

10 LOMAS LANE, NULKABA, N.S.W. 2325 CONCEPT CIVIL ENGINEERING PACKAGE



DRAWING SCHEDULE	
DWG NO.	DRAWING TITLE
DA-C01.01	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
DA-C02.01	GENERAL ARRANGEMENT PLAN
DA-C03.01	CONCEPT EROSION AND SEDIMENT CONTROL PLAN - SHEET 1
DA-C03.02	CONCEPT EROSION AND SEDIMENT CONTROL PLAN - SHEET 2
DA-C03.03	CONCEPT EROSION AND SEDIMENT CONTROL PLAN - SHEET 3
DA-C03.04	CONCEPT EROSION AND SEDIMENT CONTROL PLAN - SHEET 4
DA-C03.05	EROSION AND SEDIMENT CONTROL DETAILS
DA-C03.06	SEDIMENT BASIN SIZING CALCULATIONS
DA-C04.01	CONCEPT EARTHWORKS PLAN - SHEET 1
DA-C04.02	CONCEPT EARTHWORKS PLAN - SHEET 2
DA-C04.11	EARTHWORKS SITE SECTIONS - SHEET 1
DA-C04.12	EARTHWORKS SITE SECTIONS - SHEET 2
DA-C04.13	EARTHWORKS SITE SECTIONS - SHEET 3
DA-C05.01	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 1
DA-C05.02	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 2
DA-C05.03	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 3
DA-C05.04	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 4
DA-C05.05	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 5
DA-C05.06	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 6
DA-C06.01	CONCEPT INTERSECTION DESIGN - NORTH ENTRANCE
DA-C06.02	CONCEPT INTERSECTION DESIGN - SOUTH ENTRANCE
DA-C06.03	PROPOSED LOMAS LANE UPGRADE
DA-C07.01	CIVIL DETAILS

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 DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC		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.		ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397			
2	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21								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	REVISION
3	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22										DA-C01.01	5
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22										DRAWING SCALE = A1	
5	ISSUED FOR APPROVAL	ca	CP	GW	06.06.24											

DRAWN: R.DIERCKE

VERIFIER: C PIPER

JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

DRAWN: R DIERCKE

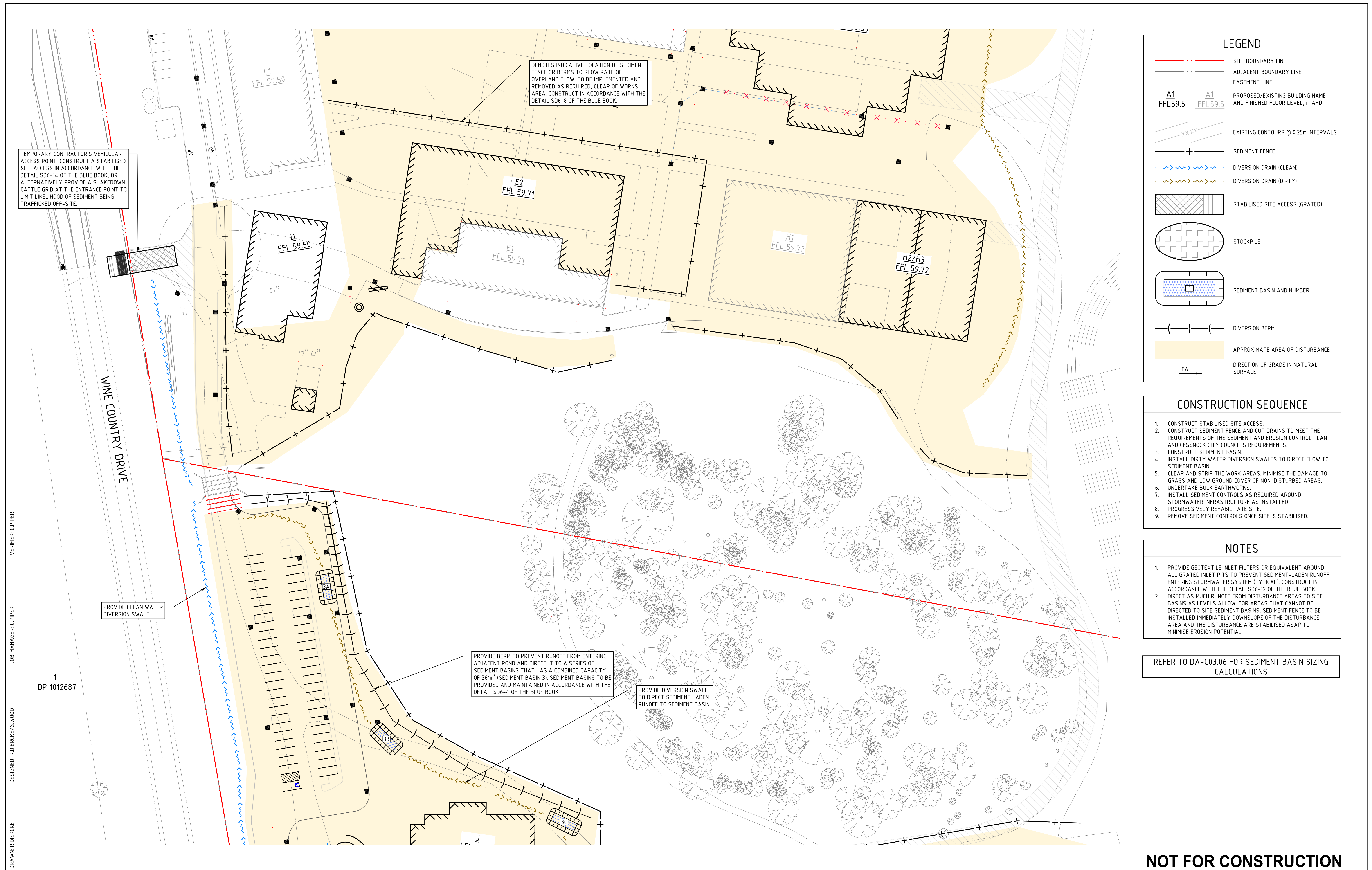


LEGEND	
	SITE BOUNDARY LINE
	ADJACENT BOUNDARY LINE
	CADASTRE BOUNDARY LINES
	EASEMENT LINE

NOT FOR CONSTRUCTION

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1	ISSUED FOR DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	 SHAC	 Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE GENERAL ARRANGEMENT PLAN	NL167397
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6	ISSUED FOR APPROVAL	CA	CP	GW	6.06.24						
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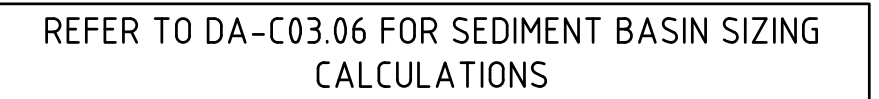


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DRAWING SHEET SIZE = A1										



JOB NUMBER	
NL167397	
DRAWING NUMBER	REVISION
DA-C03.03	4
DRAWING SHEET SIZE = A1	



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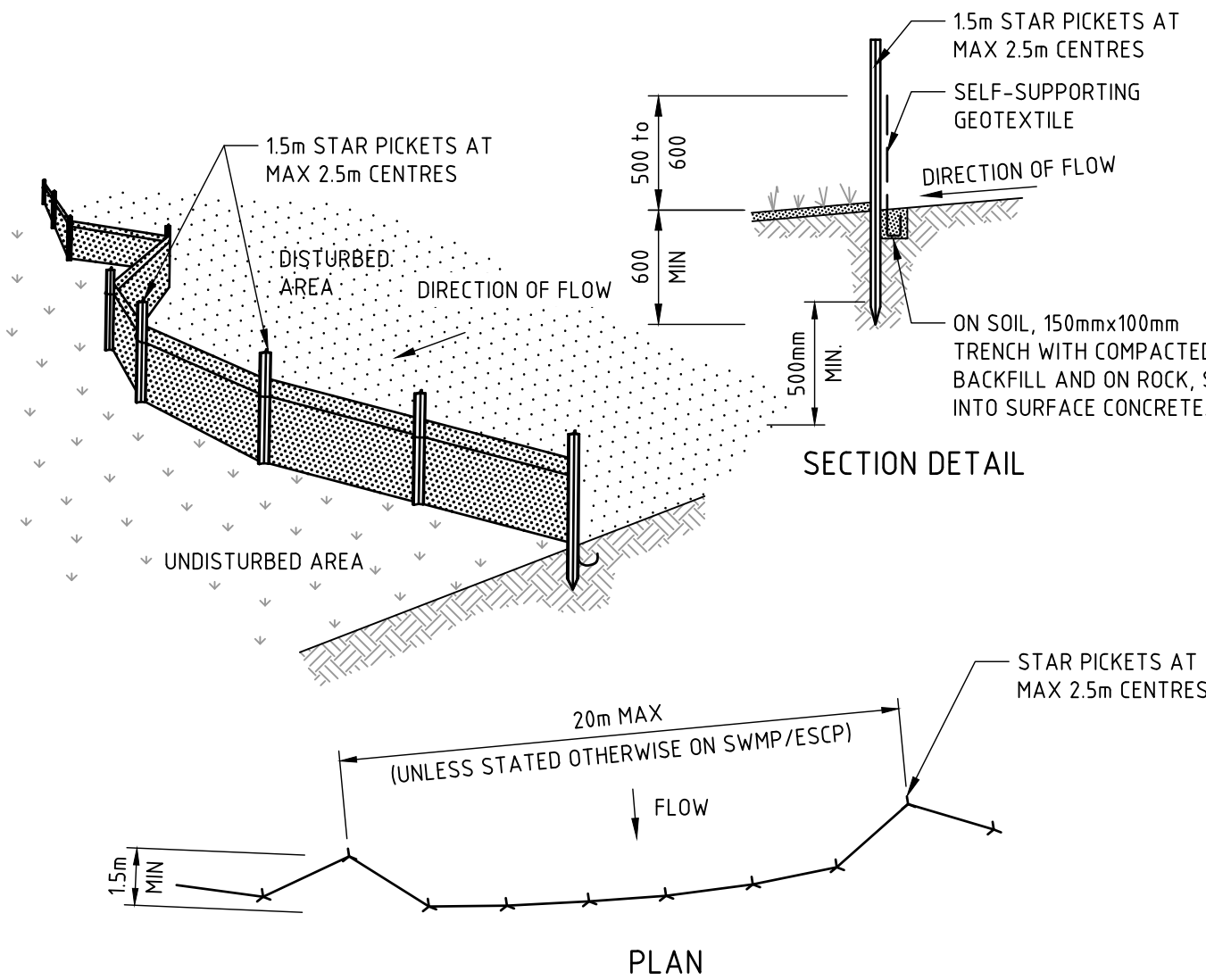
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EROSION AND SEDIMENTATION CONTROL NOTES

- ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ON-SITE, IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER – SOILS AND CONSTRUCTION LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION AND SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS AND SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING AND BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
- INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
- ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- INSTALL SEDIMENT FENCING, OR OTHER SEDIMENT CONTROL DEVICES, AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT OR APPROPRIATE COUNCIL OFFICER.
- ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
- THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION.
- ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE SPREAD ON-SITE AS DIRECTED BY THE SUPERINTENDENT OR REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
- ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
- PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
- ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.

BASIN MANAGEMENT NOTES

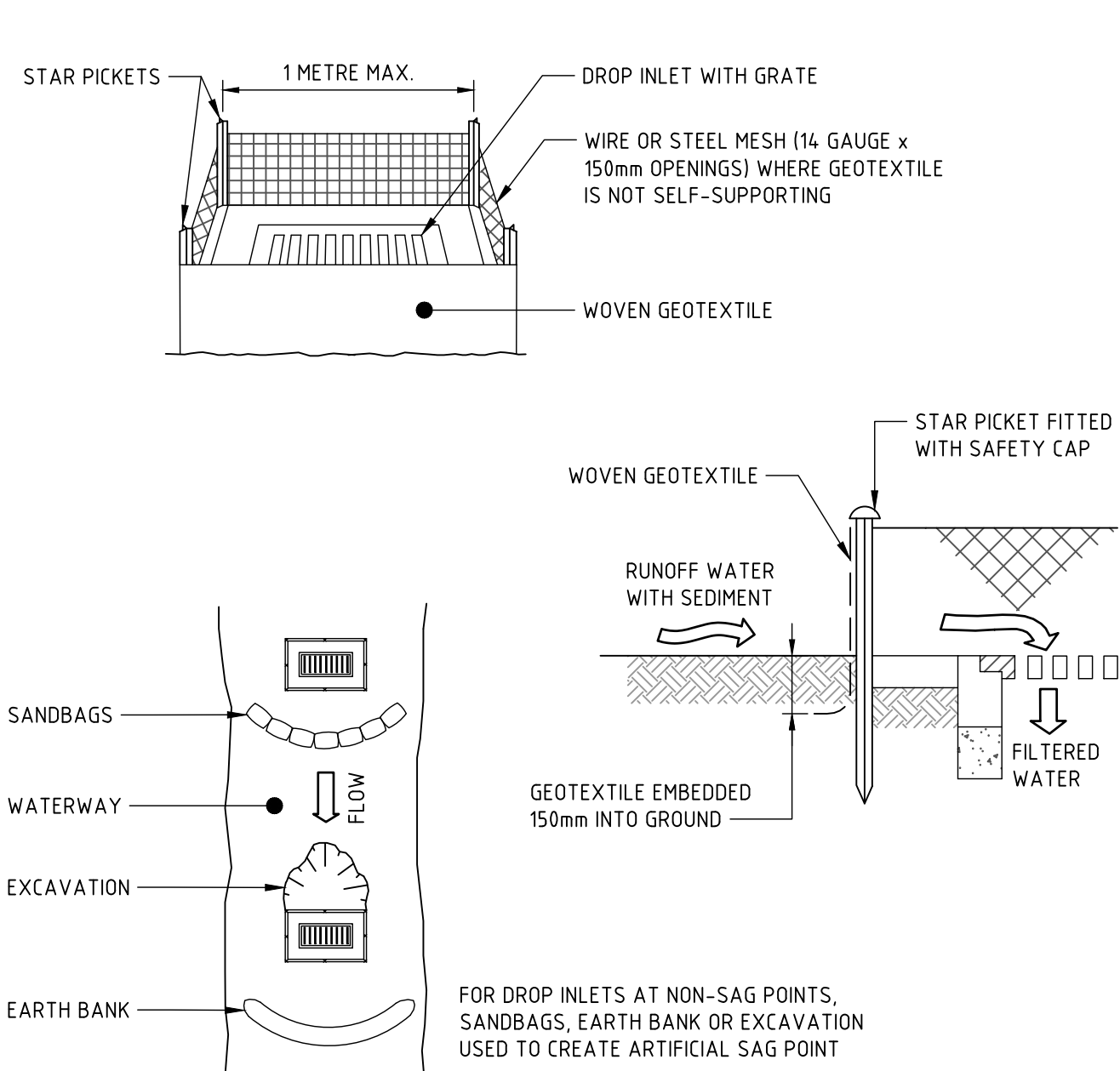
- PRIOR TO ANY FORECAST WEATHER EVENT, LIKELY TO RESULT IN SEDIMENT LADEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE.
- ANY SEDIMENT LADEN WATER CAPTURED ON-SITE MUST BE TREATED TO ENSURE IT WILL ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER MUST BE KEPT ON-SITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED.
- NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) ON-SITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT MUST HAVE DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO ANY APPROVAL.
- THE CHEMICAL/AGENT (FLOCCULATING/COAGULANTS) USED IN TYPE D AND TYPE F BASINS TO TREAT TURBID WATER CAPTURED IN THE BASIN MUST BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES (TSS < 50mg/L, TURBIDITY < 60 NTU, 6.5 < pH < 8.5) WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN, AFTER A RAINFALL EVENT.
- ALL MANUFACTURERS INSTRUCTIONS MUST BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ON-SITE, EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
- SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) MUST BE PLACED SUCH THAT WATER ENTERING THE BASINS/SEDIMENT TRAP MIXES WITH THE CHEMICALS/AGENTS AND IS CARRIED INTO THE BASIN/TRAP.
- ANY BASIN MUST BE DEWATERED AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES.
- INSPECT THE SEDIMENT BASINS AFTER EACH RAINFALL EVENT AND/OR WEEKLY. ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL. ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONAL CONDITION AT ALL TIMES.



