

12/12/2022

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Project reference: 12260-01

Dear Matthew,

Eurobodalla Soil Conservation Works REF – Civil Technical Report Note

Introduction

This note summarises key Civil considerations to support a Review of Environmental Factors (REF) prepared for Health Infrastructure NSW pursuant to part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the undertaking of soil conservation works and the construction of a new road at Lot 2, DP 1281576, Princes Highway, Moruya.

Site Description

The site of the soil conservation works, and ancillary road works is located on the Princes Highway in the NSW south coast town of Moruya. The site is legally described as Lot 2, DP 1281576 and is a large vacant greenfield site. The soil conservation works will facilitate the ongoing management of the greenfield lot. To the west of the site is Moruya TAFE, and to the north is a small residential subdivision called Mynora Estate.

An aerial figure of the site is shown in **Figure 1** below.



Figure 1 Proposed site location

Proposed Works

The works proposed under this REF include the following:

- Construction of three erosion and sediment basins, ranging between 507m² and 990m² in area.
- Construction of an ancillary road into the site to facilitate construction access into the site.

A further detailed description of the proposed works is contained in the Review of Environmental Factors report prepared by Ethos Urban.

Civil Considerations

Given the site is no longer being used for pastoral grazing, regular maintenance through mowing and slashing will be undertaken on the property which will result in a different erosion risk profile which will be present until the future use and development of the site is resolved. As a result, the proposed works will provide protection in the event that prolonged periods of nil or minimal rainfall and/or the further reduction of vegetation across the site. The works seek to manage this event which would then leave the site in a state where it had the potential to pollute, with unprotected areas subject to erosion risk. The proposed basins are located to capture site runoff from as much of the site as possible.

The works will include roads (to be protected by single size rock to form a stable platform that is less likely to erode), working compounds and turning areas. The proposed layout is shown in Figure 2.

The sizing of the basins was undertaken in accordance with International Erosion Control Association Australasia "Sediment Basin Design and Operation" guidelines.

Basins

The size of basins was based on the following assumptions:

- Located to capture the majority of the site area where possible, but remain outside the 1% AEP flood event extent

[illegible]

The set of Civil drawings is appended to the end of the report.

Flooding

The site is flood affected, as indicated on Eurobodalla Shire Council website. An extract from the Council portal is shown below, with the site shown as a red hatch, PMF flood extent as a red line and a blue line indicating the 1% AEP flood extent.

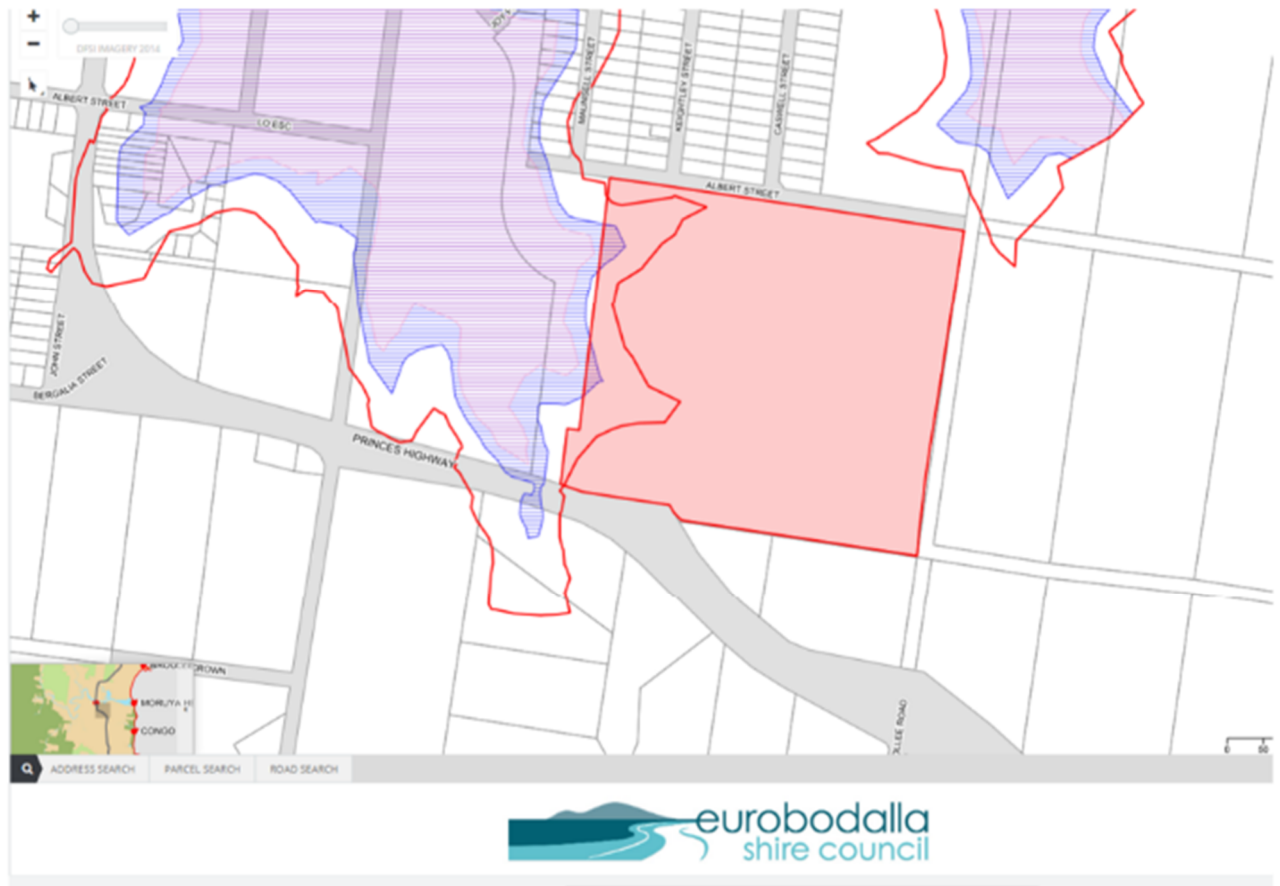


Figure 3 Council Planning Portal Extract

It is noted that the basins are located outside the 1% AEP flood extent but do encroach on land affected by the PMF. This is illustrated in Figure 4 below. The PMF flood extent is shown as a cyan line and a green line shows the 1% AEP flood extent.

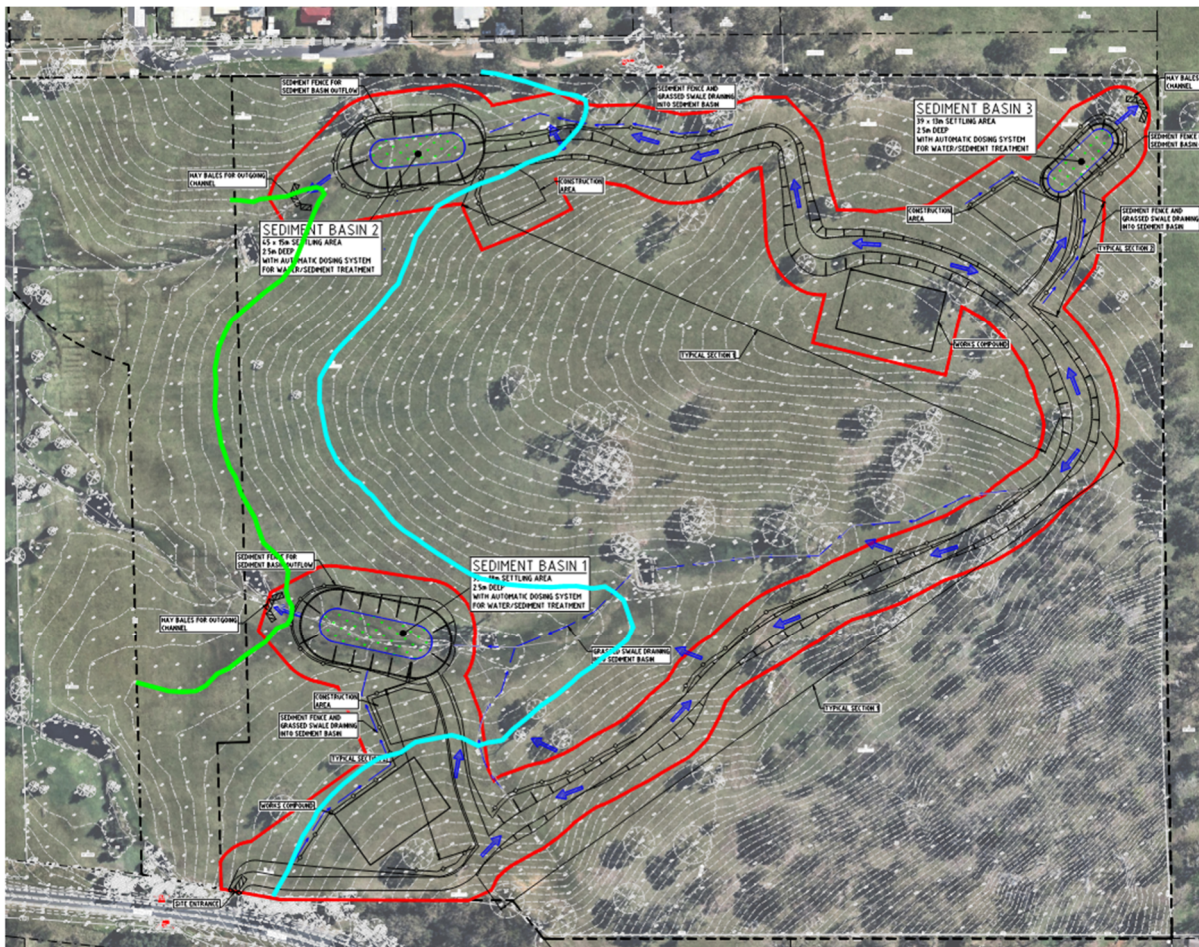


Figure 4 Flood Affection on Works Layout

The impact on flood affection in the PMF event due to the construction of the basins will be insignificant. There would not even be a minor impact on flood patterns, as the loss of flood storage across the floodplain extent as a result of basin construction is negligible (and is only applicable in events less frequent than the 1% AEP event).

Yours sincerely,

A handwritten signature in black ink, appearing to read 'S. Naughton', with a stylized flourish at the end.

