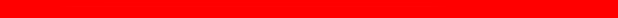


PELICAN ROAD SCHOFIELDS CIVIL ENGINEERING WORKS PACKAGE



DWG No.	DRAWING TITLE
DAC01.01	COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN
DAC01.11	SPECIFICATION NOTES
DAC01.21	GENERAL ARRANGEMENT PLAN
DAC02.01	SEDIMENT AND SOIL EROSION CONTROL PLAN
DAC02.11	SEDIMENT AND SOIL EROSION CONTROL DETAILS
DAC03.01	BULK EARTHWORKS CUT AND FILL PLAN
DAC04.01	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
DAC04.02	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
DAC04.21	STORMWATER LONGITUDINAL SECTIONS - SHEET 01
DAC04.22	STORMWATER LONGITUDINAL SECTIONS - SHEET 02
DAC04.23	STORMWATER LONGITUDINAL SECTIONS - SHEET 03
DAC04.31	BIORETENTION BASIN DETAILS - SHEET 01
DAC09.01	DETAILS - SHEET 01

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

REVISION		DESCRIPTION		ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT		DRAWING TITLE		JOB NUMBER					
1		ISSUED FOR SSDA		VC		JG	25.01.19				Level 11 34/5 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	ALEX AVENUE PRIMARY SCHOOL	CIVIL ENGINEERING PACKAGE		182535				
2		ISSUED FOR REF APPROVAL		JRG		06.02.19	STATE SIGNIFICANT DEVELOPMENT						DRAWING NUMBER	REVISION					
3		ISSUED FOR SSDA		VC		31.05.19	DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS REVISION SIGNATURE HAS BEEN ADDED.						THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.		SCALE 1:1250 @ A1		DAC01.01	3	
															DRAWING SHEET SIZE = A1				

NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL DEVELOPMENT GUIDELINES .THE AFOREMENTIONED GUIDELINES INCLUSIVE OF ALL SPECIFICATIONS TAKE PRECEDENCE OVER NOTES PROVIDED BELOW.

STORMWATER DRAINAGE

1.

ALL DRAINAGE LINES SHALL BE UPVC (CLASS SN4) SEWER GRADE DRAINAGE PIPE, U.N.O.

2.

ALL DRAINAGE LINES SHALL BE LAID AT 1% MIN. FALL, UNO.

3.

ALL LEVELS ARE AUSTRALIAN HEIGHT DATUM (AHD).

4.

ALL DOWNPIPES GUTTERS TO BE DESIGNED IN ACCORDANCE WITH AS/NZS 3500.3.2 – 2003 'STORMWATER' DRAINAGE.

5.

THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3.2-2003 'STORMWATER' DRAINAGE.

6.

ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.

7.

SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.

8.

ALL GRATES TO BE GALVANISED STEEL WITH HINGES AND CHILD PROOF LOCK.

9.

ALL GRATES TO BE HEEL SAFE WITHIN AGED CARE DEVELOPMENTS.

10.

THE STORMWATER DRAINAGE IS DESIGNED IN ACCORDANCE WITH COUNCIL'S STORMWATER CODE.

RAINWATER RE-USE

1.

PROVIDE RAINWATER RE-USE SYSTEM TO SUPPLY WATER FOR TOILET FLUSHING.

2.

GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.

3.

A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.

4.

PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.

5.

ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELLED WITH SAFETY SIGNS TO COMPLY WITH AS1319.

6.

RAINWATER TANK RETICULATION SYSTEM AND MAINS WATER BYPASS ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.1.2-2003 AND THE NSW CODE OF PRACTICE : PLUMBING AND DRAINING.

7.

A FIRST FLUSH FILTRATION DEVICE IS TO BE PROVIDED AT RAINWATER TANK.

GENERAL NOTES

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).

NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.

ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.

DETAIL SURVEY DATA WAS SUPPLIED BY LTS LOCKLEY, DRAWING DATED 09/06/2017.

EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.

ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.

DESIGN SUMMARY

WATER QUALITY:

MUSIC MODEL SUMMARY:

SOURCE NODE	CATCHMENT	AREA
MIXED	LANDSCAPING	7,710m ²
ROOF	ROOF	3,490m ²
MIXED	HARDSTAND	8,730m ²
		TOTAL 19,930m ²

TREATMENT NOTES:

BIO-RETENTION BASIN

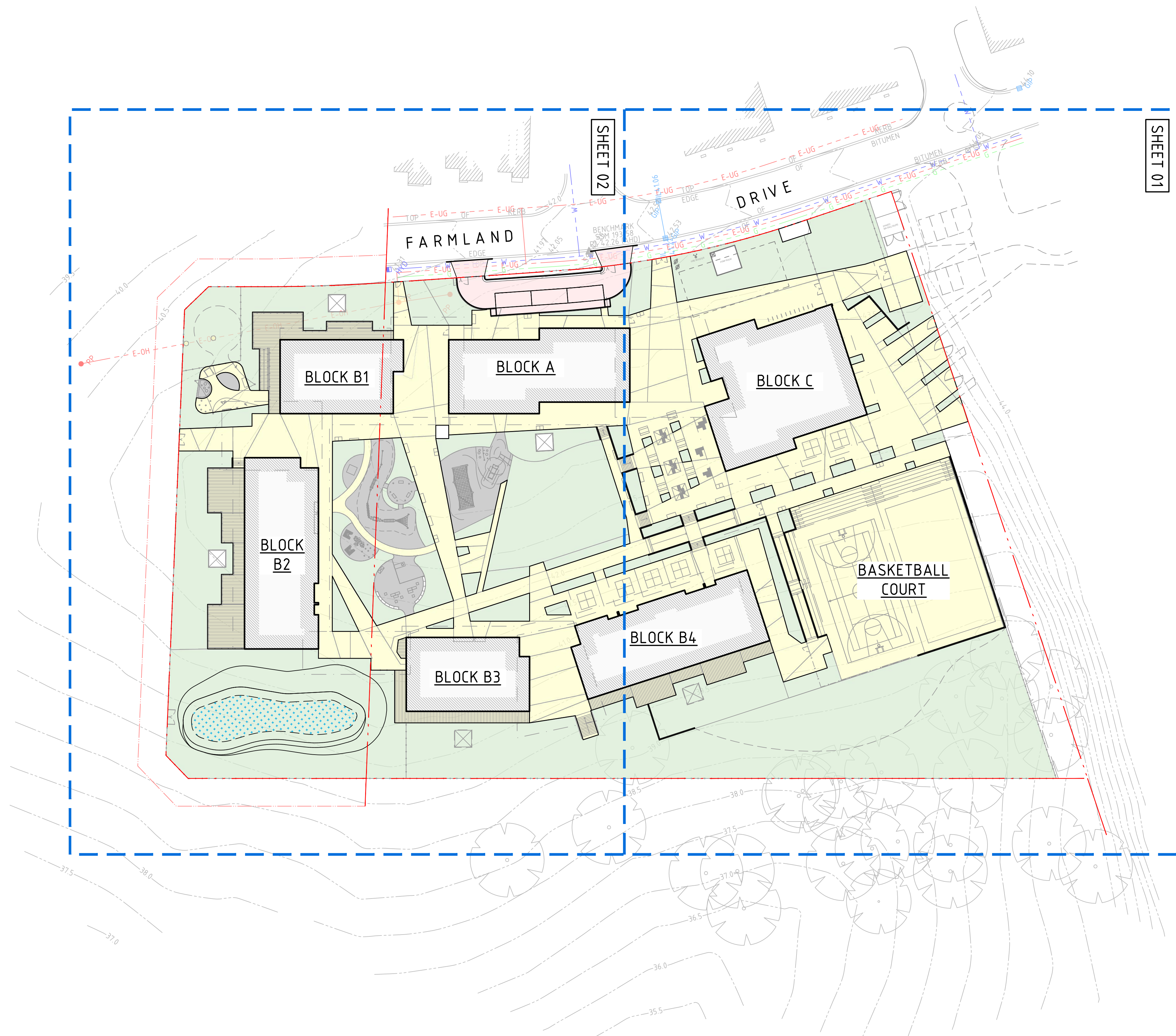
TREATMENT STANDARDS:

POLLUTANT	REDUCTION STANDARDS	REDUCTION ACHIEVED
GROSS POLLUTANTS	-	100%
TOTAL SUSPENDED SOLIDS	85%	91.2%
TOTAL PHOSPHORUS	65%	66.5%
TOTAL NITROGEN	45%	55.2%

MUSIC MODEL PARAMETERS IN ACCORDANCE WITH BLACKTOWN CITY COUNCILS MUSIC MODELLING GUIDELINES 2015.