CONSTRUCTION NOTES

- 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.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- 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.
- 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.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

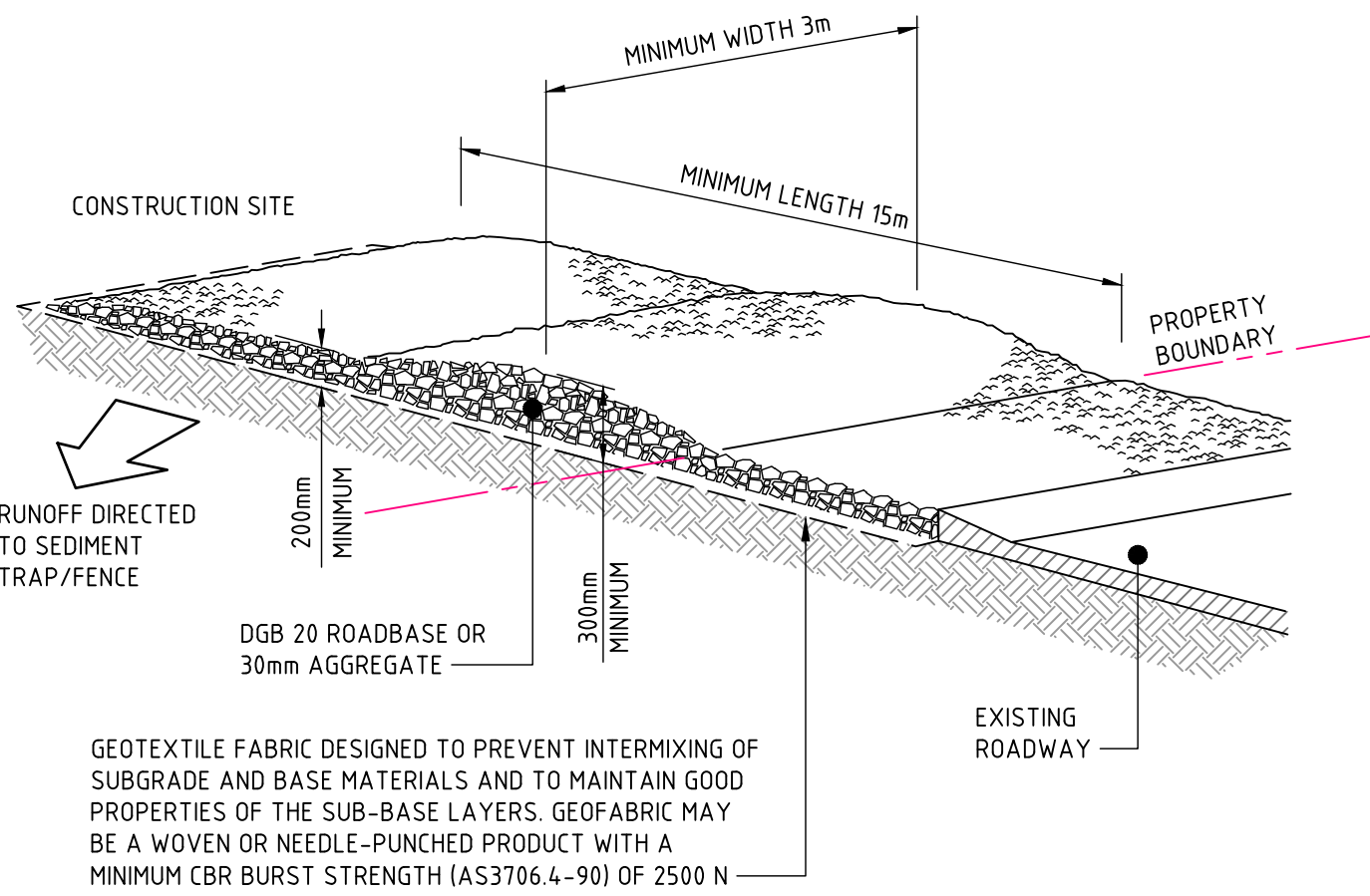
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

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

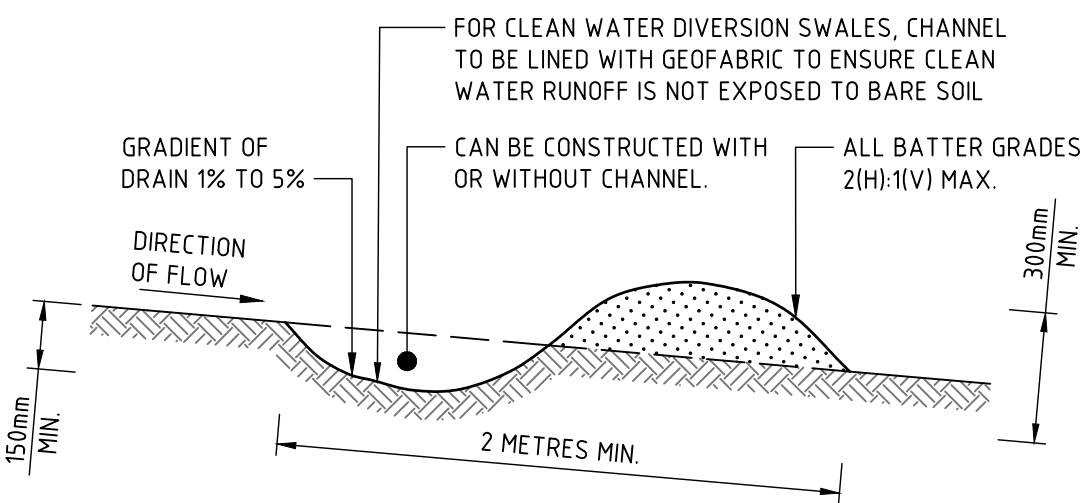
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

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

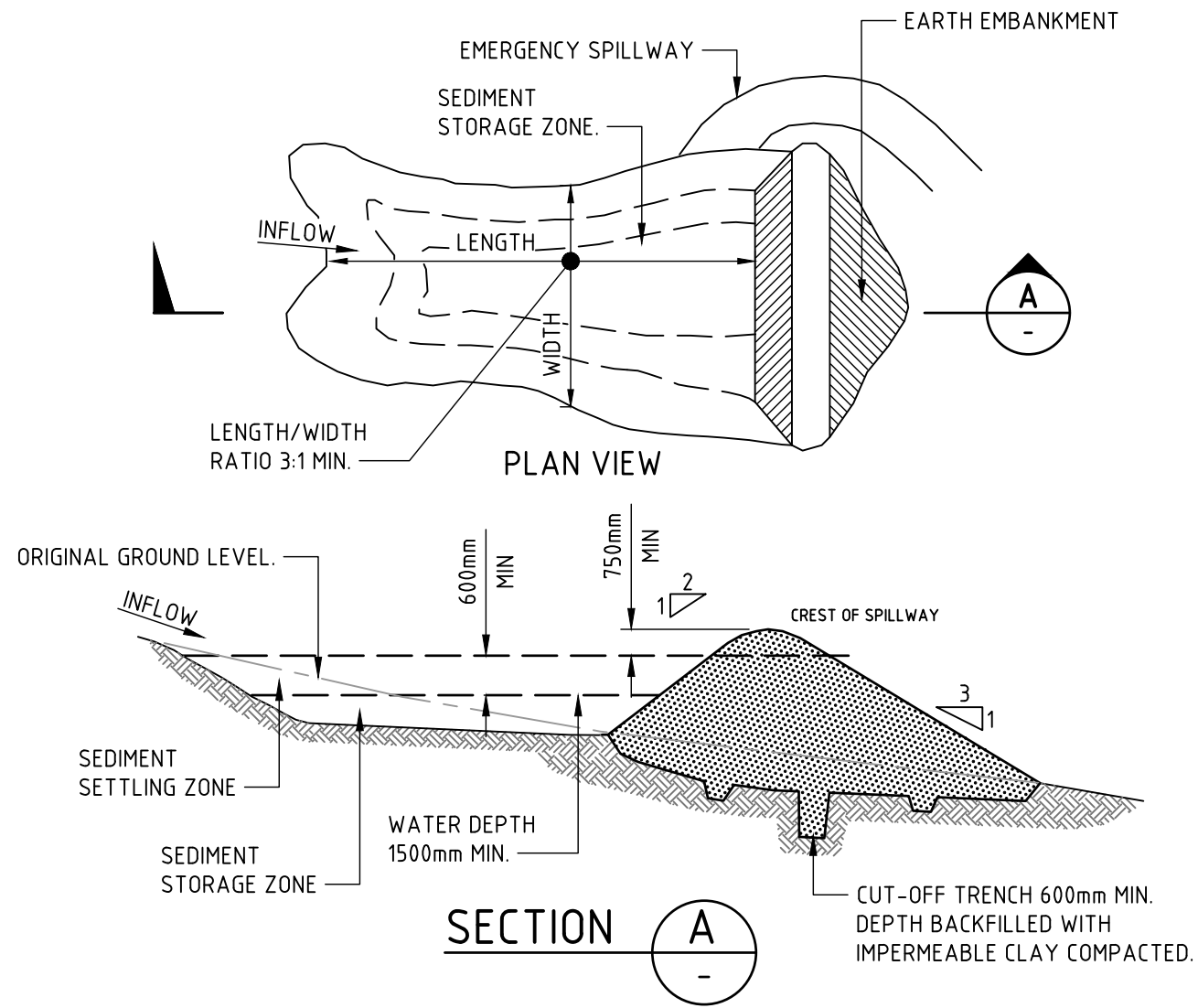
STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

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

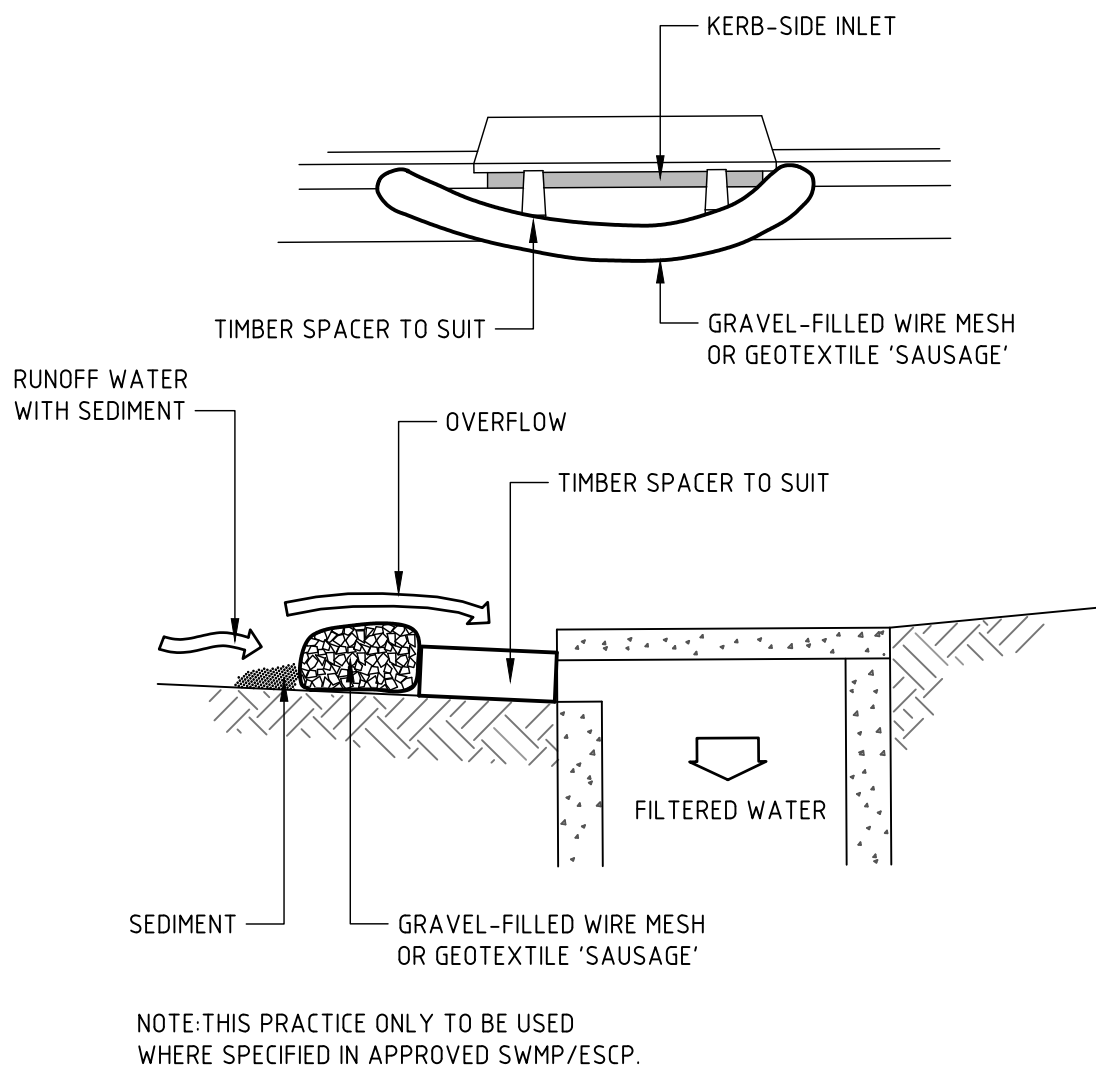
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.
EARTH BANK – LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

- REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
- 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.
- MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
- SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
- PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
- SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
- CONSTRUCT THE EMERGENCY SPILLWAY.
- REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

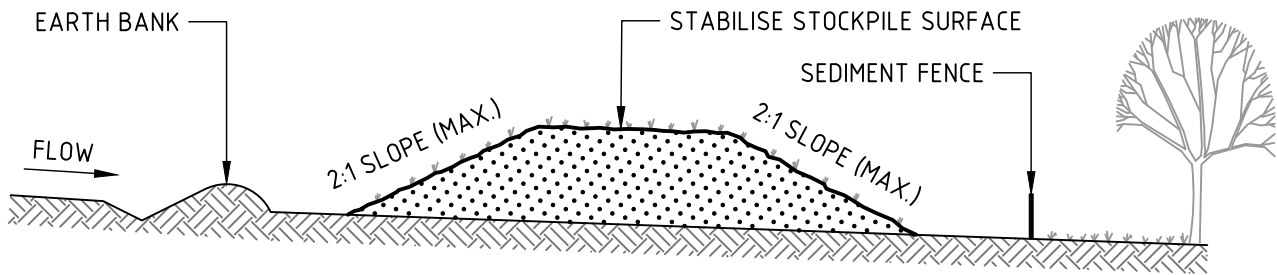
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)
EARTH BASIN – WET (SD 6-4)



CONSTRUCTION NOTES

- INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
- 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.
- FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
- PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
- FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
- 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.

MESH AND GRAVEL INLET FILTER (SD 6-11)



CONSTRUCTION NOTES

- PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
- CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
- 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.
- 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)

NOT FOR CONSTRUCTION

VERIFIER: C PIPER

JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

DRAWN: R DIERCKE

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DRAWING SHEET SIZE = A1														

THE SITE IS LOCATED WITHIN THE BRANXTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SANDY AND SILTY CLAYS (AS PER THE SITE SPECIFIC GEOTECHNICAL INVESTIGATION).

SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.64	
R = 5 DAY, 85 TH PERCENTILE RAINFALL	31.0	mm
A = CATCHMENT AREA	1.48	ha
SETTLING ZONE VOLUME (10xCVxRxA)	294	m ³
A2 = DISTURBED CATCHMENT AREA	1.48	ha
SETTLED STORAGE VOLUME (0.17xSOIL LOSSxA2)	22	m ³
TOTAL BASIN VOLUME REQUIRED	316	m ³

THE SITE IS LOCATED WITHIN THE BRANXTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SANDY AND SILTY CLAYS (AS PER THE SITE SPECIFIC GEOTECHNICAL INVESTIGATION).

SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.64	
R = 5 DAY, 85 TH PERCENTILE RAINFALL	31.0	mm
A = CATCHMENT AREA	2.04	ha
SETTLING ZONE VOLUME (10xCVxRxA)	405	m ³
A2 = DISTURBED CATCHMENT AREA	2.04	ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	18	m ³
TOTAL BASIN VOLUME REQUIRED	423	m ³

THE SITE IS LOCATED WITHIN THE BRANXTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SANDY AND SILTY CLAYS (AS PER THE SITE SPECIFIC GEOTECHNICAL INVESTIGATION).

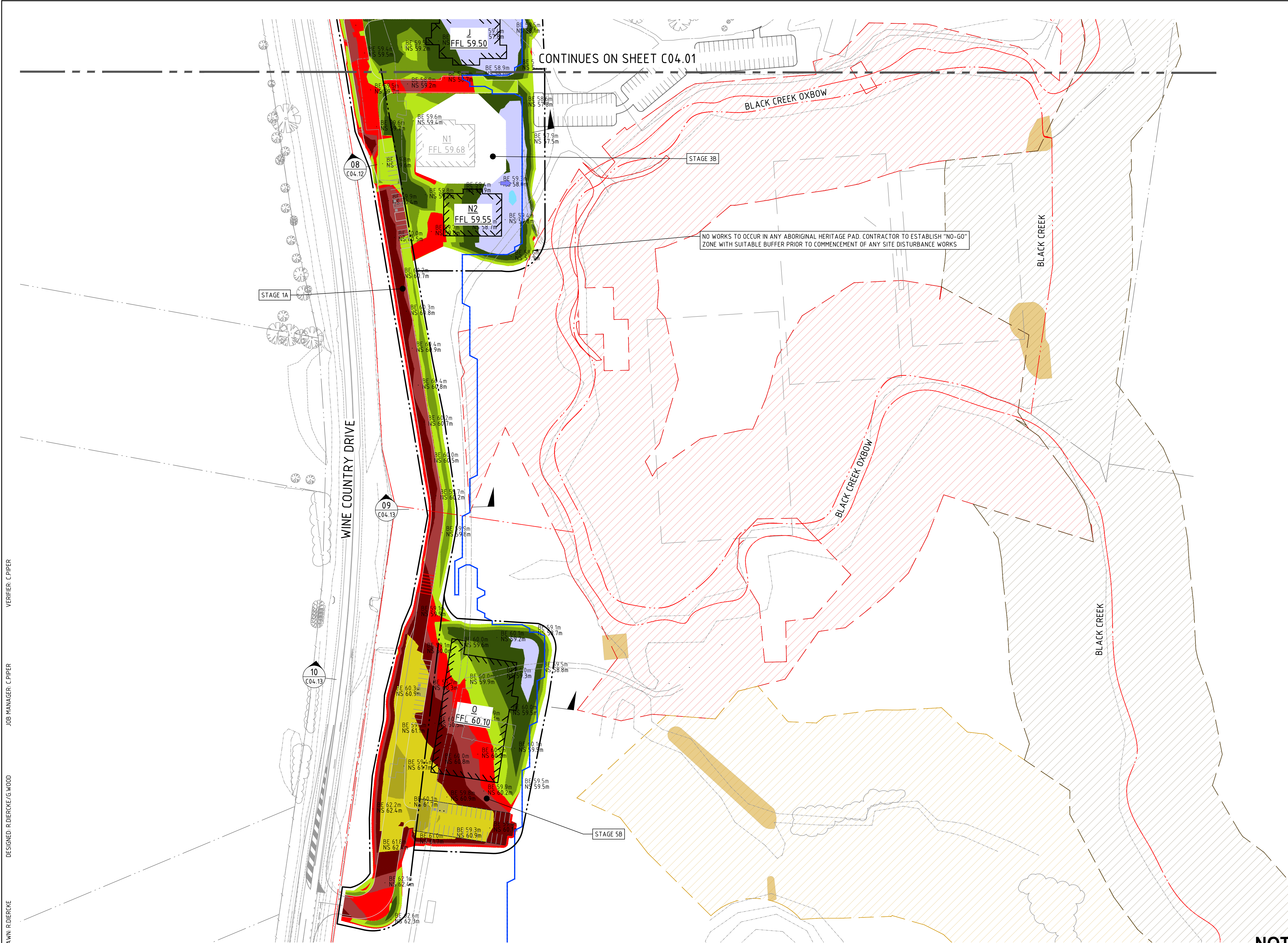
SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.64	
R = 5 DAY, 85 TH PERCENTILE RAINFALL	31.0	mm
A = CATCHMENT AREA	1.68	ha
SETTLING ZONE VOLUME (10xCVxRxAX)	333	m ³
A2 = DISTURBED CATCHMENT AREA	1.68	ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	28	m ³
TOTAL BASIN VOLUME REQUIRED	361	m ³

THE SITE IS LOCATED WITHIN THE BRANXTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF SANDY AND SILTY CLAYS (AS PER THE SITE SPECIFIC GEOTECHNICAL INVESTIGATION).

SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.64	
R = 5 DAY, 85 TH PERCENTILE RAINFALL	31.0	mm
A = CATCHMENT AREA	1.05	ha
SETTLING ZONE VOLUME (10xCVxRxA)	208	m ³
A2 = DISTURBED CATCHMENT AREA	1.05	ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	14	m ³
TOTAL BASIN VOLUME REQUIRED	222	m ³

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 DISCUSSION		GW	RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION		 NORTHROP Engineering	Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397		
2	ISSUED FOR APPROVAL		JR	CP	GW							14.12.21	DRAWING NUMBER	REVISION
3	ISSUED FOR APPROVAL		JR	CP	GW							14.01.22	DA-C03.06	4
4	ISSUED FOR APPROVAL		JS	CP	GW							06.05.22	DRAWING SHEET SIZE = A1	
						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							



LEGEND

SITE BOUNDARY LINE

ADJACENT BOUNDARY LINE

EASEMENT LINE

1% AEP DEVELOPED CASE FLOOD EXTENTS

RW 1
PROPOSED RETAINING WALL (WITH ASSOCIATED HANDRAIL AS PER LANDSCAPE ARCHITECT DESIGN)

RW 2
PROPOSED RETAINING WALL (1.6m HIGH) WITH ASSOCIATED GUARD RAIL. DETAILS TO BE PROVIDED AT CC STAGE

A1
FFL59.5

A1
FFL59.5

PROPOSED/EXISTING BUILDING NAME AND FINISHED FLOOR LEVEL, m AHD

ABORIGINAL HERITAGE PAD 1

ABORIGINAL HERITAGE PAD 2

ABORIGINAL HERITAGE PAD 3

ABORIGINAL (AHIMS) SITES

BE X.Xm
NS X.Xm

DENOTES PROPOSED BULK EARTHWORKS LEVELS (BE) AND NATURAL/EXISTING SURFACE LEVEL (NS), m AHD.

DEPTH OF CUT

- 4.0m TO - 3.0m

- 3.0m TO - 2.0m

- 2.0m TO - 1.0m

- 1.0m 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 1.0m

1.0m TO 2.0m

2.0m TO 3.0m

3.0m TO 4.0m

SITE CUT & FILL QUANTITIES	
TOTAL CUT	8,220 m³
TOTAL FILL	24,500 m³
BALANCE	16,280 m³ (REQUIRED IMPORT)

- NOTES**
1. EARTHWORKS VOLUMES ARE INDICATIVE ONLY BASED ON PRELIMINARY SITE GRADING

2. EARTHWORKS DEPTHS AND QUANTITIES SHOWN ARE BETWEEN THE EXISTING NATURAL SURFACE AND THE INDICATIVE BULK/SUBGRADE SURFACE LEVELS. STRIPPING OF ANY TOPSOIL HAS NOT BEEN ACCOUNTED FOR. INDICATIVE SURFACE DEPTHS:

2.1. ROAD PAVEMENT DEPTH = 450mm

2.2. BUILDING PAD DEPTH = 150mm

1. BULKING FACTORS NOT CONSIDERED IN REPORTED VOLUMES.

2. CUT/FILL QUANTITIES DO NOT ACCOUNT FOR STORMWATER OR UTILITY SERVICE TRENCHING (SUBSOIL, ELECTRICAL, IRRIGATION, HYDRAULIC, SEWER ETC), FOOTINGS OR OTHER DETAILED EXCAVATION, SUCH AS RETAINING WALL/ON SITE DETENTION TANK BACKFILL WALL AREAS.

3. CUT/FILL QUANTITIES DO NOT ACCOUNT FOR STORMWATER BASIN/CHANNEL EXCAVATION.

4. BULK EARTHWORKS LEVELS AND CUT/FILL QUANTITIES DO NOT ACCOUNT FOR SUB-GRADE REPLACEMENT OR REMOVAL OF UNSUITABLE MATERIAL.

