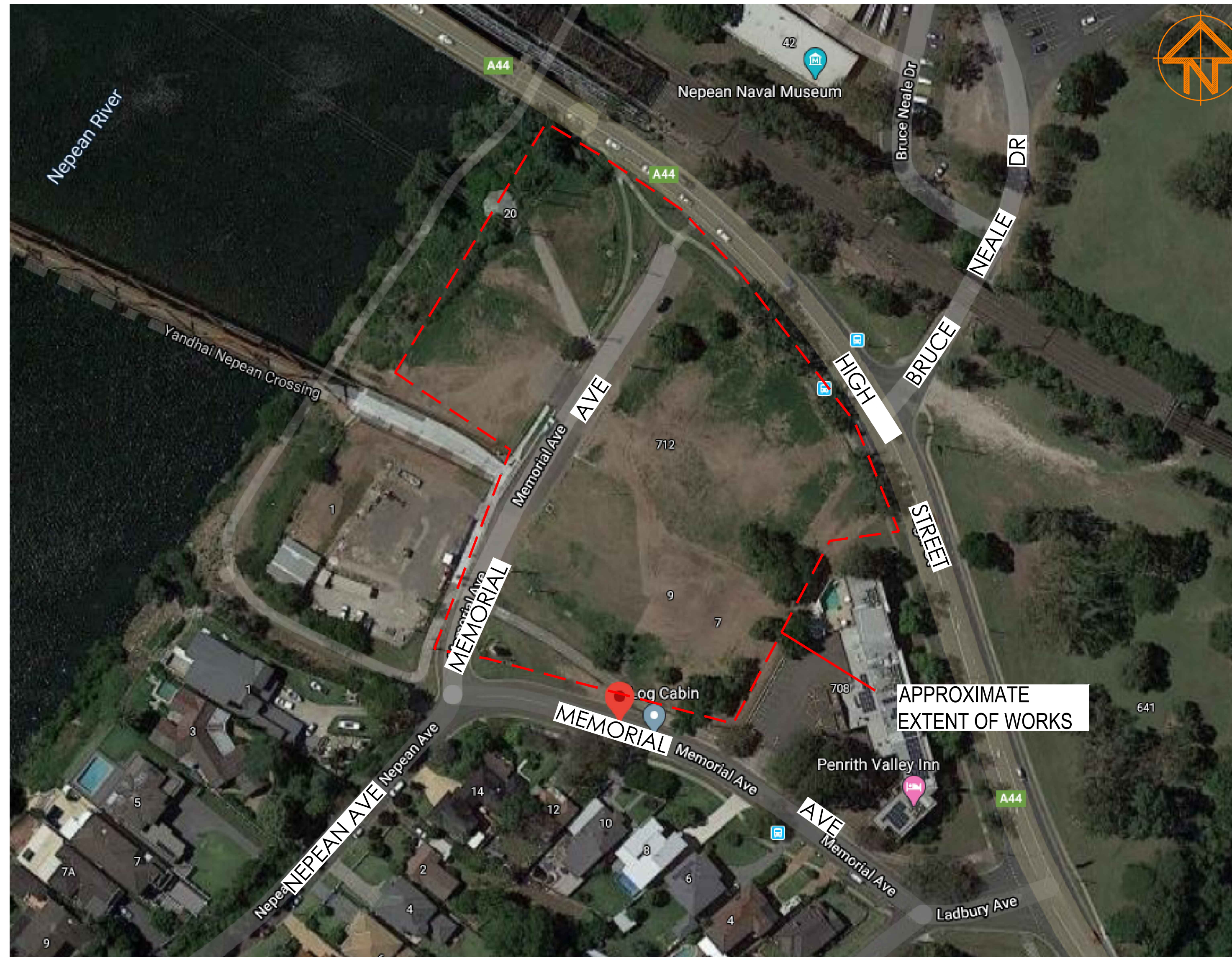


PROPOSED PENRITH PUB RE-DEVELOPMENT CONCEPT CIVIL DESIGN

LOTS 21 & 22 DP1236215
MEMORIAL AVE, PENRITH NSW 2750



LOCALITY PLAN
N.T.S.

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Issue	Date	Amendment	Int.	App.
A	31.03.20	ISSUED FOR DA SUBMISSION	RM	MW
B	23.04.2020	REISSUED FOR DA SUBMISSION	CV	LDG

CO-ORDINATED REFERENCE DRAWINGS			
SERVICE	DRAWING NUMBER	ISSUE	DATE
ARCH			
MECH			
STRUCT			
ELEC			
CIVIL			

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE

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**PENRITH PUB
REDEVELOPMENT**

**MEMORIAL AVENUE PENRITH
NSW 2750**

Drawing Title:

**CIVIL SERVICES
COVER SHEET**

North Point:	Design:	CV
	Design Validated:	-
	Amendment Approved:	LDG
	Drawn:	CV
Date:	Scale:	N/A
JAN 2020	(A1)	
Job No.:	Part No.:	Disc.:
21863-001	- C	- C001 - P - B

GENERAL NOTES:

- 1. THE NOTES CONTAINED ON THIS DRAWING ARE TYPICAL STANDARDS ONLY. ANY SPECIFIC DETAILS PROVIDED ELSEWHERE ARE TO TAKE PRECEDENCE.
2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE RELATED SOIL EROSION CONTROL NOTES, RELATED ROAD AND DRAINAGE PLANS, SPECIFICATION AND STANDARD DRAWINGS AS APPLICABLE.
3. ALL WORK IS SUBJECT TO STATUTORY REQUIREMENTS, INCLUDING BUT NOT LIMITED TO WORK HEALTH AND SAFETY REQUIREMENTS, & APPROPRIATE TRAFFIC CONTROL REQUIREMENTS.
4. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY LABOUR, PLANT, MATERIALS AND ANYTHING ELSE REQUIRED TO COMPLETE THE INTENT OF THE DESIGN.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SET OUT IN BOTH LINE AND LEVEL FOR THE WORKS IN ACCORDANCE WITH THE DESIGN.
6. THE CONTRACTOR IS TO ALLOW FOR THE COST OF TESTING. ALL TESTING IS TO BE DONE BY A NATA REGISTERED LABORATORY. TEST RESULTS ARE TO BE SUBMITTED TO THE PRINCIPAL FOR APPROVAL PRIOR TO WORK PROCEEDING.
7. THE CONTRACTOR SHALL ENSURE THAT THE ADJOINING PROPERTY OWNERS ARE NOT DEPRIVED OF ALL WEATHER ACCESS NOR ARE SUBJECTED TO ADDITIONAL STORMWATER RUNOFF.
8. THE CONTRACTOR SHALL ENSURE THAT ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES ARE IN PLACE PRIOR TO COMMENCING.
9. THE CONTRACTOR SHALL NOT ENTER UPON ADJOINING PROPERTY WITHOUT THE PERMISSION OF THE OWNER/OCCUPIER.
10. THE SITE IS TO BE LEFT CLEAN AND TIDY, AND TO THE SATISFACTION OF THE PRINCIPAL.
11. WHERE ENGINEERS RELIES ON THE INFORMATION SUPPLIED BY OTHERS TO PRODUCE THE DESIGNS, WE ACCEPT NO LIABILITY FOR ERRORS, TO THE EXTENT THAT THE DESIGN HAS MADE RELIANCE ON THIS INFORMATION

CLEARING AND GRUBBING:

- 1. THE CONTRACTOR SHALL GIVE COUNCIL & THE PRINCIPAL AT LEAST THREE FULL WORKING DAYS NOTICE OF INTENTION TO COMMENCE CLEARING OPERATIONS.
2. THE CONTRACTOR SHALL AVOID UNWARRANTED DAMAGE TO ALL NATURAL FLORA ON SITE AND ON THE ADJACENT LAND.
3. ONLY TREES IDENTIFIED TO BE REMOVED ON THE DRAWINGS ARE TO BE FELLED OR DAMAGED IN ANY WAY. SURPLUS SOIL IS TO BE KEPT WELL CLEAR OF EXISTING TREE TRUNKS. CARE MUST BE TAKEN TO PROTECT THE ROOTS OF TREES TO BE RETAINED.
4. NO TREES SHALL BE CLEARED WITHOUT OBTAINING THE WRITTEN APPROVAL OF THE COUNCIL.
5. ALL MATERIAL CLEARED OR GRUBBED SHALL BE DISPOSED OF BY THE CONTRACTOR TO AN APPROVED SITE. THE CONTRACTOR SHALL PAY ALL FEES. BURNING IS NOT PERMITTED.
6. ANY HOLES OR DEPRESSION CAUSED BY THE CLEARING OR GRUBBING WORK SHALL BE INSPECTED BY THE PRINCIPAL. HOLES ARE TO BE BACKFILLED WITH APPROVED MATERIAL, AND COMPACTED TO AT LEAST 98% OF STANDARD MAXIMUM DRY DENSITY.

TOPSOIL:

- 1. TOPSOIL INCLUDING ALL GRASS COVER SHALL BE STRIPPED FROM THE WHOLE OF THE AFFECTED AREA TO THE DEPTH SPECIFIED IN THE DRAWINGS OR AS REQUIRED OR, WHERE NO DEPTH IS SPECIFIED, TO A MINIMUM DEPTH OF 100mm.
2. STRIPPED SURFACES WILL NEED TO BE INSPECTED BY THE PRINCIPAL OR A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF EARTHWORKS TO ENSURE THE AREAS HAVE BEEN ADEQUATELY STRIPPED.
3. THE STRIPPED TOPSOIL IS TO BE STOCKPILED IN THE LOCATIONS SHOWN ON THE SOIL AND WATER MANAGEMENT PLAN. IF STOCKPILE LOCATIONS ARE NOT INDICATED THEY ARE TO BE PLACED GENERALLY IN ACCORDANCE WITH MUS AND TO THE SATISFACTION OF THE PRINCIPAL. THE SURFACE OF STOCKPILES IS TO BE COVERED WITH GEOFABRIC TO PREVENT SEDIMENT LOSS.
4. THE STOCKPILED TOPSOIL IS TO BE RE-SPREAD OVER THE FINISHED SURFACE (IN THE LOCATIONS INSTRUCTED BY THE PRINCIPAL) IMMEDIATELY FOLLOWING COMPLETION OF EARTHWORKS. DEPTHS OF TOPSOIL SHALL BE A MINIMUM OF 75mm BUT SHALL NOT EXCEED 250mm.
5. SURPLUS TOPSOIL SHALL NOT BE SPREAD OVER THE SITE WITHOUT THE WRITTEN PERMISSION OF THE PRINCIPAL.
6. NEWLY TOPSOILED AREAS ARE TO BE IMMEDIATELY REVEGETATED IN ACCORDANCE WITH THE APPROVED SOIL AND WATER MANAGEMENT PLAN & MUS.

FILL AND COMPACTION:

- 1. FILL IS TO BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
2. FILL IS TO BE COMPACTED TO AT LEAST 100% OF STANDARD MAXIMUM DRY DENSITY AS DETERMINED BY AS1289-5.1.1.
3. COMPACTION TESTING SHALL OCCUR AT THE RATE OF AT LEAST ONE TEST PER 500mm THICKNESS, 300m2 AREA OR 150m3 VOLUME, WHICHEVER GIVES MAXIMUM NUMBER OF TESTS.
4. ALL COMPACTION TESTING IS TO BE PERFORMED BY A NATA REGISTERED LABORATORY UNDER THE CONTROL OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER WHO SHALL SUPERVISE THE WORKS TO AT LEAST LEVEL 2 CONTROL AS DEFINED BY AS3798.
5. ALL COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE PRINCIPAL AS THEY BECOME AVAILABLE, BUT NO LATER THAN 48hrs AFTER TESTING.

SOIL/WATER MANAGEMENT AND PROTECTION OF THE ENVIRONMENT :

- 1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AND STRUCTURES SHALL BE LOCATED, CONSTRUCTED & MAINTAINED IN ACCORDANCE WITH THE GUIDELINES AND PRINCIPLES AS OUTLINED IN LANDCOM'S 'SOILS AND CONSTRUCTION' VOLUME 1 (MANAGING URBAN STORMWATER 4TH EDITION, MARCH 2004),(MUS).
2. THE CONTRACTOR IS RESPONSIBLE FOR CARRYING OUT ALL EARTHWORKS, ROAD AND DRAINAGE CONSTRUCTION GENERALLY IN ACCORDANCE WITH MUS AND TO THE SATISFACTION OF COUNCIL, THE SOIL CONSERVATION SERVICE AND THE PRINCIPAL.
3. CONSTRUCTION SEQUENCE SHALL BE PLANNED SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF MANAGEABLE SIZE. STABILISATION MEASURES SHALL BE APPLIED TO THE FIRST DISTURBED SECTION PRIOR TO COMMENCING ON THE NEXT SECTION.
4. BEFORE STRIPPING TOPSOIL ALL AREAS TO BE EXPOSED SHALL BE CLEARED AND GRUBBED OF ALL EXCESSIVE VEGETATION.
5. ALL WORK SHALL BE CARRIED OUT IN SUCH A MANNER AS TO AVOID NUISANCE AND/OR DAMAGE TO THE ENVIRONMENT. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE CONDITIONS OF APPROVAL, IMPOSED BY THE COUNCIL, THE ENVIRONMENTAL PROTECTION AUTHORITY, THE CLEAN WATERS ACT, THE CLEAN AIR ACT AND THE NOISE CONTROL ACT. THE CONTRACTOR IS TO ALLOW FOR THIS IN THEIR TENDER.
6. HERBICIDES AND OTHER TOXIC CHEMICALS SHALL NOT BE USED ON THE SITE WITHOUT THE PRIOR WRITTEN APPROVAL OF THE PRINCIPAL.
7. NO NOISE, SMOKE, OR OTHER NUISANCE WHICH IN THE OPINION OF THE PRINCIPAL IS UNNECESSARY OR EXCESSIVE SHALL BE PERMITTED BY THE CONTRACTOR IN THE PERFORMANCE OF THE WORKS UNDER THIS CONTRACT. SHOULD WORK OUTSIDE CUSTOMARY WORKING HOURS BE APPROVED, THE CONTRACTOR SHALL NOT USE, DURING SUCH PERIOD, ANY PLANT, MACHINERY OR EQUIPMENT WHICH IN THE OPINION OF THE PRINCIPAL IS CAUSING OR LIKELY TO CAUSE A NUISANCE TO THE PUBLIC. NO NOISY WORKS AND/OR WORKS LIKELY TO DISTURB NEARBY RESIDENTS SHALL BE UNDERTAKEN DURING THE HOURS PRECLUDING SUCH ACTIVITY AS SPECIFIED BY COUNCIL IN ACCORDANCE WITH THE REQUIREMENTS FOR DEVELOPMENT CONSENT AND BUILDING APPROVAL MADE UNDER THE LOCAL GOVERNMENT ACT AND THE NOISE CONTROL ACT.
8. THE CONTRACTOR SHALL ENSURE THAT FUGITIVE DUST FROM DISTURBED AREAS IS MINIMISED BY A METHOD APPROVED BY THE PRINCIPAL.
9. TOPSOIL REQUIRED TO BE RESPREAD ON SITE SHALL BE STOCKPILED CLEAR OF HAZARDS SUCH AS DRAINAGE AREAS, REMAINING TOPSOIL SHALL BE REMOVED AND STOCKPILED WHERE AGREED. STOCKPILED TOPSOIL IS TO BE RE-SPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY (ie. ALL FOOTPATHS, BATTERS, DRAINAGE RESERVE AND CHANNELS). TOPSOIL SHALL NOT BE SPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY APPROVED BY THE PRINCIPAL. STOCKPILES REMAINING LONGER THAN THREE MONTHS SHALL BE PROTECTED FROM EROSION BY COVERING WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS UPSLOPE TO DIVERT RUNOFF.
10. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL SEDIMENT AND EROSION CONTROL DEVICES AND REMOVE ACCUMULATED SILT ETC BEFORE NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL SILT REMOVED SHALL BE DISPOSED OF AS DIRECTED BY THE PRINCIPAL. CONTROL DEVICES SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR FURTHER AS MAY BE DIRECTED BY THE PRINCIPAL IN ACCORDANCE WITH THE CONTRACT.
11. CUT AND FILL BATTERS SHALL BE:
a. FORMED AT MAXIMUMS OF 2:1 IN CUT AND 3:1 IN FILL U.N.O.
b. TOPSOILED AS SOON AS PRACTICABLE AFTER FORMATION WITH A:
i. MINIMUM DEPTH OF 75mm AND MAXIMUM OF 250mm.
ii. SCARIFIED BEFORE TOPSOILING.
iii. SEEDED WITHIN 7 DAYS OF TOPSOILING WITH AN APPROVED MIX.
c. WHERE LENGTH OF CUT BATTER SLOPES EXCEED 3m THE BATTER SHALL BE PROTECTED BY EITHER A CUT-OFF DRAIN 150mm DEEP OR A SOIL CUT-OFF BANK 150mm HIGH LEADING TO A SEDIMENT TRAP SO AS TO CONTROL RUNOFF OVER BATTERS PRIOR TO THEIR REVEGETATION.
12. OUTLETS:
a. ALL WATER SHALL BE RELEASED IN A NON-SEDIMENT MANNER, GENERALLY IN ACCORDANCE WITH MUS.
b. ENERGY DISSIPATORS SHALL BE PROVIDED AS APPROVED BY THE PRINCIPAL WHEN DISCHARGE FLOW VELOCITIES ARE NOT IN ACCORDANCE WITH MUS.
c. SHALL HAVE CAPACITY TO DISCHARGE THE 5 YEAR CRITICAL STORM EVENT WITHOUT CAUSING FAILURE OF THE STRUCTURE.
d. AGGREGATE FOR OUTLETS SHALL BE CRUSHED BASALT OR EQUIVALENT APPROVED BY THE PRINCIPAL.
13. EARTH OR HAY BALE BANKS:
a. SHALL BE PROVIDED WHERE REQUIRED.
i. TO DIVERT SEDIMENT LADEN RUNOFF TO A SEDIMENT TRAP OR BASIN, OR
ii. INCORPORATED AS PART OF A BARRIER OR DAM USED TO INTERCEPT AND RETARD SEDIMENT LADEN RUNOFF.
b. FREEBOARD: BANKS SHALL HAVE FIXED 300mm FREEBOARD WHEN USED AS A DIVERSION BANK.
14. SLOPES LONGER THAN 80m ARE TO HAVE CHECK DAMS INSTALLED. REFER TO STANDARD DRAWING 5-4 (MUS) FOR DETAILS.
15. WHERE PRACTICAL, MAINTAIN OR IMPROVE EXISTING CLEAN WATER DRAINS TO DIVERT WATER AROUND THE SITE.
16. PERMANENT DRAINAGE FEATURES ARE TO BE INSTALLED AS EARLY AS POSSIBLE DURING THE CONSTRUCTION PERIOD.
17. DRAINAGE CHANNELS AND CATCH DRAINS ARE TO BE STABILISED WITH MATERIAL SUCH AS JUTE MESH, GEOFABRIC, MEDIUM /HIGH PERFORMANCE TURF REINFORCEMENT MATS (TRMS).