Stephen Naughton

MIE Aust NER RPEQ Registered Design Practitioner (NSW)

For

Bonacci Group (NSW) Pty Ltd

13086-01C - SOIL CONSERVATION WORKS

PRINCES HIGHWAY, MORUYA NSW

CIVIL WORKS

DRAWING NO.	DESCRIPTION
ERH-HI-CV-DWG-DD-01-PW-0501	DRAWING REGISTER AND LOCALITY PLAN
ERH-HI-CV-DWG-DD-01-PW-0502	CONSTRUCTION NOTES
ERH-HI-CV-DWG-DD-01-PW-0507	SEDIMENT & EROSION CONTROL PLAN
ERH-HI-CV-DWG-DD-01-PW-0510	BULK EARTHWORKS PLAN
ERH-HI-CV-DWG-DD-01-PW-0521	BULK EARTHWORKS SITE SECTIONS
ERH-HI-CV-DWG-DD-01-PW-0530	SITE WORKS PLAN



LOCALITY PLAN
SCALE 1:1000



Health
Infrastructure

DETERMINED – APPROVAL

REF Approval No: 05/2023

Date: 03/02/2023

Signed by: 

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Project Name SOIL CONSERVATION WORKS PRINCES HWY, MORUYA NSW 2537		REF SUBMISSION	
Designed Drawn Scale Date Sheet	AM DH - NOV 2022 A0	Approved SN Date NOV 2022	North Project Ref Drawing No Rev
Drawing Title DRAWING REGISTER AND LOCALITY PLAN		ERH-HI-CV-DWG-DD-01-PW-0501 B	

1 THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS
2 DRAWING SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SPECIES AS
3 MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO
4 THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

5 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT SAA CODES, BUILDING
6 REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

7 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS
8 AND LEVELS INCLUDING THOSE OF ANY SUCH DRAWINGS SHALL BE IN ACCORDANCE WITH THE
9 ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

10 ALL SET OUT DIMENSIONS AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS MUST
11 BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SET OUT OF THE FORMWORK PITS BY OTHERS.
12 CONTRACTOR TO CONFIRM SET OUT OF SERVICE TRENCH INCLUDING SUBSIDIARY SET OUT.

13 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVE JURISDICTION
14 OVER THE PROJECT AND TO REGISTERED PROFESSIONAL ENGINEER BY JK ENGINEERING PVTY LTD DATED 21st MAY
15 2021 REF: 33942LTp12

16 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF
17 ANY WORK.

18 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT NOT AN
19 ALTERATION OF A CONTRACT VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST
20 VARIATION BEFORE ANY WORK STARTS.

21 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.

22 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS,
23 THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL
24 REQUIREMENTS OF THOSE AUTHORITIES.

25 EXISTING SURFACE OUTLINES, WHERE SHOWN, ARE INTERPRETATED AND MAY NOT BE ACCURATE.

26 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm
27 UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.

28 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

1. IT HAS BEEN ASSUMED THAT HOARDINGS/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
2. ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES AS NEAR as POSSIBLE TO THEIR SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSTREAM LAND AND WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN OR CLOSE BY OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FIELDS (SEE DETAIL) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO DESIGN/SIZE/CONSTRUCT TEMPORARY SEDIMENT BASIN, WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS ALL APPLICABLE REQUIREMENTS PRIOR TO DISCHARGE. ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

1. THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL:
 1. ENSURE THAT DRAINS OPERATE PROPERLY & TO EFFECT ANY NECESSARY REPAIRS
 2. REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m FROM AREAS OF LIKELY CONTAMINATION OR HIGH FLOOD VULNERABILITIES ESPECIALLY WATERWAYS & PAVED AREAS.
 3. REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
 4. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE
 5. CONSTRUCT ADDITIONAL EROSION AND SEDIMENT CONTROL WORKS AS MAY BECOME NECESSARY TO PROVIDE THE REQUIRED PROTECTION SO GIVEN TO DOWNLOVE LANDS AND WATERWAYS
 6. MAINTAIN EROSION & SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED
2. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM

THE BOOK WILL BE KEPT ONSITE & MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF WORKS.

Classification of Material Weathering		
Term	Abbreviate	Definition
Residual Soil	KS	Material is weathered to such an extent that it has no properties. Main structure and material texture and force of original rock are no longer visible, but the soil has not been completely transformed.
Extremely Weathered	XW	Material is weathered to such an extent that it has no properties. Main structure and material texture and force of original rock are not visible.
Highly Weathered	HW	<p>The weight of the rock material is discarded, usually by rain eroding or leaching to the extent that the colour of the original rock is not recognizable. Rock strength is significantly changed by weathering. Some primary minerals are weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.</p> <p>The weight of the rock material is discarded, usually by rain eroding or leaching to the extent that the colour of the original rock is not recognizable, but shows little or no change of strength from fresh rock.</p>
Moderately Weathered	DW	
Slightly Weathered	SW	Rock is partially decomposed with staining or bleaching spots but shows little or no change of strength from fresh rock.
Fresh	FR	Rock shows up as decomposition of individual minerals or colour change.

NOTE: The term "Extremely Weathered" is used here and is not practical to distinguish between "Highly Weathered" and "Moderately Weathered". "Moderately Weathered" is defined as follows: Rock material is weathered to such an extent that it has no properties. Main structure and material texture and force of original rock are no longer visible, but the soil has not been completely transformed.

			Guide to Strength	
		Uniaxial Compressive Strength (MPa)	Point Load Strength (kN/100mm ²)	
Very Low Strength	VL	0.5 to 2	0.05 to 0.1	Field Assessment
Low Strength	L	2 to 6	0.1 to 0.3	Materials commonly under fire loads sharp edge of pike, can be pried with knife; too hard to cut a flakeal sample by hand. Presses up to 50mm thick can be broken by finger pressure.
Medium Strength	M	6 to 20	0.3 to 1	Easily scored with a knife; indentations 1mm to 3mm deep in the corners with firm blows of all the pick point; too difficult to pierce a hole. A piece of 150mm long 10mm diameter can be broken by hand. Sharp edges of a pike may be fragile and break during handling.
High Strength	H	20 to 60	1 to 3	Scored with a knife; a piece of 150mm long by 50mm diameter can be broken by hand with difficulty.
Very High Strength	VH	60 to 200	3 to 10	A piece of 150mm long by 50mm diameter can be broken by hand but can be broken by a pike with a sharp fine blow; rocks under handling.
Extremely High Strength	EH	> 200	> 10	Specimens require more blows with geological pick to break through intact material; rocks under handling.

AREHOLE NO.	DESCRIPTION
BH1	SURFACE RL 7.70 XW (M) GRANITE RL 7.27
BH2	SURFACE RL 6.90 XW (M) GRANITE RL 6.50 DW (VH) GRANITE RL 6.40 DW (VH) GRANITE RL 3.00
BH3	SURFACE RL 10.80 XW (M) GRANITE RL 9.90 DW (V) GRANITE RL 2.30 DW (V) GRANITE RL 17.20
BH4	XW (M) GRANITE RL 9.90 SURFACE RL 16.50 XW (M) GRANITE RL 15.50 DW (V) GRANITE RL 11.50
BH6	SURFACE RL 14.50 XW (M) GRANITE RL 13.50 DW (V) GRANITE RL 10.30
BH7	SURFACE RL 9.17 XW (M) GRANITE RL 7.90 DW (M) GRANITE RL 3.10
BH8	SURFACE RL 12.70 XW (M) GRANITE RL 11.80 DW (V) GRANITE RL 8.80
BH9	SURFACE RL 13.40 XW (M) GRANITE RL 11.00 DW (M) GRANITE RL 11.40
BH10	SURFACE RL 17.10 XW (M) GRANITE RL 15.90 DW (M) GRANITE RL 14.40
BH11	SURFACE RL 15.40 XW (M) GRANITE RL 14.80 DW (V) GRANITE RL 18.80 DW (V) GRANITE RL 14.90
BH12	SURFACE RL 21.10 XW (M) GRANITE RL 20.70 DW (VH) GRANITE RL 18.00
BH13	SURFACE RL 16.70 XW (M) GRANITE RL 15.80
BH14	SURFACE RL 12.00 XW (M) GRANITE RL 11.00 DW (V) GRANITE RL 7.20
BH15	SURFACE RL 15.50 XW (M) GRANITE RL 14.20 DW (V) GRANITE RL 9.80
BH16	SURFACE RL 17.90 XW (M) GRANITE RL 17.50 DW (M) GRANITE RL 10.30
BH17	SURFACE RL 17.40 XW (M) GRANITE RL 17.40 DW (M) GRANITE RL 13.50
BH18	SURFACE RL 19.30 XW (M) GRANITE RL 18.80 DW (M) GRANITE RL 15.50
BH19	SURFACE RL 20.00 XW (M) GRANITE RL 18.40 DW (M) GRANITE RL 16.40
BH20	SURFACE RL 20.60 XW (M) GRANITE RL 20.00 DW (M) GRANITE RL 15.10
BH21	SURFACE RL 19.90 XW (M) GRANITE RL 18.40 DW (M) GRANITE RL 14.40
BH22	SURFACE RL 12.60 XW (M) GRANITE RL 12.20 SURFACE RL 11.20 XW (M) GRANITE RL 10.90
BH23	DW (M) GRANITE RL 8.20 SURFACE RL 13.70 XW (M) GRANITE RL 13.30
BH24	DW (M) GRANITE RL 9.20 SURFACE RL 15.20 XW (M) GRANITE RL 14.80
BH25	DW (H) GRANITE RL 11.00 SURFACE RL 13.00 XW (M) GRANITE RL 11.80
BH26	DW (VH) GRANITE RL 11.20 SURFACE RL 17.30 XW (M) GRANITE RL 16.90
BH27	DW (M) GRANITE RL 12.80 SURFACE RL 9.80 XW (M) GRANITE RL 9.50
BH29	SURFACE RL 8.90 XW (M) GRANITE RL 7.70 SURFACE RL 10.50 XW (M) GRANITE RL 9.70
BH30	MW (M) GRANITE RL 2.50 SURFACE RL 13.60 XW (M) GRANITE RL 12.40
BH31	DW (H) GRANITE RL 8.40 SURFACE RL 10.10 XW (M) GRANITE RL 9.40
BH32	DW (M) GRANITE RL 5.10 SURFACE RL 13.60 XW (M) GRANITE RL 12.40
BH33	DW (M) GRANITE RL 12.40

S1	PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST METHOD T-99 FOR TOP 100mm. ANY SPOTS WHICH CANNOT BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW ON HIGHLY REACTIVE CLAY ARE SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.	
S2	ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REQUIREMENT BY JK GEOTECHNICS PTY LTD DATED 21ST MAY 2021 REF. 3394ZLTP7. Moisture Content to be maintained AND +/- 2% OM. Minimum compaction requirements are detailed below for ALL REQUIREMENTS ARE TO VARY BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER:	
	<ul style="list-style-type: none"> • LANDSCAPED AREAS 98% STD. • FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL, <ul style="list-style-type: none"> - FINE CRUSHED ROCK 98% STD. - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT 98% STD. • BUILDING BASECOURSE 98% MOD • FILL UNDER ROAD PAVEMENTS, <ul style="list-style-type: none"> - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL 98% STD. - UP TO FINISHED SUBGRADE LEVEL 98% STD. • ROAD PAVEMENT MATERIALS; <ul style="list-style-type: none"> - SUB-BASE 98% MOD. - BASE COURSE 98% MOD. 	

THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.

S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.

S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

SS ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.

S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT

S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.

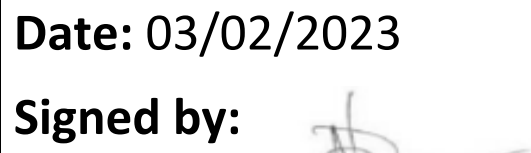
S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS

S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS

S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:

A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011

B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011



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NOTES

SITE SURVEY SUPPLIED BY 'LTS' PTY LTD
REFERENCE 51266 001DT ISSUE 1 DATED 23/02/2018

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN
ARE APPROXIMATE ONLY AND THEIR EXACT
POSITION SHOULD BE PROVEN ON SITE.

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

Project Name **SOIL CONSERVATION WORKS**

PRINCES HWY, MORUYA NSW 2537

Drawing Title **CONSTRUCTION NOTES**

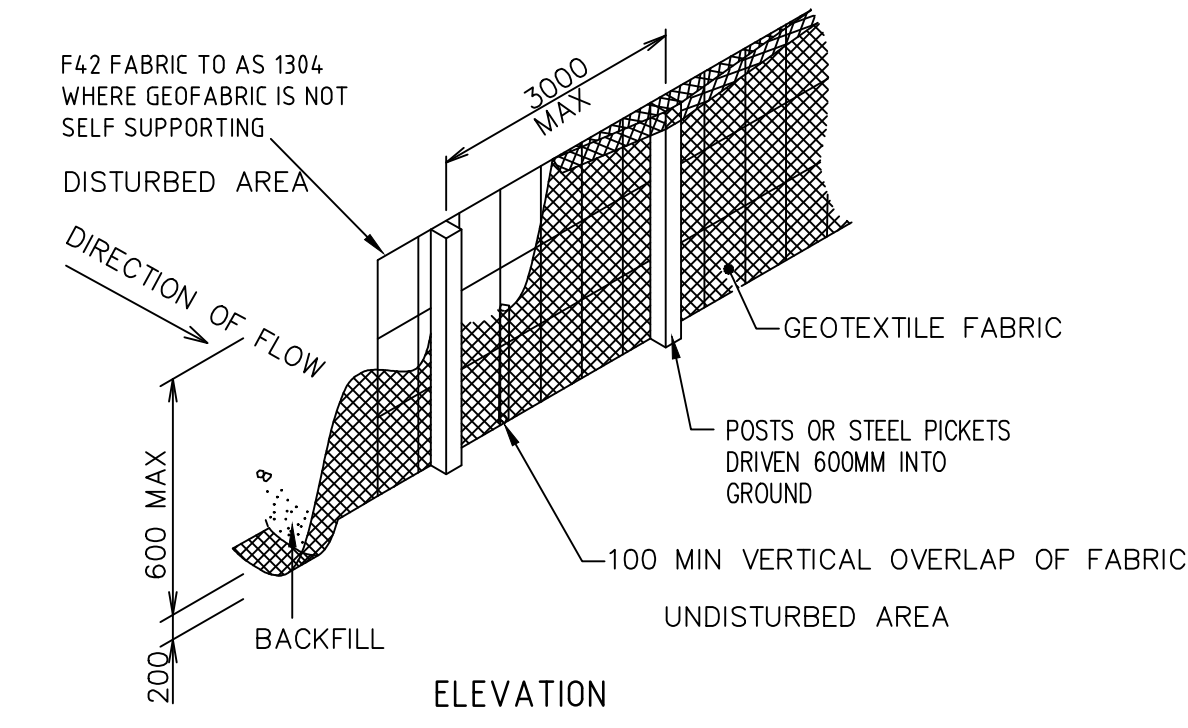
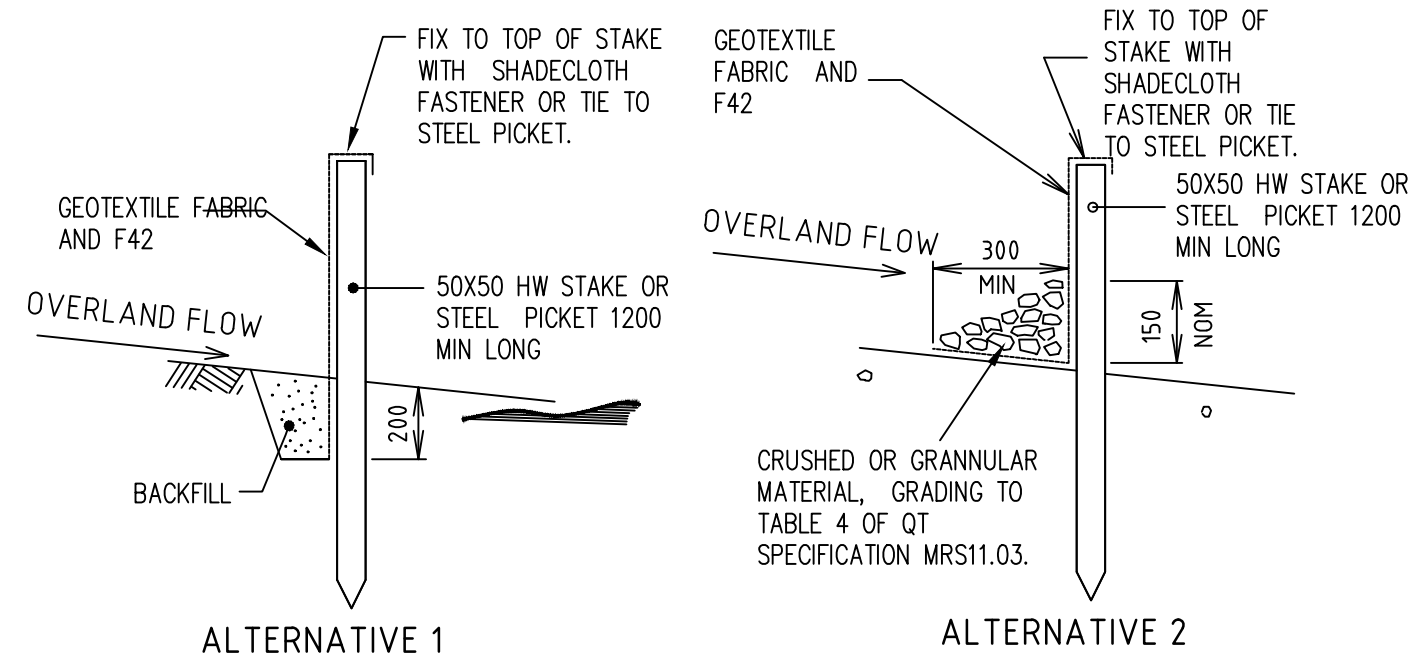
REF SUBMISSION

Desiggned	AM	Approved	Date	Non
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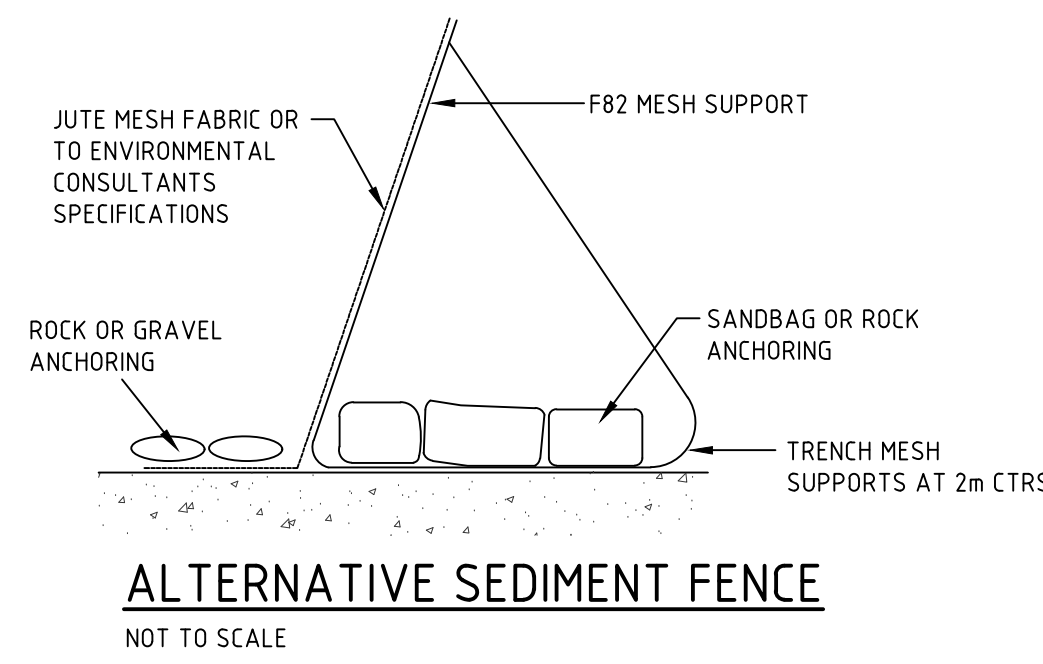
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Drawn	DH			