5. ABORIGINAL HERITAGE MAPPING SHOWN HAS BEEN PROVIDED BY SHAC 10TH OCTOBER 2021

6. 1% AEP DEVELOPED CASE FLOOD EXTENT PROVIDED BY BMT 10th DECEMBER 2021

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DISCUSSION	GW		RD	26.11.21
2	ISSUED FOR APPROVAL	JR	CP	GW	16.12.21
3	ISSUED FOR APPROVAL	JR	CP	GW	16.01.22
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22
5	ISSUED FOR APPROVAL	JS	CP	GW	31.05.22

ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION

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

SHAC

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SCALE 1:1000 @ A1

01020304050m

NORTHROP

Newcastle

Level 1, 215 Pacific Hwy, Charlestown NSW 2290

Ph (02) 4943 1777 Email newcastle@northrop.com.au

ABN 81 094 433 100

PROJECT

ST PHILIP'S CHRISTIAN COLLEGE
10 LOMAS LANE, NULKABA
NSW 2325

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

CONCEPT EARTHWORKS PLAN - SHEET 2

DRAWING NUMBER

DA-C04.02

REVISION

5

DRAWING SHEET SIZE = A1

VERIFIER: C PIPER

JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

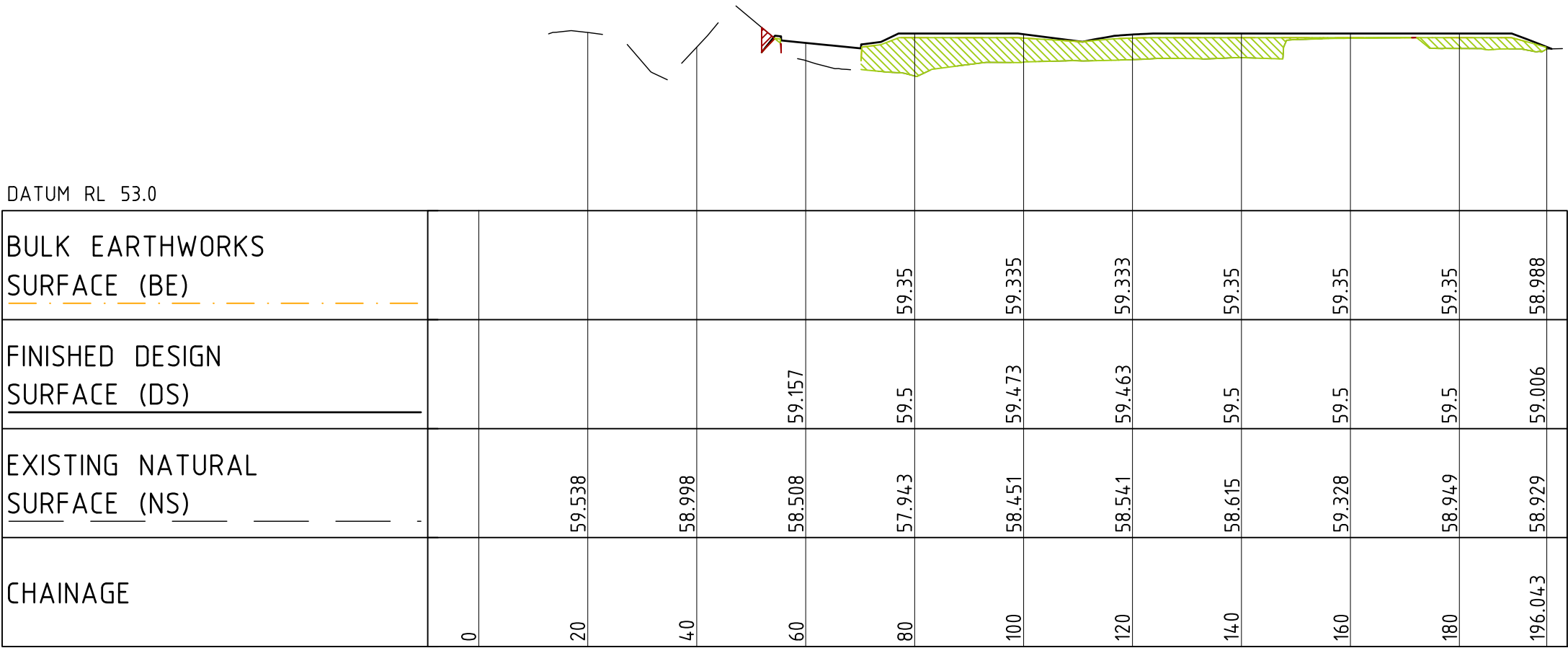
DRAWN: R DIERCKE

VERIFIER: C PIPER

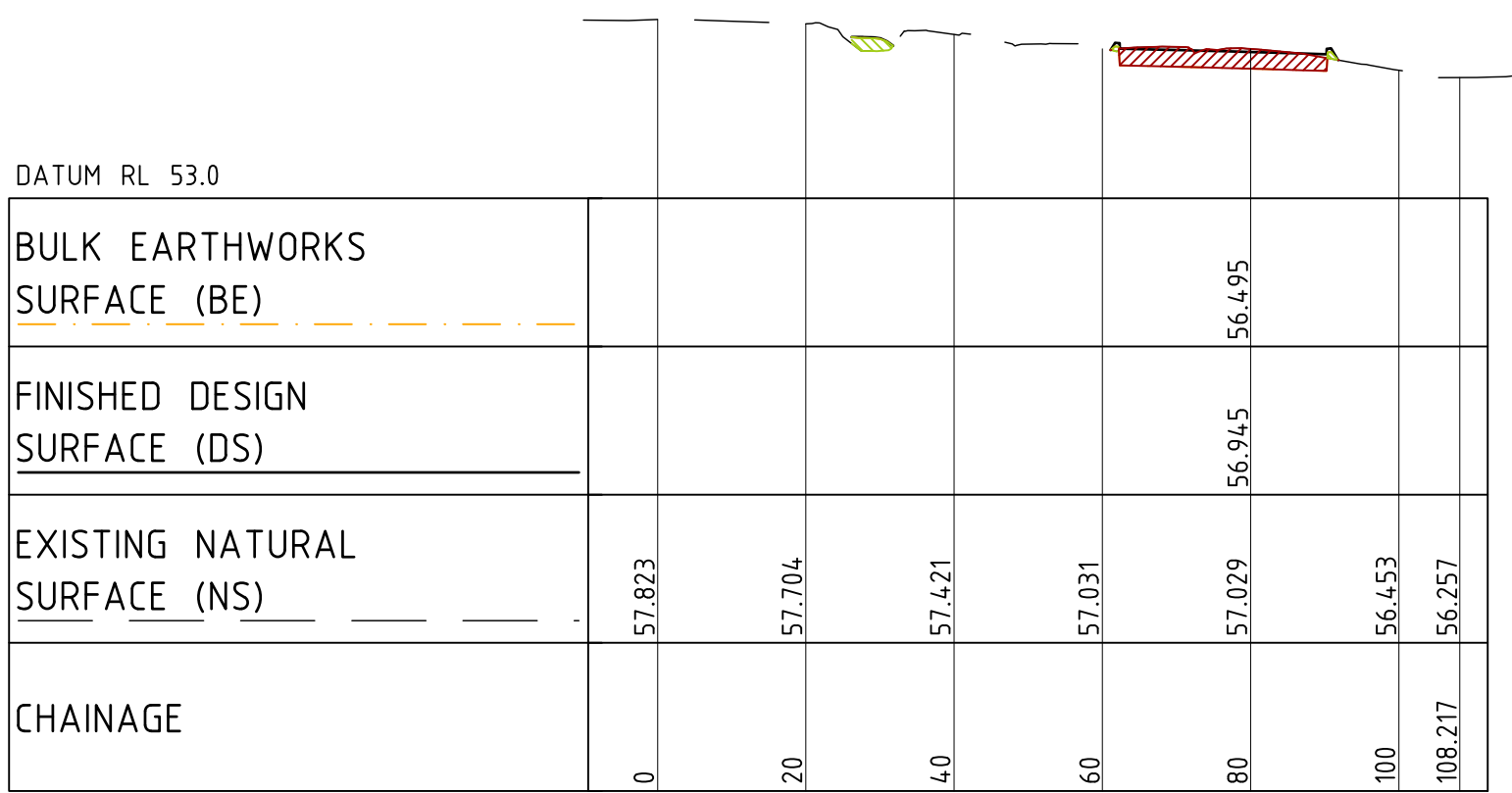
JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

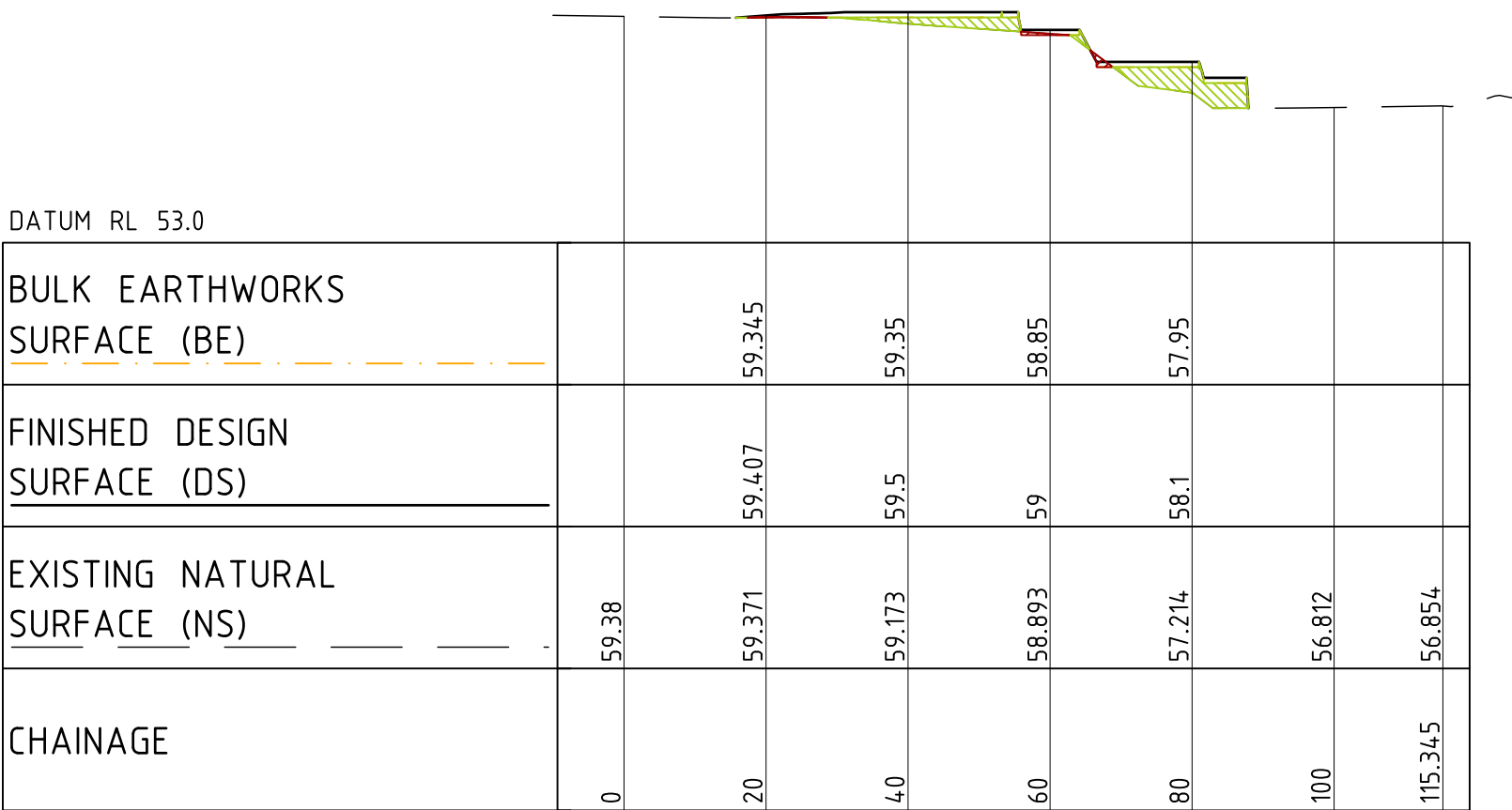
DRAWN: R DIERCKE



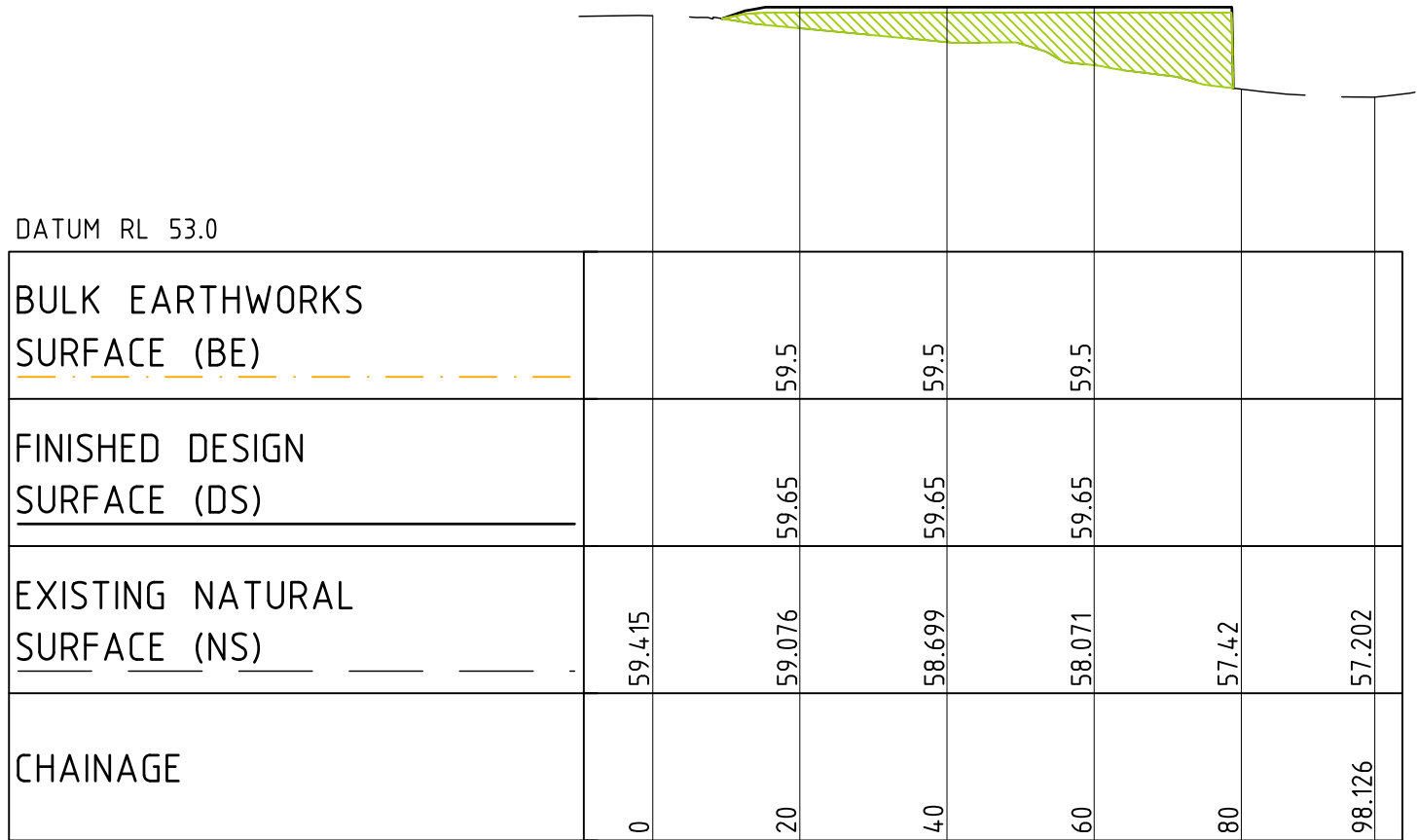
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LONGITUDINAL SECTION ALONG 02
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:200@A1



LONGITUDINAL SECTION ALONG 03
HORIZONTAL SCALE 1:1000@A1
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LONGITUDINAL SECTION ALONG 04
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:200@A1

NOT FOR CONSTRUCTION

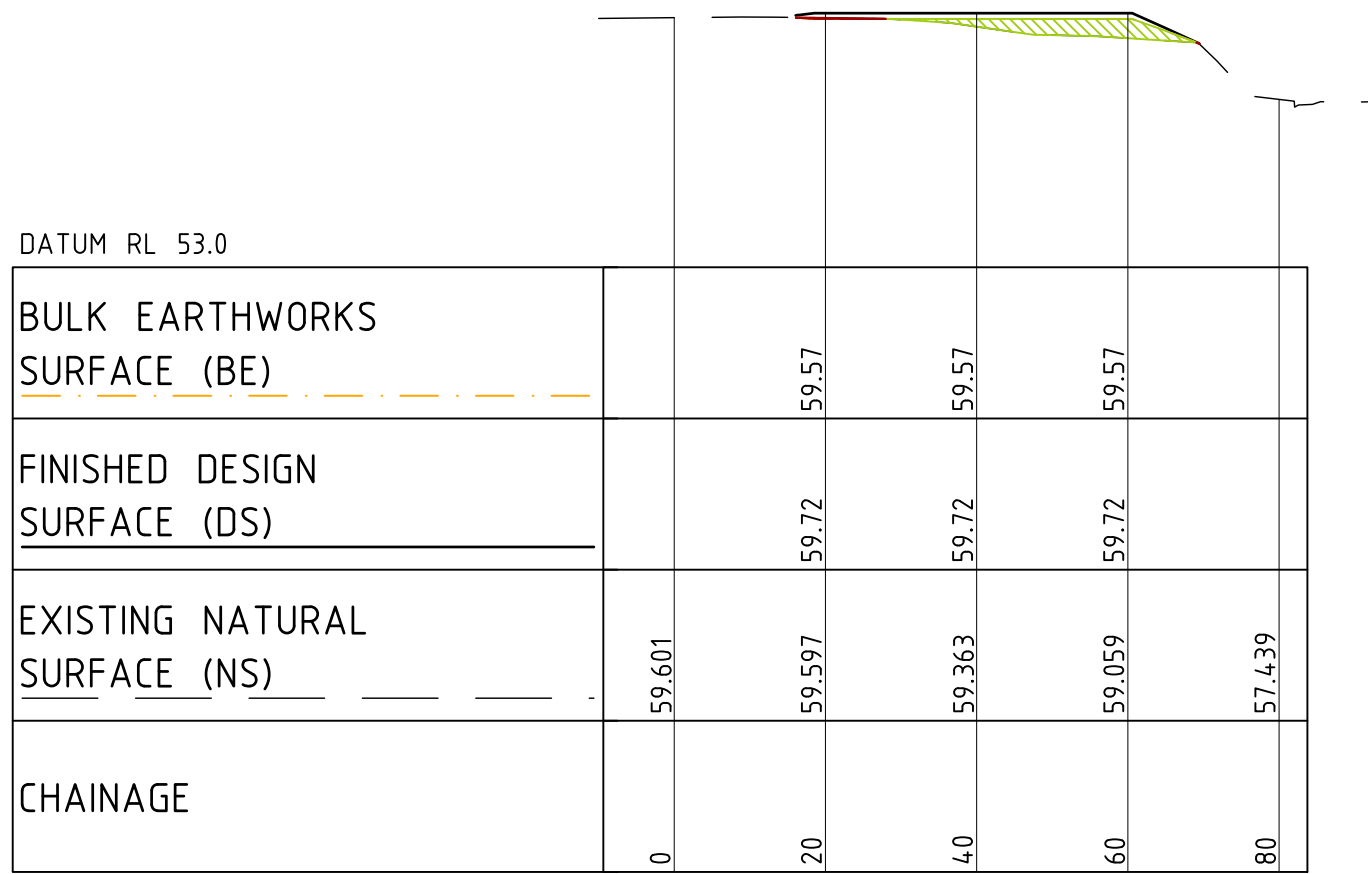
REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.		PROJECT	DRAWING TITLE	JOB NUMBER
1	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC	 Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100		ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397
						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	SCALE 1:500@A1 0 5 10 15 20 25m SCALE 1:100@A1 0 1 2 3 4 5m			EARTHWORKS SITE SECTIONS - SHEET 1	DRAWING NUMBER DA-C04.11 REVISION 1
DRAWING SHEET SIZE = A1												

VERIFIER: C PIPER

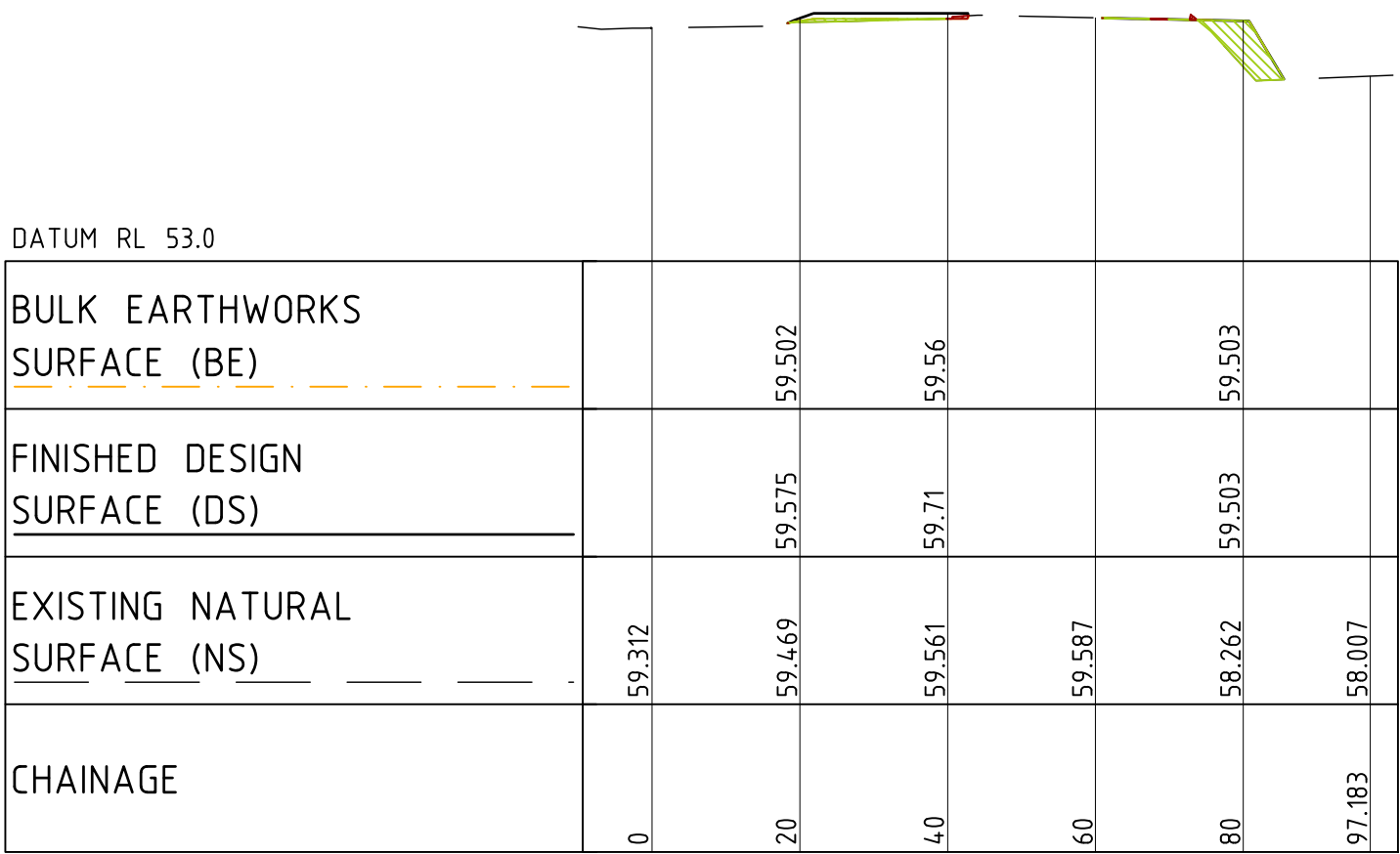
JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

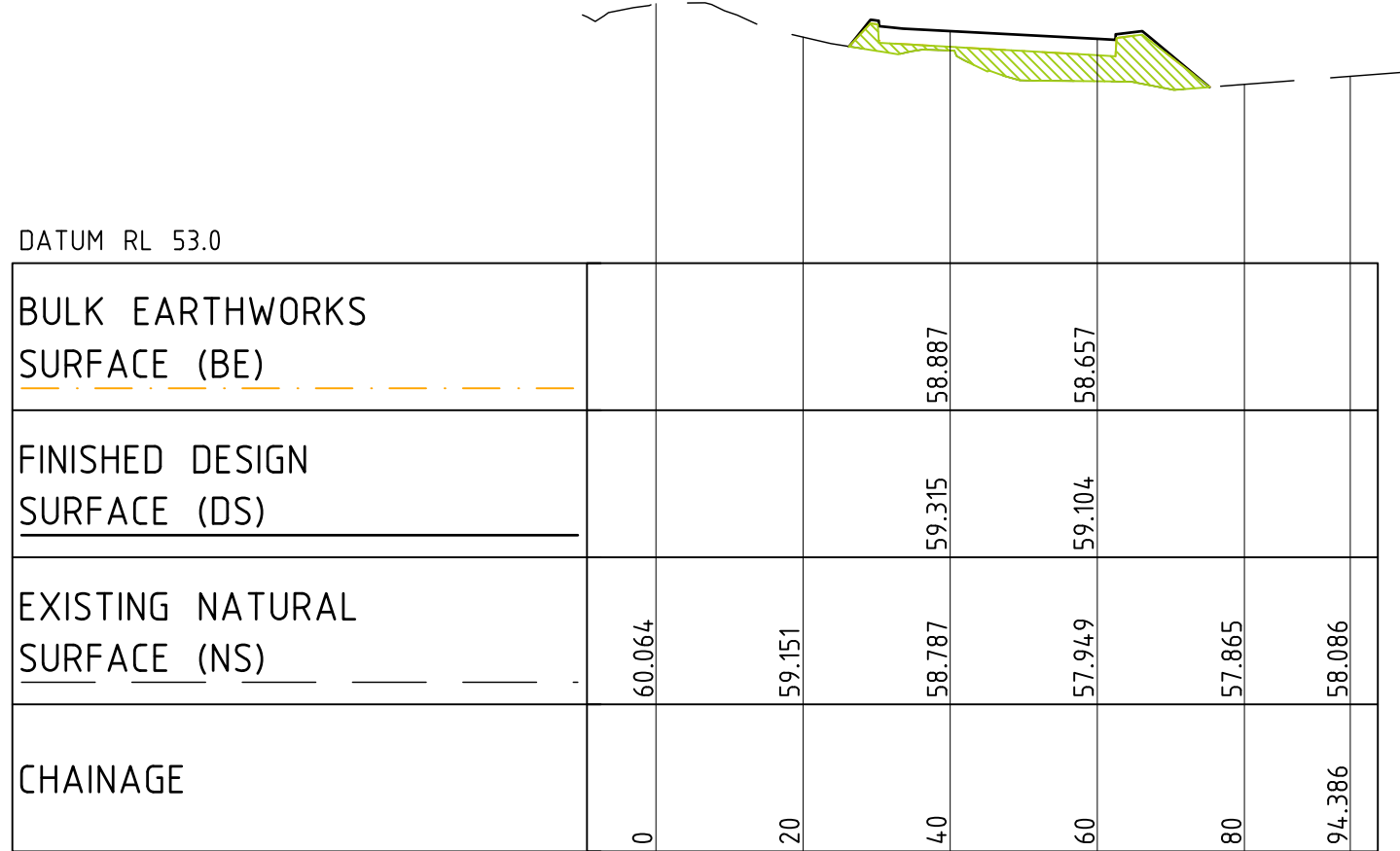
DRAWN: R DIERCKE



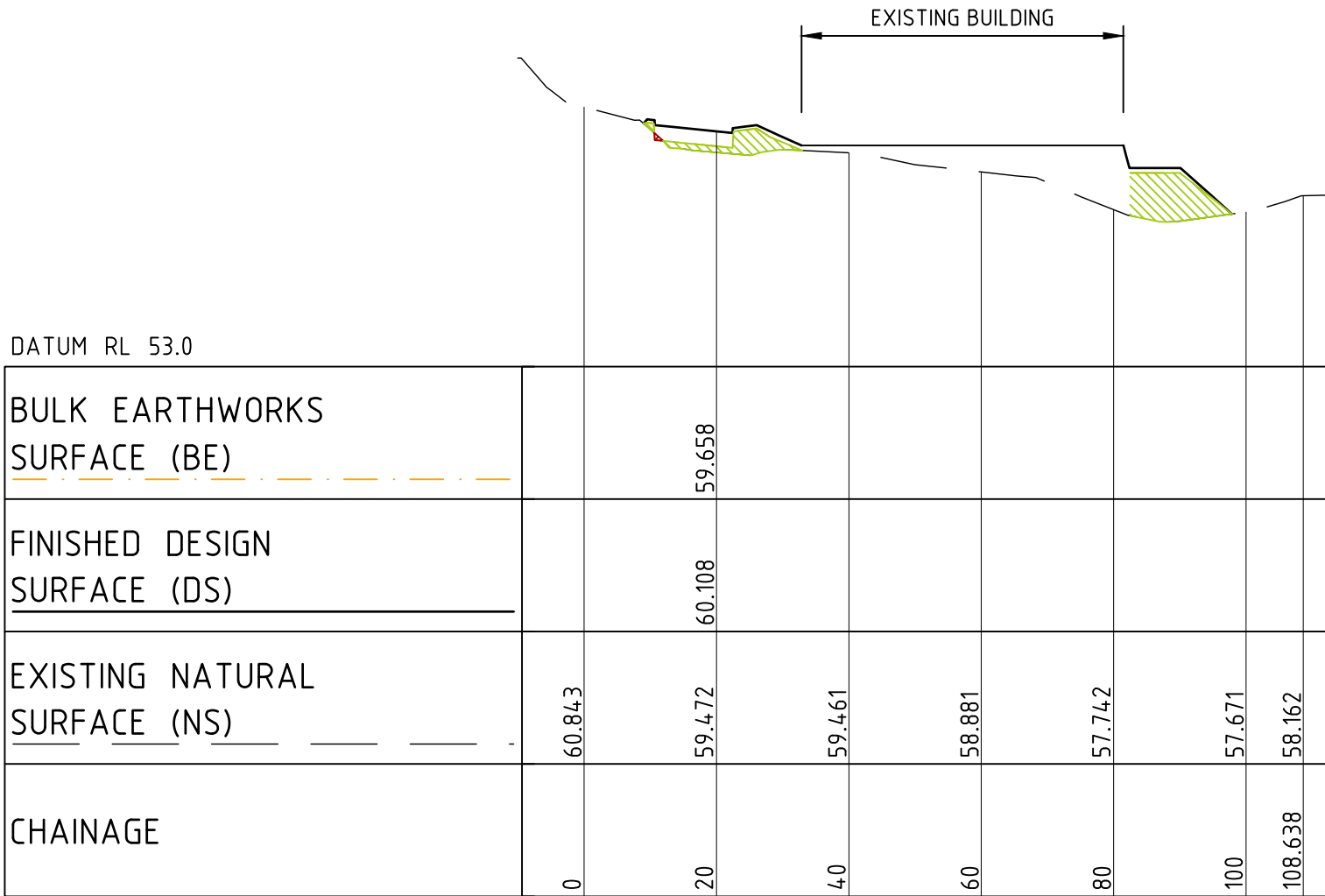
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LONGITUDINAL SECTION ALONG 06
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VERTICAL SCALE 1:200@A1



LONGITUDINAL SECTION ALONG 07
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:200@A1



LONGITUDINAL SECTION ALONG 08
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:200@A1

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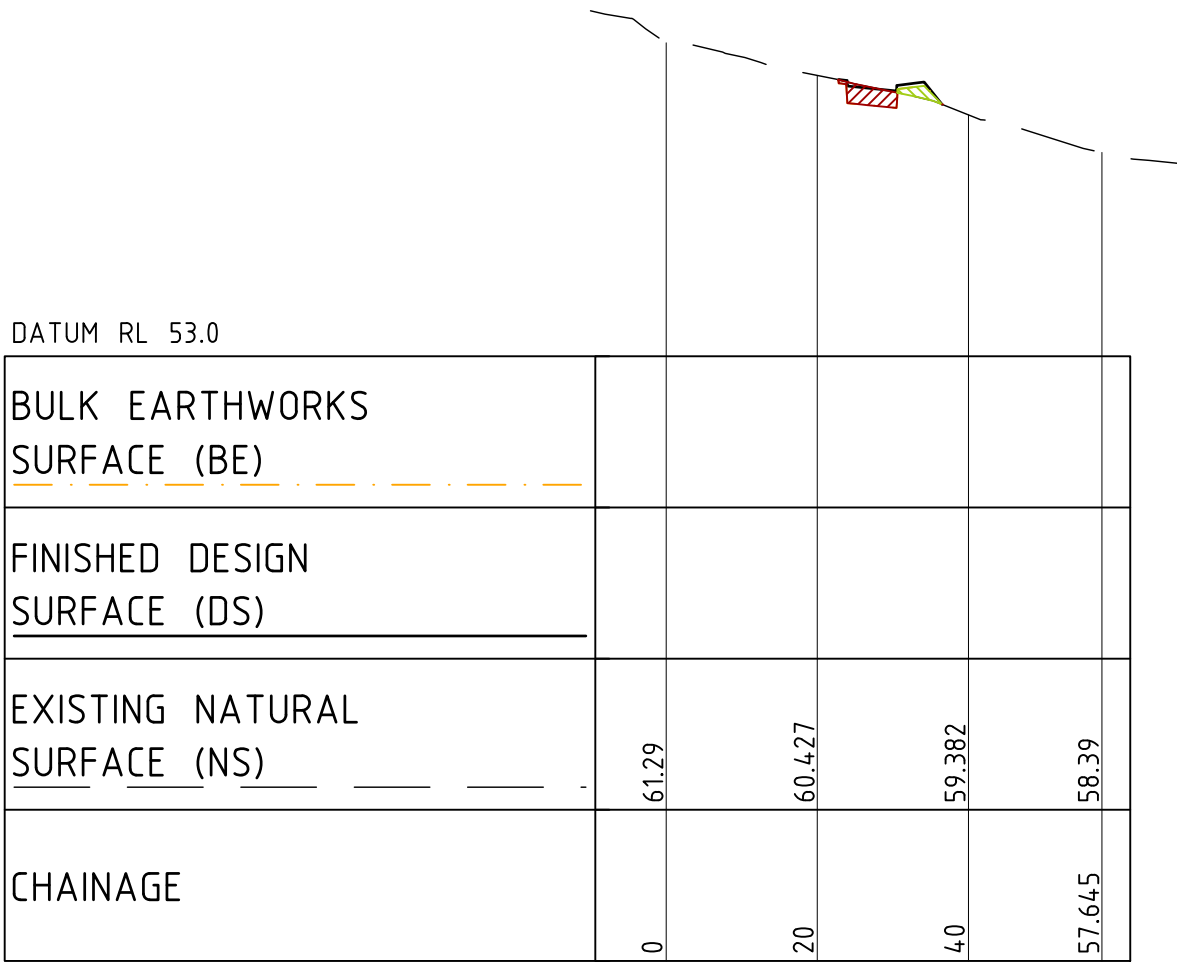
REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.		PROJECT	DRAWING TITLE	JOB NUMBER	
1	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC		Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397	
						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	SCALE 1:500@A1 SCALE 1:100 @A1			EARTHWORKS SITE SECTIONS - SHEET 2	DRAWING NUMBER DA-C04.12	REVISION 1
DRAWING SHEET SIZE = A1													

VERIFIER: C PIPER

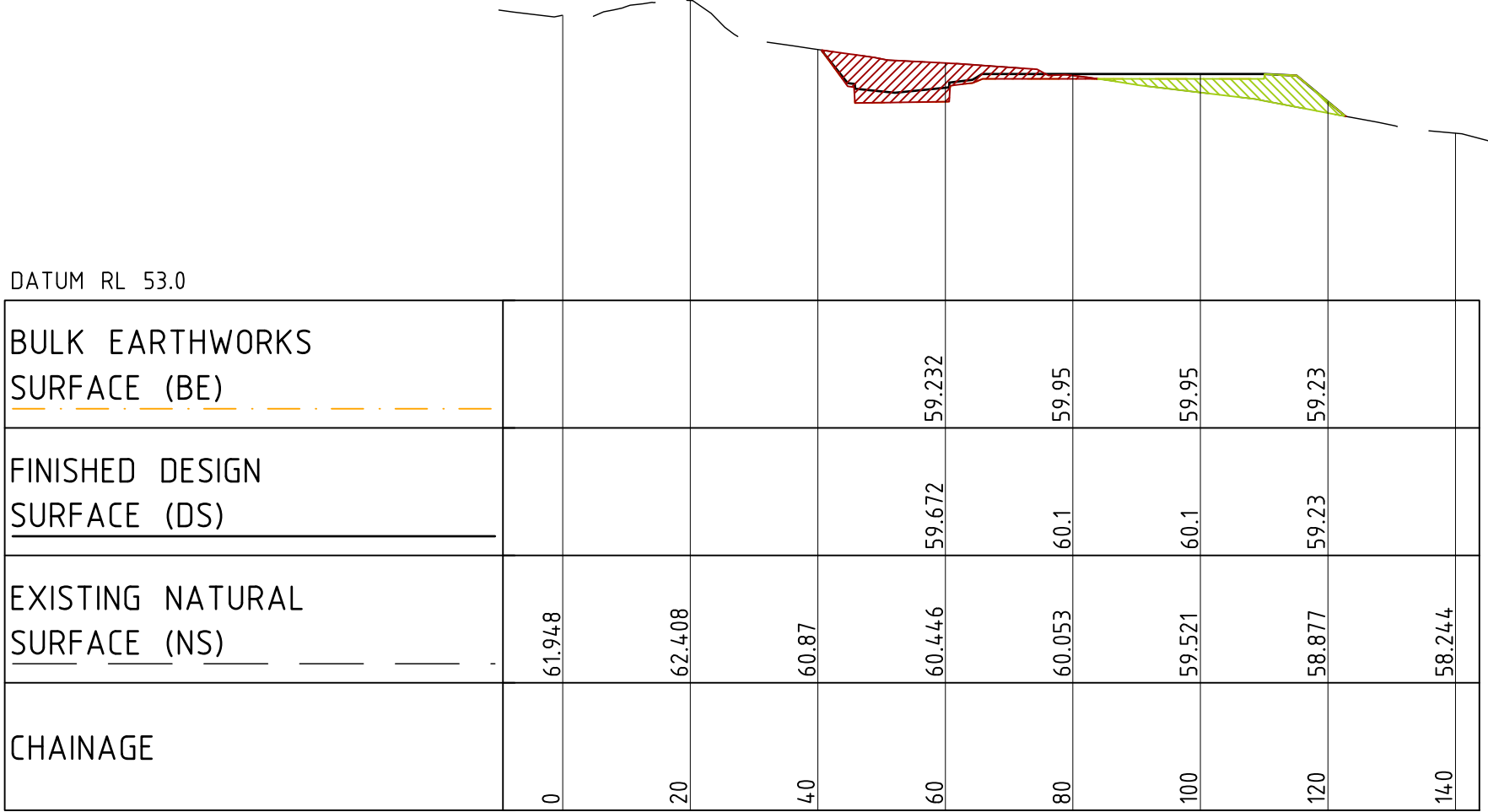
JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

DRAWN: R DIERCKE



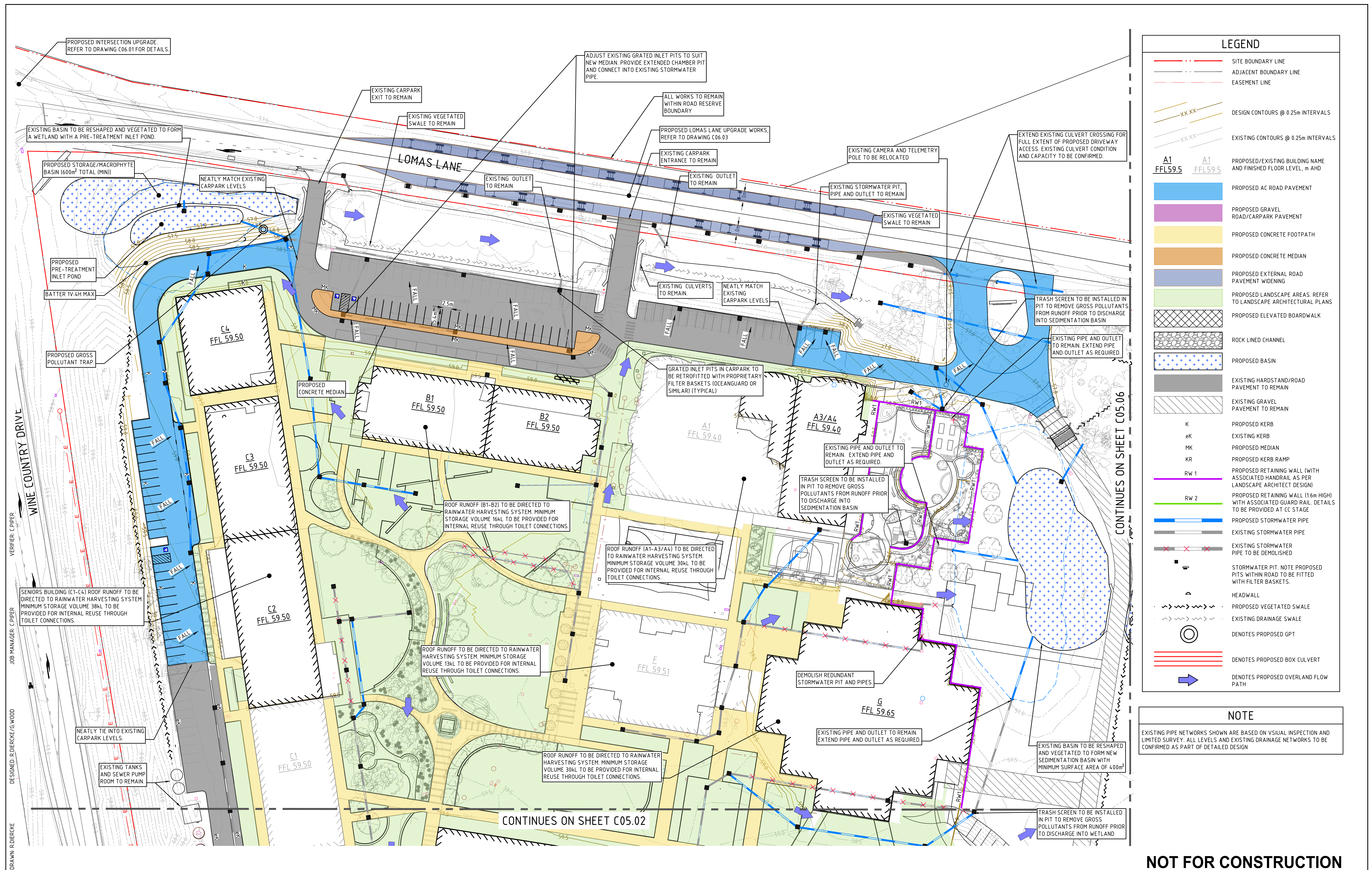
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VERTICAL SCALE 1:200@A1



LONGITUDINAL SECTION ALONG 10
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:200@A1

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
1	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE EARTHWORKS SITE SECTIONS - SHEET 3	NL167397
						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	Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100		DRAWING NUMBER DA-C04.13
										REVISION 1
DRAWING SHEET SIZE ± A1										



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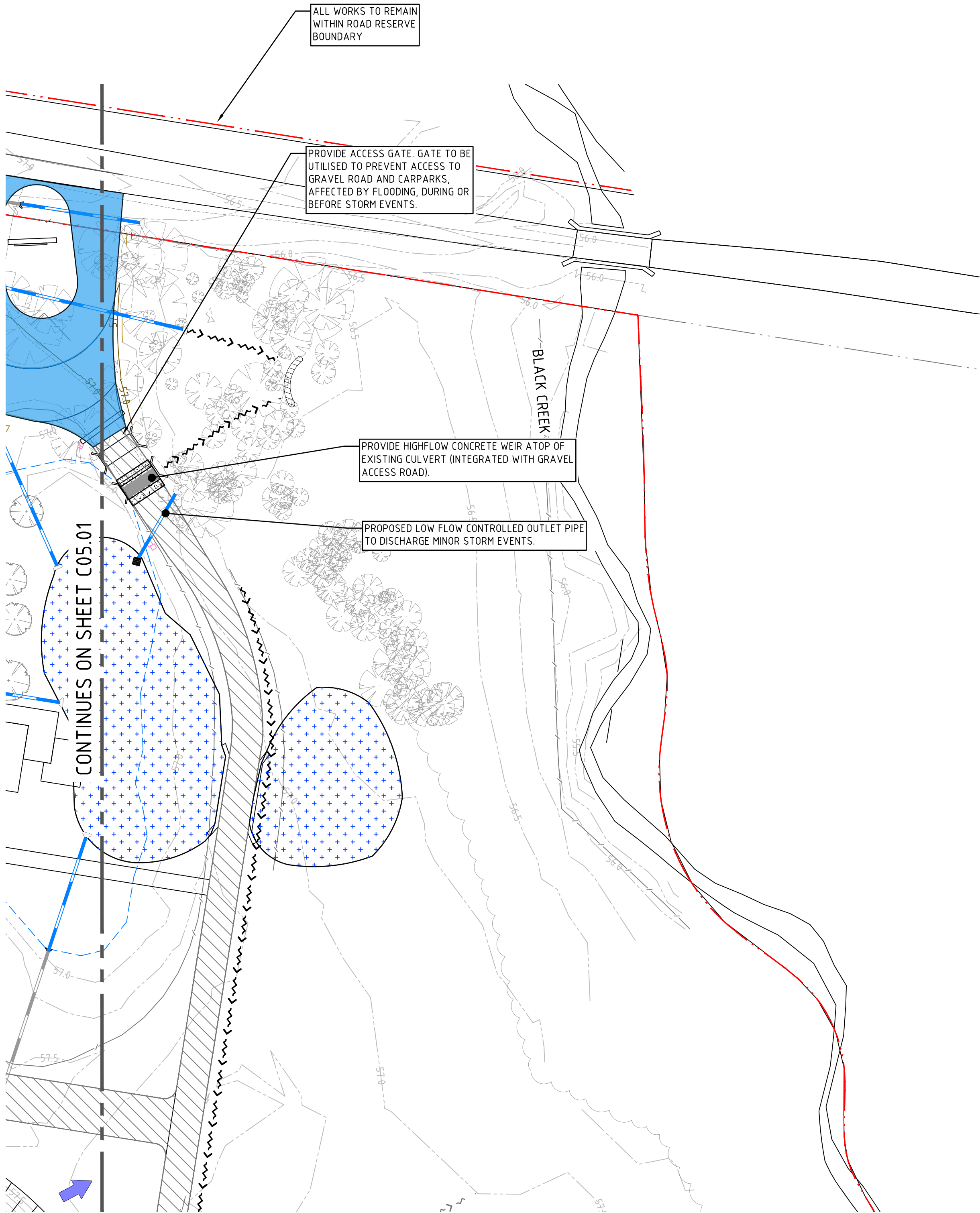
REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER						
1	ISSUED FOR DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC	 ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397						
2	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21							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	SCALE 1:500 @ A1 	Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 1	DRAWING NUMBER DA-C05.01 REVISION 6 DRAWING SHEET SIZE = A1
3	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22												
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22												
5	ISSUED FOR APPROVAL	JS	CP	GW	30.09.22												
6	ISSUED FOR APPROVAL	RK	CP	GW	06.10.22												

VERIFIER: C PIPER

JOB MANAGER: C PIPER

DESIGNED: R DIERCKE / G WOOD

DRAWN: R DIERCKE

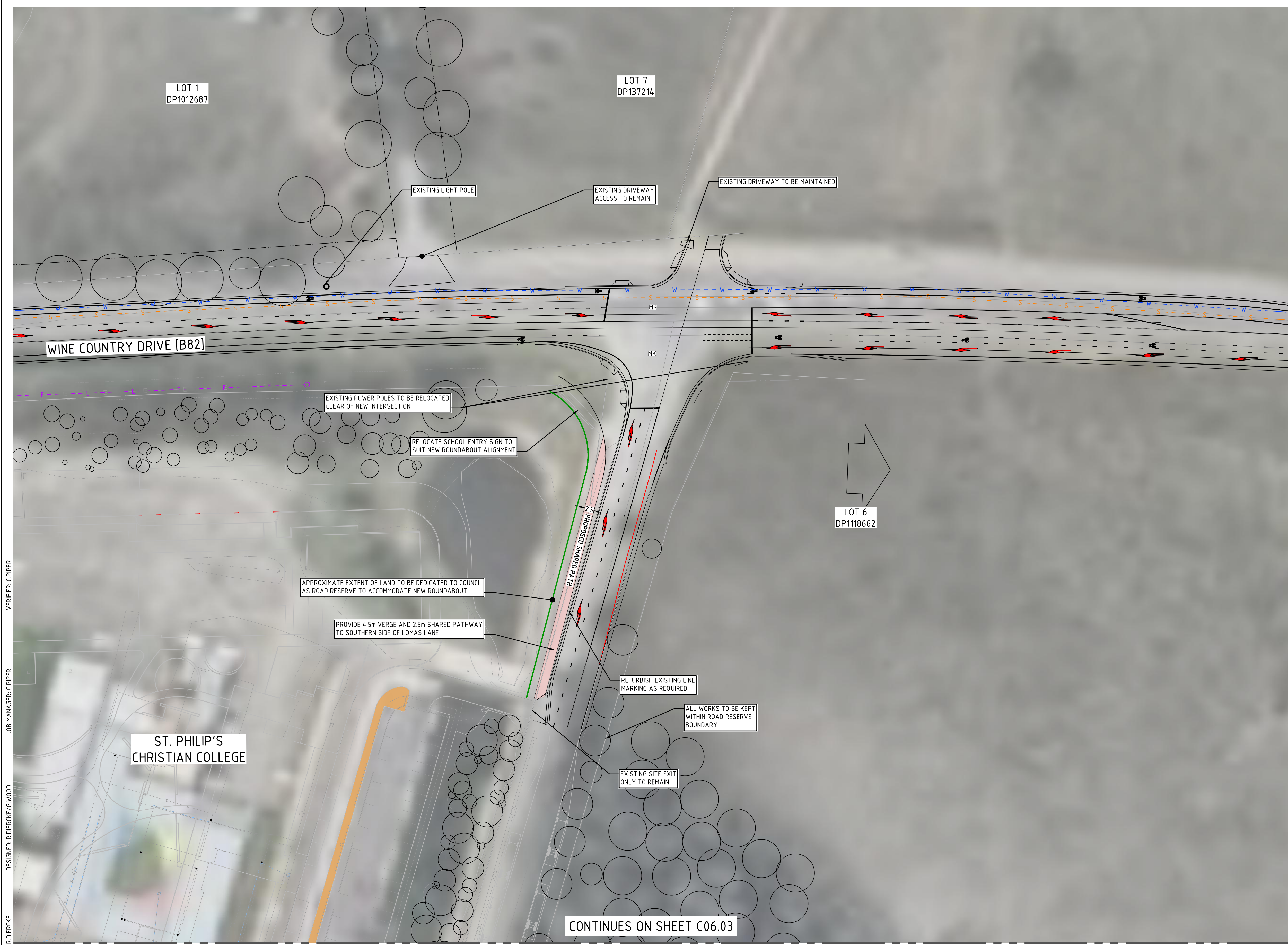


LEGEND

- SITE BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- EASEMENT LINE
- DESIGN CONTOURS @ 0.25m INTERVALS
- EXISTING CONTOURS @ 0.25m INTERVALS
- PROPOSED/EXISTING BUILDING NAME AND FINISHED FLOOR LEVEL, m AHD
- PROPOSED AC ROAD PAVEMENT
- PROPOSED GRAVEL ROAD/CARPARK PAVEMENT
- PROPOSED CONCRETE FOOTPATH
- PROPOSED CONCRETE MEDIAN
- PROPOSED EXTERNAL ROAD PAVEMENT WIDENING
- PROPOSED LANDSCAPE AREAS. REFER TO LANDSCAPE ARCHITECTURAL PLANS
- PROPOSED ELEVATED BOARDWALK
- ROCK LINED CHANNEL
- PROPOSED BASIN
- EXISTING HARDSTAND/ROAD PAVEMENT TO REMAIN
- EXISTING GRAVEL PAVEMENT TO REMAIN
- PROPOSED KERB
- EXISTING KERB
- PROPOSED MEDIAN
- PROPOSED KERB RAMP
- PROPOSED RETAINING WALL (WITH ASSOCIATED HANDRAIL AS PER LANDSCAPE ARCHITECT DESIGN)
- PROPOSED RETAINING WALL (1.6m HIGH) WITH ASSOCIATED GUARD RAIL. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER PIPE TO BE DEMOLISHED
- STORMWATER PIT. NOTE PROPOSED PITS WITHIN ROAD TO BE FITTED WITH FILTER BASKETS.
- HEADWALL
- PROPOSED VEGETATED SWALE
- EXISTING DRAINAGE SWALE
- DENOTES PROPOSED GPT
- DENOTES PROPOSED BOX CULVERT
- DENOTES PROPOSED OVERLAND FLOW PATH

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	SCALE 1:500@A1	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 DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC	0 5 10 15 20 25m		ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397
2	ISSUED FOR APPROVAL	JR	CP	GW	16.12.21							
3	ISSUED FOR APPROVAL	JR	CP	GW	16.01.22							
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22							
5	ISSUED FOR APPROVAL	JS	CP	GW	30.09.22							
						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				CONCEPT STORMWATER MANAGEMENT AND LEVELS PLAN - SHEET 6	DRAWING NUMBER DA-C05.06
												REVISION 5
												DRAWING SHEET SIZE = A1



LEGEND	
	SITE BOUNDARY LINE
	ADJACENT BOUNDARY LINE
	CADASTRE BOUNDARY LINE
	EASEMENT LINE
	PROPOSED FLEXIBLE AC PAVEMENT
	PROPOSED CONCRETE PAVEMENT
	PROPOSED RAISED/MOUNTABLE CONCRETE ANNULUS
	PROPOSED CONCRETE MEDIAN
	PROPOSED EDGE OF BITUMEN
	EXISTING EDGE OF BITUMEN
	PROPOSED LINEMARKING
	APPROXIMATE LAND RESUMPTION REQUIRED
	DENOTES EXISTING WATER
	DENOTES EXISTING SEWER
	DENOTES EXISTING GAS
	DENOTES EXISTING ELECTRICAL
	PROPOSED GUARD RAIL EXTENSION

NOTES	
1.	INTERSECTION DESIGN BASED ON RECOMMENDATION IN TRANSPORT AND ACCESSIBILITY IMPACT ASSESSMENT PREPARED BY GTA CONSULTANTS REFERENCE 3014-00263 (N207200) DATED 19.10.21
2.	INTERSECTION GEOMETRY BASED ON A 80 km/hr DESIGN SPEED (70 km/hr SIGN POSTED PLUS 10km/hr).
3.	ROUNDAABOUT NORTH-SOUTH THROUGH LANES ALONG WINE COUNTRY DRIVE HAVE BEEN SIZED FOR A STATE ROAD / B-DOUBLE (26m LONG). LOMAS LANE LEG AND CIRCULATION IS SIZED FOR A HRV (12.5m LONG)
4.	ROUNDAABOUT GEOMETRY HAS GENERALLY BEEN DESIGNED IN ACCORDANCE WITH AUSROADS GUIDE TO ROAD DESIGN - PART 4B
5.	BOUNDARY INFORMATION HAS BEEN OBTAINED FROM SIX MAPS CADASTRE