VERIFIER: J. GILLIGAN
JOB MANAGER: J. GRINSELL
DESIGNED: J. GRINSELL
DRAWN: C. PASKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.	PROJECT	DRAWING TITLE	JOB NUMBER		
1	ISSUED FOR SSDA	VC		JG	25.01.19				Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	ALEX AVENUE PRIMARY SCHOOL	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT	182535		
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19								DRAWING NUMBER	REVISION
3	ISSUED FOR SSDA	VC		JG	31.05.19								DAC01.11	3
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD			PELICAN ROAD, SCHOFIELDS	SPECIFICATION NOTES	DRAWING SHEET SIZE = A1		



LEGEND	
	BOUNDARY LINE
	EASEMENT LINE
	EXISTING KERB
	EXISTING ELECTRICITY
	EXISTING ELECTRICITY (OVERHEAD)
	EXISTING ELECTRICITY (UNDERGROUND)
	EXISTING GAS
	EXISTING WATER
	EXISTING STORMWATER
	EXISTING CONTOURS
	SHEET EXTENTS

GENERAL NOTES:	
1.	SURVEY SUPPLIED BY: LTS LOCKLEY
11.	REFERENCE NUMBER: 43778DT
12.	DATE: 09/06/2017
13.	REVISION: 1
2.	ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. NOTE SERVICE AUTHORITY REQUIREMENTS FOR LOCATING OF SERVICES PRIOR TO COMMENCEMENT OF WORKS.
3.	NORTHROP TAKE NO RESPONSIBILITY FOR THE ACCURACY AND/OR USE OF THIS SURVEY AND ITS CONTENTS

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR SSDA	VC		JG	25.01.19
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19
3	ISSUED FOR SSDA	VC		JG	31.05.19
4	RE-ISSUED FOR SSDA	JO		JG	12.06.19

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	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.
	SCALE 1:500 @ A1

Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	

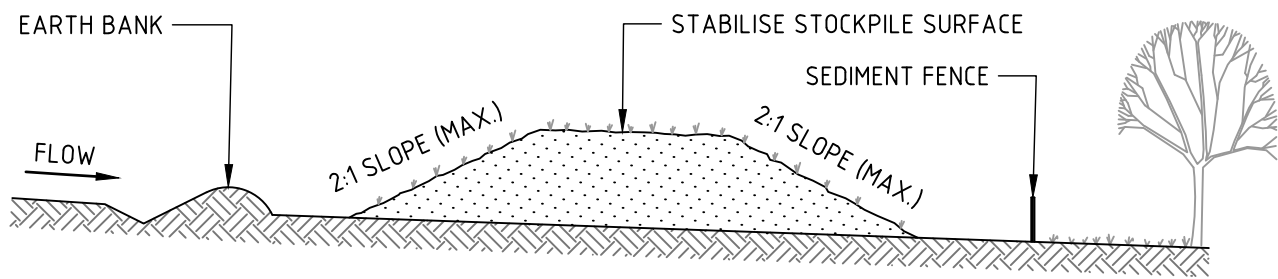
PROJECT	ALEX AVENUE PRIMARY SCHOOL
	PELICAN ROAD, SCHOFIELDS

DRAWING TITLE	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT
	GENERAL ARRANGEMENT PLAN

JOB NUMBER	182535
DRAWING NUMBER	DAC01.21
REVISION	4
DRAWING SHEET SIZE = A1	

NOT FOR CONSTRUCTION

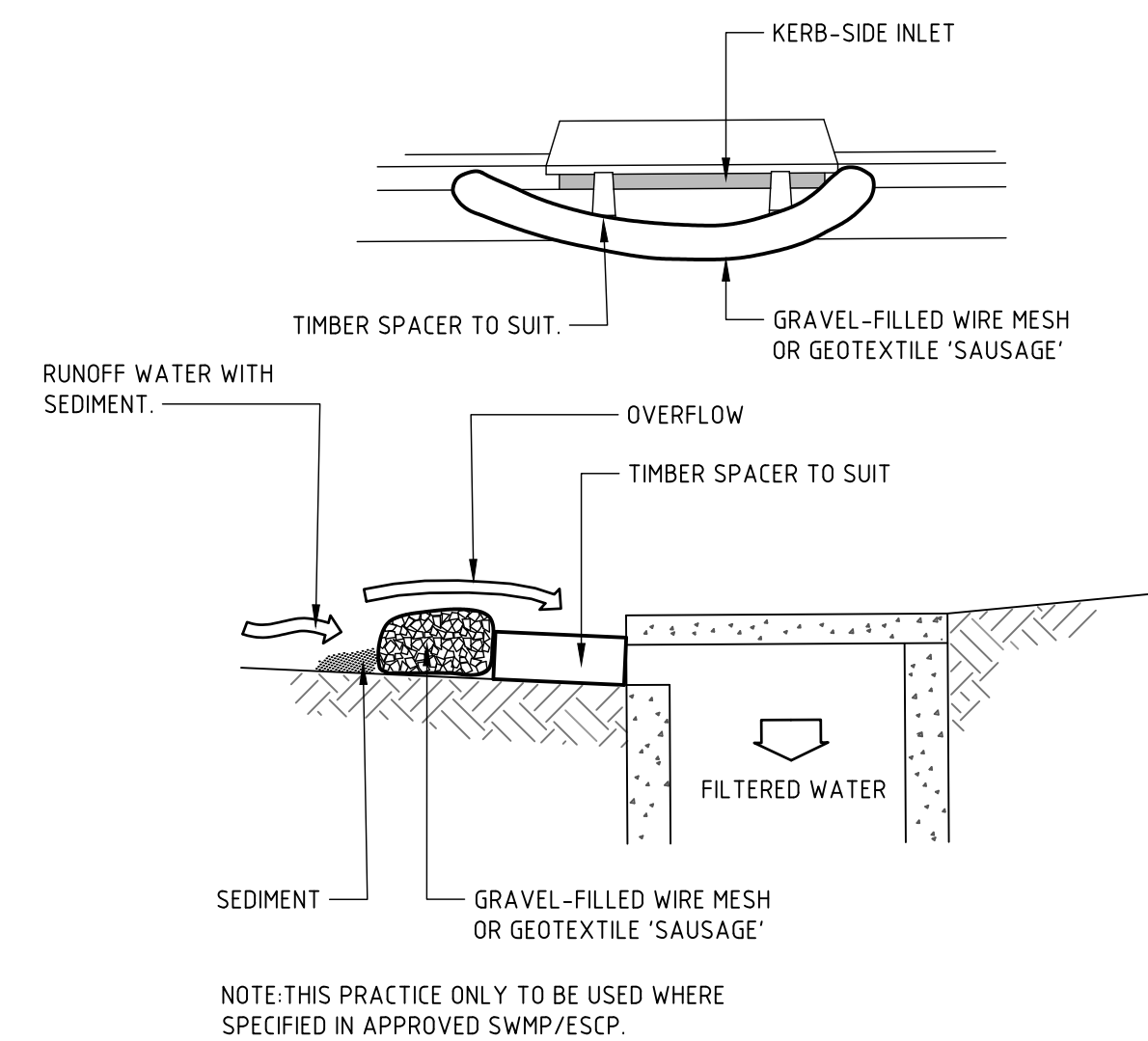
DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILES (SD 4-1)