Scale	Project Ref	Drawing No	Rev
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Date NOV. 2021



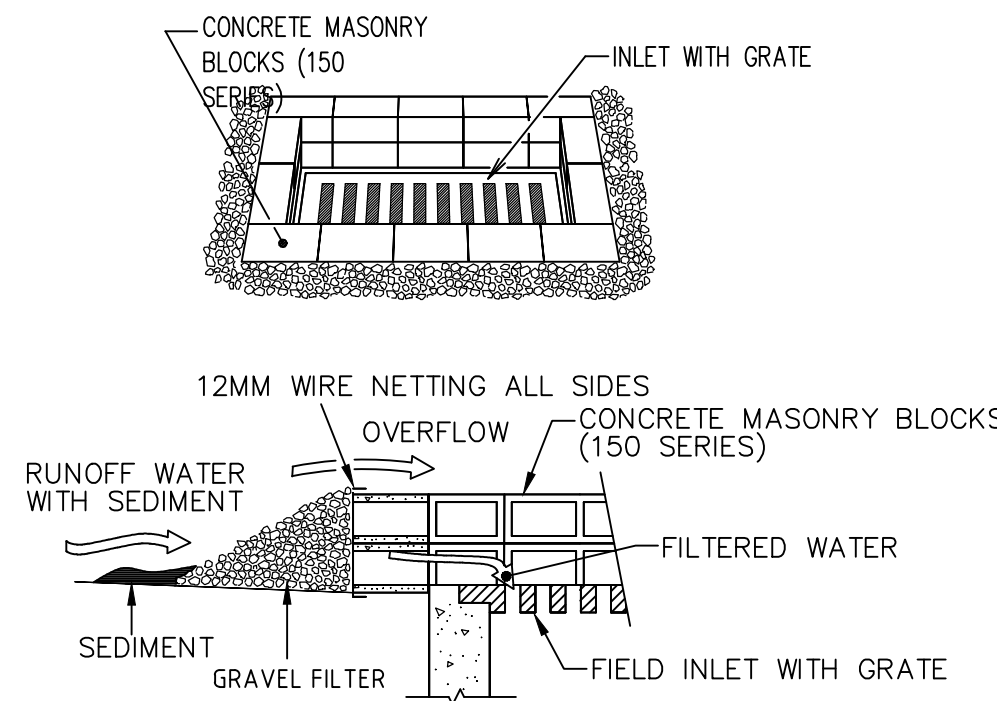
SEDIMENT FENCE
NOT TO SCALE



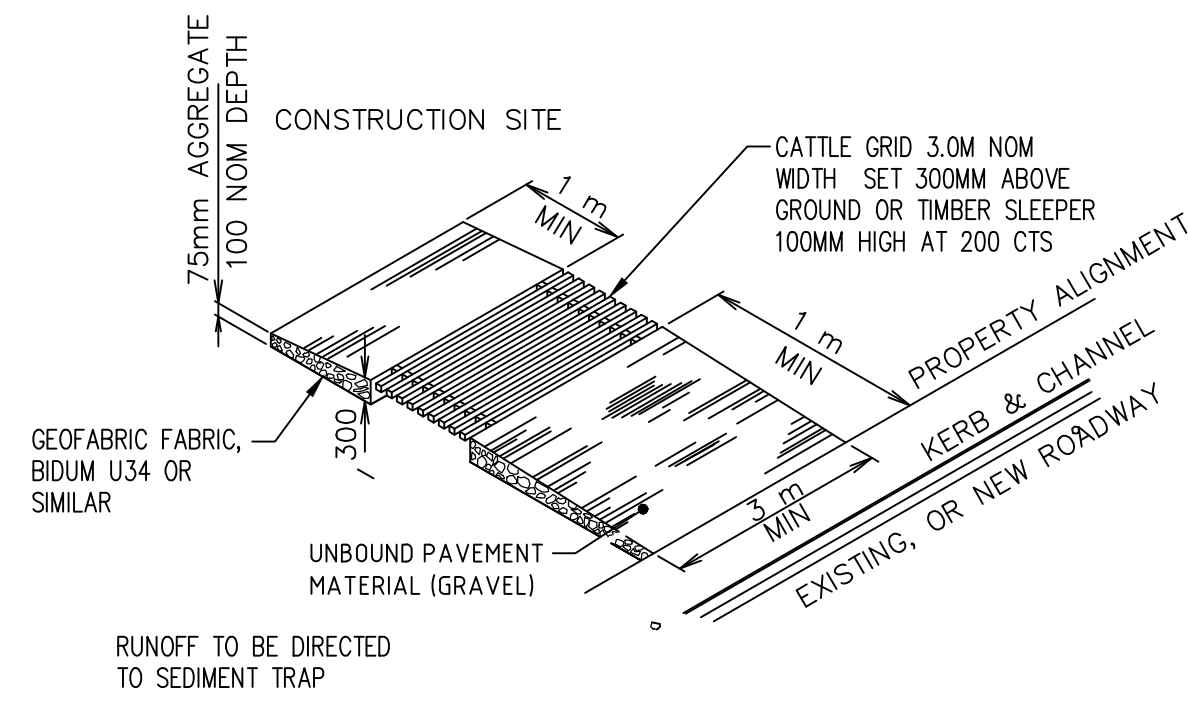
ALTERNATIVE SEDIMENT FENCE
NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE NOTES

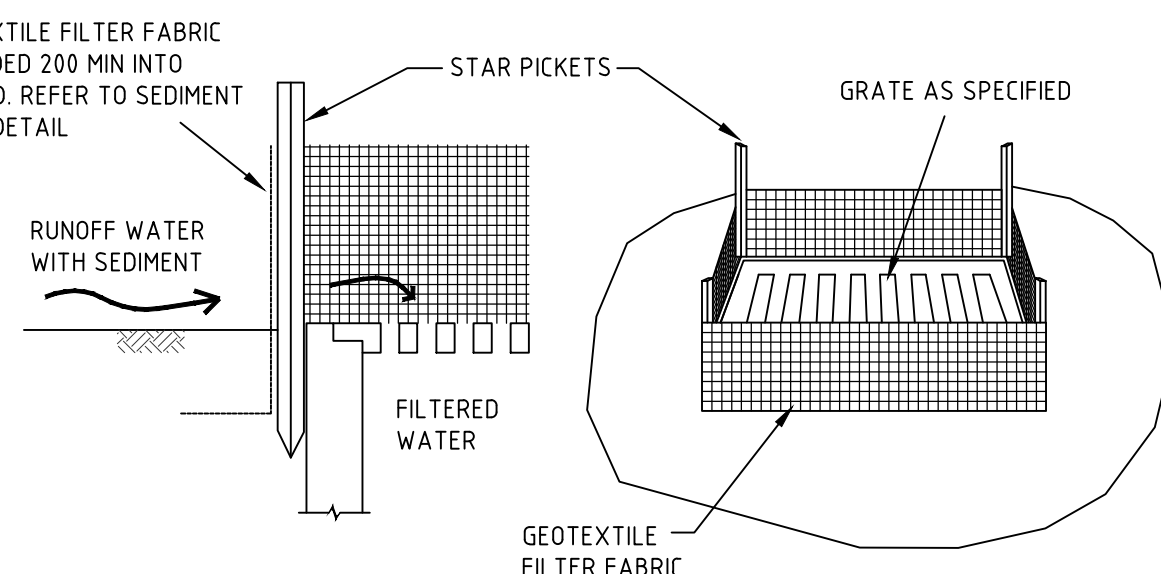
1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.



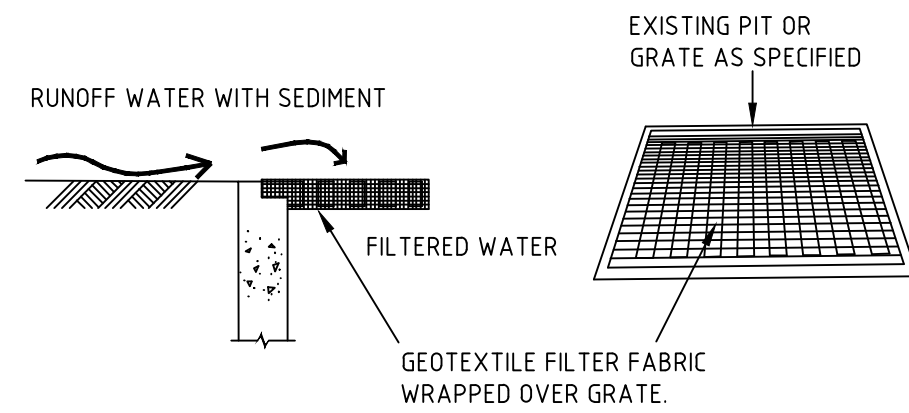
FIELD INLET SEDIMENT TRAP
NOT TO SCALE



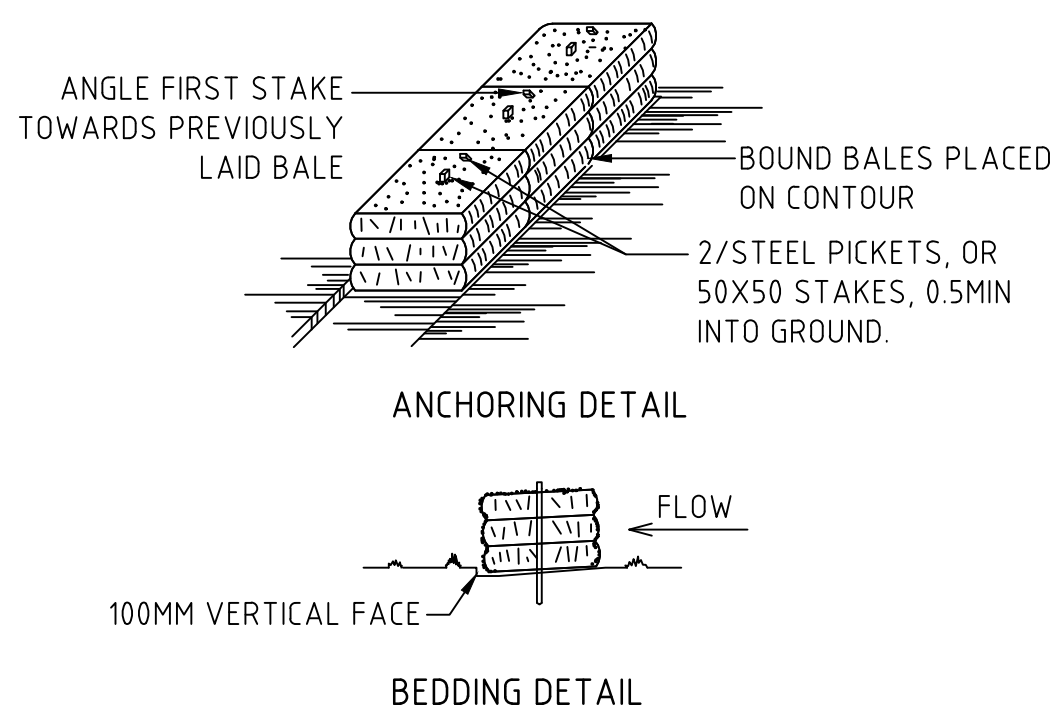
**TEMPORARY CONSTRUCTION VEHICLE
ENTRY/EXIT SEDIMENT TRAP**
NOT TO SCALE



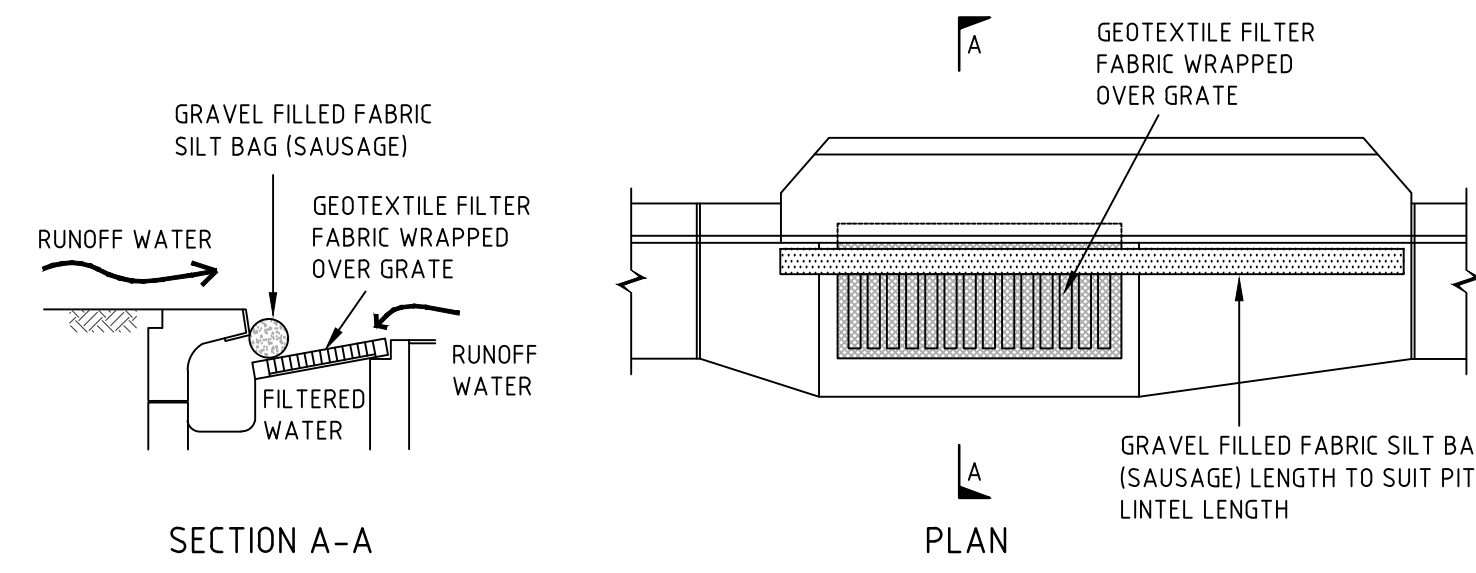
GEOTEXTILE PIT FILTER 1
NOT TO SCALE



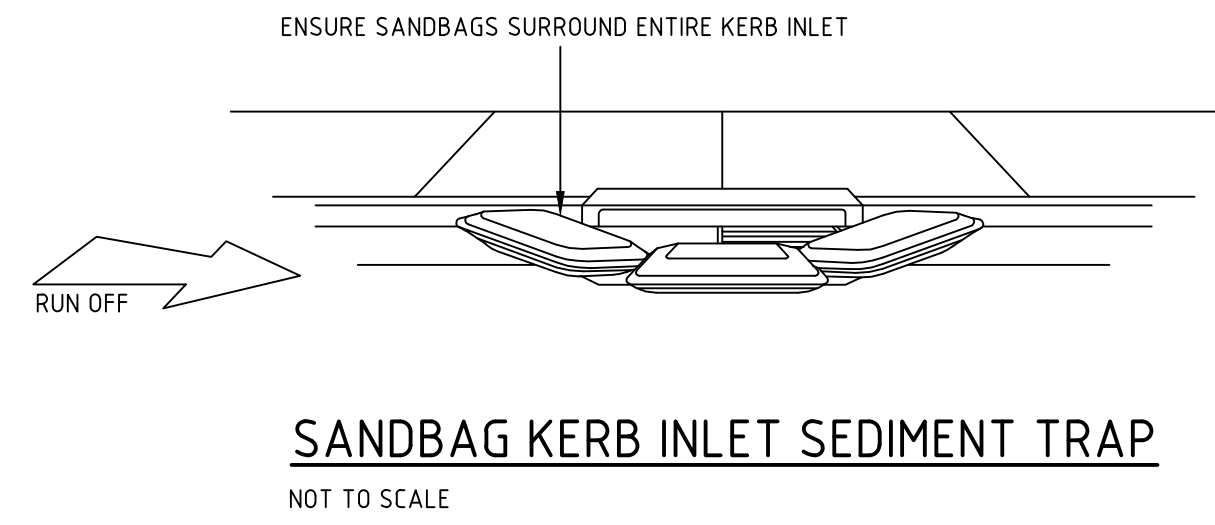
GEOTEXTILE PIT FILTER 2
NOT TO SCALE



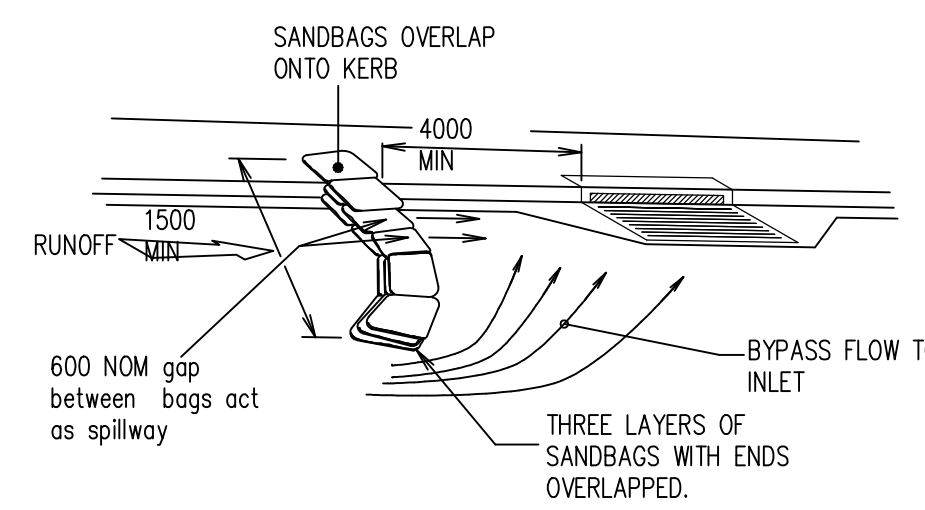
STRAW BALE BANK SEDIMENT CONTROL
NOT TO SCALE



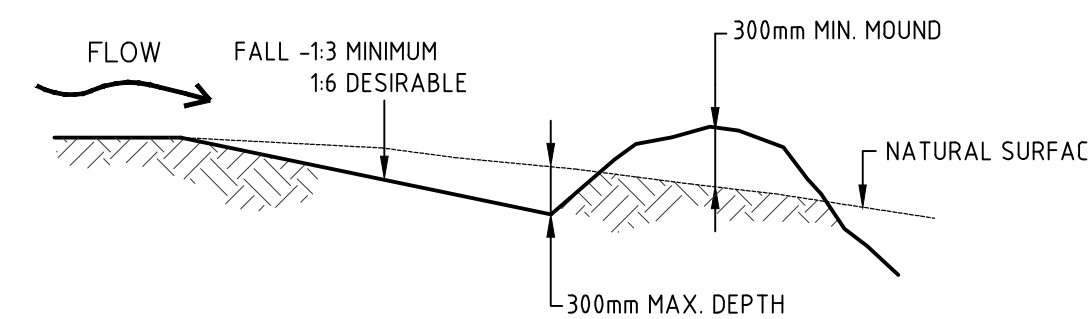
KERB INLET SEDIMENT TRAP
NOT TO SCALE



SANDBAG KERB INLET SEDIMENT TRAP
NOT TO SCALE



ON GRADE KERB INLET SEDIMENT TRAP
NOT TO SCALE



CATCH DRAIN
NOT TO SCALE



**Health
Infrastructure**

DETERMINED – APPROVAL
REF Approval No: 05/2023
Date: 03/02/2023
Signed by: 

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Project Name		SOIL CONSERVATION WORKS PRINCES HWY, MORUYA NSW 2537		REF SUBMISSION	
Designed	AM	Approved	Date	Drawn	DN
Scale	NTS	Project Ref	NOV. 2022	Drawn No	Rev
Date	NOV. 2022	Sheet	A0	ERH-HI-CV-DWG-DD-01-PW-0507	B

PRELIMINARY: BULK EARTHWORKS
QUANTITIES SUMMARY (IN-PLACE)

150mm STRIPPED SURFACE = 2,970m³
(WITHIN PROPOSED WORKS ONLY. ASSUMED TO BE REMOVED OFF-SITE)

TOTAL CUT VOLUME = 12,385m³

VOLUME INCLUDES THE FOLLOWING:
1. ROADS 5,075m³
2. SEDIMENT BASIN 7,310m³

TOTAL FILL VOLUME = 2,770m³

VOLUME INCLUDES THE FOLLOWING:
1. ROADS 1,815m³
2. SEDIMENT BASIN 955m³

TOTAL EXCESS CUT VOLUME = 9,615m³
(VOLUME BASED ON ASSUMED 100% REUSABLE EXCAVATED MATERIALS INCLUDING RESIDUAL SOILS)

BULK EARTHWORKS DEPTH RANGE TABLE				
Lower_value	Upper_value			Colour
-3.5	to	-3.0	2	
-3.0	to	-2.5	2	
-2.5	to	-2.0	2	
-2.0	to	-1.5	2	
-1.5	to	-1.0	2	
-1.0	to	-0.5	2	
-0.5	to	0	2	
0	to	0.5	2	
0.5	to	1.0	2	
1.0	to	1.5	2	
1.5	to	2.0	2	
2.0	to	2.5	2	
2.5	to	3.0	2	
3.0	to	3.5	2	
3.5	to	4.0	2	
4.0	to	4.5	2	
4.5	to	5.0	2	
5.0	to	5.5	2	
5.5	to	6	2	

BULK EARTHWORKS LEGEND

- NOTE
- BOREHOLE LOCATIONS AND LEVELS INTERPOLATED FROM INFORMATION SUPPLIED BY JKGEO TECHNIQUES PTY LTD REF. 33942LTP12 DATED 21ST MAY 2021
 - VOLUMES ARE APPROXIMATE ONLY, WHICH ARE IN-PLACE AND DO NOT INCORPORATE BULKING FACTORS, OVER EXCAVATION AND OSD
 - GROUND WATER SEEPAGE MAY OCCUR IN EXCAVATED AREAS. DE-WATERING MAY BE REQUIRED IN THIS INSTANCE

LOT BOUNDARY

FINISHED SURFACE CONTOUR

BATTER (1 IN 4 MAX)

EXTENT OF CUT FROM EXTREMELY WEATHERED GRANITE TO PROPOSED BULK EARTHWORKS = 2,999m³

SEDIMENT BASIN SETTLING AREA

WORKS EXTENT (TOTAL AREA: 6.5Ha)

WORKS COMPOUND



DETERMINED – APPROVAL

REF Approval No: 05/2023

Date: 03/02/2023

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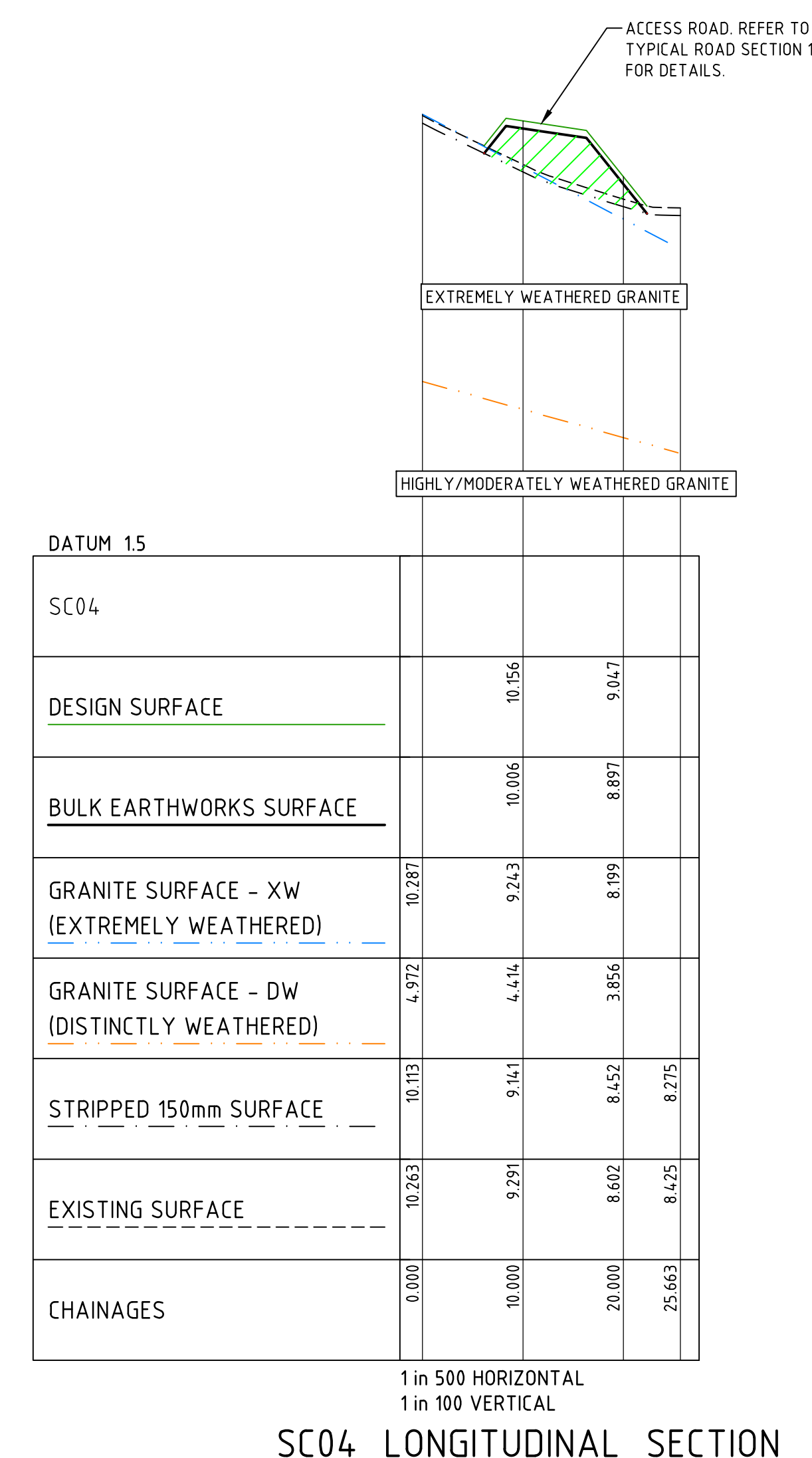
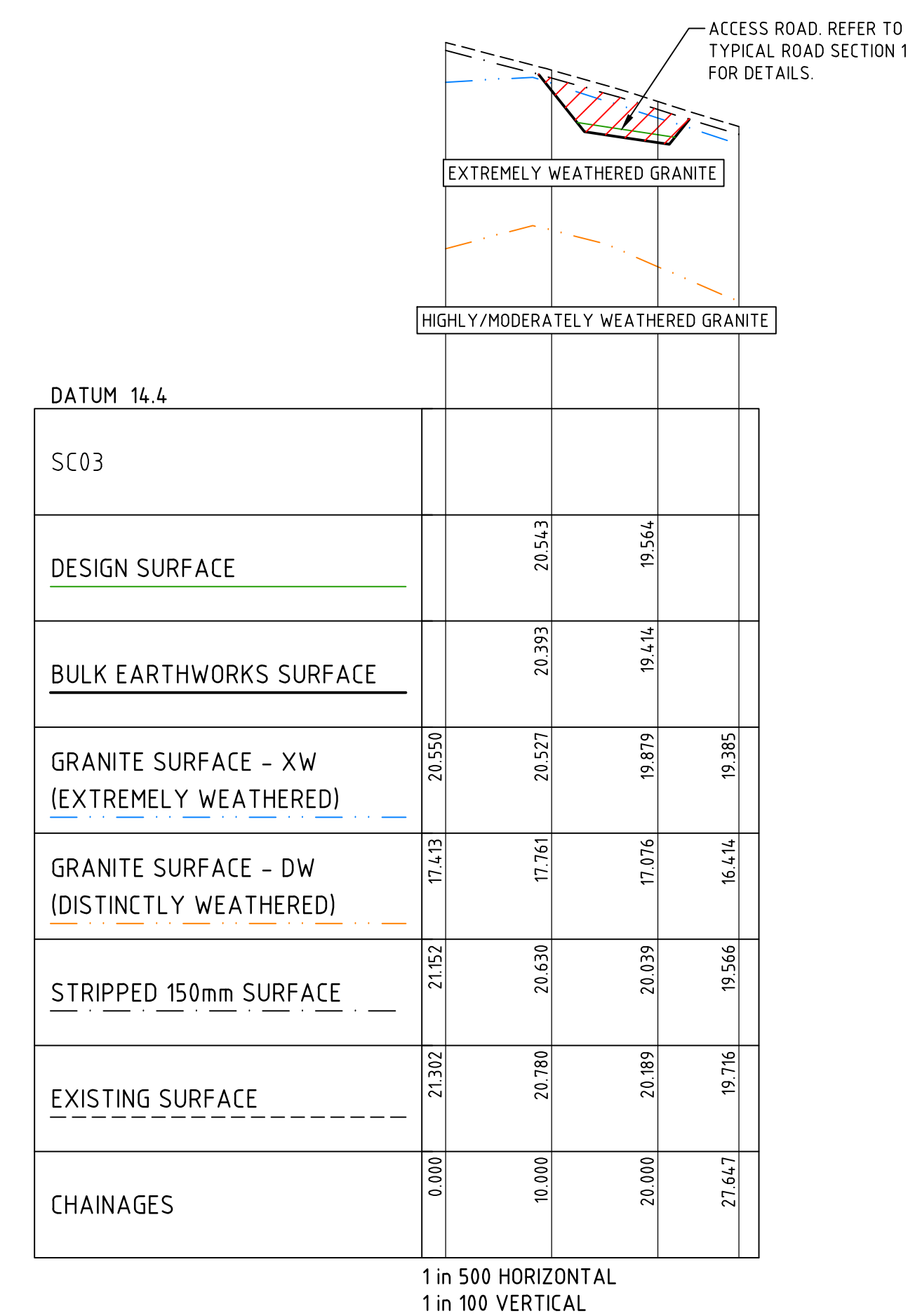
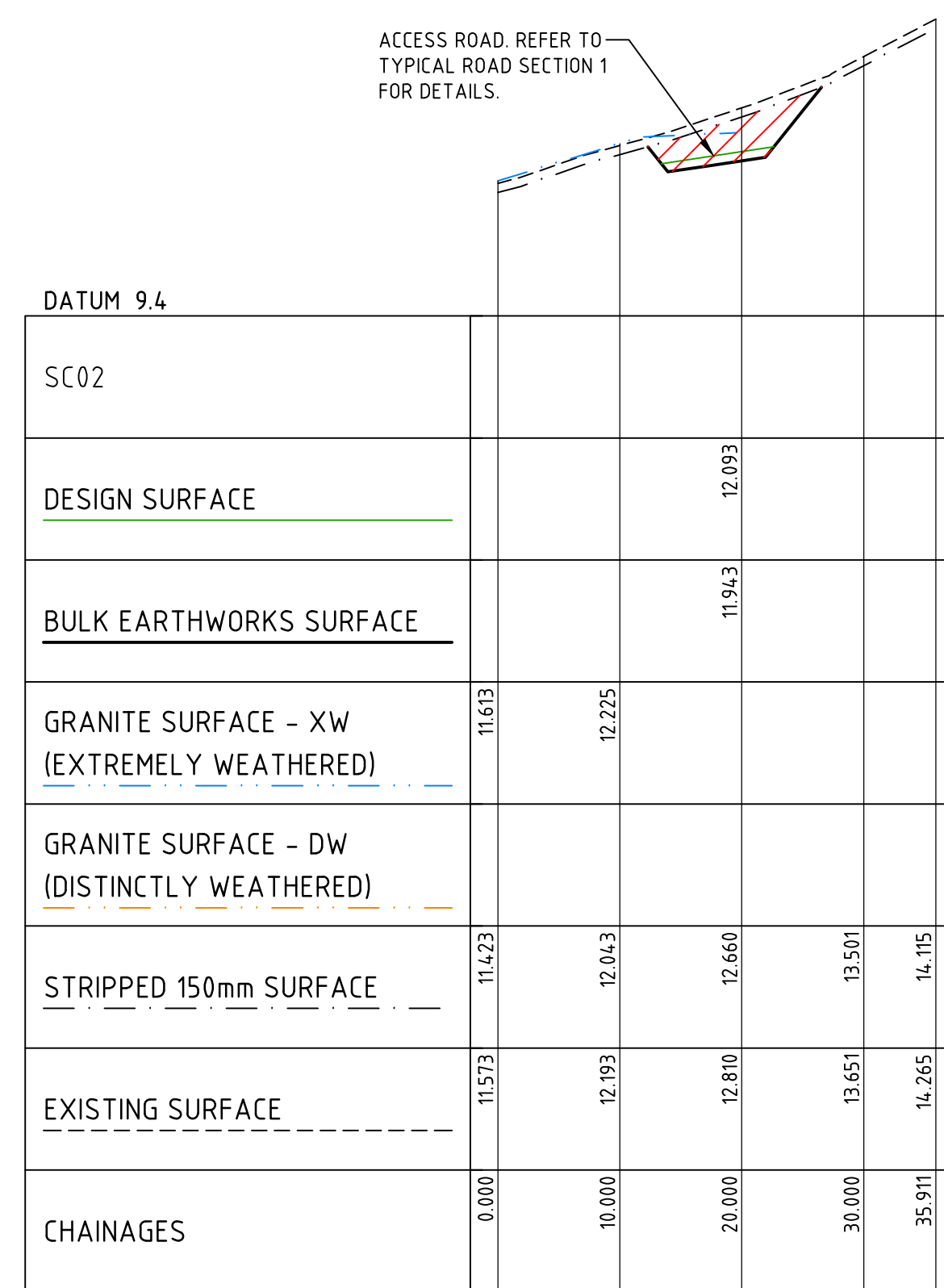
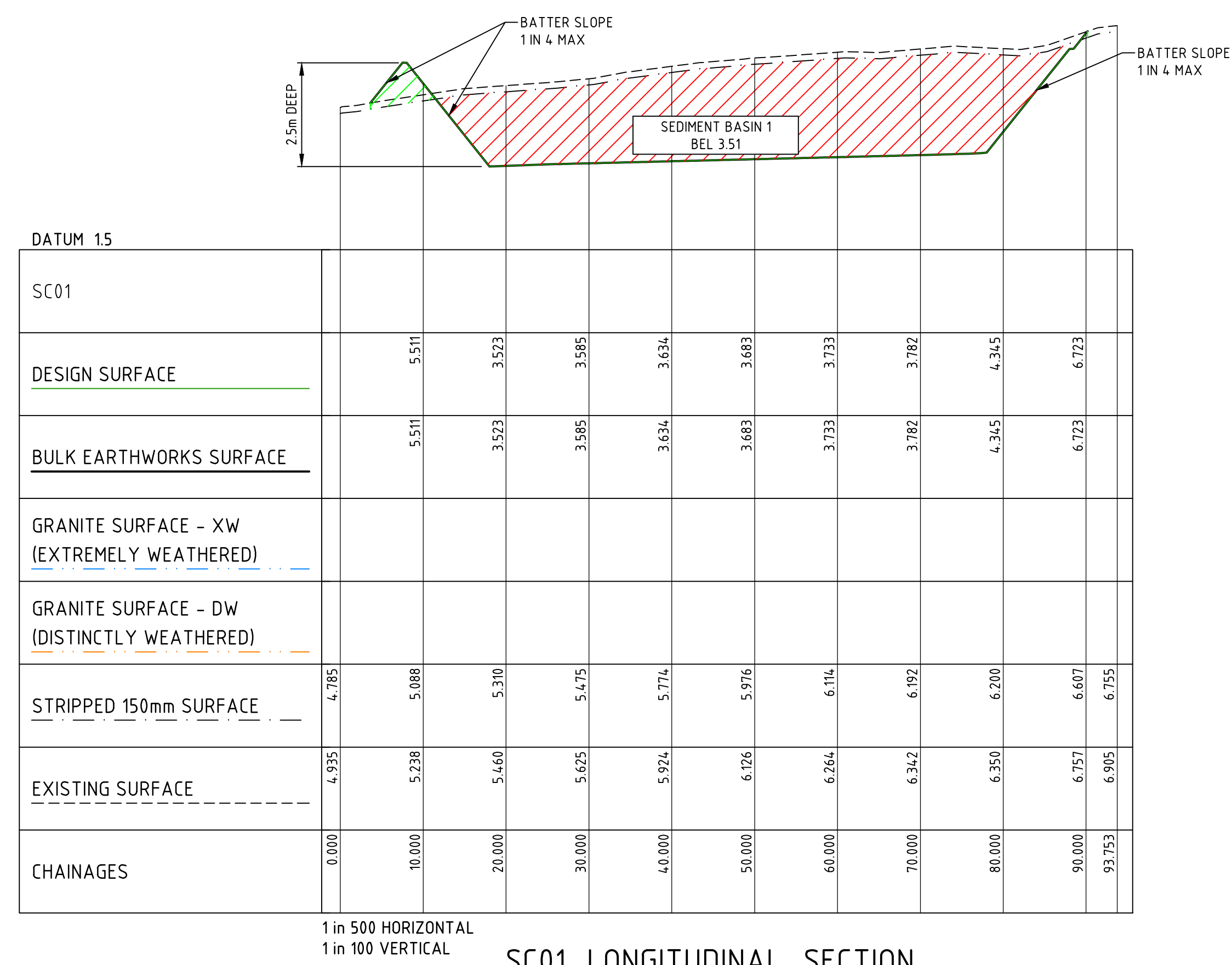
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Drawing Title: BULK EARTHWORKS PLAN

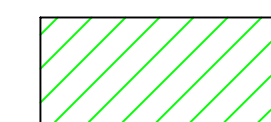
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Date	NOV 2022			
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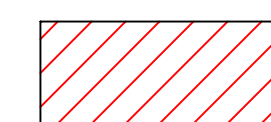
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LEGEND



FILL FROM STRIPPED SURFACE
TO UNDERSIDE OF BULK
EARTHWORKS LEVELS



CUT FROM STRIPPED SURFACE
TO UNDERSIDE OF BULK
EARTHWORKS LEVELS

NOTES

1. EXISTING SURFACE LEVELS ARE INTERPOLATED FROM INFORMATION SUPPLIED BY 'LTS' PTY LTD REFERENCE 51266 001DT ISSUE 1 DATED 23/02/21
2. GRANITE SURFACE LEVELS INTERPOLATED FROM BOREHOLE LOGS SUPPLIED BY 'JKGEOTECHNICS' PTY LTD REF: 33942LTPrpt2 DATED: 21ST MAY 2021




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	Designed AM Drawn DH	Approved SN	Date NOV. 2022			
Drawing Title	BULK EARTHWORKS SITE SECTIONS		Scale A5 SHOWN Date NOV. 2022	Project Ref	Drawing No	Rev
			Sheet 10	ERH-HV-CV-DWG-DD-01-PW-0521 B		