SMOOTH JUNCTIONS:

- 1. CONSTRUCTION WORK CARRIED OUT UNDER THIS CONTRACT ADJACENT TO ADJOINING WORKS, SHALL MAKE SMOOTH JUNCTIONS WITH EXISTING WORK, AS APPROPRIATE.

SUBGRADE:

- 1. PAVEMENT SUBGRADES SHALL BE PREPARED TO A WIDTH EXTENDING AT LEAST 150mm BEHIND THE REAR EDGE OF KERBING OR IF THERE IS NO KERBING THE OUTER EDGE OF THE ROAD SHOULDER OR AS SHOWN ON THE DRAWINGS.
2. THE SUBGRADE SURFACE SHALL BE TRIMMED TO A TOLERANCE OF +14mm TO -30mm OF THE DESIGN LEVEL.
3. THE TOP 150mm OF THE SUBGRADE MATERIAL IS TO BE COMPACTED TO A MINIMUM OF 100% OF STANDARD MAXIMUM DRY DENSITY (AS1289-5.1.1).
4. WHERE ROCK IS ENCOUNTERED IN THE SUBGRADE, IT SHALL BE RIPPED TO A MINIMUM DEPTH OF 150mm AND RECONSOLIDATED ABOVE.
5. THE SUBGRADE SHALL BE PROOF ROLLED IN THE PRESENCE OF THE PRINCIPAL TO ENSURE UNIFORM PREPARATION. SUCH PROOF ROLLING SHOULD BE PERFORMED USING A 3 POINT ROLLER OF NOT LESS THAN 9 TONNES MASS, OR APPROVED ALTERNATIVE. BENKELMAN BEAM TESTING MAY BE CARRIED OUT IN A REGULAR PATTERN OVER THE SUBGRADE AS AN ALTERNATIVE TO PROOF ROLLING.
6. SUBGRADE COMPACTION TESTING IS TO BE CARRIED OUT BY A NATA REGISTERED LABORATORY AT THE RATE OF ONE DENSITY TEST PER 500m² OF NEW PAVEMENT (OR PART THEREOF). PROOF ROLLING SHALL TAKE PLACE OVER THE ENTIRE SUBGRADE SURFACE.
7. COPIES OF COMPACT TEST RESULTS MUST BE SUBMITTED TO THE PRINCIPAL UPON RECEIPT FROM THE TESTING LABORATORY.
8. ALL SUBGRADE PREPARATION MUST BE INSPECTED AND APPROVED BY THE PRINCIPAL PRIOR TO PAVEMENT WORKS PROCEEDING.

SUBBASE:

- 1. ALL SUBBASE MATERIALS SHALL COMPLY WITH COUNCIL SPECIFICATION C242B FOR 2A TRAFFIC LOADING.
2. THE SUBBASE SHOULD BE SPREAD AND COMPACTED IN LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
3. THE WHOLE OF THE SUBBASE SHALL BE COMPACTED TO A MINIMUM COMPACTION OF 98% MODIFIED (AS1289 - 5.2.1).
4. FINISHED LEVELS SHOULD BE WITHIN + 20mm OF DESIGN LEVELS. THE SUBBASE SURFACE SHOULD NOT DEVIATE FROM A 3m STRAIGHT EDGE, LAID IN ANY DIRECTION, BY MORE THAN 25mm.
5. THE WHOLE OF SUBBASE SURFACE SHOULD BE PROOF ROLLED USING A 3 POINT ROLLER OF MINIMUM 9 TONNES MASS (OR APPROVED ALTERNATIVE) TO ENSURE UNIFORMITY. THERE SHALL BE NO VISIBLE DEFLECTION UNDER PROOF ROLLING.
6. BENKELMAN BEAM DEFLECTION TESTING MAY ALSO BE REQUIRED BY THE PRINCIPAL IN SOME CIRCUMSTANCES FOLLOWING THE COMPACTION OF THE SUBBASE. IF REQUIRED, THIS SHOULD BE PERFORMED AT 20m INTERVALS ALTERNATIVELY ALONG THE WHEEL PATHS. THE CO-EFFICIENT OF VARIATION IN RECORDED DEFLECTION READINGS SHOULD NOT EXCEED 50%.
7. ALL COMPACTION TESTING (AND BENKELMAN BEAM TESTING IF REQUIRED) SHALL BE PERFORMED BY A NATA REGISTERED LABORATORY UNDER THE CONTROL OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER. DENSITY TESTS SHOULD BE PERFORMED AT LEAST AT THE RATE OF 1 TEST PER 500m² OF NEW PAVEMENT OR PART THEREOF.
8. ALL TEST RESULTS MUST BE SUBMITTED TO THE PRINCIPAL UPON RECEIPT FROM THE TESTING LABORATORY.
9. ALL SUBBASE PREPARATION MUST BE INSPECTED AND APPROVED BY THE PRINCIPAL PRIOR TO BASE COURSE OR KERB AND GUTTER WORKS.

BASE COURSE:

- 1. ALL BASE COURSE MATERIALS SHALL COMPLY WITH COUNCIL SPECIFICATION C242B FOR 2A TRAFFIC LOADING.
2. THE BASE COURSE SHALL BE SPREAD AND COMPACTED IN LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
3. THE WHOLE OF THE BASE COURSE SHALL BE COMPACTED TO A MINIMUM COMPACTION OF 98% MODIFIED (AS1289 - 5.2.1).
4. FINISHED LEVELS SHOULD BE WITHIN + 10mm OF DESIGN LEVELS. THE BASE COURSE SURFACE SHOULD NOT DEVIATE FROM A 3m STRAIGHT EDGE, LAID IN ANY DIRECTION, BY MORE THAN 15mm.
5. THE WHOLE OF THE BASE COURSE SHOULD BE PROOF ROLLED USING A 3 POINT ROLLER OF MINIMUM 9 TONNES MASS (OR APPROVED ALTERNATIVE) TO ENSURE UNIFORMITY.
6. BENKELMAN BEAM TESTING MAY ALSO BE REQUIRED BY THE PRINCIPAL IN SOME CIRCUMSTANCES FOLLOWING THE COMPACTION OF THE BASE COURSE. IF REQUIRED, THIS SHOULD BE PERFORMED AT 20m INTERVALS ALTERNATIVELY ALONG THE WHEEL PATHS. THE CO-EFFICIENT OF VARIATION IN RECORDED DEFLECTION READINGS SHOULD NOT EXCEED 30%.
7. ALL COMPACTION TESTING (AND BENKELMAN BEAM TESTING IF REQUIRED) SHALL BE PERFORMED BY A NATA REGISTERED LABORATORY UNDER THE CONTROL OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER. DENSITY TESTS SHOULD BE PERFORMED AT THE RATE OF 1 TEST PER 500m² OF PAVEMENT OR PART THEREOF.
8. ALL TEST RESULTS MUST BE SUBMITTED TO THE PRINCIPAL UPON RECEIPT FROM THE TESTING LABORATORY.
9. ALL BASE COURSE PREPARATION MUST BE INSPECTED BY THE PRINCIPAL PRIOR TO SEALING OR KERB AND GUTTER WORKS.

MATERIALS:

- 1. MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR KIND AND UNLESS OTHERWISE SPECIFIED, SHALL CONFORM TO RELEVANT AUSTRALIAN STANDARDS.

WEARING COURSE:

- 1. SEALING OF ROADS WILL BE PERFORMED IN TWO STAGES. THE FIRST SEAL WILL PROTECT THE ROAD PAVEMENT AND PRODUCE A WEARING SURFACE DURING THE INSTALLATION OF SERVICES IN THE FOOTPATHS. ONCE ALL SERVICES ARE INSTALLED THE FINAL WEARING SURFACE MAY THEN BE LAID.
2. THE FOLLOWING PAVEMENT SEALS WILL BE ACCEPTABLE, UNLESS NOMINATED OTHERWISE ON THE DESIGN DRAWINGS:
a. 30mm AC10 FINAL WEARING SURFACE.
b. 5mm SINGLE COAT SPRAYED SEAL AS FIRST COAT, FOLLOWED BY ARRB GAP GRADED ASPHALT MIX MINIMUM 25mm CONSOLIDATED THICKNESS.
c. 15mm AC5 AS FIRST COAT, FOLLOWED BY ARRB GAP GRADED ASPHALT MIX MINIMUM 25mm CONSOLIDATED THICKNESS.
3. FINISHED LEVELS SHOULD BE WITHIN + 10mm OF THE DESIGN LEVELS AND THE FINISHED PROFILE SHOULD NOT DEVIATE FROM THE BOTTOM OF A 3m STRAIGHT EDGE LAID IN ANY DIRECTION BY MORE THAN 7mm.
4. ROUGHNESS AS MEASURED BY NAASRA ROUGHNESS METER SHOULD NOT EXCEED 12 COUNTS/100m.
5. THE PRINCIPAL MAY REQUIRE THE ASPHALT TO BE TESTED TO ENSURE COMPLIANCE WITH THE ARRB SPECIFICATION.

SUBSURFACE DRAINAGE:

- 1. SUBSURFACE DRAINAGE IS TO BE INSTALLED ALONG THE EDGE OF ALL PAVEMENT AS DETAILED, OR AS DIRECTED BY THE PRINCIPAL.
2. SUBSURFACE LINE PIPES AND FITTINGS SHALL BE PERFORATED PLASTIC TO AS2439 PART 1. LAY PIPES ON 100mm OF FILTER MATERIAL GRADED AT MINIMUM 1% AND OVERLAY WITH FILTER MATERIAL EXTENDING TO UNDERSIDE OF PAVEMENT SUB-BASE. PROVIDE FILTER FABRIC AROUND TRENCH AS DETAILED.
3. TRENCHES SHALL BE MINIMUM 300mm IN WIDTH AND EXCAVATED TO AT LEAST 500mm BELOW SUBGRADE LEVEL.
4. BACKFILL FILTER MATERIAL SHALL MEET THE GRADING REQUIREMENTS AS SET OUT IN MRS38. HOWEVER COARSER MATERIAL WILL BE PERMISSIBLE IF THE ENTIRE BACKFILL IS WRAPPED IN A GEOTEXTILE FABRIC (BIDM A14 OR TERRAM 1000, OR EQUIVALENT).
5. 'NYLEX STRIP DRAIN' OR EQUIVALENT MAY BE CONSIDERED AN ALTERNATIVE TO CONVENTIONAL SUBSURFACE DRAINS BUT WILL REQUIRE THE SPECIFIC PERMISSION OF THE PRINCIPAL IN EACH CASE.
6. ALL SUBSURFACE DRAINAGE IS TO DISCHARGE DIRECTLY TO A DESIGNATED STORMWATER SYSTEM.

EXISTING SERVICES:

- 1. THE CONTRACTOR IS TO INFORM THEMSELVES OF ALL EXISTING SERVICES. ATTEND TO EXISTING SERVICES AS FOLLOWS:
(a) IF THE SERVICE(S) IS/ARE TO BE CONTINUED, PROTECT, REPAIR, DIRECT OR RELOCATE AS REQUIRED. IF SUCH A SERVICE(S) CROSSES THE LINE OF A TRENCH, OR WILL LOSE SUPPORT WHEN THE TRENCH IS EXCAVATED, PROVIDE PERMANENT SUPPORT FOR THE EXISTING SERVICES.
(b) IF THE SERVICE IS TO BE ABANDONED, CUT AND SEAL OR DISCONNECT, AND MAKE SAFE.
2. THE CONTRACTOR'S PRICE IS TO ALLOW FOR HAND EXCAVATION AND BACKFILL NEAR ALL EXISTING SERVICES OR IN AREAS WHERE THERE MAY BE EXISTING SERVICES.
3. THE COST OF DEALING WITH ALL EXISTING SERVICES AS ABOVE, AND THE TIME ASSOCIATED WITH THE WORK, IS TO BE INCLUDED IN THE TENDER.
4. THE PRINCIPAL AND THE DESIGN CONSULTANT WILL NOT BE RESPONSIBLE FOR DAMAGES TO EXISTING SERVICES. THE CONTRACTOR IS TO TAKE ALL ACTION NECESSARY TO AVOID DAMAGE TO EXISTING SERVICES.

STANDARDS AND TEST METHODS:

- 1. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT, AND WHERE APPLICABLE, MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT STANDARD OF THE STANDARDS ASSOCIATION OF AUSTRALIA.
2. A STANDARD APPLICABLE TO THE WORKS SHALL BE THE EDITION LAST PUBLISHED 14 DAYS PRIOR TO THE CLOSING DATE FOR TENDERS UNLESS OTHERWISE SPECIFIED.
3. OVERSEAS STANDARDS AND OTHER STANDARD DOCUMENTS NAMED IN THE SPECIFICATION SHALL BE APPLICABLE IN THE SAME MANNER AS AUSTRALIAN STANDARDS TO RELEVANT MATERIALS AND WORKMANSHIP.
4. COPIES OF ANY STANDARDS QUOTED OR REFERRED TO IN THE SPECIFICATION SHALL BE KEPT ON THE SITE IF SO SPECIFIED.
5. WHERE NO SUITABLE TEST METHODS ARE AVAILABLE, THOSE OF THE RMS OR PWD (AS APPROPRIATE) SHALL BE USED.