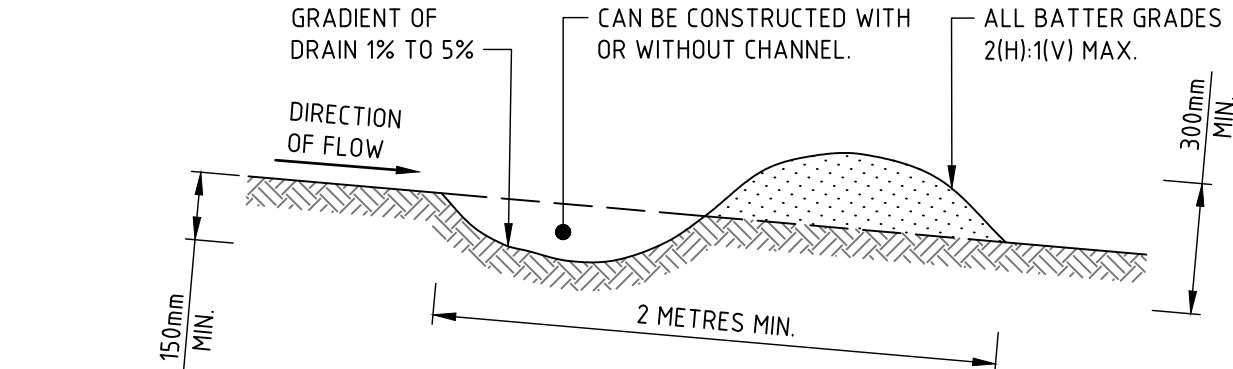


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

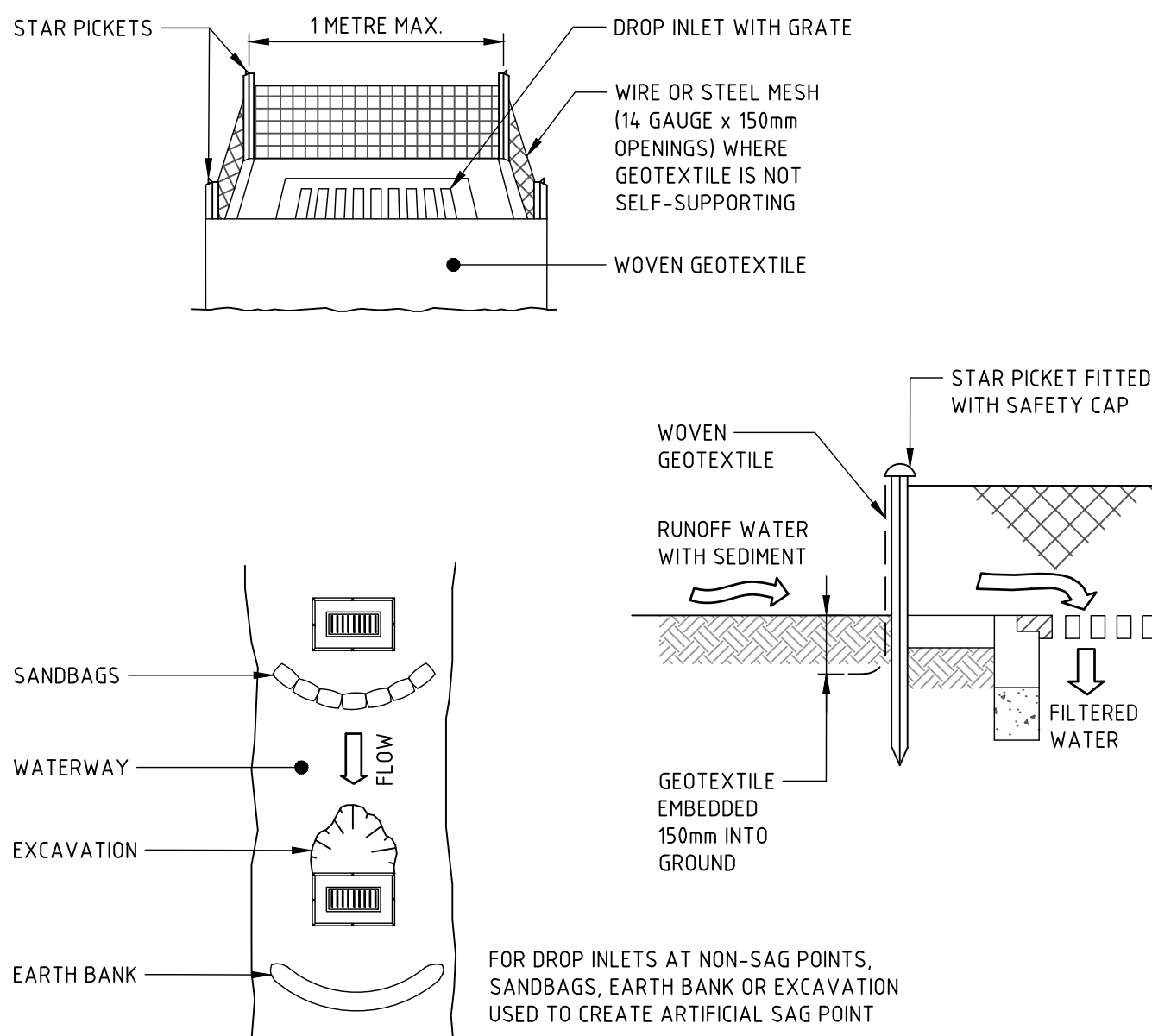
WIRE MESH AND GRAVEL SEDIMENT FILTER (SD 6-11)



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

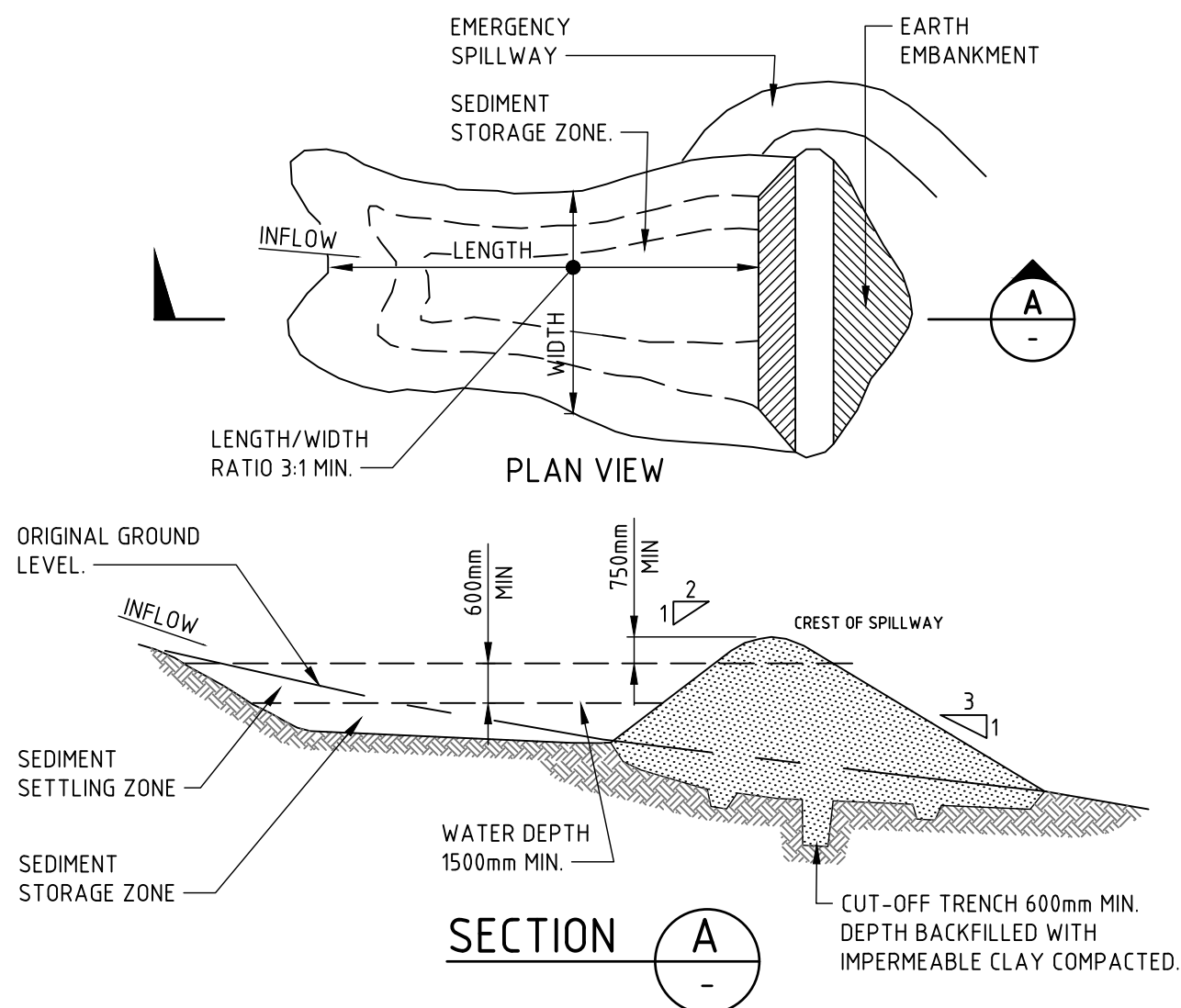
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.
EARTH BANK - LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

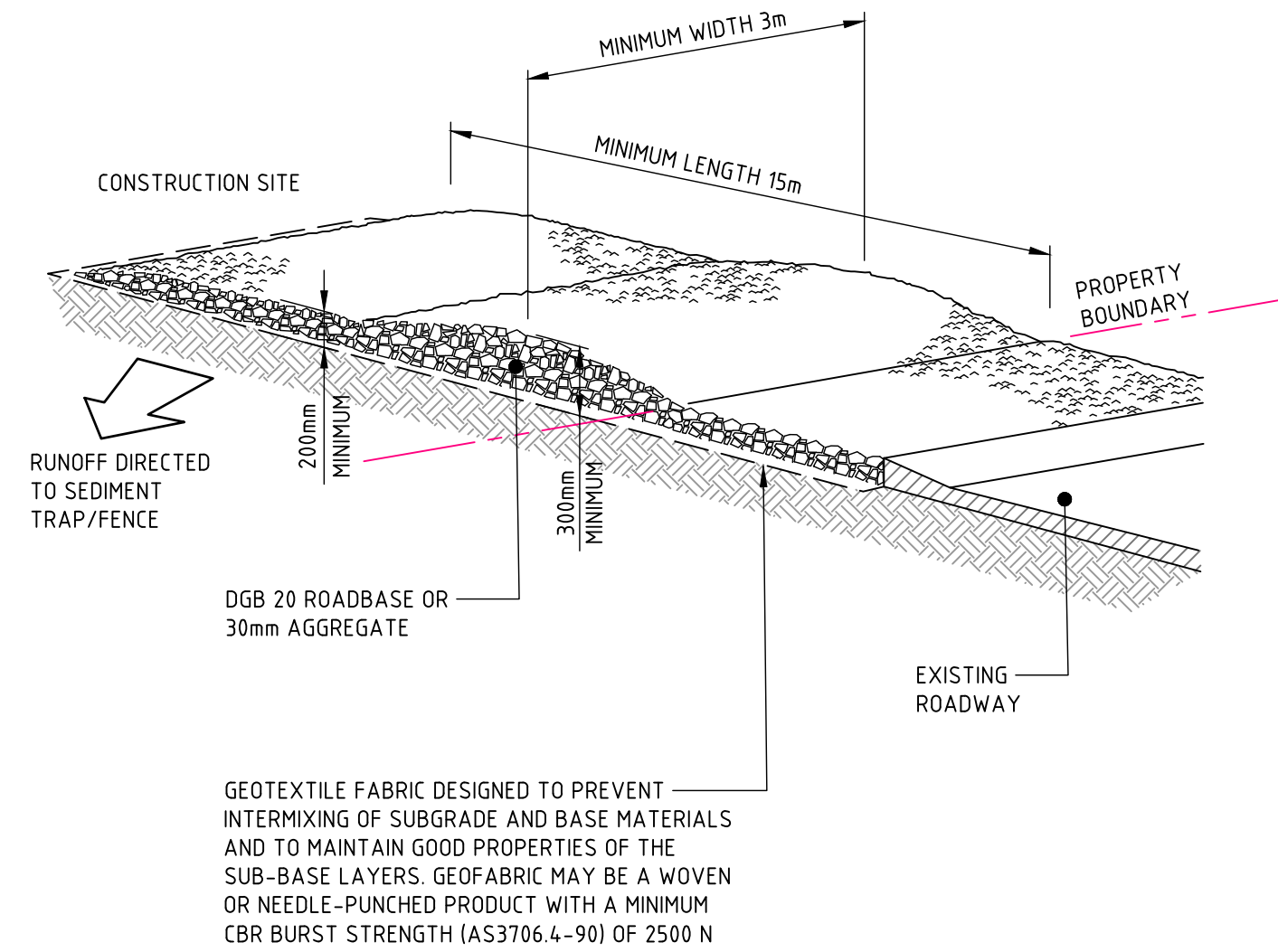
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