VERIFIER: C PIPER
JOB MANAGER: C PIPER
DESIGNED: R DIERCKE / G WOOD
DRAWN: R DIERCKE

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
2	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21
3	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22
5	ISSUED FOR APPROVAL	JS	CP	GW	30.09.22
6	ISSUED FOR APPROVAL	RK	CP	GW	06.10.22
7	ISSUED FOR APPROVAL	CA	CP	GW	06.06.24

CLIENT	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	

ARCHITECT	SHAC
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SCALE 1:500@A1

Newcastle

Level 1, 215 Pacific Hwy, Charlestown NSW 2290
Ph (02) 4943 1777 Email newcastle@northrop.com.au
ABN 81 094 433 100

PROJECT	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325
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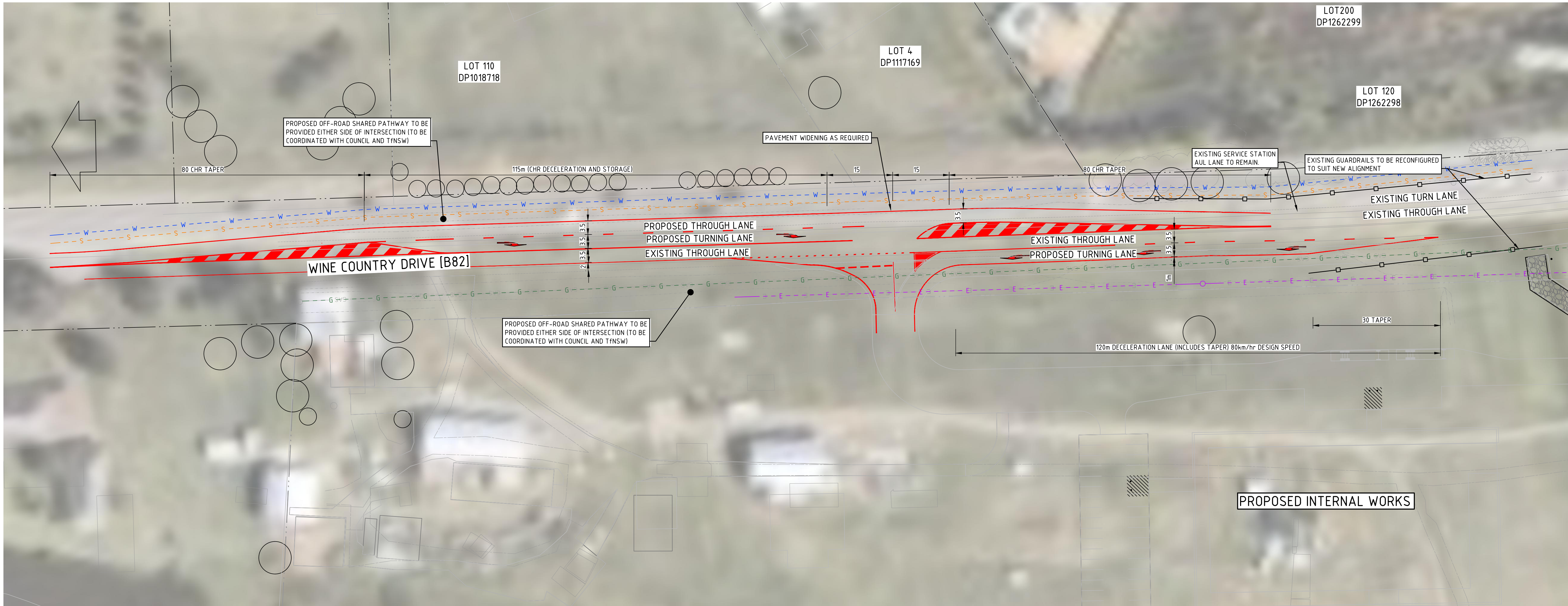
DRAWING TITLE	CIVIL ENGINEERING PACKAGE
	CONCEPT INTERSECTION DESIGN - NORTH ENTRANCE

DRAWING NUMBER	REVISION
NL167397	
DA-C06.01	7
DRAWING SHEET SIZE = A1	

NOT FOR CONSTRUCTION

NOTES	
1.	INTERSECTION GEOMETRY BASED ON A 80 km/hr DESIGN SPEED (70 km/hr SIGN POSTED PLUS 10km/hr).
2.	CHR LEFT/RIGHT IN AND OUT HAS BEEN SIZED FOR A HRV (12.5m LONG) DESIGN VEHICLE
3.	INTERSECTION GEOMETRY HAS BEN SIZED IN ACCORDANCE WITH AUSROADS GUIDE TO ROAD DESIGN - PART 4 AND 4A

LEGEND	
	SITE BOUNDARY LINE
	ADJACENT BOUNDARY LINE
	CADASTRE BOUNDARY LINE
	EASEMENT LINE
	PROPOSED FLEXIBLE AC PAVEMENT
	PROPOSED CONCRETE PAVEMENT
	PROPOSED RAISED/MOUNTABLE CONCRETE ANNULUS
	PROPOSED CONCRETE MEDIAN
	PROPOSED EDGE OF BITUMEN
	EXISTING EDGE OF BITUMEN
	PROPOSED LINEMARKING
	APPROXIMATE LAND RESUMPTION REQUIRED
	DENOTES EXISTING WATER
	DENOTES EXISTING SEWER
	DENOTES EXISTING GAS
	DENOTES EXISTING ELECTRICAL
	PROPOSED GUARD RAIL EXTENSION



NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER		
1	ISSUED FOR DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION	SHAC	 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.	 NORTHROP Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE CONCEPT INTERSECTION DESIGN - SOUTH ENTRANCE	NL167397	
2	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21							DRAWING NUMBER	REVISION
3	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22								
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22								
5	ISSUED FOR APPROVAL	RK	CP	GW	06.10.22								
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		SCALE 1:500@A1		DRAWING SHEET SIZE = A1			

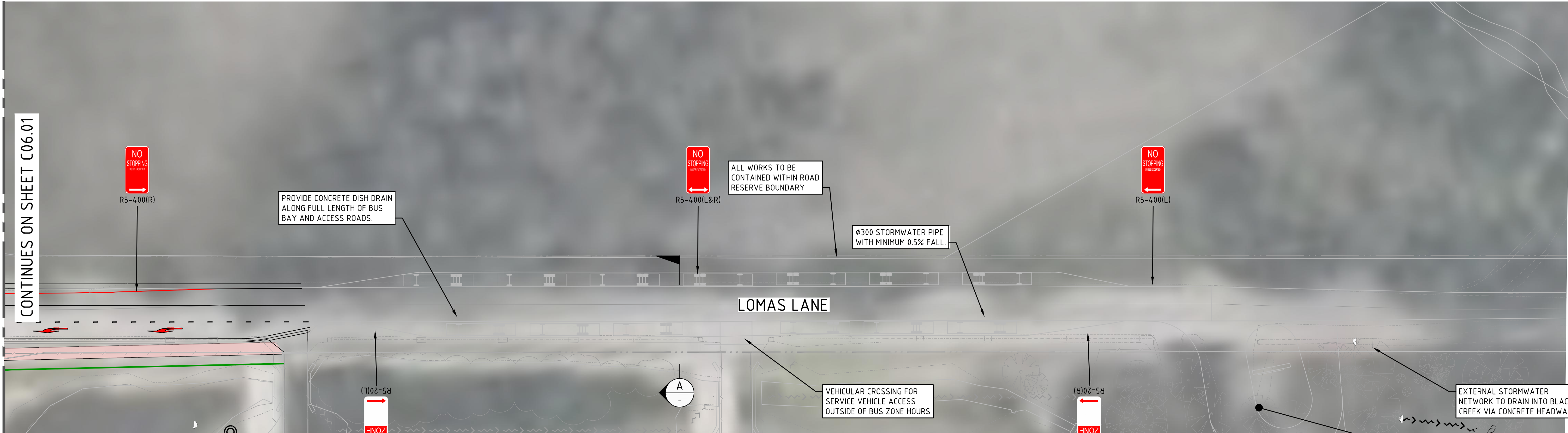
VERIFIER: C PIPER

JOB MANAGER: C PIPER

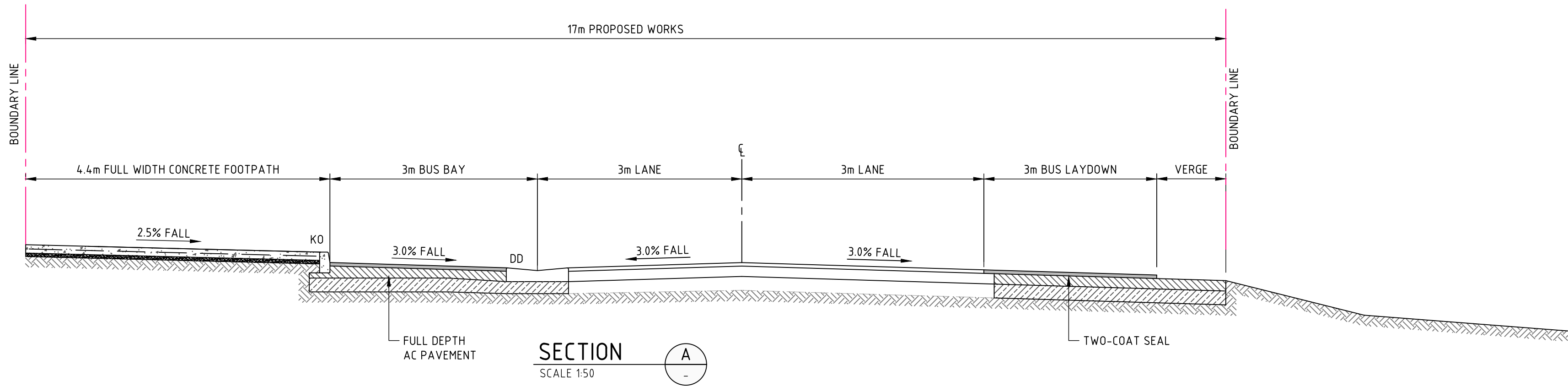
DESIGNED: R DIERCKE / G WOOD

DRAWN: R DIERCKE

CONTINUES ON SHEET C06.01



LEGEND	
	PROPOSED LINEMARKING
	PROPOSED FLEXIBLE AC PAVEMENT
	EXISTING EDGE OF BITUMEN
	PROPOSED GUARDRAIL
	EXISTING GUARDRAIL
	PROPOSED RETAINING WALL
	PROPOSED LINEMARKING



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1	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION				 NORTHROP Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE PROPOSED LOMAS LANE UPGRADE	NL167397	DA-C06.03	5
2	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22										
3	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22										
4	ISSUED FOR APPROVAL	JS	CP	GW	30.09.22										
5	ISSUED FOR APPROVAL	JS	CP	GW	12.10.22										
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									



1. THE SUBGRADE SHALL BE FREE FROM ROCKS, CLODS, VEGETATION AND IMPRINTS OF ANY SIGNIFICANT SIZE SO THAT THE GEOTEXTILE WILL HAVE DIRECT CONTACT WITH THE SOIL SURFACE
2. ENSURE EACH ROL IS ANCHORED PROPERLY AT ITS UPSLOPE END VIA KEYING UNDER THE CONCRETE KEY.
3. LAY GEOTEXTILE IN SINGLE-FASHION, WITH THE END OF EACH UPSTREAM ROLL OVERLAPPING THOSE DOWNSTREAM. ALL OVERLAPS SHOULD BE A MINIMUM 300mm AVOID STRETCHING OF THE GEOTEXTILE DURING INSTALLATION.
4. PLACE ROCK CAREFULLY onto the GEOTEXTILE TO AVOID POSSIBLE RIPPING OF THE GEOTEXTILE. THE PLACEMENT OF SMALLER ROCKS FIRST CAN PROTECT THE GEOTEXTILE FOR SUBSEQUENT LARGE ROCK PLACEMENT. ROCK SHOULD BE PLACED AT A DEPTH SO THAT THE TOP LAYER OF THE ROCK SITS AT OR SLIGHTLY BELOW THE GROUND SURFACE.
5. THE ROCK PLACED SHOULD NOT BE SINGLE SIZED, BUT SHOULD BE A WELL GRADED MIXTURE DESIGNED TO ENSURE THAT ALL GAPS BETWEEN LARGE ROCKS ARE FILLED WITH ROCK OF PROGRESSIVELY SMALLER SIZE SO THAT NO SIGNIFICANT VOIDS OCCUR IN THE RIP-RAP BLANKET.
6. THE ROCK FOR RIP-RAP SHOULD BE HARD, TOUGH AND DURABLE WITH A CRUSHING STRENGTH OF AT LEAST 25MPa.
7. STONE PLACEMENT SHALL BE UNDERTAKEN TO ENSURE ROCKS ARE INTERLOCKED AND NO SIGNIFICANT VOIDS EXIST.



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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER
1	ISSUED FOR DISCUSSION	GW		RD	26.11.21	ST PHILIP'S CHRISTIAN EDUCATION FOUNDATION		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. 	ST PHILIP'S CHRISTIAN COLLEGE 10 LOMAS LANE, NULKABA NSW 2325	CIVIL ENGINEERING PACKAGE	NL167397
2	ISSUED FOR APPROVAL	JR	CP	GW	14.12.21						
3	ISSUED FOR APPROVAL	JR	CP	GW	14.01.22						
4	ISSUED FOR APPROVAL	JS	CP	GW	06.05.22						
						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	NOT TO SCALE		CIVIL DETAILS	
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