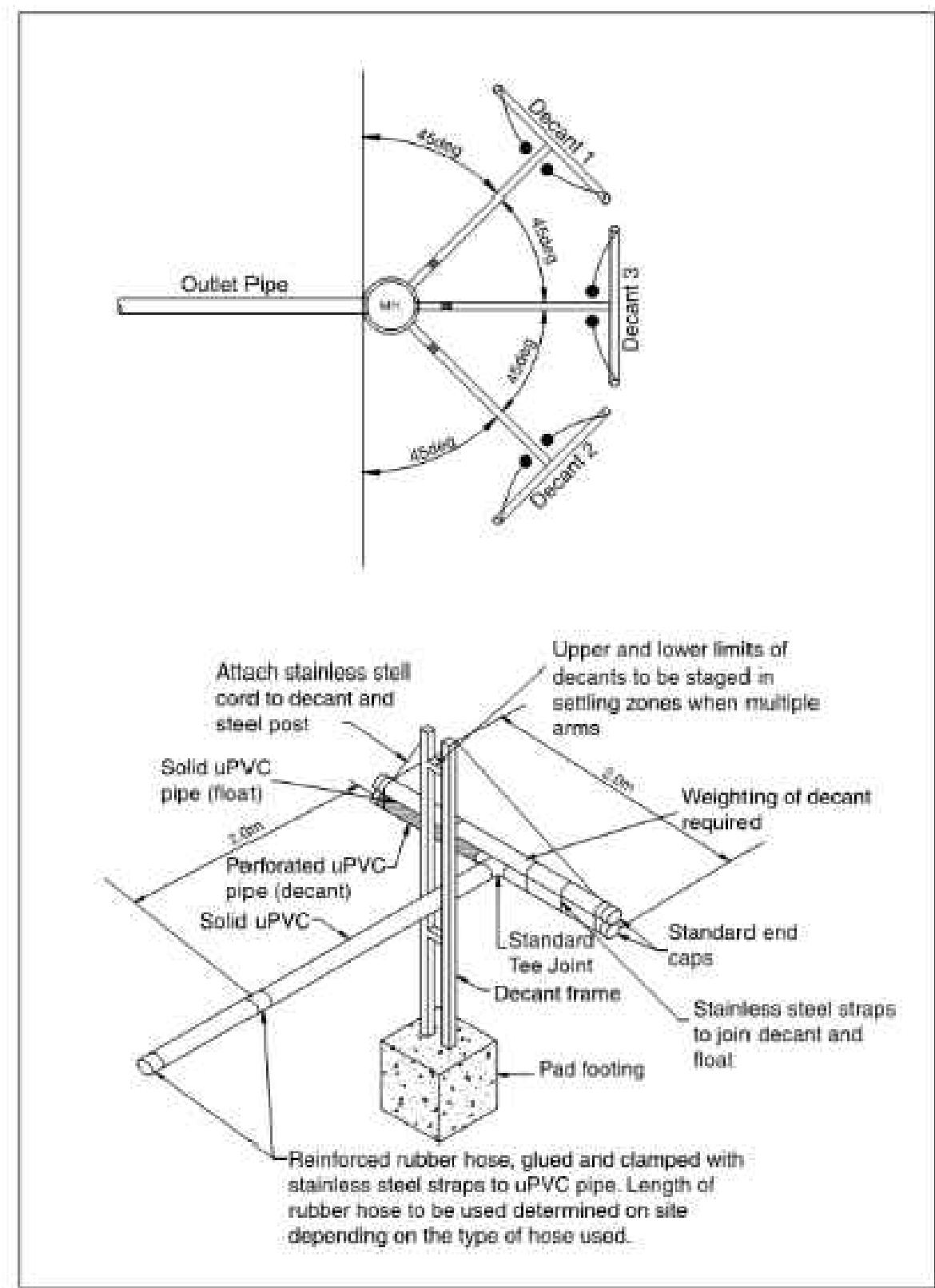
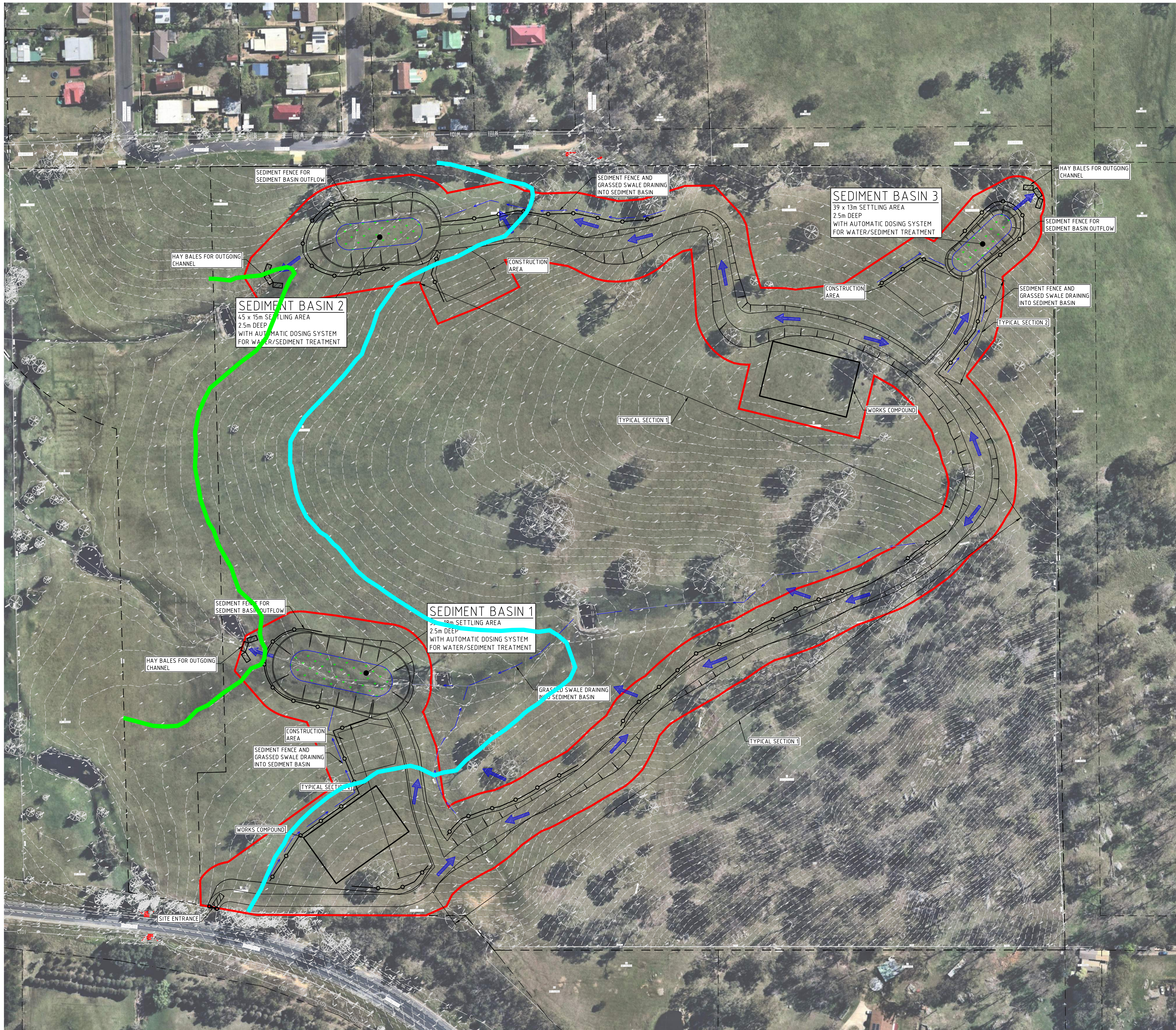
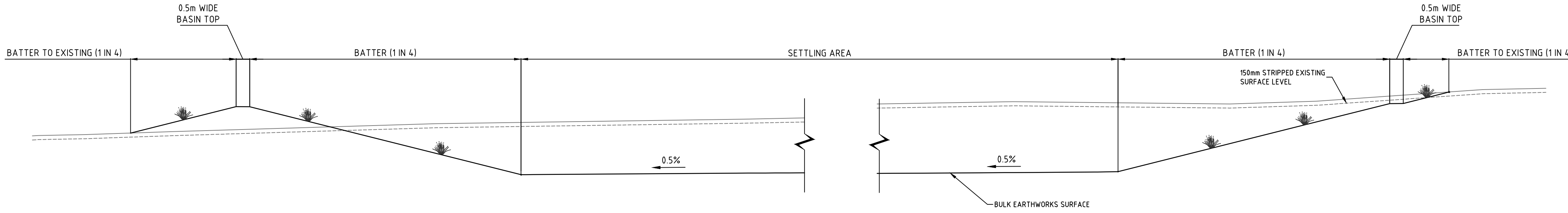
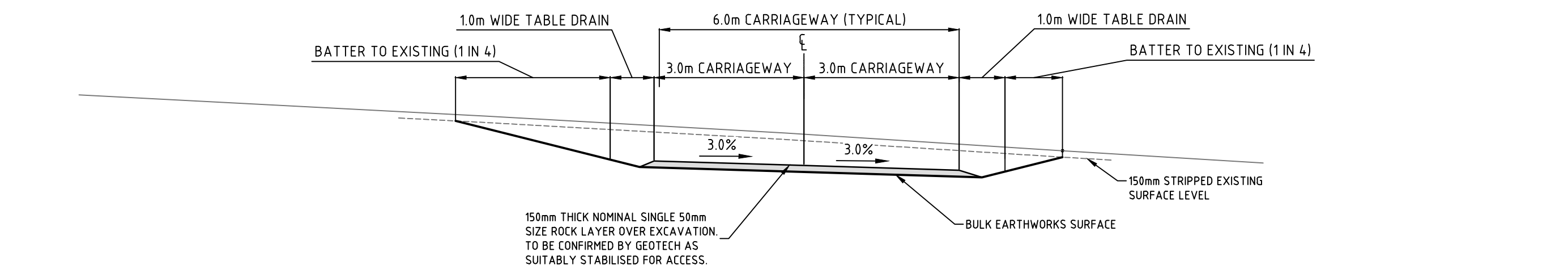
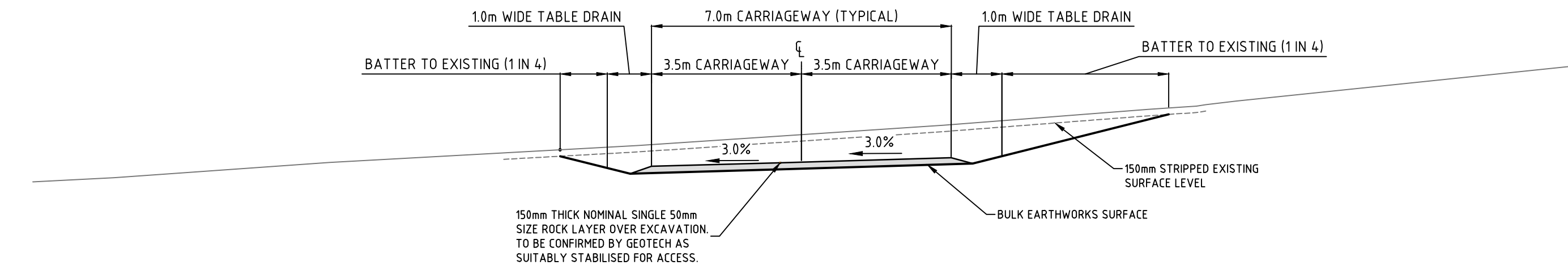


Figure B29 - Auckland-type floating decant system for Type A basins

DECANT SYSTEM TYPICAL DETAIL (EMPTYING FOR HIGH LEVEL)
N.T.S



NSW GOVERNMENT Health Infrastructure

DETERMINED – APPROVAL

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PRINCES HWY, MORUYA NSW 2537

Drawing Title: SITE WORKS PLAN

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