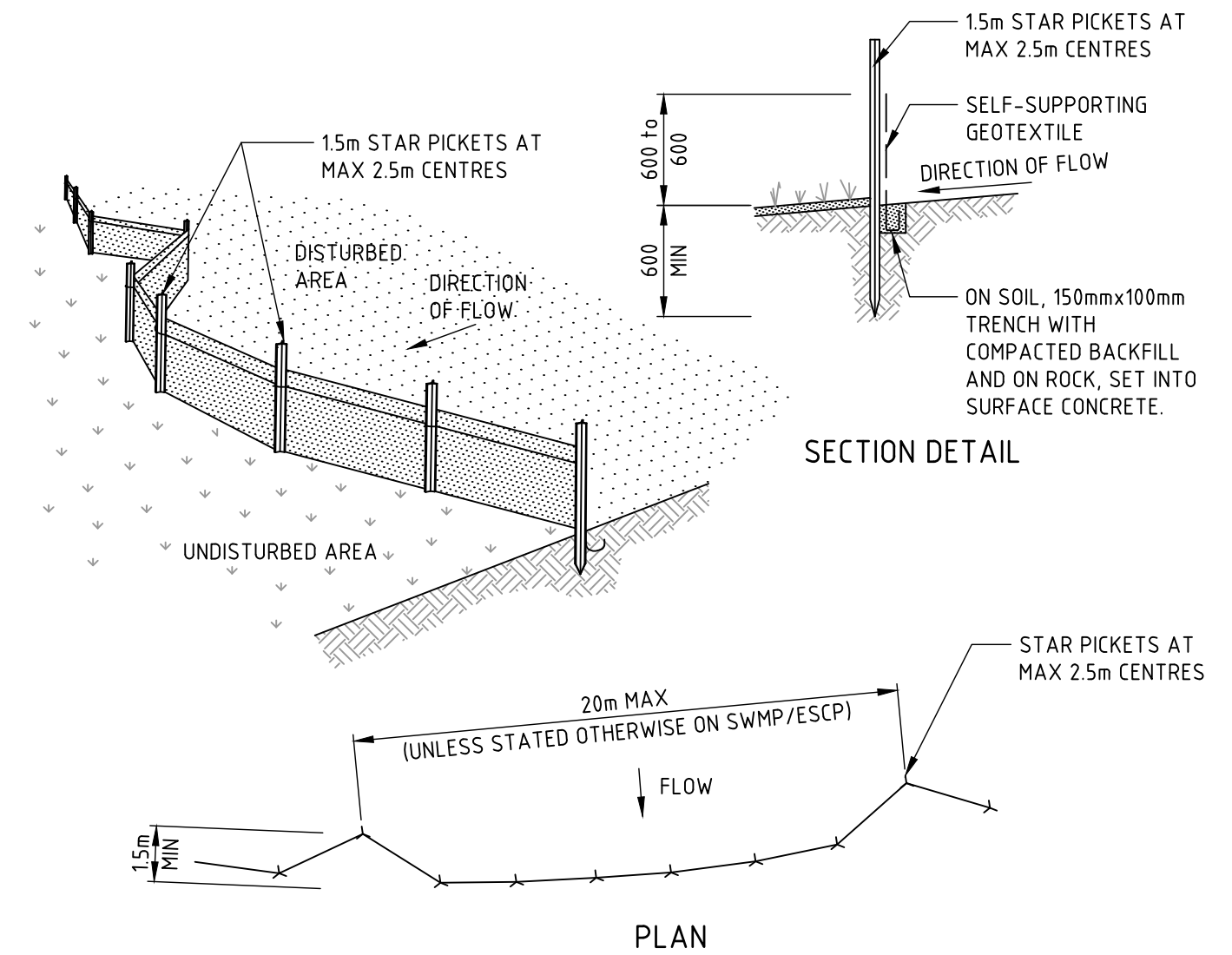
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)
EARTH BASIN - WET (SD 6-4)



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)



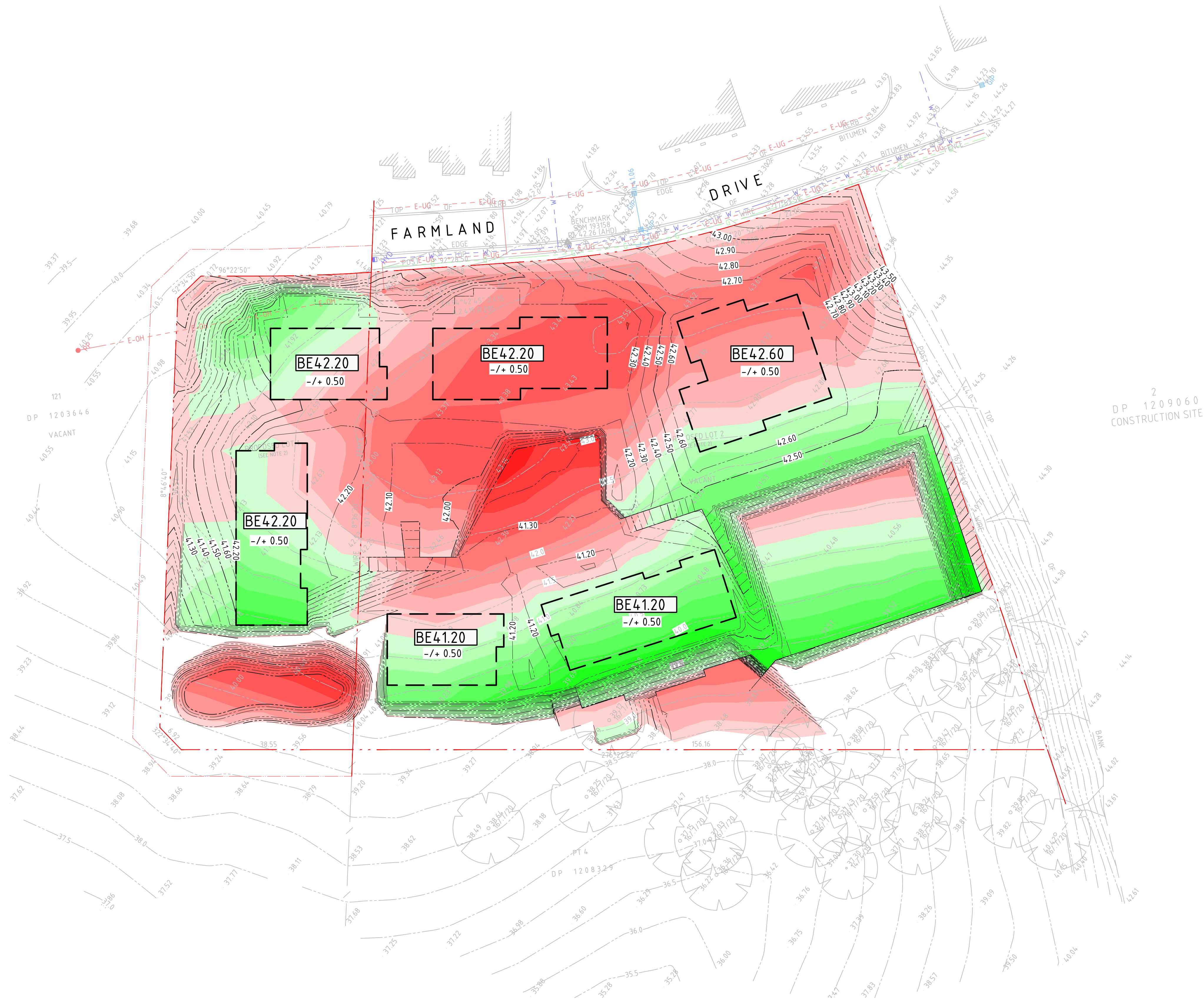
CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

NOT FOR CONSTRUCTION

REVISION		DESCRIPTION				ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.		PROJECT		DRAWING TITLE		JOB NUMBER	
1		ISSUED FOR SSDA				VC		JG	25.01.19			NOT TO SCALE	 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	ALEX AVENUE PRIMARY SCHOOL	PELICAN ROAD, SCHOFIELDS	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT	SEDIMENT AND SOIL EROSION CONTROL DETAILS	182535	
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DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED										THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD		DRAWING SHEET SIZE = A1							



LEGEND

BOUNDARY LINE

PROPOSED BUILDING FOOTPRINT

BEXX.XX

BULK EARTHWORKS PAD LEVEL

X.X

DIRECTION OF GRADE

BATTERS

XXXX

CONTOURS

DEPTH OF CUT

- 999m TO - 2.0m

- 2.0m TO - 1.5m

- 1.5m TO - 1.25m

- 1.25m TO - 1.0m

- 1.0m TO - 0.75m

- 0.75m TO - 0.5m

- 0.5m TO - 0.25m

- 0.25m TO - 0.0m

DEPTH OF FILL

0.0m TO 0.25m

0.25m TO 0.5m

0.5m TO 0.75m

0.75m TO 1.0m

1.0m TO 1.25m

1.25m TO 1.5m

1.5m TO 2.0m

2.0m TO 999m

GENERAL NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.

2. CAD FILES / DTM FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).

3. STRIP EXISTING TOPSOIL IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER / REPORT. FOR THE PURPOSES OF EARTHWORKS CALCULATIONS A TOPSOIL STRIPPING DEPTH OF 100mm HAS BEEN ASSUMED. GROUND SLAB DEPTH OF 300mm HAS BEEN ASSUMED WHERE REQUIRED.

4. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.

5. NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS, ie SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALLS AND THE LIKE. THE CONTRACTOR SHALL USE FINAL SURFACE LEVELS AND TYPICAL PAVEMENT DETAILS FOR ACTUAL EARTHWORKS LEVELS.

6. BULK EARTHWORKS ARE BASED ON THE FOLLOWING DEPTHS FROM FINISHED SURFACE LEVELS:

7.1. ASPHALT PAVEMENT 200mm

7.2. CONCRETE PAVEMENT 200mm

7.3. BUILDING SLAB 300mm (REFER STRUCTURAL DWGS)

7.4. FOOTPATH PAVEMENT 200mm

7.5. LANDSCAPE AREA 200mm

7. APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS:

8.1. CUT 6,102 cu.m

8.2. FILL 4,058 cu.m

8.3. BALANCE 2,044 cu.m CUT

8.4. NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.

VERIFIER: J. GILLIGAN
JOB MANAGER: J. GRINSELL
DESIGNED: J. GRINSELL
DRAWN: C. PASKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR SSDA	VC		JG	25.01.19
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3	ISSUED FOR SSDA	VC		JG	31.05.19

RICHARD CROOKES
CONSTRUCTIONS

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS
VERIFICATION SIGNATURE HAS BEEN ADDED

GROUP USA

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NORTHROP CONSULTING ENGINEERS PTY LTD

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SCALE 1:500 @ A1

0 5 10 15 20 25m

NORTHROP

Sydney

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD,
SCHOFIELDS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
STATE SIGNIFICANT DEVELOPMENT

BULK EARTHWORKS CUT
AND FILL PLAN

JOB NUMBER

182535

DRAWING NUMBER

DAC03.01

REVISION

3

DRAWING SHEET SIZE = A1

NOT FOR CONSTRUCTION



LEGEND

BOUNDARY LINE

EASEMENT LINE

EXISTING ELECTRICITY

EXISTING ELECTRICITY (OVERHEAD)

EXISTING ELECTRICITY (UNDERGROUND)

EXISTING GAS

EXISTING WATER

EXISTING STORMWATER

PROPOSED KERB

EXISTING KERB

FUTURE KERB

SAWCUT AND PAVEMENT INFILL

KERB ONLY

KERB AND GUTTER

INTEGRAL KERB

VEHICULAR CROSSING

KERB RAMP

MATCH TO EXISTING

PROPOSED SPOT HEIGHT

EXISTING SPOT HEIGHT

PROPOSED FINISHED FLOOR LEVEL

DIRECTION OF GRADE

BATTERS

CONTOURS

EXISTING CONTOURS

DRAINAGE SWALE

EXISTING DRAINAGE STRUCTURE

NEW DRAINAGE STRUCTURE

STORMWATER PIPE

RAINWATER PIPE

EXISTING STORMWATER PIPE

STORMWATER PIT TAG
STRUCTURE No / LINE ID

RAINWATER HARVESTING TANK

RETAINING WALL

FOOTPATH - TYPE 1

LANDSCAPING - TYPE 1

BASKETBALL COURT - REFER TO
LANDSCAPE ARCHITECTS FOR DETAIL

- GENERAL NOTES:**
1. REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.

2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.

3. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).

4. SUBSOIL DRAINAGE TO RETAINING WALLS, KERBS AND SWALE DRAINS NOT SHOWN FOR CLARITY - REFER RELEVANT DETAILS.

5. REFER 'STORMWATER LONGITUDINAL SECTIONS' FOR PIPE INFORMATION.

6. REFER HYDRAULIC ENGINEERS / ARCHITECTS DRAWINGS FOR DOWNPIPE LOCATIONS AND SIZING.

7. ALL STORMWATER INLET PITS TO BE FITTED WITH 'ENVIROPOD' INSERT AND 200 MICRON FILTER.

8. PROVIDE DRAINAGE CONNECTIONS TO KERB IN ACCORDANCE WITH COUNCIL STANDARD DETAILS AND SPECIFICATION.

9. CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATIONS.

VERIFIER: J. GILLIGAN
JOB MANAGER: J. GRINSELL
DESIGNED: J. GRINSELL
DRAWN: C. PASKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR SSDA	VC	JG		25.01.19
2	ISSUED FOR REF APPROVAL	JRG	JG		06.02.19
3	ISSUED FOR REF APPROVAL	JRG	JG		08.02.19
4	ISSUED FOR SSDA	VC	JG		31.05.19
5	RE-ISSUED FOR SSDA	VC	JG		06.06.19
6	RE-ISSUED FOR SSDA	JO	JG		12.06.19

RICHARD CROOKES CONSTRUCTIONS

FOR CONTINUATION REFER TO SHEET 02

GROUP GSA

ARCHITECT

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

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SCALE 1:250@A1

0 2 4 6 8 10 12m

NORTHROP

Sydney

Level 11 345 George Street, Sydney NSW 2000

Ph (02) 9241 4188 Fax (02) 9241 4324

Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
STATE SIGNIFICANT DEVELOPMENT

SITEWORKS AND STORMWATER
MANAGEMENT PLAN - SHEET 01

JOB NUMBER

182535

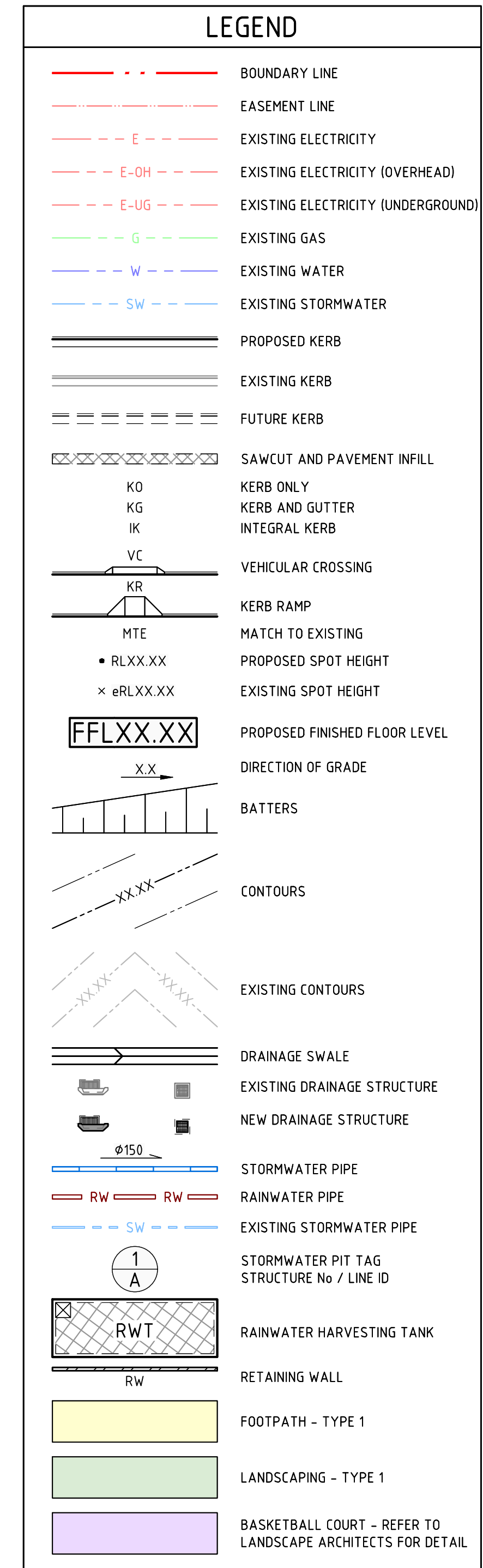
DRAWING NUMBER

DAC04.01

REVISION

6

DRAWING SHEET SIZE = A1



1. REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
4. SUBSOL DRAINAGE TO RETAINING WALLS, KERBS AND SWALE DRAINS NOT SHOWN FOR CLARITY - REFER RELEVANT DETAILS.
5. REFER 'STORMWATER LONGITUDINAL SECTIONS' FOR PIPE INFORMATION.
6. REFER HYDRAULIC ENGINEERS / ARCHITECTS DRAWINGS FOR DOWNPIPE LOCATIONS AND SIZING.
7. ALL STORMWATER INLET PITS TO BE FITTED WITH 'ENVIROPOD' '300MM' AND '200MM' SIZES.
8. PROVIDE DRAINAGE CONNECTIONS TO KERB IN ACCORDANCE WITH COUNCIL STANDARD DETAILS AND SPECIFICATION.
9. CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATIONS.