PROVISION FOR TRAFFIC:

- 1. THE CONTRACTOR SHALL ENSURE THE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS AROUND THE WORK SITE AT ALL TIMES TO STATUTORY REQUIREMENTS.
2. THE CONTROLS FOR VEHICULAR TRAFFIC MUST CONFORM TO THE RMS 'TRAFFIC CONTROL AT WORK SITES MANUAL'.
3. SIGNS OR BARRIERS USED FOR TRAFFIC CONTROL SHALL COMPLY WITH AS1742 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' AND WITH RMS 'GUIDELINES TO SIGNS AND MARKINGS MANUAL'.
4. THE CONTRACTOR IS TO PROVIDE PROPER PROVISION FOR TRAFFIC ON ADJACENT ROADS, AND MAINTAIN EXISTING VEHICULAR ACCESS TO PROPERTIES IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARD AND STATUTORY REQUIREMENTS.

CONCRETE NOTES

- 1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITION OF AS3600.
2. CONCRETE STRENGTH SHALL BE AS FOLLOWS U.N.O.:

Table with 4 columns: ELEMENT, KERB, CAST-IN-SITU STORMWATER PITS, OTHER. Rows include STRENGTH (25MPa, 32MPa, 32MPa), SLUMP (100mm, 100mm, 100mm), MAX. AGG. SIZE (20mm, 20mm, 20mm).

Table with 4 columns: ELEMENT, TOP, BOTTOM, SIDE. Rows include KERB (N/A, N/A, N/A), CAST IN-SITU STORMWATER PITS (50, 60, 60), OTHER (50, 60, 60).

- 3. CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE AS FOLLOWS U.N.O.:
4. THE SIZES OF THE CONCRETE ELEMENTS DO NOT INCLUDE THICKNESSES OF ANY APPLIED FINISHES.
5. ALL CONCRETE SHALL BE COMPACTED ADEQUATELY IN ACCORDANCE WITH AS3600 BY THE USE OF A MECHANICAL VIBRATOR.
6. ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH AS3600.
7. REINFORCEMENT SYMBOLS:
N - DENOTES GRADE 500 DEFORMED BARS TO AS4671
R - DENOTES GRADE 250 N PLAIN BARS TO AS4671
SL - DENOTES WELDED GRADE 500 REINFORCING FABRIC TO AS4671
8. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
9. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN OR OTHERWISE APPROVED IN WRITING BY THE ENGINEER. LAPS SHALL BE IN ACCORDANCE WITH AS3600 AND NOT LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR.
10. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE PRINCIPAL.
11. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE PRINCIPAL.
12. THE FINISHED CONCRETE SHALL BE MECHANICALLY VIBRATED TO ACHIEVE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. CONCRETE SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.
13. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF THREE DAYS, AND THE PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT.
14. REPAIRS TO CONCRETE SHALL NOT BE ATTEMPTED WITHOUT THE PERMISSION OF THE PRINCIPAL.

STORMWATER DRAINAGE NOTES

- 1. STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH AS3500.3
2. PIPES OF 225mm DIA. AND UNDER SHALL BE uPVC TO AS1254.
3. PIPES OF 300mm DIA. AND LARGER SHALL BE CONCRETE CLASS 4 TO AS4058, RUBBER RING JOINTED UNO.
4. PIPES UP TO 150mm DIA. SHALL BE LAID AT A MINIMUM GRADE OF 1.0 %, PIPES 225mm DIA. AND OVER TO BE LAID AT A MINIMUM GRADE OF 0.5% U.N.O. BEDDING MATERIAL TO AS2032 OR AS3725 AS APPROPRIATE.
5. MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 450mm IN CARPARK & ROADWAY AREAS UNO.
6. BACKFILL TRENCHES WITH APPROVED FILL, SUCH AS SANDY LOAM, COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY TO AS1289.5.1.1.
7. ANY PIPES OVER 15% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS.
8. PITS SHALL BE OF REINFORCED CONCRETE CONSTRUCTION AS DETAILED U.N.O. METAL GRATES AT LEVELS INDICATED. ALL PITS DEEPER THAN 1200mm TO HAVE CLIMB IRONS.
9. BUILD INTO UPSTREAM FACE OF ALL PITS A 3.0m SUBSURFACE LINE FALLING TO PITS TO MATCH PIT INVERT.
10. DRAINAGE PITS MAY ONLY BE SUBSTITUTED WITH ALTERNATIVE PRECAST PITS WITH THE PRIOR APPROVAL OF THE PRINCIPAL OR AS INDICATED ON THE DRAWINGS.

HAULAGE:

- 1. ROUTES FOR HAULAGE ROADS SHOULD BE CHOSEN TO MINIMISE THE IMPACT OF CONSTRUCTION WORKS ON EXISTING RESIDENTIAL AREAS.
2. THE CONTRACTOR SHALL ENSURE THAT NO SITE MATERIAL IS TRACKED ONTO ANY ADJOINING PUBLIC ROADS. ALL PUBLIC ROADS ARE TO BE KEPT CLEAN AT ALL TIMES.

WORK-AS-EXECUTED DRAWINGS:

- 1. THE CONTRACTOR SHALL SUPPLY THE PRINCIPAL WITH FULL MARKED-UP AND CERTIFIED WORK-AS-EXECUTED DRAWINGS FOR THE WHOLE OF THE CONTRACT PRIOR TO THE FINAL CERTIFICATE. PRINTS OR REPRODUCIBLES OF THE CONTRACT DRAWINGS WILL BE SUPPLIED BY THE PRINCIPAL FREE OF CHARGE FOR THIS PURPOSE.
2. WORK-AS-EXECUTED DRAWINGS FOR ROADWORKS OR CARPARKS SHALL SHOW IN RED INK ALL CHANGES TO THE CONTRACT DRAWINGS AND ACTUAL VALUES OF ALL LEVELS SHOWN ON THE DRAWINGS. THE DRAWINGS SHALL BE SIGNED BY A REGISTERED SURVEYOR AND CERTIFIED BY THE CONTRACTOR.
3. WORK-AS-EXECUTED DRAWINGS FOR DRAINAGE AND SEWER WORKS WHERE APPLICABLE SHALL SHOW IN RED INK ALL CHANGES TO THE CONTRACT DRAWINGS, INCLUDING VARIATIONS TO LEVELS, DIMENSIONS, CONCRETE, REINFORCEMENT AND OTHER MATERIALS. THE DRAWINGS SHALL BE CERTIFIED BY THE CONTRACTOR.

WORKING AREA:

- 1. THE PRINCIPAL WILL NOT BE RESPONSIBLE FOR THE SAFE KEEPING OF ANY OF THE CONTRACTOR'S PLANT, EQUIPMENT, TOOLS, MATERIALS OR OTHER PROPERTY. THE CONTRACTOR MAY PROVIDE, AT THEIR OWN COST, ANY SECURITY FENCING CONSIDERED NECESSARY AROUND THE SITE OFFICE, WORKSHOPS OR STORAGE AREAS, SUBJECT TO THE PRINCIPAL'S PRIOR APPROVAL.
2. IF EXISTING FENCING IS CUT OR ALTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY FENCING TO THE SATISFACTION OF THE PRINCIPAL DURING THE CONTRACT TO PREVENT UNAUTHORISED ENTRY INTO THE PROPERTY, AND SHALL REINSTATE THE FENCING AND REMOVE TEMPORARY FENCING ON COMPLETION OF THE WORK.

LEGEND table with columns SYMBOL and DESCRIPTION. Symbols include sewer lines, telstra lines, gas lines, electricity lines, water main, communications lines, boundary lines, stormwater lines, easement, power poles, water meters, hydrants, stop valves, sewer manholes, and sealed roads.

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Table with columns Issue, Date, Amendment, Int., App. Rows include A (31.03.20) ISSUED FOR DA SUBMISSION and B (23.04.2020) REISSUED FOR DA SUBMISSION.

Table with columns CO-ORDINATED REFERENCE DRAWINGS, SERVICE, DRAWING NUMBER, ISSUE, DATE. Includes ARCH, MECH, STRUCT, ELEC, CIVIL. Note: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE

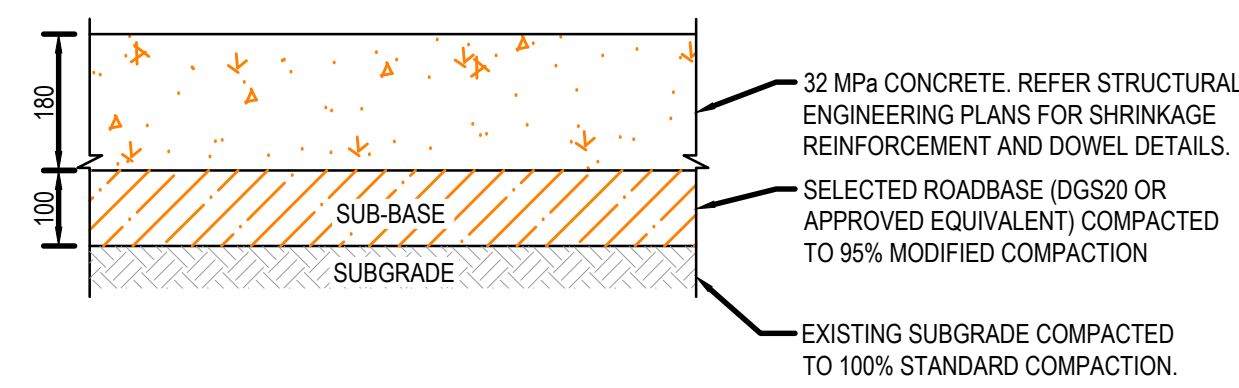
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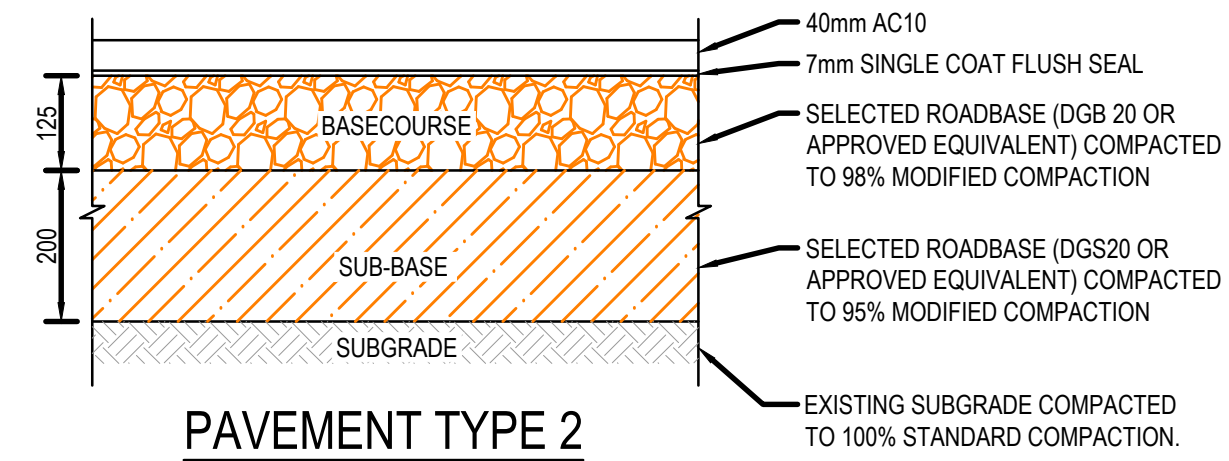
Project: PENRITH PUB REDEVELOPMENT MEMORIAL AVENUE PENRITH NSW 2750

Drawing Title: CIVIL SERVICES NOTES SHEET

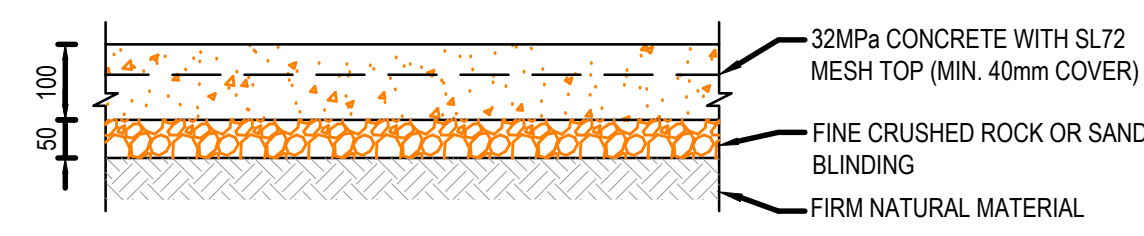
Table with columns North Point, Design, Design Validated, Amendment Approved, Drawn, Date, Scale, Job No., Part No., Disc, Dep No., Stage, Issue. Values include CV, LDG, MAR 2020, N/A, 21863-001 - C - C002 - P - B



