CLASS 1 OR 2 OF THE NATURAL DURABILITY CLASSIFICATION OF HEARTWOOD e.g:
 - IRONBARK, RED (EUCALYPTUS SIDEROXYLON)
 - IRONBARK, RED BROAD LEAVED (EUCALYPTUS FIBROSA)
 - IRONBARK, GREY (EUCALYPTUS PANICULATA)
 - GUM, GREY (EUCALYPTUS PROPINQUA)
 - TALLOWWOOD
 - TURPENTINE
 - MERBAU
- T5 ENDS OF ALL TIMBERS SHALL BE GIVEN A COAT OF PETROLEUM JELLY, OR SIMILAR APPROVED GREASE, WITHIN 48 HOURS OF BEING SAWN AT THE MILL.
- T6 ALL EXPOSED END GRAIN (INCLUDING DRILL HOLES) AND TIMBER TO TIMBER CONTACT SURFACES SHALL BE COATED WITH A HEAVY COAT OF PROTIM CN TIMBER PROTECTIVE EMULSION AFTER CUTTING/DRILLING.
- T7 ALL HOLES FOR JOINTS SHALL BE TRULY BORED AND ALL JOINTS CUT TO FIT ACCURATELY AND TIGHTLY. HOLES SHALL BE 10 PER CENT GREATER IN DIAMETER THAN THE BOLTS.
- T8 BOLTHOLE RECESSES (AFTER FINAL TIGHTENING OF BOLTS), SPLITS AND KNOTHOLES IN TIMBER SHALL BE FILLED WITH PABCO 'HYDROSEAL TYPE 367, KNIFE GRADE' OR EQUIVALENT.
- T9 ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANISED IN ACCORDANCE WITH AS 4860.
- T10 BOLTS SHALL BE GRADE 4.6S. WASHERS SHALL CONFORM TO AS 1720. BOLTS SHALL BE RETIGHTENED AT SIX MONTHS AFTER COMPLETION OF CONSTRUCTION.
- T11 ALL BOLTHEADS OR NUTS ON EXPOSED SURFACES SHALL BE RECESSED BELOW THE SURFACE.
- T12 TIMBER CONNECTIONS SHALL BE AS SHOWN ON THE DRAWINGS WHERE DETAILED. WHERE NOT DETAILED, THEY SHALL MATCH AS CLOSE AS PRACTICABLE THE EXISTING DETAILS THEY ARE REPLACING.


STEELWORK

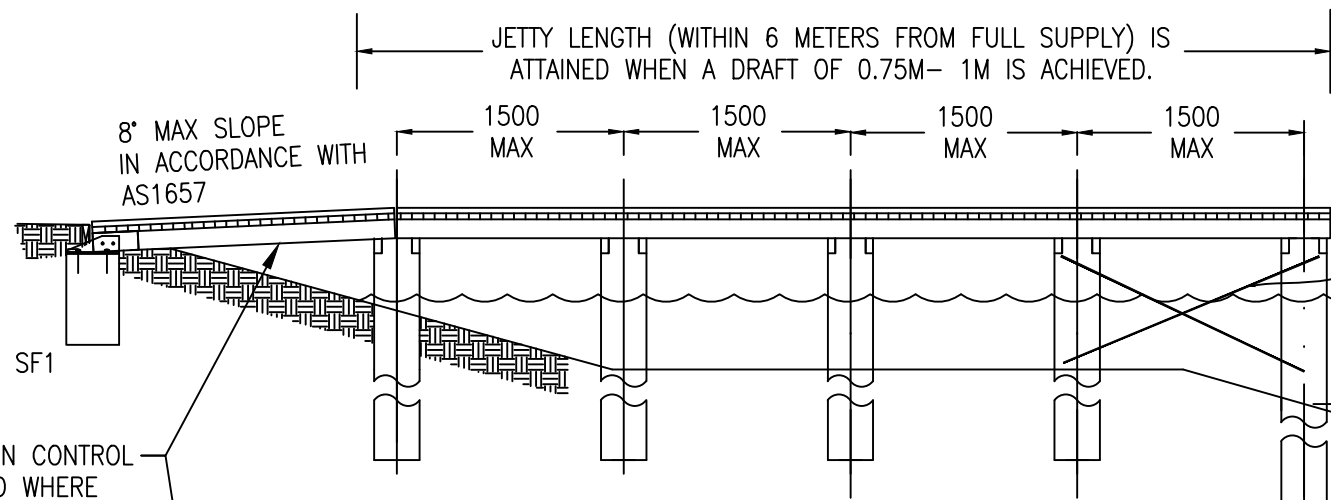
- S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100 AND AS 1554.
- S2 UNLESS SHOWN OTHERWISE, ALL STEEL COMPONENTS SHALL BE IN ACCORDANCE WITH AS3679.1 GRADE 300.
- S3 ALL BOLTS TO BE STRENGTH GRADE 4.6 TO AS1111, TIGHTENED USING A STANDARD WRENCH TO A SNUG TIGHT CONDITION. ALL BOLTS SHALL BE OF SUCH LENGTH THAT AT LEAST ONE FULL THREAD IS EXPOSED BEYOND THE NUT AFTER THE NUT HAS BEEN TIGHTENED.
- S4 ALL WELD TYPES TO BE CATEGORY SP. WELDS SHALL CONFORM TO AS1554 AND WELDING ELECTRODES TO AS/NZS 4855. WELDING SHALL BE PERFORMED BY AN EXPERIENCED OPERATOR. THE INSPECTION/TESTING OF ALL WELDS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS2214 AND NOTES ON THE DRAWING WELD TYPES ARE DESIGNATED AS FOLLOWS:-
 - CFW - CONTINUOUS FILLET WELD
 - CPBW - COMPLETE PENETRATION BUTT WELD
 - A/R - ALL ROUND
- S5 HOT DIP GALVANISING SHALL BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS AS1214, AS1559, AS4680, AS4791 & AS4792, REPAINTING/REPAIR OF DAMAGED GALVANISED SURFACES (EG. SITE WELDS) TO BE PAINTED WITH 2 COATS OF APPROVED ZINC RICH PAINT.

UNLESS SPECIFIED OTHERWISE, STEELWORK SHALL BE PREPARED BY REMOVING LOOSE SCALE BY HAND OR POWER WIRE BRUSHING THEN APPLYING ONE COAT OF RUST INHIBITIVE ALKYD PRIMER (75um), FOLLOWED BY ONE COAT OF ALL-WEATHER GLOSS ENAMEL PAINT (125um).
- S6 CATHODIC PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH AS 2832.
- S7 APPROPRIATE CORROSION RESISTANT FITTINGS AND FIXTURES TO BE USED.

PILES

- P1 ALL PILES SHALL COMPLY WITH AS2159 & AS4997
- P2 ONE TEST PILE SHOULD BE DRIVEN AWAY FROM BANK.
- P3 LEAVE PILE FOR 24 HRS MINIMUM BEFORE TESTING. MAX TEST LOAD 30kN. TESTING PROCEDURE IN ACCORDANCE WITH SECTION 8 OF AS2159-2009.
- P4 LEAVE PILE A MINIMUM 300mm ABOVE HIGH WATER LEVEL.
- P5 MINIMUM LENGTH OF EMBEDMENT BELOW ANTICIPATED SCOUR LEVEL OF ANY PILE SHALL BE 3 METERS INTO FIRM SOIL AND 6 METERS INTO A SOFT SOIL, OR NOT LESS THAN ONE THIRD OF THE PILE LENGTH. WHERE PILES ARE INSTALLED THROUGH A SHALLOW VERY SOFT STRATUM OVERLYING AN EXTENSIVE HARD STRATUM, THE PILE TOES SHALL BE TAKEN SUFFICIENTLY FAR INTO THE HARD STRATUM TO ACHIEVE END FIXITY.
- P6 TIMBER PILE BASES TO HAVE 100 mm Sq. GALVANISED PRESSED METAL MULTI-NAIL PLATES.
- P7 TIMBER PILE TOPS TO BE FITTED WITH GALVANISED M.S. ANTI-SPLIT RINGS - FORCE FIT.

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A	03-2021	ANNE N.	SPECIFICATION S2 MODIFIED	DRAWN	CHECKED	MANAGER	M. LON HO KEE MANAGER ENGINEERING & MAINTENANCE SERVICES		GMW CORR. NO. 2001/956/2	GOULBURN MURRAY RURAL WATER AUTHORITY 40 CASEY STREET (PO BOX 165), TATURA VIC. 3616 Telephone (03) 5826 3500 Fax (03) 5826 3501	CAD DRAWING INDEX 485814	SHEET NUMBER 02 of 03	DRAWING NUMBER 485814	REVISION A			
REV	DATE	APP'D	REFERENCES	SURVEYED	SURVEY MANAGER	SENIOR SURVEYOR											



SIDE ELEVATION

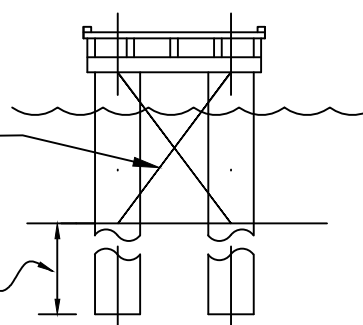
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16 mm DIAMETER : GALV. MILD STEEL ROD BRACING END - BOTH SIDES MAIN STRUCTURE (TWIN PILE OPTION).

16 mm DIAMETER GALV. MILD STEEL ROD BRACING TO END PILES FOR STEEL & TIMBER.

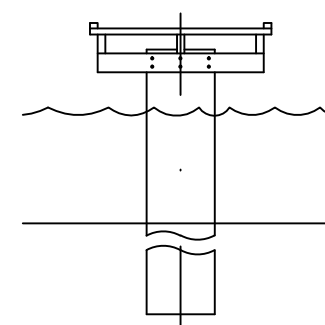
600 mm : IN SOLID GROUND

2000 MAX



SINGLE PIER OPTION (BRACING NOT REQUIRED)

1200 MAX



END ELEVATION (TIMBER PILES)

DECKING MATERIAL

DECKING MATERIAL SHALL CONFORM TO AS4997 & CAN BE CONSTRUCTED FROM :-

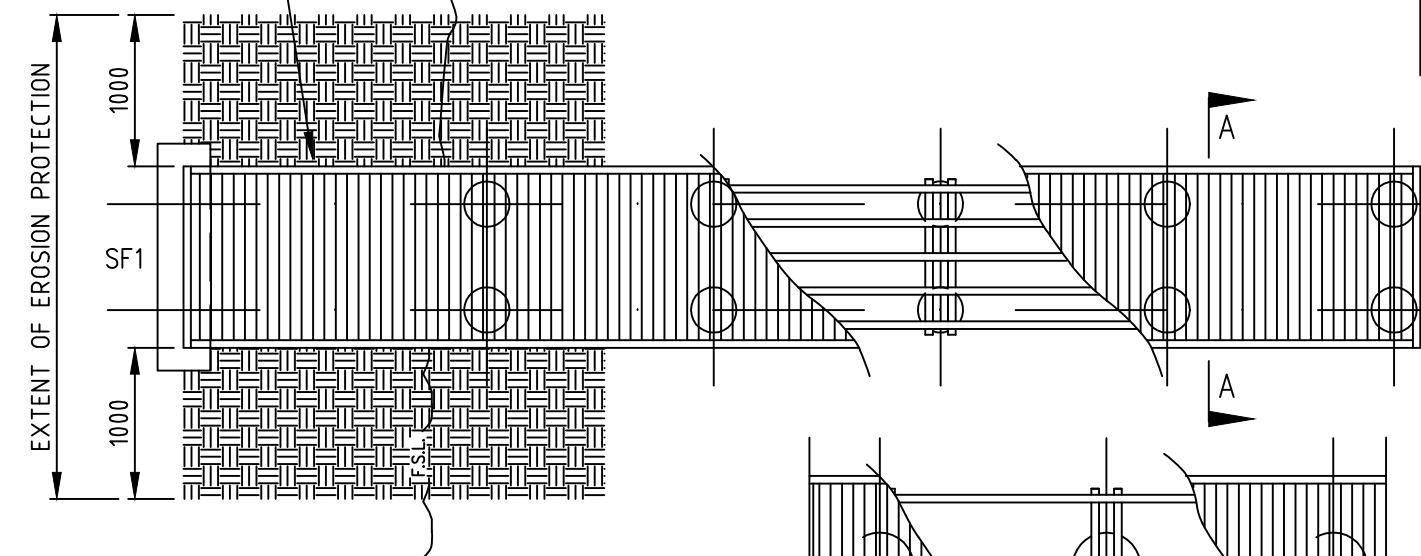
TIMBER - 95 x 45 BRUSH BOX, STRINGYBARK, TALLOW WOOD, MERBAU ETC.

COMPOSITE - GRATED OR TIMBER REPLICA TO MANUFACTURES SPECIFICATIONS.

NOTE

- TIMBER TO BE IN ACCORDANCE WITH TIMBER NOTES ON SHEET 2 (S02).
- TREATED PINE IS NOT A SUITABLE MATERIAL.