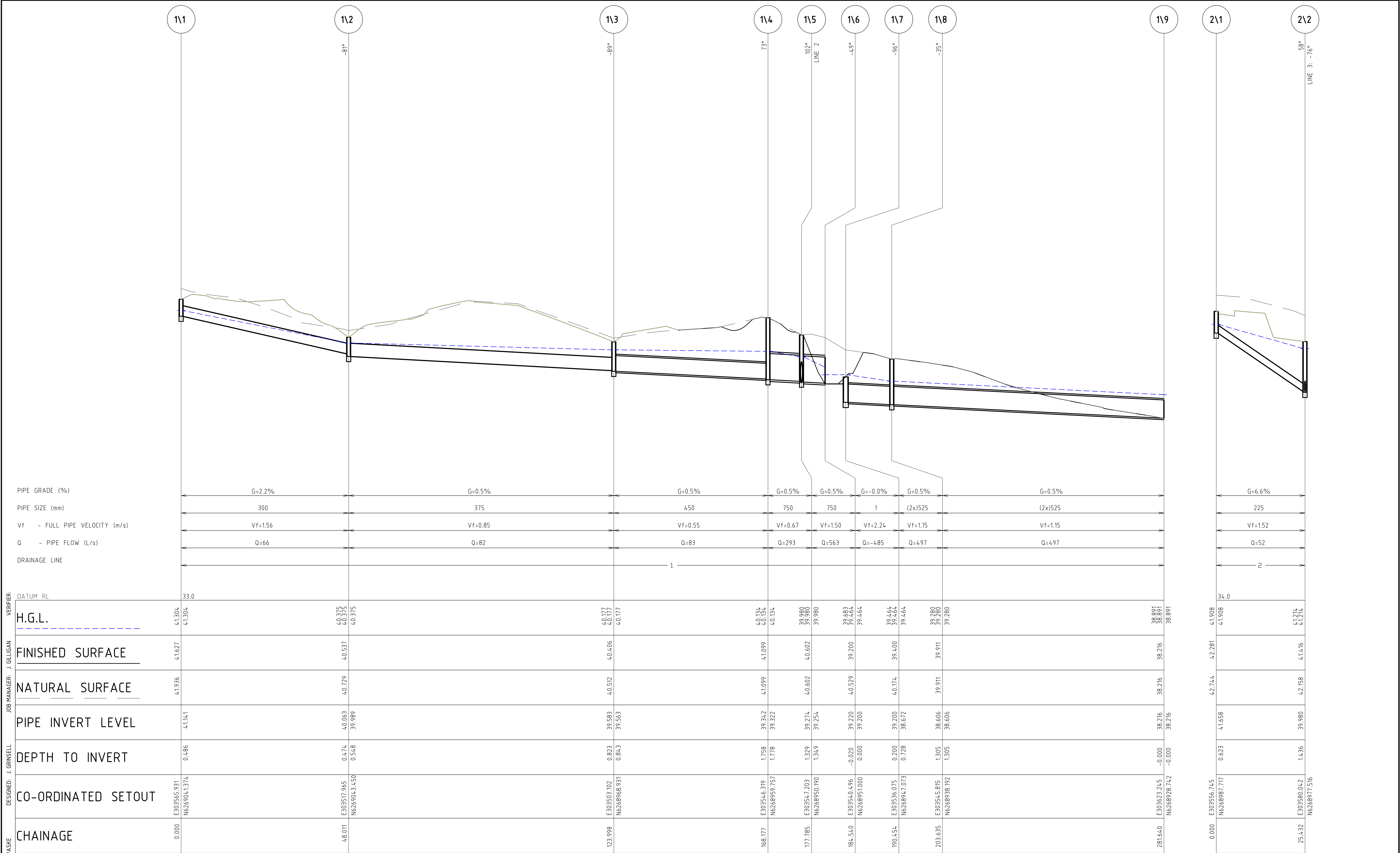
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DRAWING NUMBER DAC04.02	REVISION 5
DRAWING SHEET SIZE = A1	

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE
STATE SIGNIFICANT DEVELOPMENT**

**SITEWORKS AND STORMWATER
MANAGEMENT PLAN - SHEET 02**

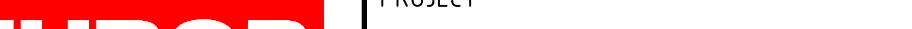
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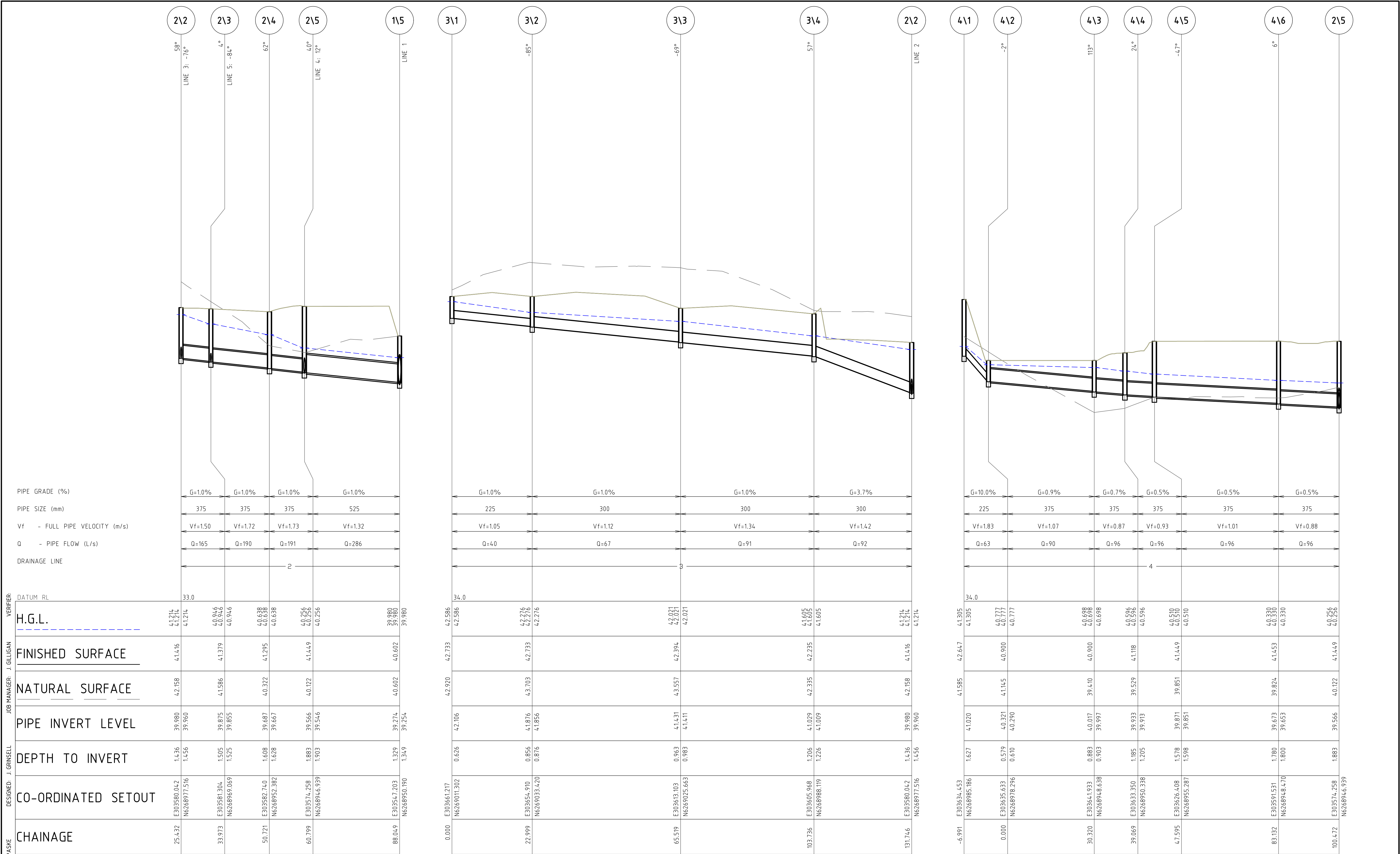


LINE 1

LINE 2

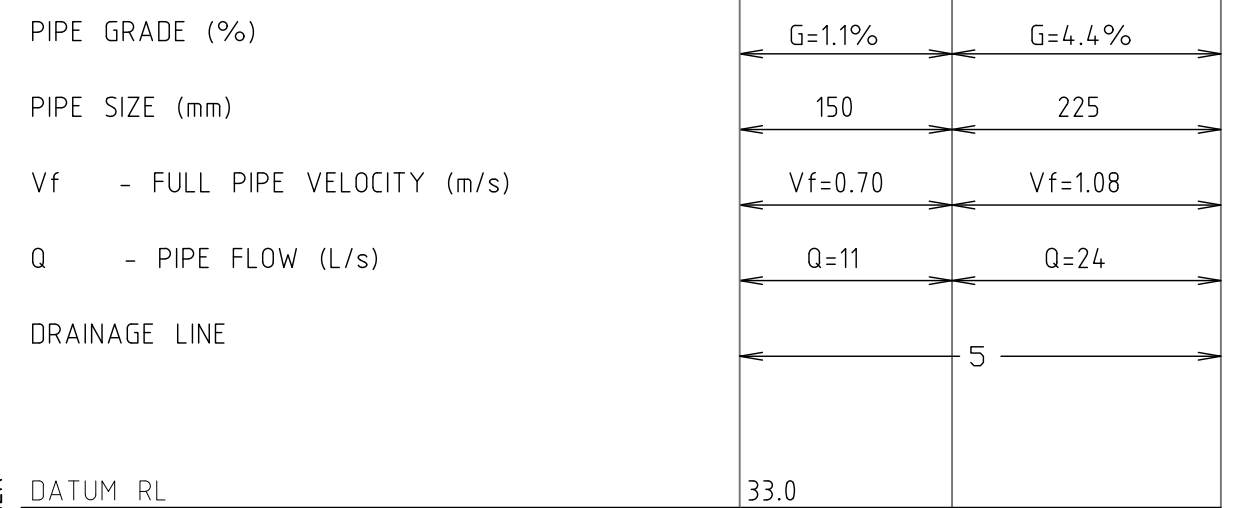
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.	 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	PROJECT	DRAWING TITLE	JOB NUMBER					
1	ISSUED FOR SSDA	VC		JG	25.01.19					ALEX AVENUE PRIMARY SCHOOL	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT	182535					
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19												
3	ISSUED FOR SSDA	VC		JG	31.05.19												
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED		THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD		PELICAN ROAD, SCHOFIELDS		DRAWING NUMBER	REVISION				
													DAC04.21	3			
													DRAWING SHEET SIZE = A1				