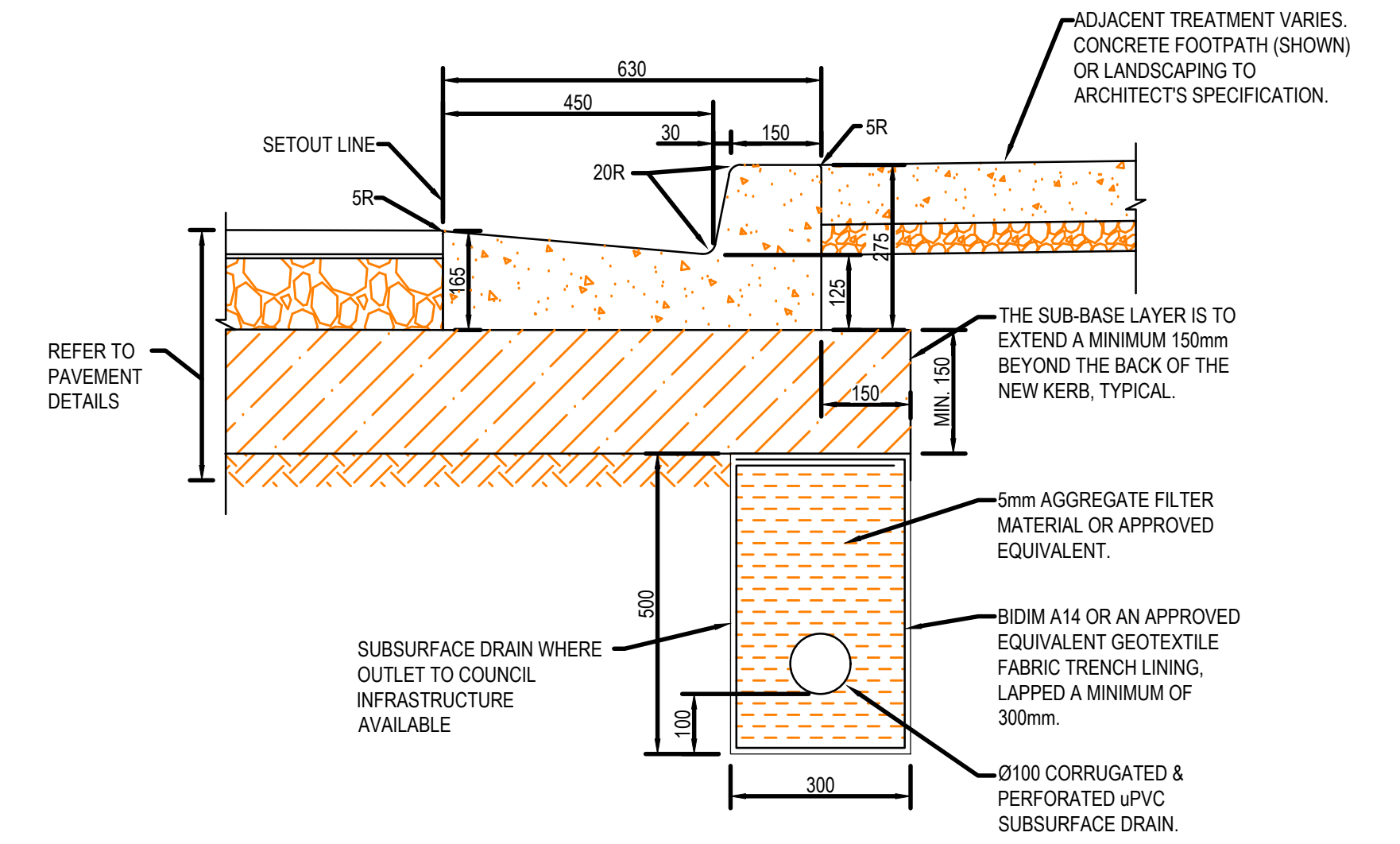
**PAVEMENT TYPE 1
TYPICAL RIGID
PAVEMENT DETAIL**



**PAVEMENT TYPE 2
TYPICAL FLEXIBLE
PAVEMENT DETAIL**



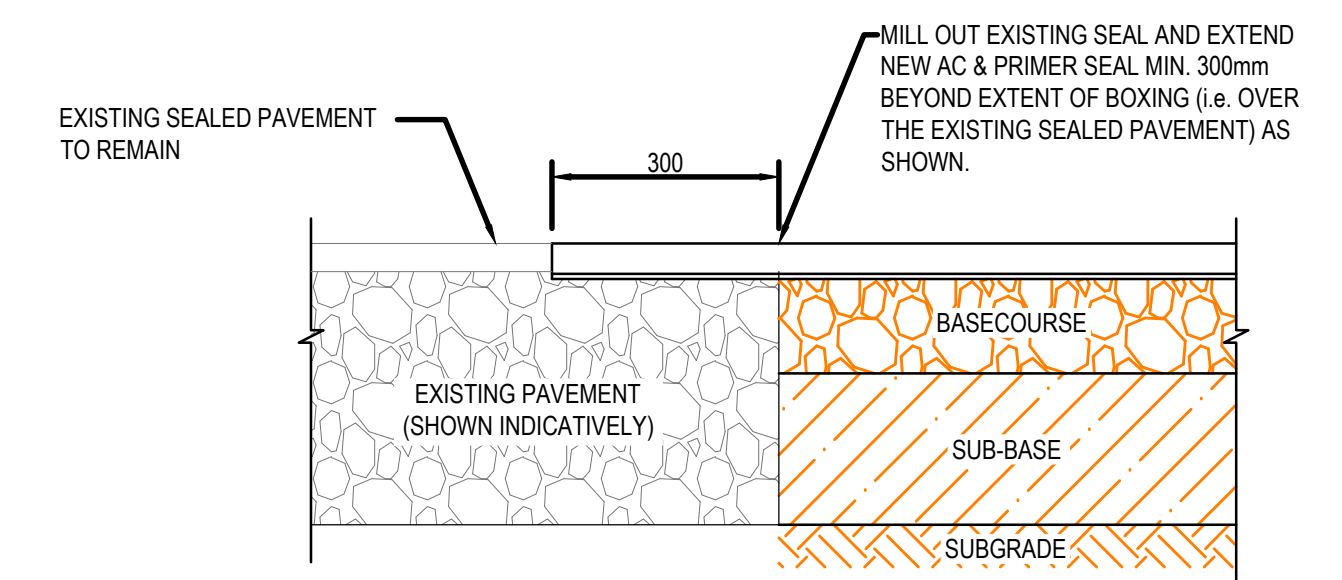
**PAVEMENT TYPE 3
TYPICAL CONCRETE
FOOTPATH DETAIL**
SCALE 1:10



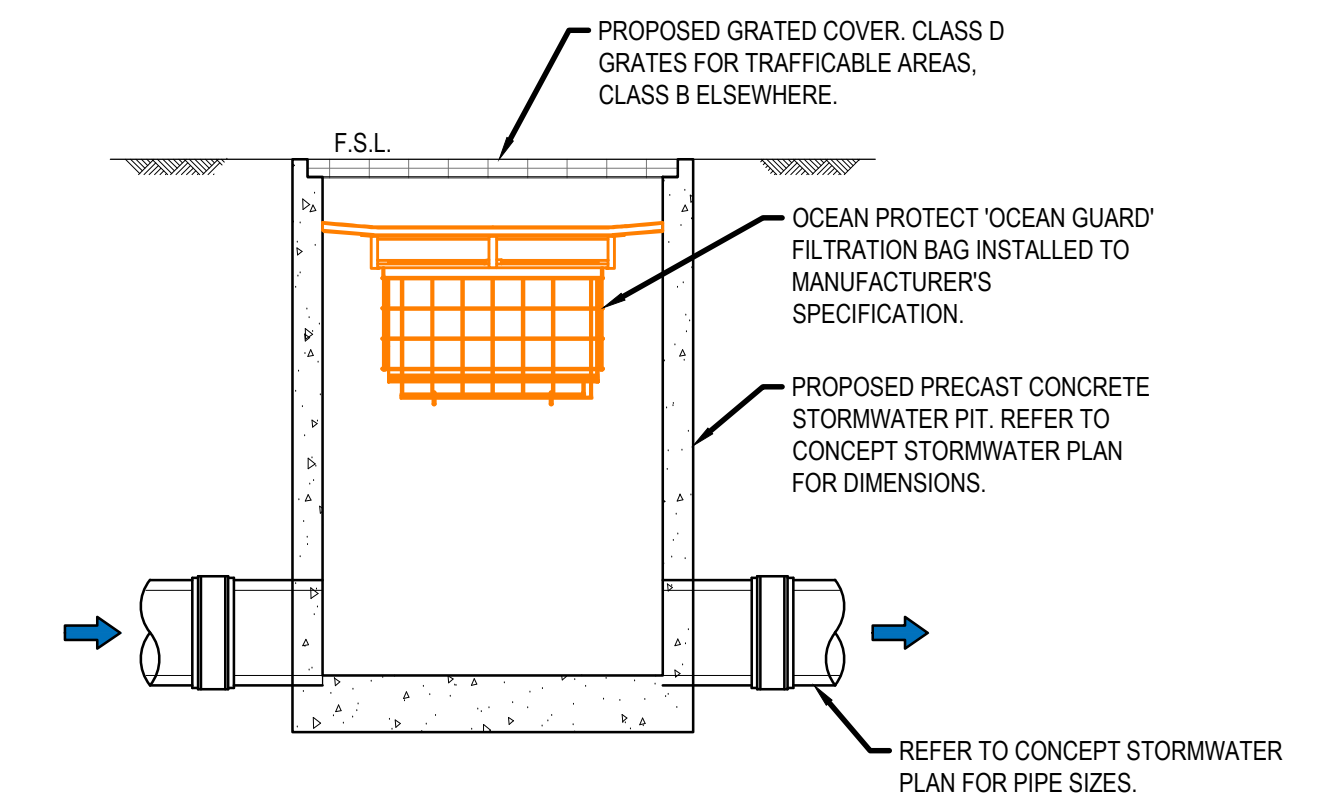
TYPICAL KERB AND GUTTER (KG) DETAIL
SCALE 1:10

- PAVEMENT DESIGN NOTES:**
- FLEXIBLE PAVEMENT DESIGN HAS BEEN BASED ON A CBR OF 3.0% FOR A TRAFFIC LOADING OF 8X10⁶ ESAs
 - RIGID PAVEMENT DESIGN HAS BEEN BASED ON A CBR OF 3% FOR A TRAFFIC LOADING OF 1.3X10⁶ HVAG
 - FOR RIGID PAVEMENT SHRINKAGE REINFORCEMENT AND DOWEL SPECIFICATIONS, REFER STRUCTURAL ENGINEERS DETAILS.
 - SUBGRADE PREPARATION AND PLACEMENT OF CONTROLLED FILL
- THE FOLLOWING PROCEDURES ARE TO BE FOLLOWED FOR SUBGRADE PREPARATION AND PLACEMENT OF CONTROLLED FILL:
- STRIP EXISTING TOPSOIL (IF PRESENT) AND STOCKPILE FOR POSSIBLE FUTURE USE IN LANDSCAPING.
 - IN AREAS WHERE GRADE RAISE FILL WILL BE PROVIDED THE EXPOSED MATERIAL AFTER REMOVAL OF TOPSOIL SHALL BE PROOF ROLLED (USING AN 8 TO 10 TONNES ROLLER) TO DETECT POTENTIALLY WEAK SPOTS (GROUND HEAVE). EXCAVATE AREAS OF LOCALISED HEAVING TO DEPTH OF ABOUT 300MM AND REPLACE WITH GRANULAR MATERIAL OR LOW PLASTICITY CLAY AND COMPACT AS RECOMMENDED BELOW.
 - REPEAT PROOF ROLLING OF SOFT SPOTS BACKFILLED WITH GRANULAR MATERIAL OR LOW PLASTICITY CLAY. IF THE BACKFILLED AREA SHOWS MOVEMENT DURING PROOF ROLLING, THIS OFFICE SHOULD BE CONTACTED FOR FURTHER RECOMMENDATIONS.
 - PLACE SUITABLE FILL MATERIALS ON PROOF ROLLED SURFACE IN HORIZONTAL LAYERS OF 250MM TO 300MM LOOSE THICKNESS (DEPENDENT ON THE SIZE OF EQUIPMENT) AND COMPACT TO ACHIEVE A MINIMUM DENSITY RATIO OF AT LEAST 98% STANDARD, AT MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT (OMC). SUITABLE FILL MATERIALS MAY COMPRISE GRANULAR OR LOW PLASTICITY CLAY. THE TOP 300MM OF THE FILL FORMING PAVEMENT SUBGRADE SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF AT LEAST 100% STANDARD, AT MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT (OMC).
 - IN CUT AREAS THE TOP 300MM OF THE PAVEMENT SUBGRADE SHALL BE SCARIFIED AND COMPACTED TO A MINIMUM DENSITY RATIO OF AT LEAST 100% STANDARD, AT MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT (OMC).
 - FILL PLACEMENT SHOULD BE SUPERVISED TO ENSURE THAT MATERIAL QUALITY, LAYER THICKNESS, TESTING FREQUENCY AND COMPACTION CRITERIA CONFORM TO THE SPECIFICATIONS. WE RECOMMEND 'LEVEL 1' SUPERVISION, IN ACCORDANCE WITH AS3798-2007.

PENRITH PUB PAVEMENT DESIGN



**TYPICAL PAVEMENT
INTERFACE DETAIL**
SCALE 1:10



**TYPICAL GRATED
STORMWATER PIT DETAIL**
SCALE 1:20

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A	31.03.20	ISSUED FOR DA SUBMISSION	RM	MW
B	23.04.2020	REISSUED FOR DA SUBMISSION	CV	LDG

CO-ORDINATED REFERENCE DRAWINGS			
SERVICE	DRAWING NUMBER	ISSUE	DATE
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MECH			
STRUCT			
ELEC			
CIVIL			

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bsi ISO 9001 Quality Management

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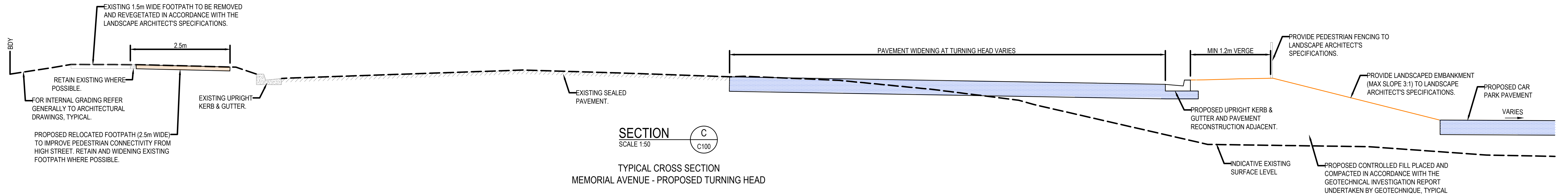
**PENRITH PUB
REDEVELOPMENT**

**MEMORIAL AVENUE PENRITH
NSW 2750**

Drawing Title:

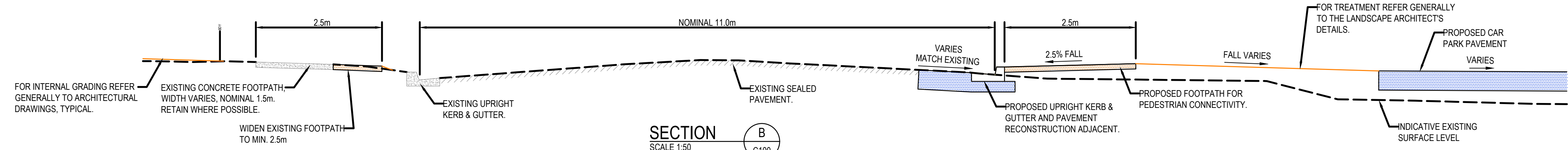
**CIVIL SERVICES
TYPICAL DETAILS SHEET**

North Point:	Design:	CV
	Design Validated:	-
	Amendment Approved:	LDG
	Drawn:	CV
Date:	Scale:	AS NOTED
MAR 2020	(A1)	
Job No.:	Part No.:	Disc:
21863-001	- C -	C010 - P - B



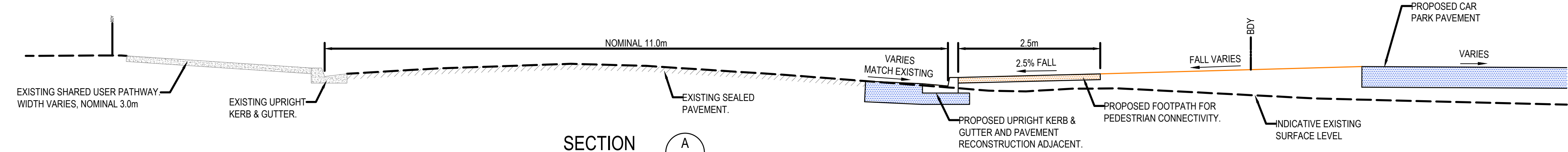
SECTION C
SCALE 1:50
C100

TYPICAL CROSS SECTION
MEMORIAL AVENUE - PROPOSED TURNING HEAD



SECTION B
SCALE 1:50
C100

TYPICAL CROSS SECTION
MEMORIAL AVENUE



SECTION A
SCALE 1:50
C100

TYPICAL CROSS SECTION
MEMORIAL AVENUE

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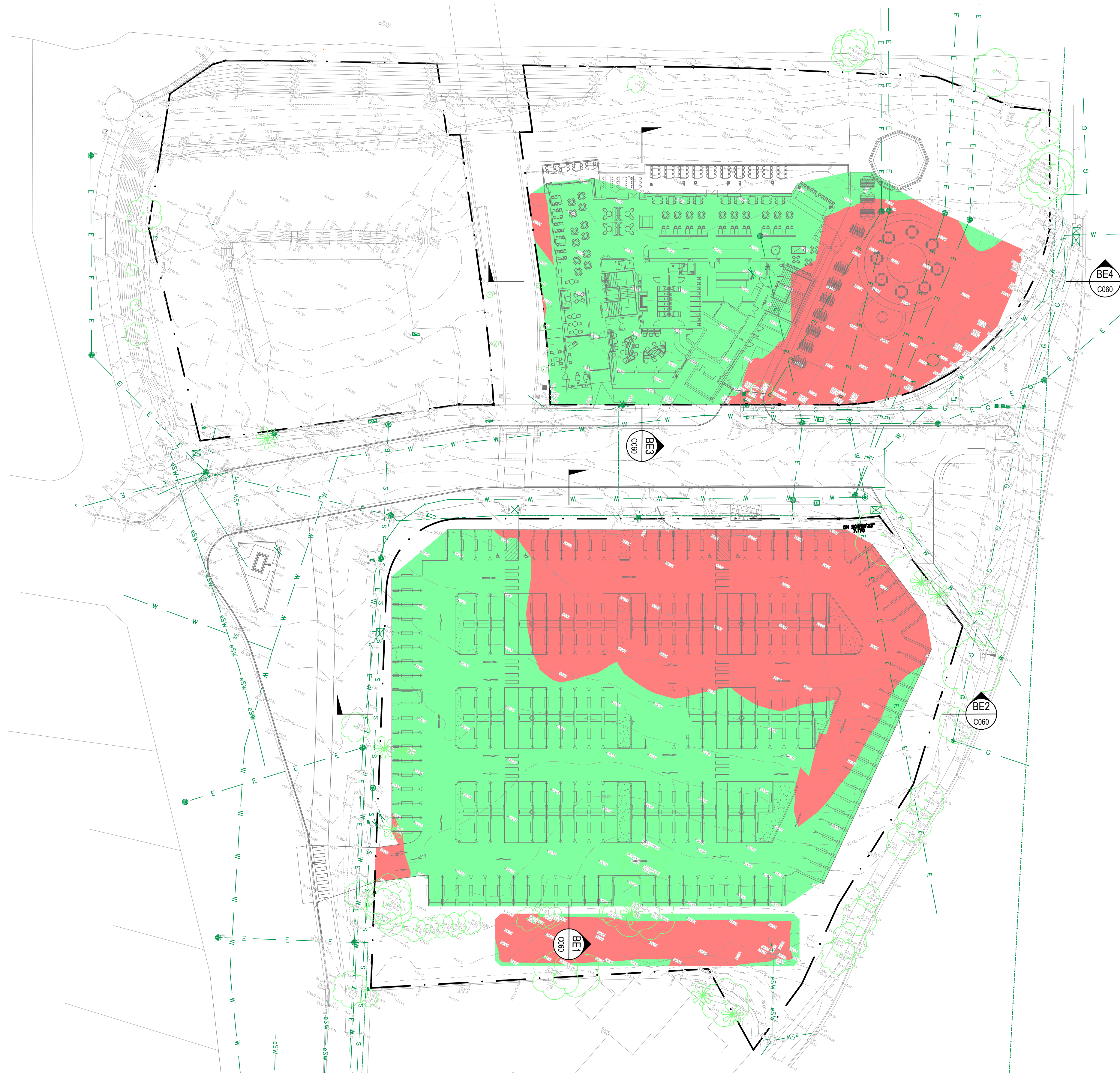
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Drawing Title:
CIVIL SERVICES
TYPICAL CROSS SECTIONS

North Point:	Design:	CV
	Design Validated:	-
	Amendment Approved:	LDG
	Drawn:	CV
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0 8 16 24 32 40m
 8 6 4 2
 SCALE 1:400

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SERVICE	DRAWING NUMBER	ISSUE	DATE
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MECH			
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CIVIL			

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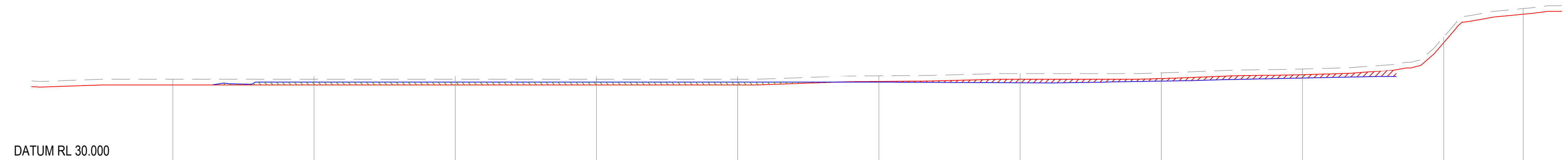
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MEMORIAL AVENUE PENRITH NSW 2750

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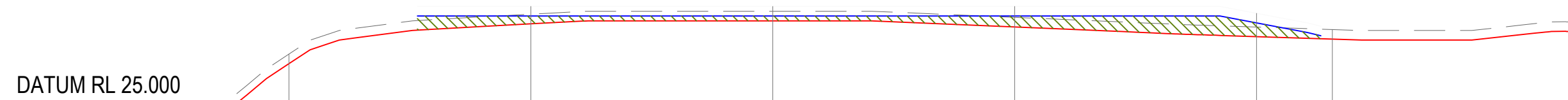
CIVIL SERVICES BULK EARTHWORKS PLAN

North Point:	Design:
	CV
Date:	Design Validated:
MAR 2020	-
Job No.:	Amendment Approved:
21863-001 - C - C050 - P - B	LDG
Part No.:	Drawn:
	CV
Disc:	Scale:
	(A1)
Stage:	1:400
Issue:	



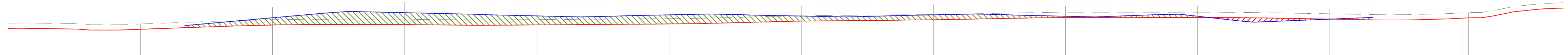
DATUM RL 30.000		0	10	20	30	40	50	60	70	80	90	95.631
BULK EARTHWORKS LEVEL			27.100	27.100	27.100	27.100	27.100	27.100	27.075	27.135	27.242	
STRIPPED SURFACE LEVEL	27.000	27.000	27.000	27.000	27.000	27.000	27.122	27.200	27.226	27.363	28.497	29.500
EXISTING SURFACE LEVEL	27.200	27.200	27.200	27.200	27.200	27.200	27.322	27.400	27.426	27.563	28.697	29.700
CHAINAGE												

BE4 - LONGITUDINAL SECTION
 A1 HORZ SCALE 1:200
 A1 VERT SCALE 1:100



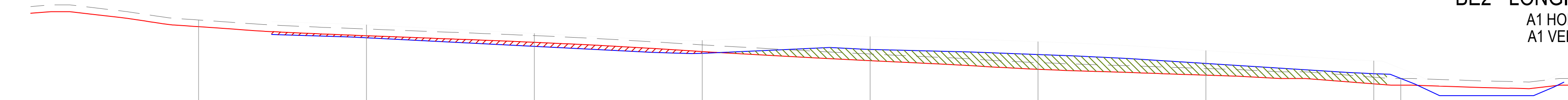
DATUM RL 25.000		0	10	20	30	40	43.127
BULK EARTHWORKS LEVEL			27.100	27.100	27.100	26.957	
STRIPPED SURFACE LEVEL	26.110	26.938	27.000	26.873	26.672	26.620	
EXISTING SURFACE LEVEL	26.310	27.138	27.200	27.073	26.872	26.820	
CHAINAGE							

BE3 - LONGITUDINAL SECTION
 A1 HORZ SCALE 1:200
 A1 VERT SCALE 1:100



DATUM RL 20.000		0	10	20	30	40	50	60	70	80	90	100	100.598
BULK EARTHWORKS LEVEL			25.467	25.658	25.536	25.574	25.531	25.575	25.523	25.523	25.415	25.450	25.462
STRIPPED SURFACE LEVEL	25.030	25.192	25.212	25.195	25.232	25.338	25.391	25.475	25.475	25.475	25.415	25.450	25.462
EXISTING SURFACE LEVEL	25.230	25.392	25.412	25.395	25.432	25.538	25.591	25.675	25.675	25.675	25.615	25.650	25.662
CHAINAGE													

BE2 - LONGITUDINAL SECTION
 A1 HORZ SCALE 1:200
 A1 VERT SCALE 1:100



DATUM RL 23.000		0	10	20	30	40	50	60	70	71.609
BULK EARTHWORKS LEVEL			25.818	25.562	25.354	25.469	25.317	25.050	24.744	
STRIPPED SURFACE LEVEL	26.149	25.880	25.683	25.406	25.134	24.875	24.699	24.440	24.400	
EXISTING SURFACE LEVEL	26.349	26.080	25.883	25.606	25.334	25.075	24.899	24.640	24.600	
CHAINAGE										

BE1 - LONGITUDINAL SECTION
 A1 HORZ SCALE 1:200
 A1 VERT SCALE 1:100

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MECH			
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Project:

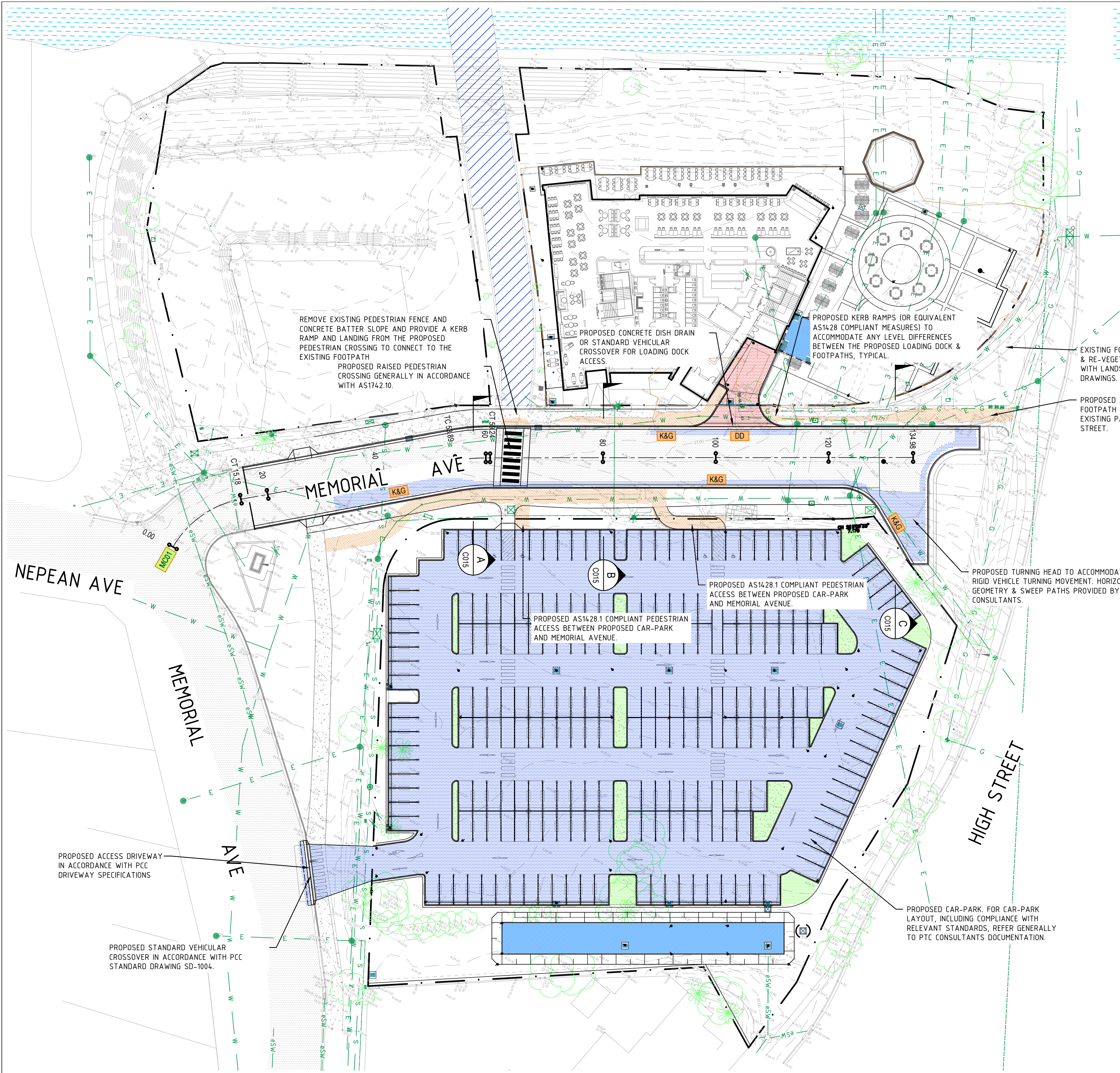
PENRITH PUB REDEVELOPMENT

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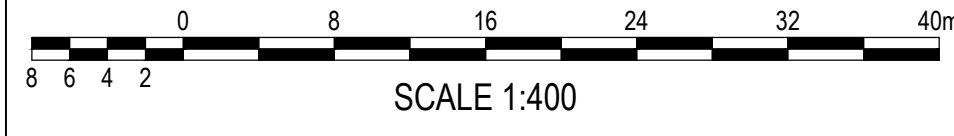
Drawing Title:

CIVIL SERVICES BULK EARTHWORKS TYPICAL CROSS SECTIONS

North Point:		Design:	
Date:	MAR 2020	Design Validated:	CV
Job No.:	21863-001	Amendment Approved:	LDG
Part No.:	001	Drawn:	CV
Disc:		Scale:	(A1) 1:200
Stage:		Issue:	
Issue:			



GENERAL LEGEND	
MO01	CONTROL LINE
K&G	PROPOSED KERB AND GUTTER
DD	PROPOSED DISH DRAIN
[Red Hatched]	PAVEMENT TYPE 1 - RIGID
[Blue Hatched]	PAVEMENT TYPE 2 - FLEXIBLE
[Orange Hatched]	PAVEMENT TYPE 3 - FOOTPATH
[Grey Hatched]	EXISTING SEALED ROAD
[White Hatched]	EXISTING CONCRETE
[Blue Hatched]	EXISTING FOOTBRIDGE
[Blue Wavy]	NEPEAN RIVER
[Dark Grey Hatched]	PROPOSED DEVELOPMENT
[Green Hatched]	PROPOSED LANDSCAPING (BY OTHERS)



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SERVICE	DRAWING NUMBER	ISSUE	DATE
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MECH			
STRUCT			
ELEC			
CIVIL			

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Project:

PENRITH PUB REDEVELOPMENT

MEMORIAL AVENUE PENRITH NSW 2750

Drawing Title:

CIVIL SERVICES GENERAL ARRANGEMENT PLAN

North Point:	Design:	RMMW
	Design Validated:	-
	Amendment Approved:	LDG
	Drawn:	CV
Date:	Scale:	1:400
MAR 2020	(A1)	
Job No.:	Part No.:	Disc.:
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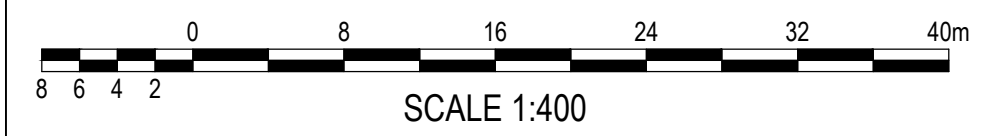


STORMWATER LEGEND	
	PROPOSED STORMWATER LINE RCP AT MIN 1.0% U.N.O.
	PROPOSED STORMWATER PIT
	PROPOSED GRATED DRAIN
	OVERLAND FLOW DIRECTION
	CREST IN PAVEMENT
	PROPOSED FINISHED SURFACE LEVEL
	PIT NUMBER
	IMPERVIOUS CATCHMENT TO OSD
	PERVIOUS CATCHMENT TO OSD
	IMPERVIOUS CATCHMENT BYPASS OSD
	PERVIOUS CATCHMENT BYPASS OSD

OSD SCHEDULE					
OSD LABEL	CATCHMENT AREA (ha)	STORAGE (m³)	DETAILS	ORIFICE DETAILS	OVERFLOW WEIR
OSD1	0.2307	27	6.8m x 5.8m CAST-IN-SITU H.E.D WEIR 26.25	φ136mm CL25.85 ORIFICE ON φ300mm OUTLET PIPE	VIA INTERNAL OVERFLOW WEIR RL 26.65
OSD2	0.6457	144	50m x 5.6m BASIN TWL24.75	φ15mm CL23.85 ORIFICE ON φ225 OUTLET PIPE	VIA LANDSCAPE AREA ON HIGH STREET

CATCHMENT AREA SUMMARY			
CAT	TOTAL CATCHMENT AREA (ha)	IMPERVIOUS %	PERVIOUS %
LOT 21 TO OSD	0.2307	53	47
LOT 21 BYPASS	0.1102	88	12
LOT 22 TO OSD	0.6457	75	25
LOT 22 BYPASS	0.1036	65	35

PIT SCHEDULE				
PIT NO.	TYPE	SIZE	GRATE RL	PIT IL
1/1	EXISTING INLET PIT	-	e24.20	e23.70
1/2	DISCHARGE CONTROL PIT	900x900	24.15	23.70
1/3	GRATED INLET PIT	900x900	24.25	23.85
2/1	HEADWALL W/ SCOUR	TO SUIT 2x φ300	-	24.20
2/2	KERB INLET/DIVERSION PIT	1.8m LINTEL	25.00	23.95
2/3	KERB INLET PIT	1.8m LINTEL	25.05	24.10
2/4	KERB INLET PIT	1.8m LINTEL	25.10	24.30
3/1	GRATED INLET PIT	900x900	25.65	24.30
3/2	GRATED INLET PIT	900x900	25.70	24.45
3/3	GRATED INLET PIT	900x900	25.70	24.60
3/4	GRATED INLET PIT	900x900	25.70	24.80
4/1	EXISTING INLET PIT	-	e24.20	e23.50
4/2	GRATED INLET PIT	600x900	24.50	23.80
4/3	KERB INLET PIT	1.8m LINTEL	25.35	24.30
4/4	KERB INLET PIT	1.8m LINTEL	25.60	25.60
5/1	EXISTING KERB INLET PIT	-	25.69	24.48
5/2	KERB INLET PIT	1.8m LINTEL	26.35	24.80
5/3	KERB INLET PIT	1.8m LINTEL	26.55	25.05
5/4	GRATED INLET PIT	600x900	26.85	25.15
5/5	GRATED INLET PIT	900x900	27.00	25.50
6/1	GRATED INLET PIT	600x600	27.10	26.40
6/2	GRATED INLET PIT	600x900	27.10	26.10
7/1	JUNCTION PIT	600x900	27.25	26.05
7/2	GRATED INLET PIT	600x600	27.25	26.35
7/3	GRATED INLET PIT	600x600	27.10	26.45
8/1	GRATED INLET PIT	600x600	27.10	26.35



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Issue	Date	Amendment	Int.	App.
A	31.03.20	ISSUED FOR REVIEW	JDC	LDG
B	06.04.20	ISSUED FOR CLIENT APPROVAL	CV	LDG

CO-ORDINATED REFERENCE DRAWINGS	
SERVICE	DRAWING NUMBER
ARCH	
MECH	
STRUCT	
ELEC	
CIVIL	

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE

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ISO 9001 Quality Management

Project:

PENRITH PUB REDEVELOPMENT

MEMORIAL AVENUE PENRITH NSW 2750

Drawing Title:

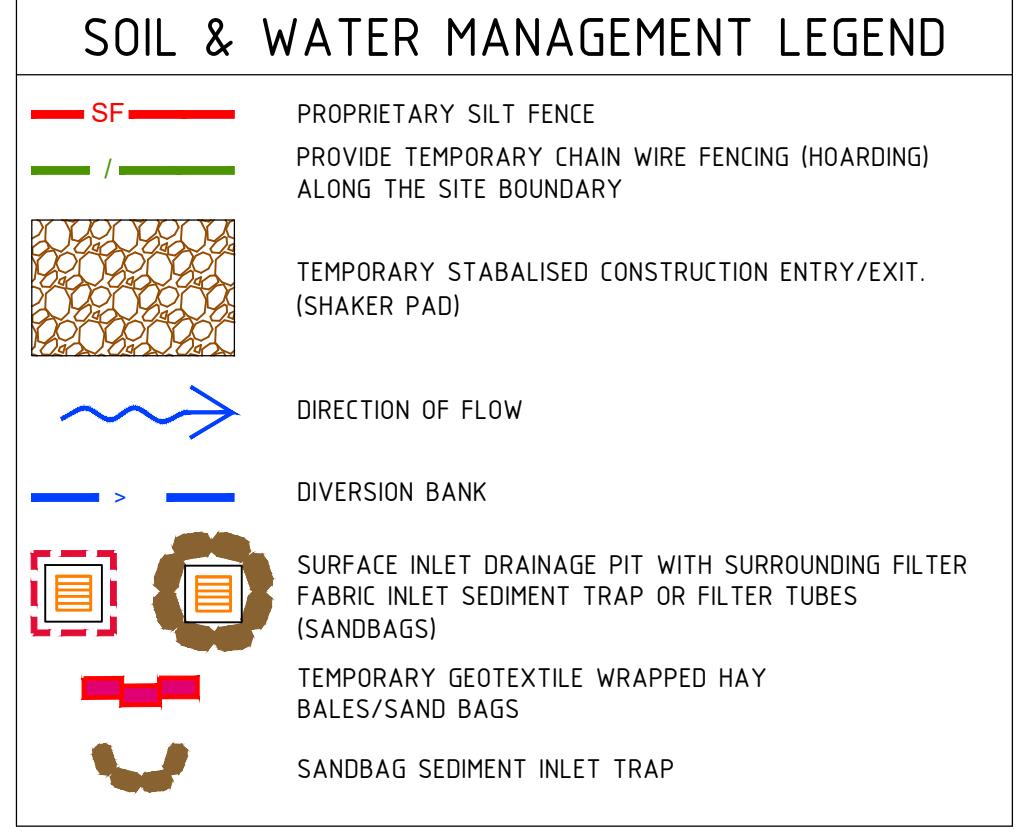
CIVIL SERVICES STORMWATER LAYOUT PLAN

North Point:

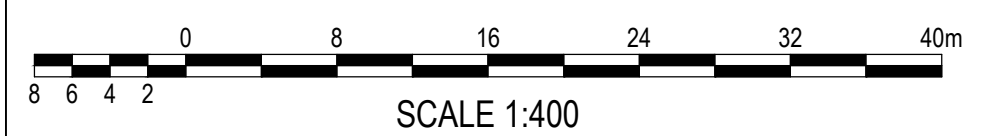
Design: CV
Design Validated: -
Amendment Approved: LDG
Drawn: CV

Date: MAR 2020
Scale: (A1)
1:400

Job No.: 21863-001 - C - C200 - P - B
Part No.:
Disc:
Dep No.:
Stage:
Issue:



- ### SOIL & WATER MANAGEMENT NOTES
- RUSLE: $A = \text{SOIL LOSS (tonne/ha/yr)} = R \cdot K \cdot L_s \cdot P \cdot C$
 - THE AVERAGE ANNUAL SOIL LOSS CALCULATIONS WERE UNDERTAKEN USING MUS - MANAGING URBAN STORMWATER VOL. 1 (LANDCOM, 2004).
 - MUS REQUIRES THE CONSTRUCTION OF A SEDIMENT BASIN IF THE ANNUAL SOIL LOSS IS GREATER THAN 150m³. AS THIS IS NOT THE CASE FOR EACH ASSUMED CATCHMENT, THE CONSTRUCTION OF A SEDIMENT BASIN IS CONSIDERED UNNECESSARY.
 - THE DISTURBED AREA SHALL BE REHABILITATED & STABILISED PRIOR TO DISTURBING THE NEXT SUB-CATCHMENT AREA. THE CONTRACTOR SHALL SUBMIT THE PROPOSED EARTHWORKS CONSTRUCTION METHODOLOGY TO THE PRINCIPAL FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.



RUSLE CALCULATIONS

CATCHMENT	R-FACTOR	K-FACTOR	SLOPE (%)	SLOPE DISTANCE (m)	Ls FACTOR	P-FACTOR	C-FACTOR	CATCHMENT AREA (ha)	SOIL LOSS, A (tonne/ha/yr)	SOIL LOSS, A (m ³ /ha/yr)	SOIL LOSS PER CATCHMENT (m ³ /yr)
LOT 21	2400.00	0.06	3.00	40.00	0.47	1.30	1.00	0.35	30.28	23.29	8.15
LOT 22	2400.00	0.06	3.00	80.00	0.66	1.30	1.00	0.65	78.97	60.75	39.49
REFERENCE	MUS APP B, MAP 10	MUS APP C, T19 RICHMOND SOIL	SURVEY	SURVEY	MUS, APP A4	MUS, APP A5	MUS, APP A6	SURVEY	RUSLE EQUATION	CONVERSION 1.3t/m ³	

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Issue	Date	Amendment	Int.	App.
A	31.03.20	ISSUED FOR DA SUBMISSION	RM	MW
B	23.04.2020	REISSUED FOR DA SUBMISSION	CV	LDG

CO-ORDINATED REFERENCE DRAWINGS		
SERVICE	DRAWING NUMBER	ISSUE
ARCH		
MECH		
STRUCT		
ELEC		
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MEMORIAL AVENUE PENRITH NSW 2750

Drawing Title:

CIVIL SERVICES SOIL & WATER MANAGEMENT PLAN

North Point

Design: CV

Design Validated: -

Amendment Approved: LDG

Drawn: CV

Date: MAR 2020

Scale: (A1)

Scale: 1:400

Job No.: 21863-001 - C - CE01 - P - B

Part No.: -

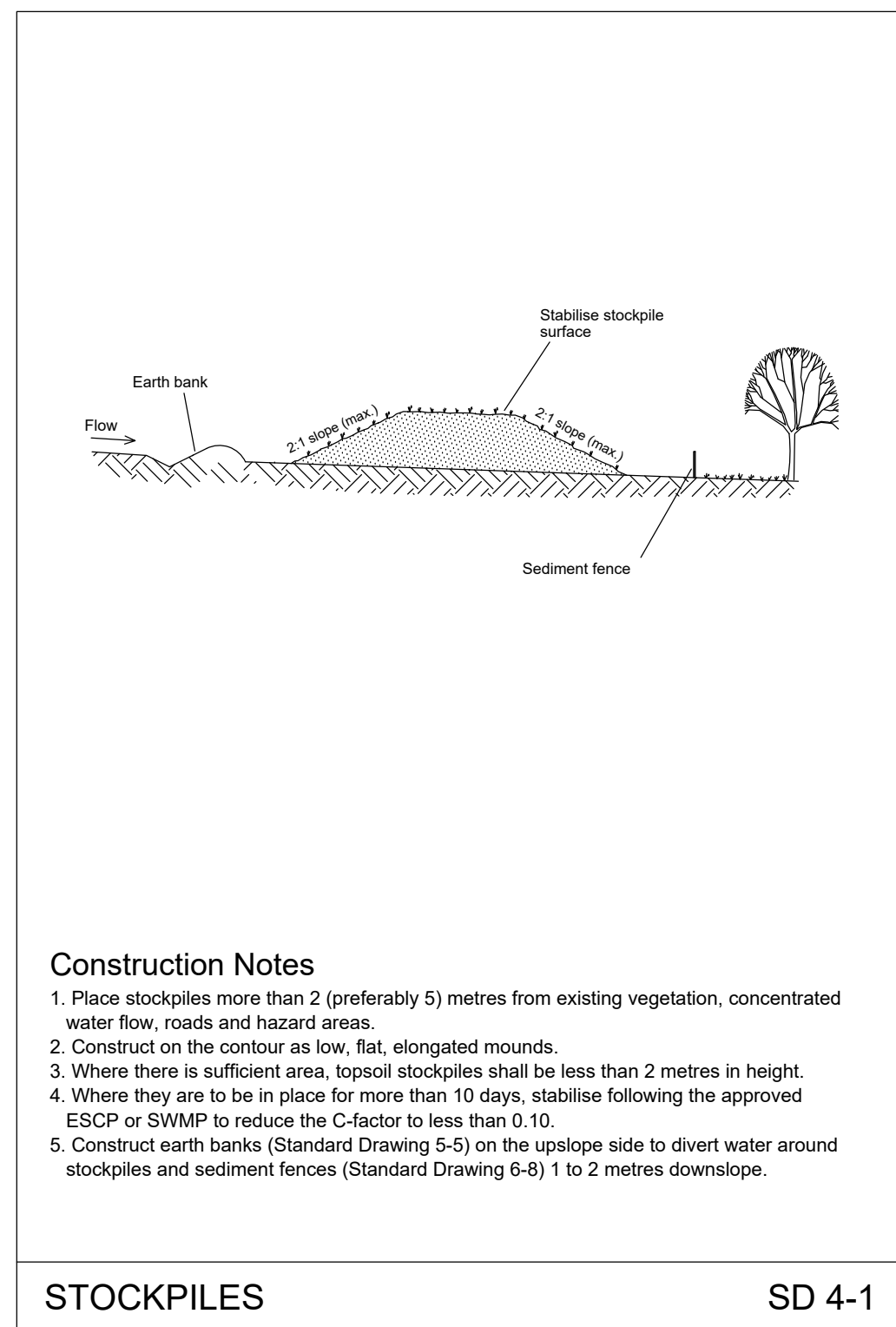
Disc: -

Dep No.: -

Stage: -

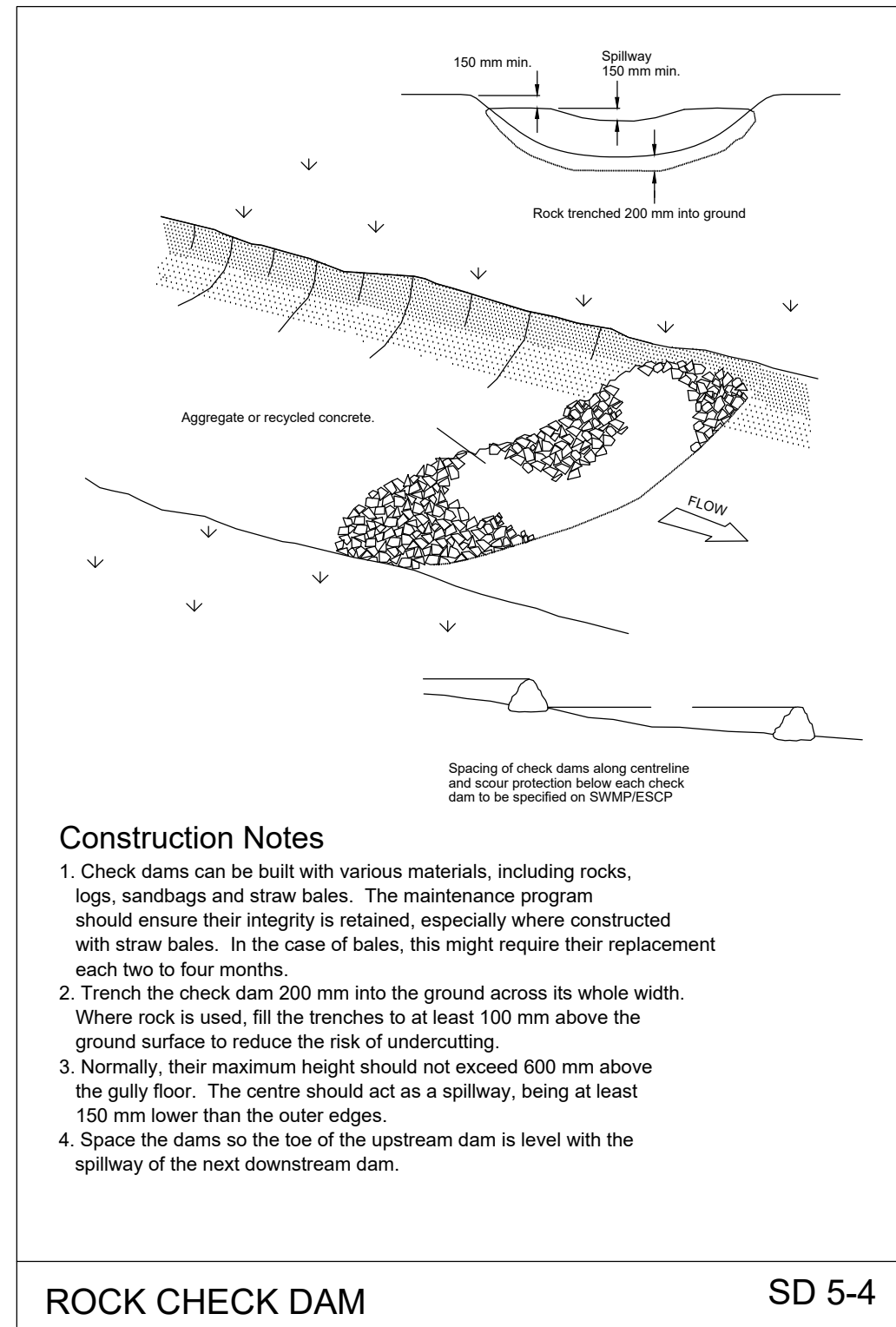
Issue: -

ORIGINAL SIZE: A1



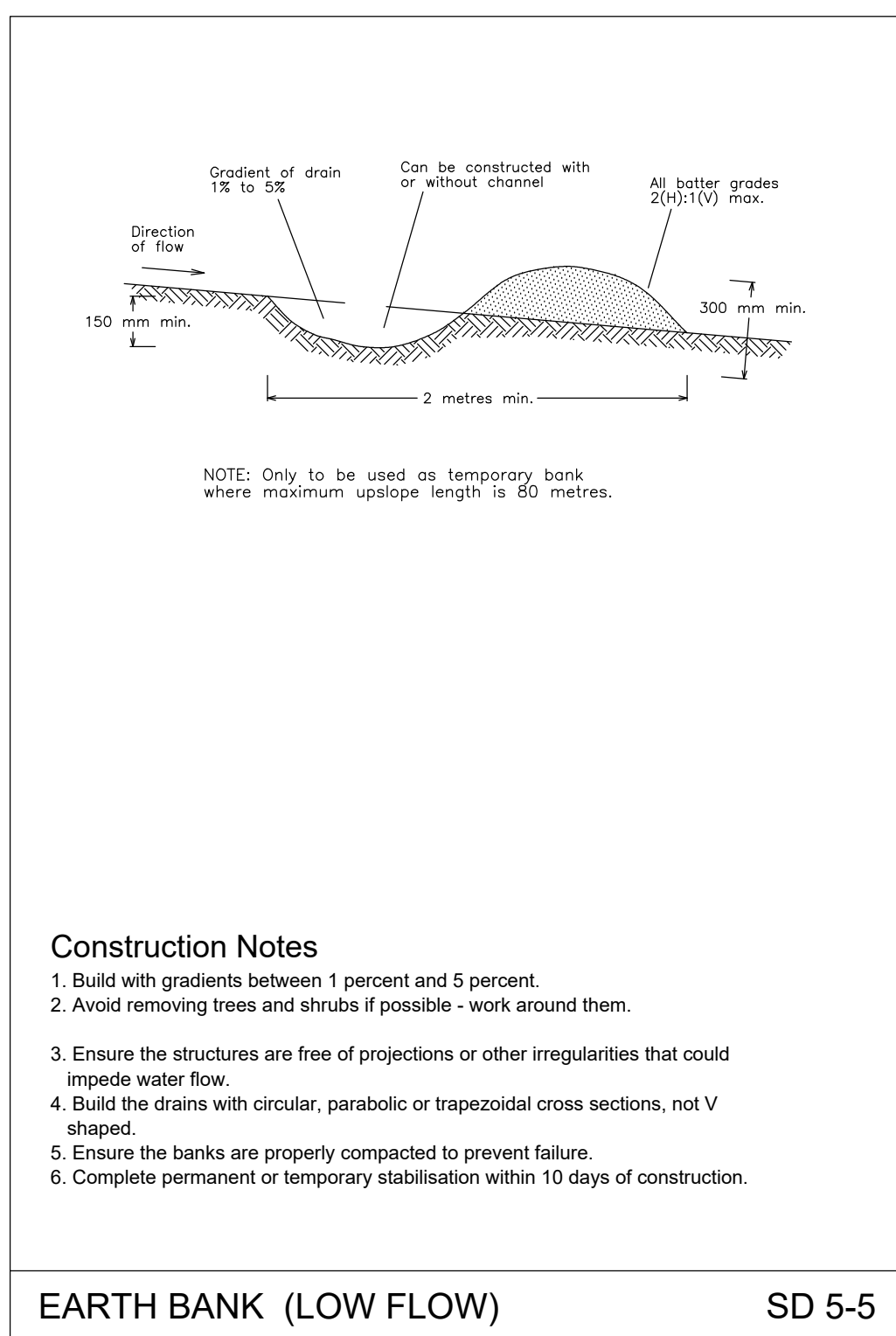
STOCKPILES

SD 4-1



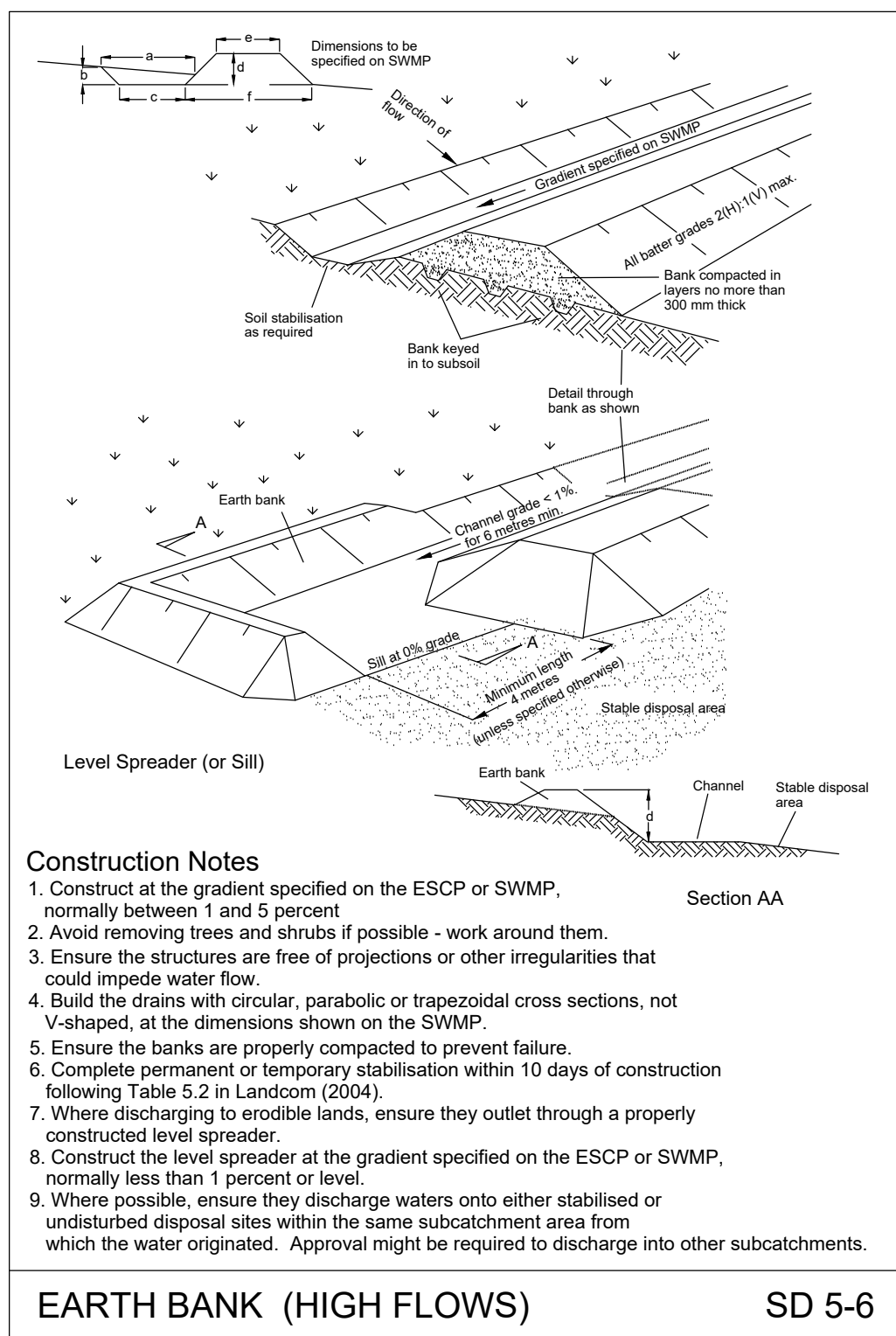
ROCK CHECK DAM

SD 5-4



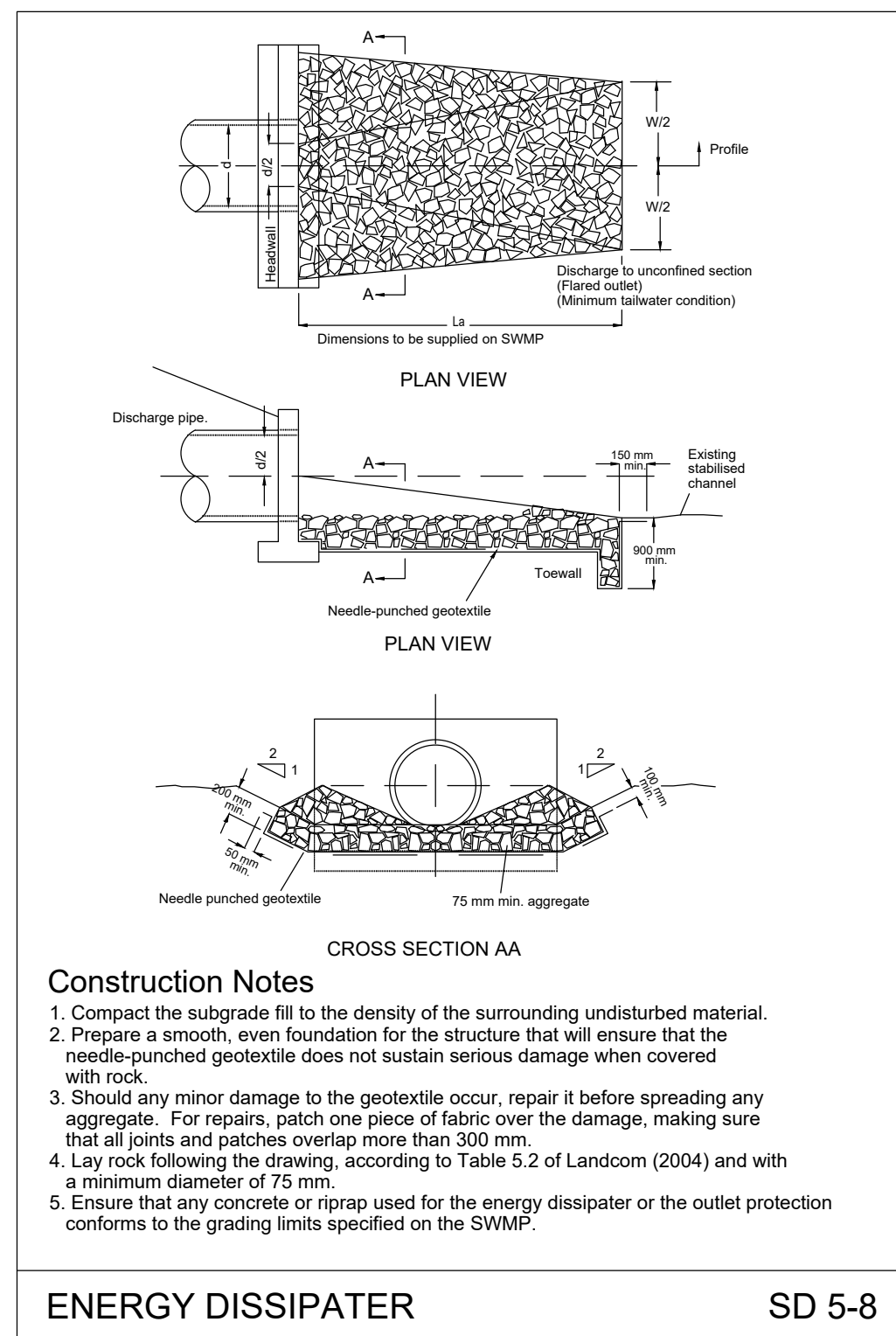
EARTH BANK (LOW FLOW)

SD 5-5



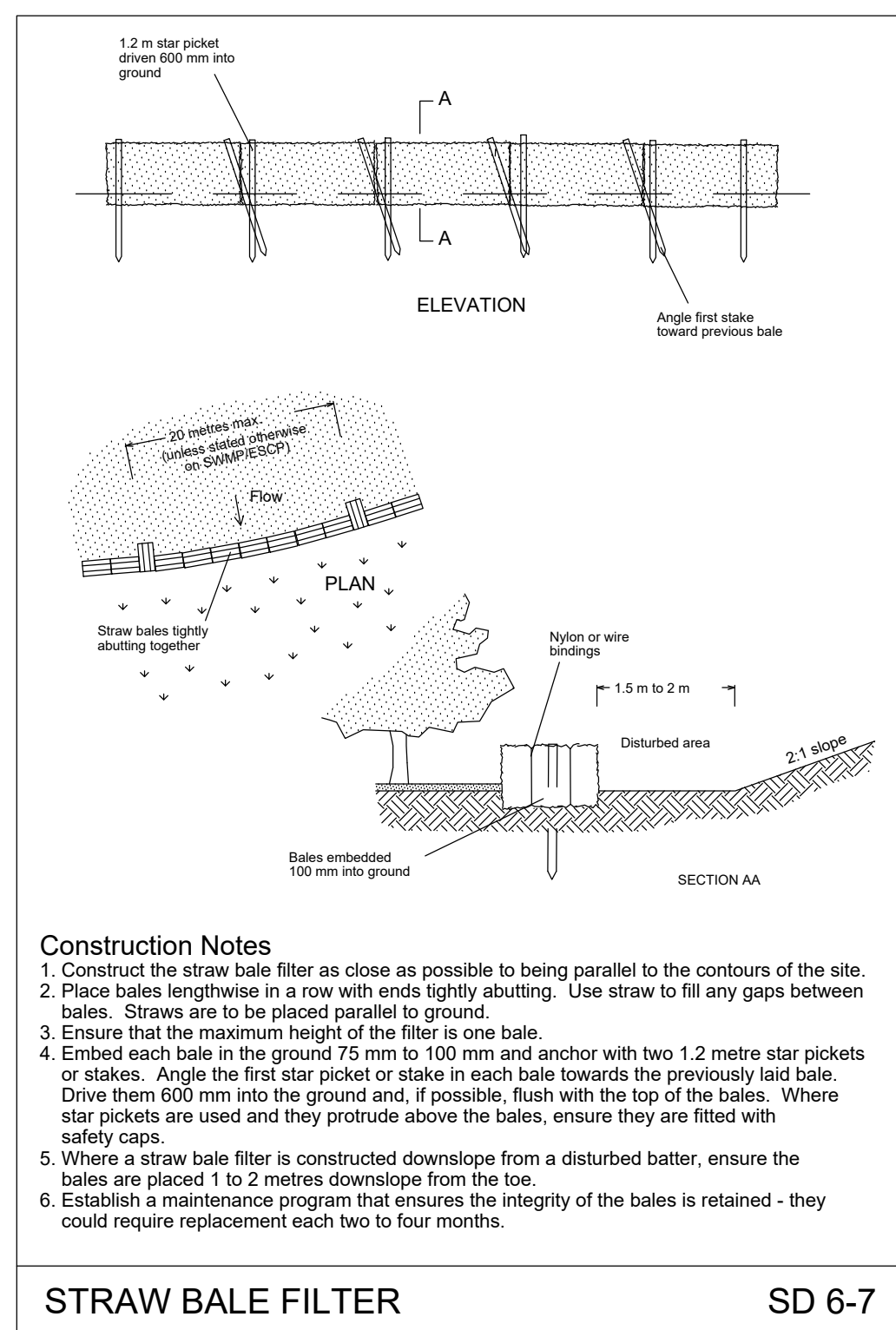
EARTH BANK (HIGH FLOWS)

SD 5-6



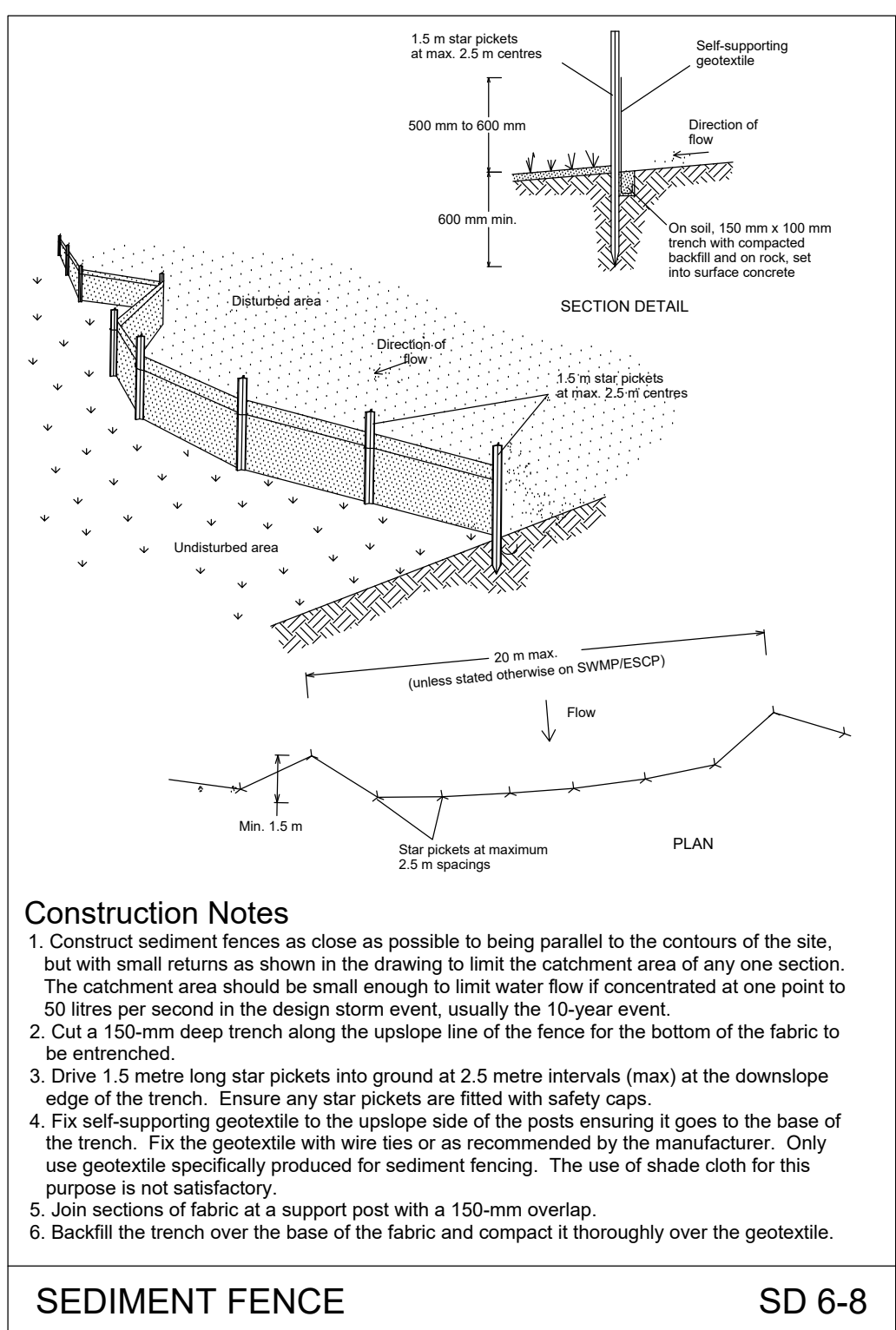
ENERGY DISSIPATER

SD 5-8



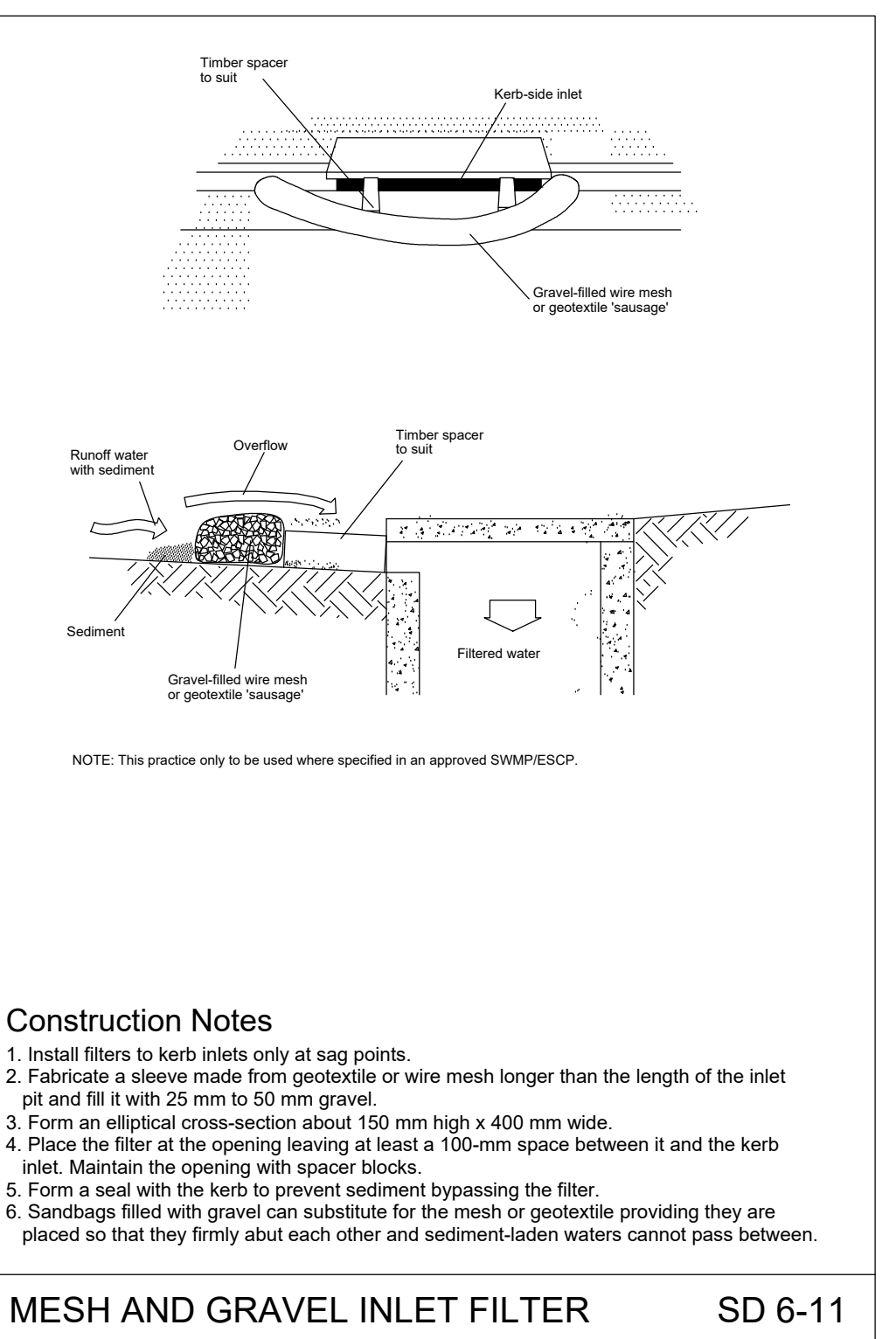
STRAW BALE FILTER

SD 6-7



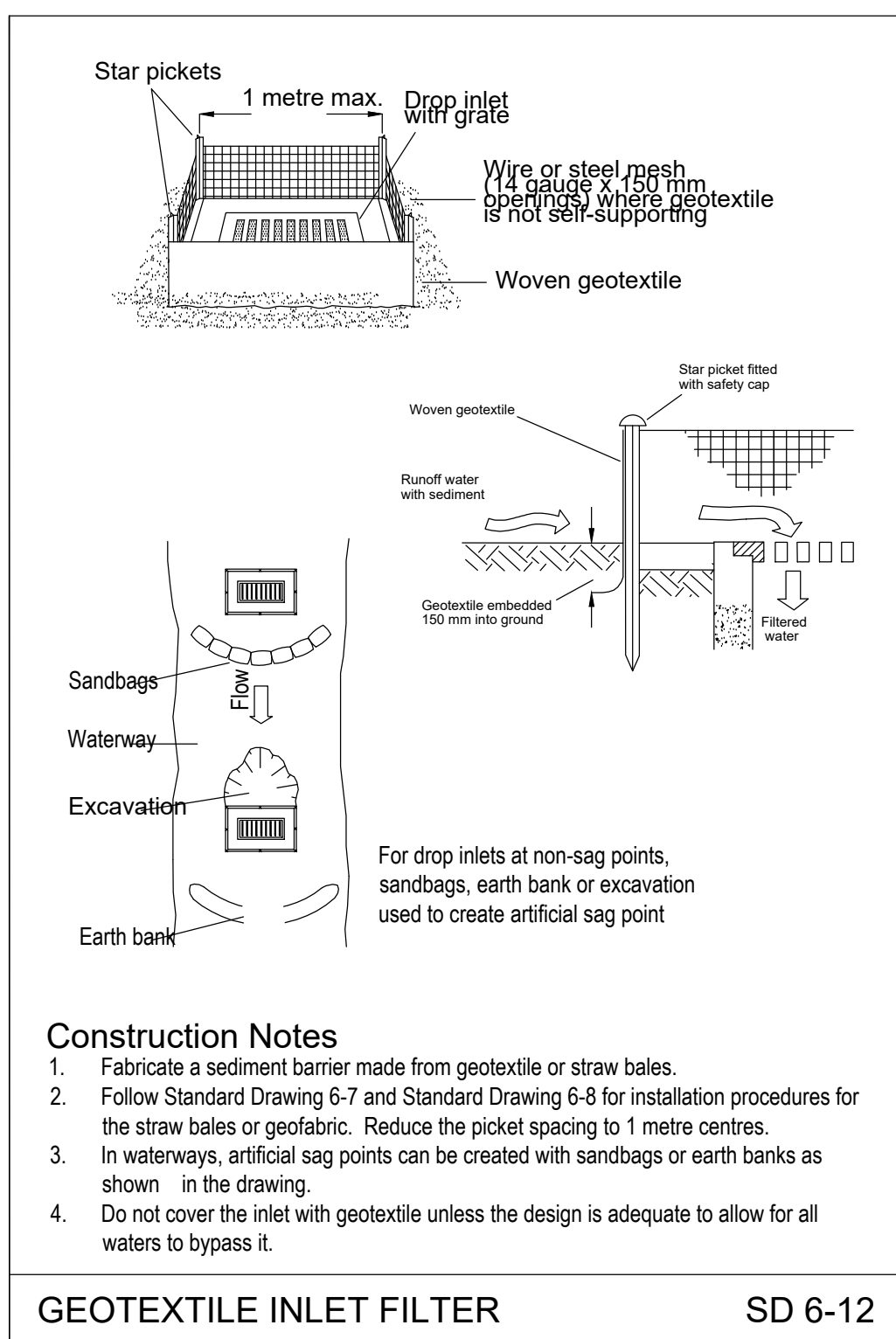
SEDIMENT FENCE

SD 6-8



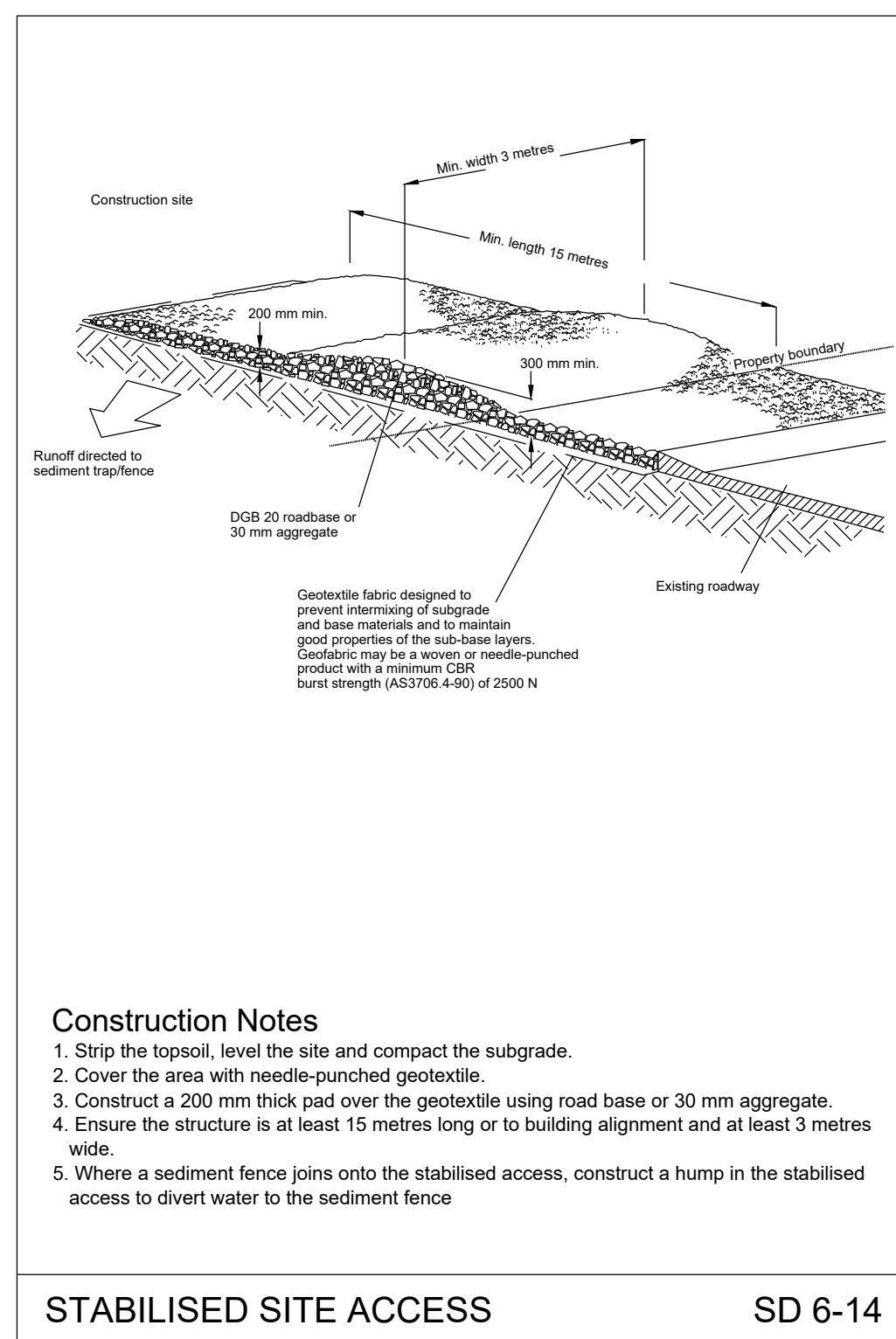
MESH AND GRAVEL INLET FILTER

SD 6-11



GEOTEXTILE INLET FILTER

SD 6-12



STABILISED SITE ACCESS

SD 6-14

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B	23.04.2020	REISSUED FOR DA SUBMISSION	CV	LDG

CO-ORDINATED REFERENCE DRAWINGS		
SERVICE	DRAWING NUMBER	ISSUE
ARCH		
ARCH		
MECH		
STRUCT		
ELEC		
CIVIL		

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE

Client / Architect:

Services Engineers:



Project:

PENRITH PUB REDEVELOPMENT
MEMORIAL AVENUE PENRITH NSW 2750

Drawing Title:

CIVIL SERVICES SOIL & WATER MANAGEMENT DETAILS SHEET

North Point:		Design:	
		CV	
		Design Validated: -	
		Amendment Approved: LDG	
		Drawn: CV	
		Scale: (A1) NTS	
Date: MAR 2020	Part No.:	Disc:	Stage: Issue:
21863-001 - C - CE02 - P - B			

ORIGINAL SIZE: A1