EROSION CONTROL NEEDED WHERE DECKING MEETS BANK. IN ACCORDANCE WITH GMW TS 358005.5

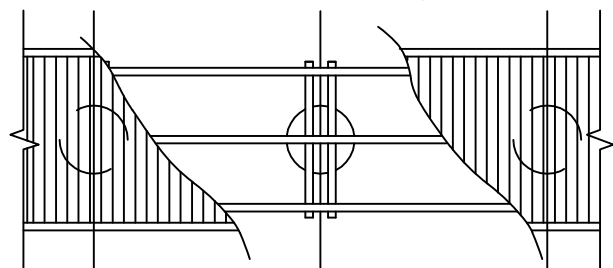


PLAN OF JETTY

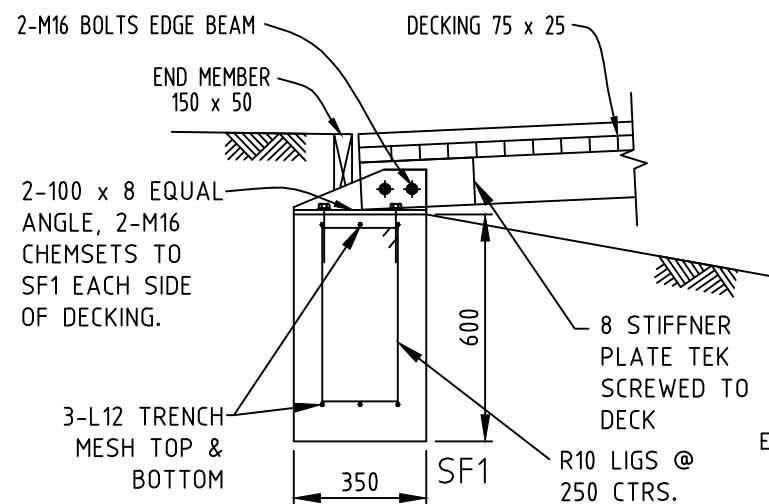
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CONDITIONS OF USE:

- DRAWING TO BE READ IN CONJUNCTION WITH GOULBURN MURRAY WATER TECHNICAL STANDARD No. TS 35 31 26.50
- SINGLE LEVEL ONLY
- NO ADDITIONAL STRUCTURES TEMPORARY OR PERMANENT PERMITTED ON JETTY.
- ALL FENDERING TO BE TEMPORARY.
- HANDRAILS & LADDER SUBJECT TO GMW RISK ASSESSMENT AND TO CONFORM TO AS1657.
- JETTY LICENSE NUMBER TO BE DISPLAYED BOTH SIDES WITH 150mm HIGH LETTERS COMPLYING WITH AS1742
- TIE UP POINTS TO BE MOUNTED DIRECTLY OPPOSITE JETTY PILES ON EDGE BEAM.



SECTION A-A



FOOTING PLAN

MEMBER	TIMBER		STEEL	
	SINGLE PIER	DOUBLE PIER	SINGLE PIER	DOUBLE PIER
CROSSHEAD (PAIRS)	125 x 50	100 x 50	100x50x3 RHS	100x50x3 RHS
EDGE BEAM	125 x 50	125 x 50	75x50x3 RHS	75x50x3 RHS
EDGE PLATE	50 x 25	50 x 25	50x25x2 RHS	50x25x2 RHS
PILING <2.5m ABOVE GROUND	450Ø	200Ø	150UC30 219x6.4 CHS 250UB31	150UC30, 150x9 SHS, 219x6.4 CHS, 250UB31
PILING >2.5m ABOVE GROUND	450Ø	300Ø	150UC30 219x6.4 CHS 250UB31	150UC30, 150x9 SHS, 219x6.4 CHS, 250UB31

ALTERNATIVE PILE MATERIAL

REINFORCED CONCRETE PILES - 150mm sq OR 150mmØ. 4-N16 VERT BARS, R10 LIGS @ 100 CTRS 500 FROM EACH END, R10 LIGS @ 300 CTRS INTERNAL. SUITABLE FOR ALL HEIGHTS AND SINGLE AND DOUBLE PIER. BRACING NOT REQUIRED.

REV	DATE	APP'D	REFERENCES
A	03-2021	ANNE N.	DRAWING MODIFIED

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GOULBURN MURRAY WATER

M. LON HO KEE
MANAGER ENGINEERING & MAINTENANCE SERVICES

GOULBURN MURRAY WATER STANDARD FIXED TYPE PRIVATE JETTY					
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