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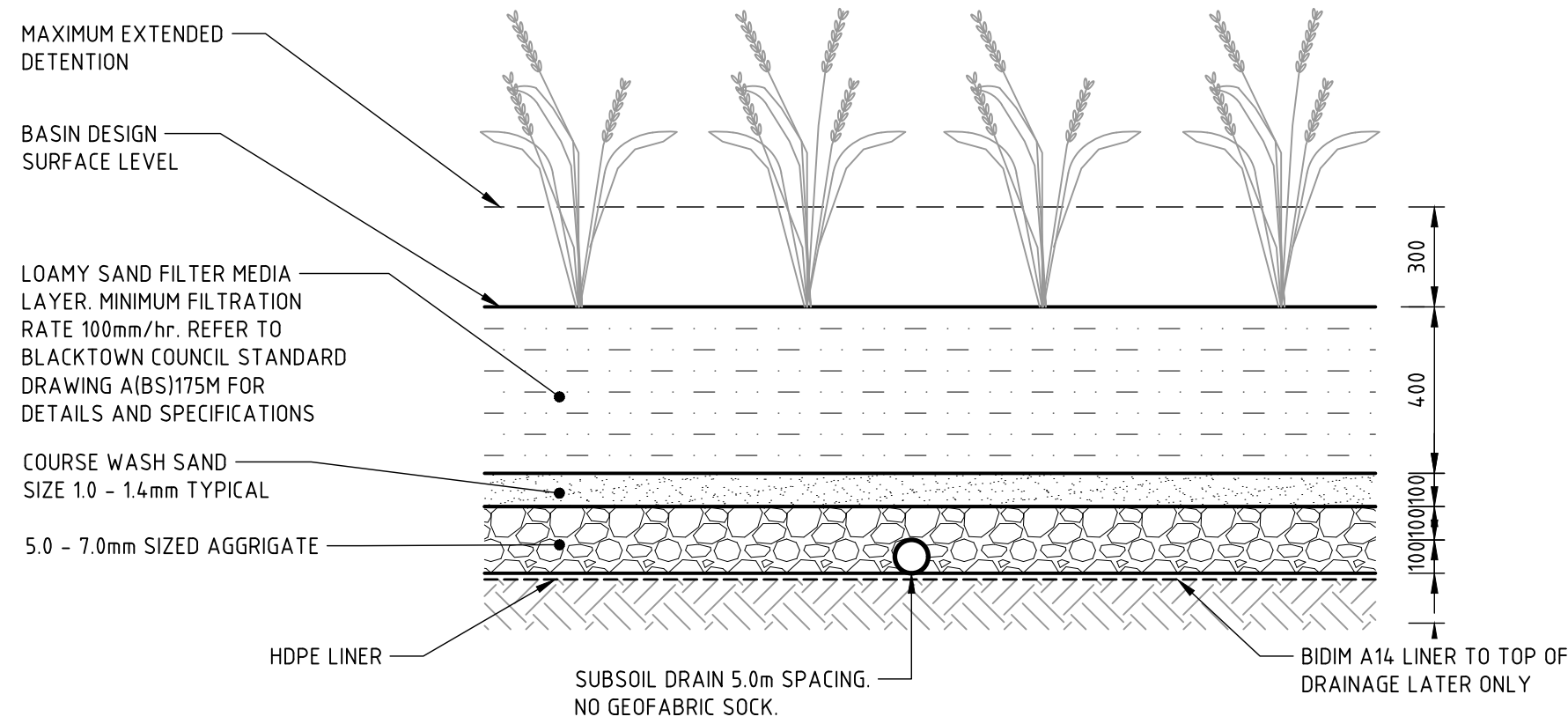
REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	PROJECT ALEX AVENUE PRIMARY SCHOOL PELICAN ROAD, SCHOFIELDS	DRAWING TITLE CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT STOMRWATER LONGITUDINAL SECTIONS - SHEET 02	JOB NUMBER 182535						
1	ISSUED FOR SSDA	VC		JG	25.01.19					ALEX AVENUE PRIMARY SCHOOL	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT	182535						
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19													
3	ISSUED FOR SSDA	VC		JG	31.05.19													
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED		THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD					DRAWING NUMBER DAC04.22	REVISION 3				
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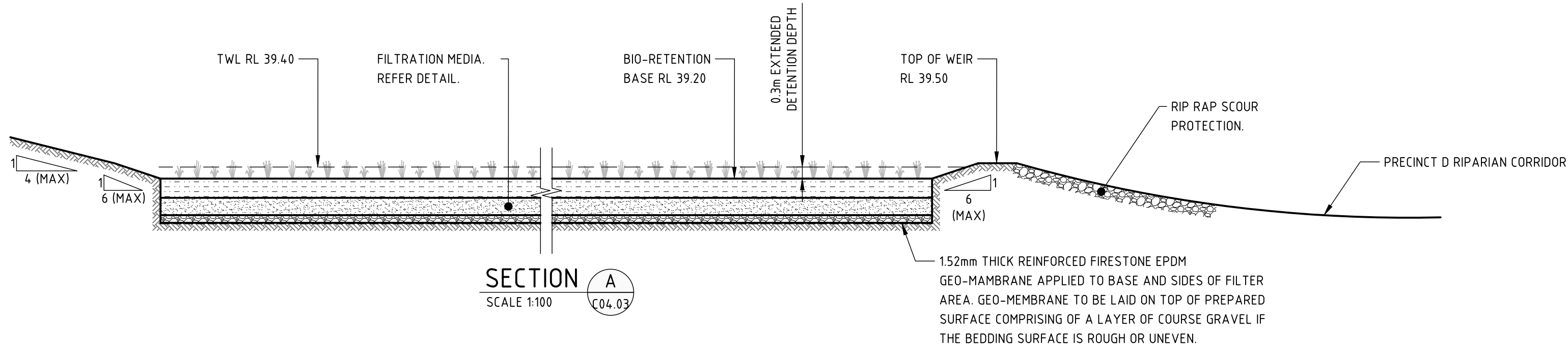
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER			
1	ISSUED FOR SSDA	VC		JG	25.01.19			 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	ALEX AVENUE PRIMARY SCHOOL PELICAN ROAD, SCHOFIELDS	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT STOMRWATER LONGITUDINAL SECTIONS - SHEET 03	182535 DRAWING NUMBER DAC04.23 DRAWING SHEET SIZE = A1		
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19							ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.	REVISION 3
3	ISSUED FOR SSDA	VC		JG	31.05.19								
												DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS NORTHROP CONSULTING ENGINEERS PTY LTD VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:



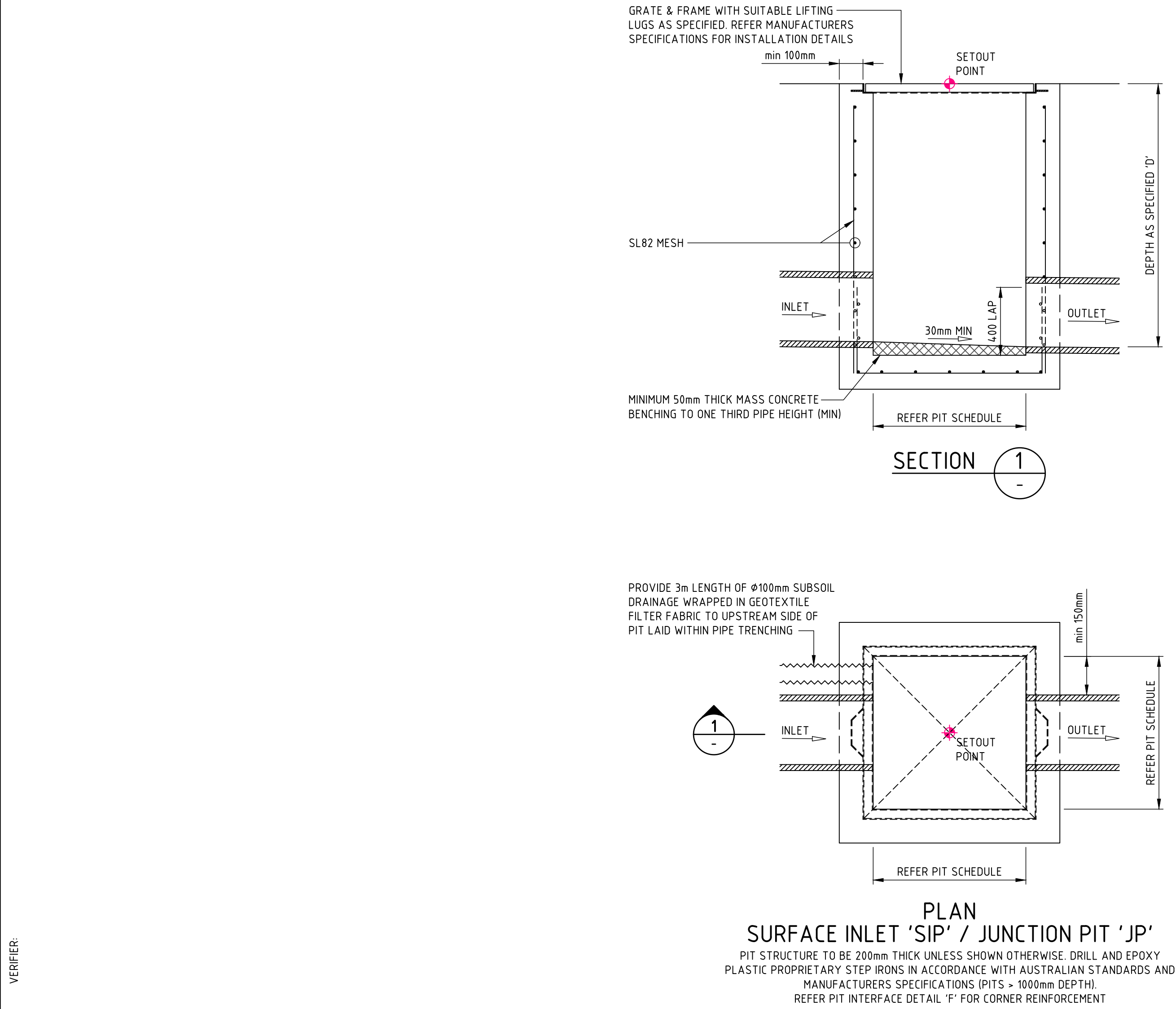
BIO-FILTRATION FILTER DETAIL



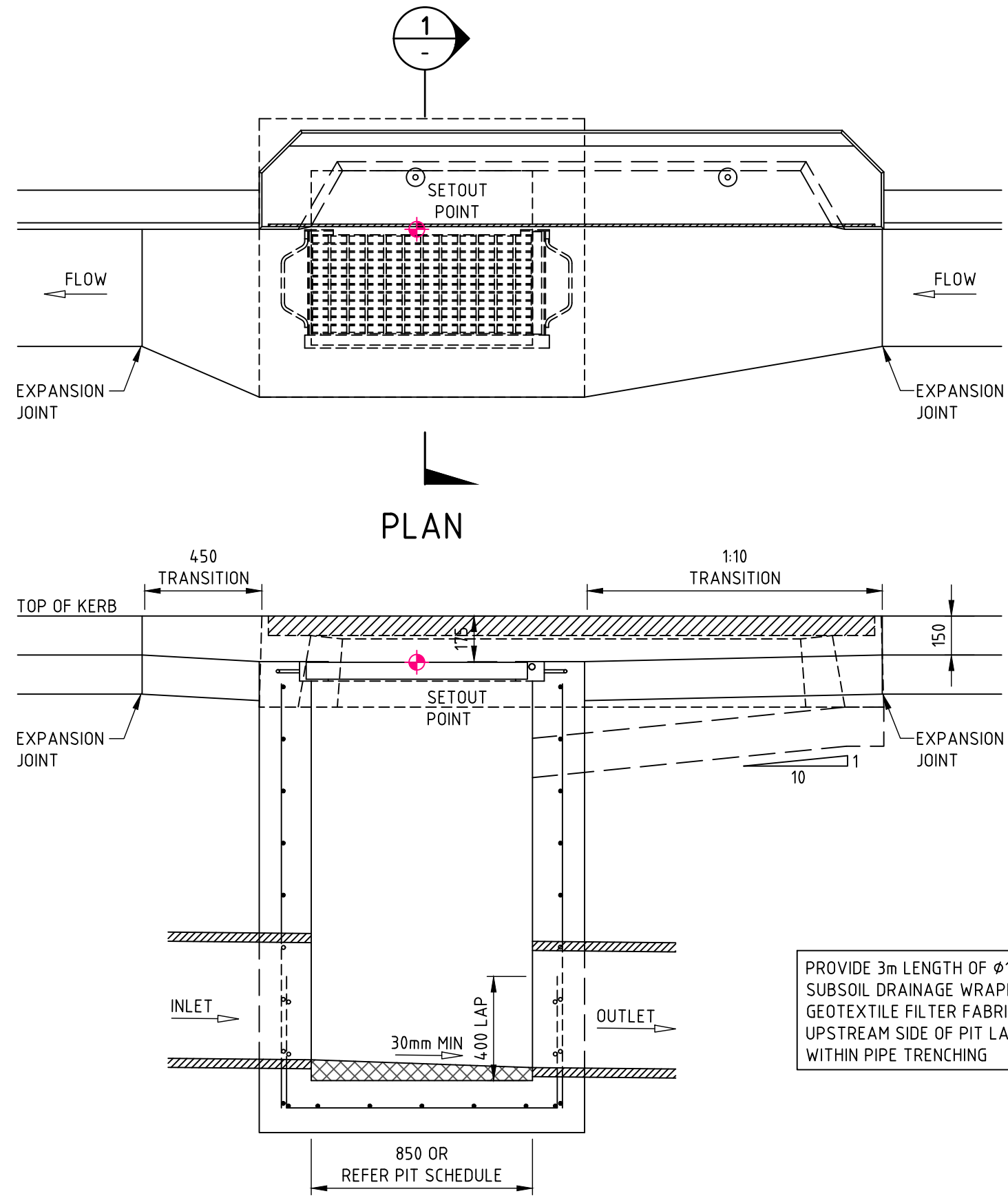
NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	PROJECT ALEX AVENUE PRIMARY SCHOOL PELICAN ROAD, SCHOFIELDS	DRAWING TITLE CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT BIORETENTION BASIN DETAILS - SHEET 01	JOB NUMBER 182535	
1	ISSUED FOR SSDA	VC		JG	25.01.19							DRAWING NUMBER DAC04.31	REVISION 3
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19								
3	ISSUED FOR SSDA	VC		JG	31.05.19								
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD						DRAWING SHEET SIZE = A1

VERIFIER: J. GILLIGAN
JOB MANAGER: J. GILLIGAN
DESIGNED: J. GRINSELL
DRAWN: C. PASKE



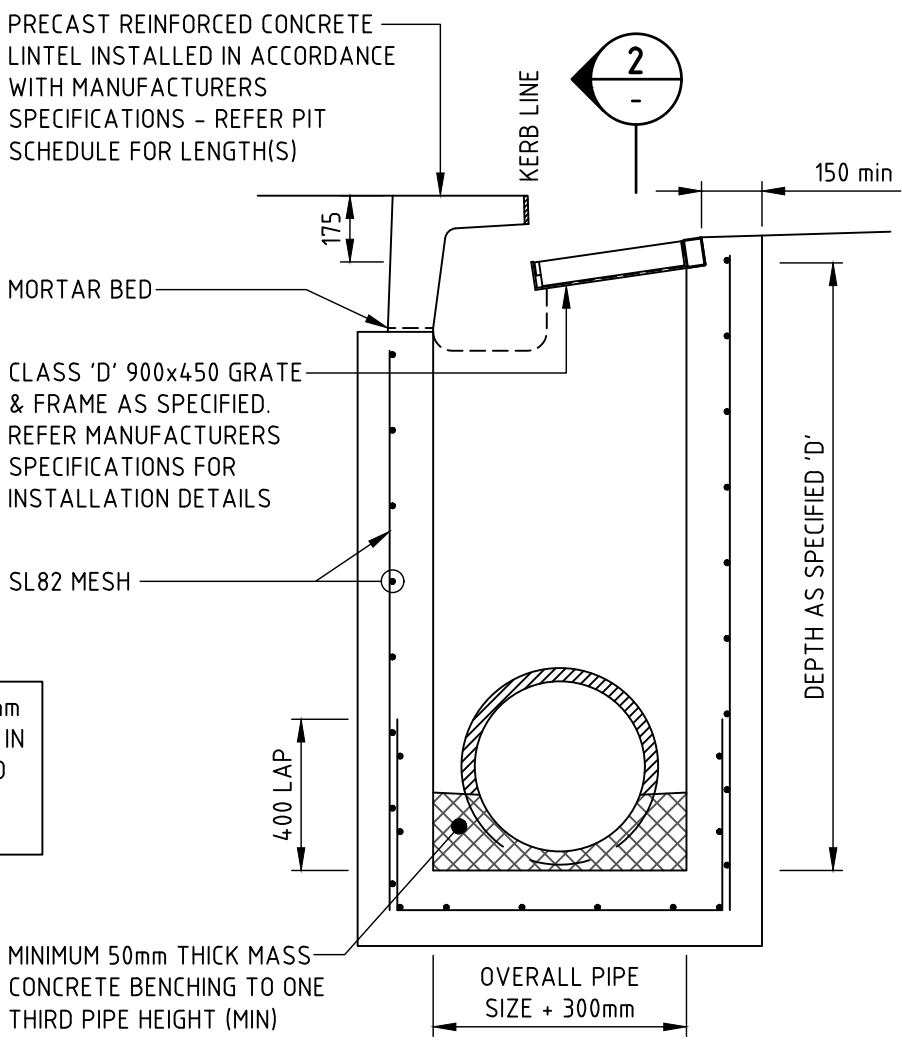
PLAN
SURFACE INLET 'SIP' / JUNCTION PIT 'JP'
PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE. DRILL AND EPOXY PLASTIC PROPRIETARY STEP IRONS IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MANUFACTURERS SPECIFICATIONS (PITS > 1000mm DEPTH).
REFER PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT



SECTION 2
KERB INLET PIT 'KIP'
PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE. DRILL AND EPOXY PLASTIC PROPRIETARY STEP IRONS IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MANUFACTURERS SPECIFICATIONS (PITS > 1000mm DEPTH).
REFER PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT

FOR SAG PITS, ENSURE PIT LINTEL IS LOCATED CENTRAL TO PIT GRATE AND FRAME AND 1:10 CHUTE IS CONSTRUCTED TO BOTH SIDES OF PIT

REFER EXTENDED CHAMBER PIT DETAIL FOR PIPEWORK IN EXCESS OF Ø450 AND WHERE REQUIRED



SECTION 1

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER	
1	ISSUED FOR SSDA	VC		JG	25.01.19			 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	ALEX AVENUE PRIMARY SCHOOL PELICAN ROAD, SCHOFIELDS	CIVIL ENGINEERING PACKAGE STATE SIGNIFICANT DEVELOPMENT DETAILS - SHEET 01	182535 DAC09.01 DRAWING SHEET SIZE = A1
2	ISSUED FOR REF APPROVAL	JRG		JG	06.02.19						
3	ISSUED FOR SSDA	VC		JG	31.05.19						
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD				