



Our Ref: BS:KL:239312s

11 August 2017

Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

ATTENTION: EMMA BUTCHER

Dear Emma,

RE: ADDITIONAL INFORMATION MP05-0083 SANDY BEACH - MOD 5

Reference is made to The Department's request for Additional Information with respect to MOD 5 of the Sandy Beach subdivision development.

Your request references the "approved development footprint". We are concerned that this is being interpreted as the road reserve boundary. Due to requirements to provide roads and lots above existing natural surface levels, batters will extend beyond the road reserve boundary into the adjoining land which is reference as the "conservation area". Further it was envisaged in the concept approval, drainage facilities were always proposed outside the boundary containing the roads and lots. Condition C5e) requires impacts of drainage facilities to be minimised. It should be noted that conservation works comprising additional tree planting will be undertaken within the conservation area and road batters will be revegetated by turf seeding and tree planting. The proposed works do not extend into land proposed to be dedicated to National Parks.

Council has advised through you, of concerns about the future maintenance of the new swale drain (open channel) and impact of the modified stormwater system on the development site and existing properties in the area.

The open channel as detailed in the engineering plans will be constructed with a 1.0 metre wide base and 1 in 4 sides that will be plated with native grasses with occasional tree planting and require minimal maintenance. We note the Patterson Britton drainage strategy included a swale (BS5) on the outside of the extension of Ti -Tree Road as indicated in **Figure 1** below. With respect to flood impacts the development is downstream of existing development and drainage from the existing development is being collected and managed through the site. Detention will be provided within proposed drainage facilities to mitigate impacts.

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OEH has requested additional information in relation to impacts on the conservation area, management of peak stormwater discharges, effectiveness of the proposed stormwater management issues and protection of wallum froglet habitat.

As justification for the current proposal we submit the following that addresses the comparative environmental impacts of the concept and proposed drainage strategies and addresses the issues raised by OEH.

The Concept Plan and Environmental Assessment Report for the Sandy Beach project detail the proposed road structure and cross sections envisaged in the original application.

The collector road was proposed with a 21 metre road reserve including 2 x 5.0 metre wide footways incorporating 2.5 metre share way to one side and a swale (as required) for stormwater. A typical swale was to be 300mm deep with a 1.5 metre wide base and 1 in 3 sides. The proposal to remove the laneways also seeks to remove swale drains from the footway adjacent to lots so as to facilitate vehicular and pedestrian access to the lots. As a result an alternate drainage strategy is required that provides for the collection and conveyance of water through the site, treatment of stormwater and mitigation of peak flows. We note that swale drain BS5 is located on the outside of the proposed road and has been re-designed to convey stormwater flows from upstream of the site.

Figure 6 of the Patterson Britton & Partners Drainage report “Conceptual layout of proposed Water Management Structures” reproduced (below as **Figure 1**) shows the location of proposed swales and a water quality control pond located over the existing drainage line between stages 1 and 3 on the northern side of the development footprint.

The water quality control pond sits outside the nominated road reserve boundary. This facility, if constructed, would require removal of vegetation additional to what is proposed in the amended proposal. Design review indicates that the proposed swales within the road reserve have insufficient capacity to convey stormwater through the site. Further the cross section of the swale is not compatible with the proposed footway widths. We also have concern with the concept design for the proposed water quality control pond due to site levels.

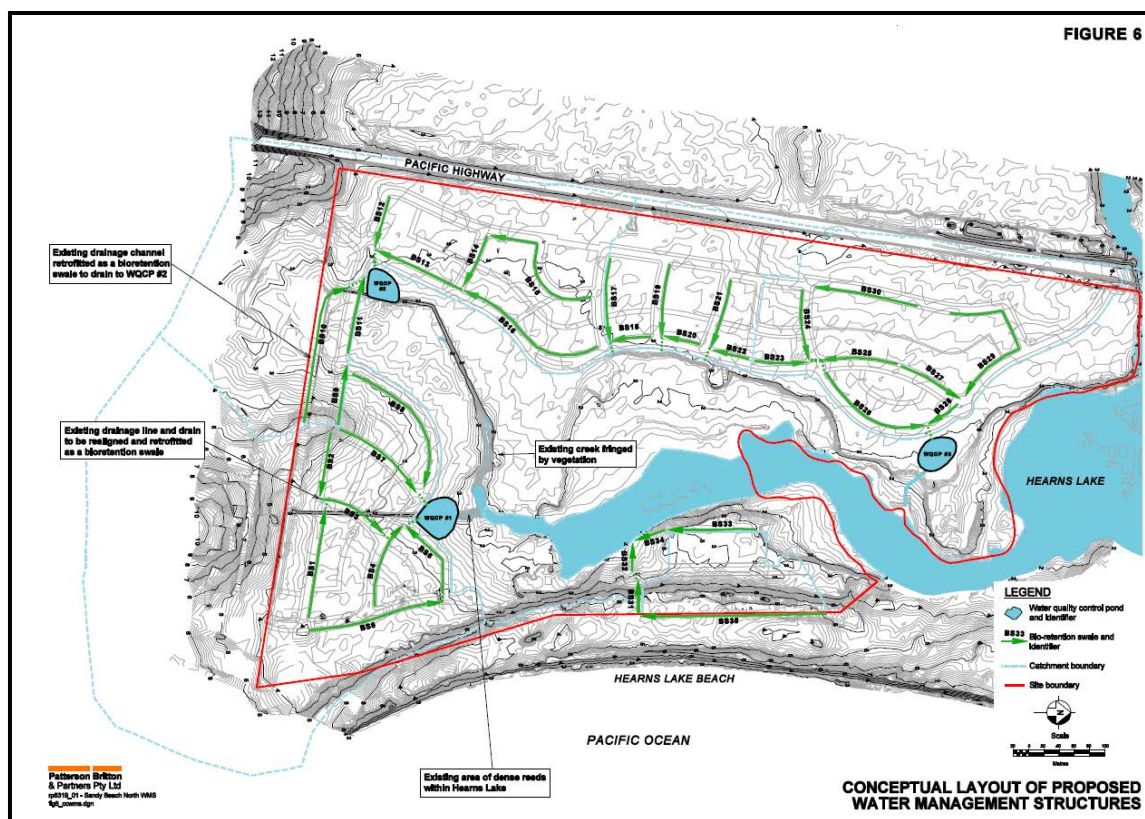


Figure 1: Conceptual Layout of Proposed Water Management Structures.

The proposed drainage solution depicted in the ADW concept engineering drawings (**Appendix B**) has been designed to meet water quality control objectives of the Concept Approval. The proposed solution reduces the overall size and environmental impact of the water quality control pond from that proposed in the Patterson Britton Report by proposing several elongated bio-retention basins on the outside of the road formation. This strategy is documented in the report prepared by Advisian dated 10 May 2017 that has been prepared for the lodgement of a development application for Stages 1 and 3 subject to the 75W application being approved.

While the Advisian report, which focused on water quality, does not mention stormwater detention to manage peak runoff discharges as identified by OEH, the modification is not proposing to alter the concept approval in this regard.

The plan attached as **Appendix A** shows the proposed development including the stormwater infrastructure for Stages 1 and 3 overlaid on an aerial photograph. It is proposed that the drainage infrastructure will predominantly be located within the future road reserve as indicated, and drainage easements will be provided across the community lot to existing watercourses that form a legal point of drainage connection.

The impact on swamp sclerophyll forest marked as Vegetation Type C on the overlay plan sourced from the Flora and Fauna report in the original application is considered to be less than the original proposal.

The open channel to the east of Tee- Tri Road in the current proposal is consistent with the swale BS5, from the Patterson Britten Report. Some additional area is required for the bio retention basin however this has been located in a generally clear area to minimise any impact. The area impacted by the open channel will be landscaped mitigating vegetation loss.

The design of the open channel has been undertaken to cater for the existing drainage discharged onto the subject site via piped drainage easement from Maple Road through Lot 524 DP 227298, discharge from Ti-Tree Road and from Sandy Beach Road. The critical level of the channel is governed by the piped drainage network within Ti-Tree Road not the level of the piped drainage easement through Lot 524. The existing piped drainage system catering for the existing development within Ti-Tree Road and Maple Road is located on the western side of Ti-Tree Road, see attached **Photo 1**. In order to discharge this drainage through the subject site it is required to be done via a swale at a grade of 0.3%. The option of extending the drainage within a piped system was explored however Council design standards and supporting industry documentation does not support a piped drainage network at 0.3%. The level, depth and therefore width of the swale is controlled by the existing drainage system, see attached **Photo 1**, by installing a new pit and extending the drainage system under Ti-Tree Road. In order to maintain adequate cover over the new pipe network the swale drain is required to be at the depth currently depicted.



Photo 1: Northern End of Ti-Tree Road.

In regard to the drainage through Lot 524, the current design has catered for this discharge within the drainage network. The adjusted level of the swale on the southern boundary is below the boundary level for the full length. See attached **Photo 2** showing that the existing piped drainage network discharges across the rear boundary of Lot 524 at ground level. The invert level of the eastern end of the swale is currently 700 mm above the invert of the drainage network. Therefore is not the governing level for the depth of the swale.



Photo 2: Swale drain at rear of existing properties.

It should also be noted that road batters outside the nominal road reserve boundary are required under the approved layout as road formation is required to be constructed the full width of the road reservation. These batters would have extended into the conservation area.

We are of the view that the proposal remains consistent with condition C5e) which states that “water quality control devices are to be sited in such a way as to minimise their impact within the Conservation Area. That is not to say they cannot be located within the conservation area and we believe we have minimised the impact.

With respect to Wallum Froglet Habitat, additional habitat will be provided within the open channel and bio-retention basins.

A copy of the draft Engineering Plans (**Appendix B**), draft Landscape Plans (**Appendix C**) and Wallum Froglet Habitat report (**Appendix D**) prepared for the Stage 1 and 3 development application are provided for information.

We anticipate this additional information will enable further consideration of the 75W Application for MOD 5. However should you have any questions regarding this information please do not hesitate to contact us at our Hunter Office on 4978 5100.

Yours Faithfully

A handwritten signature in blue ink, appearing to read 'Brett Stein'.

Brett Stein
SENIOR PLANNER
ADW Johnson Pty Ltd
Hunter office

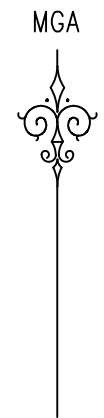
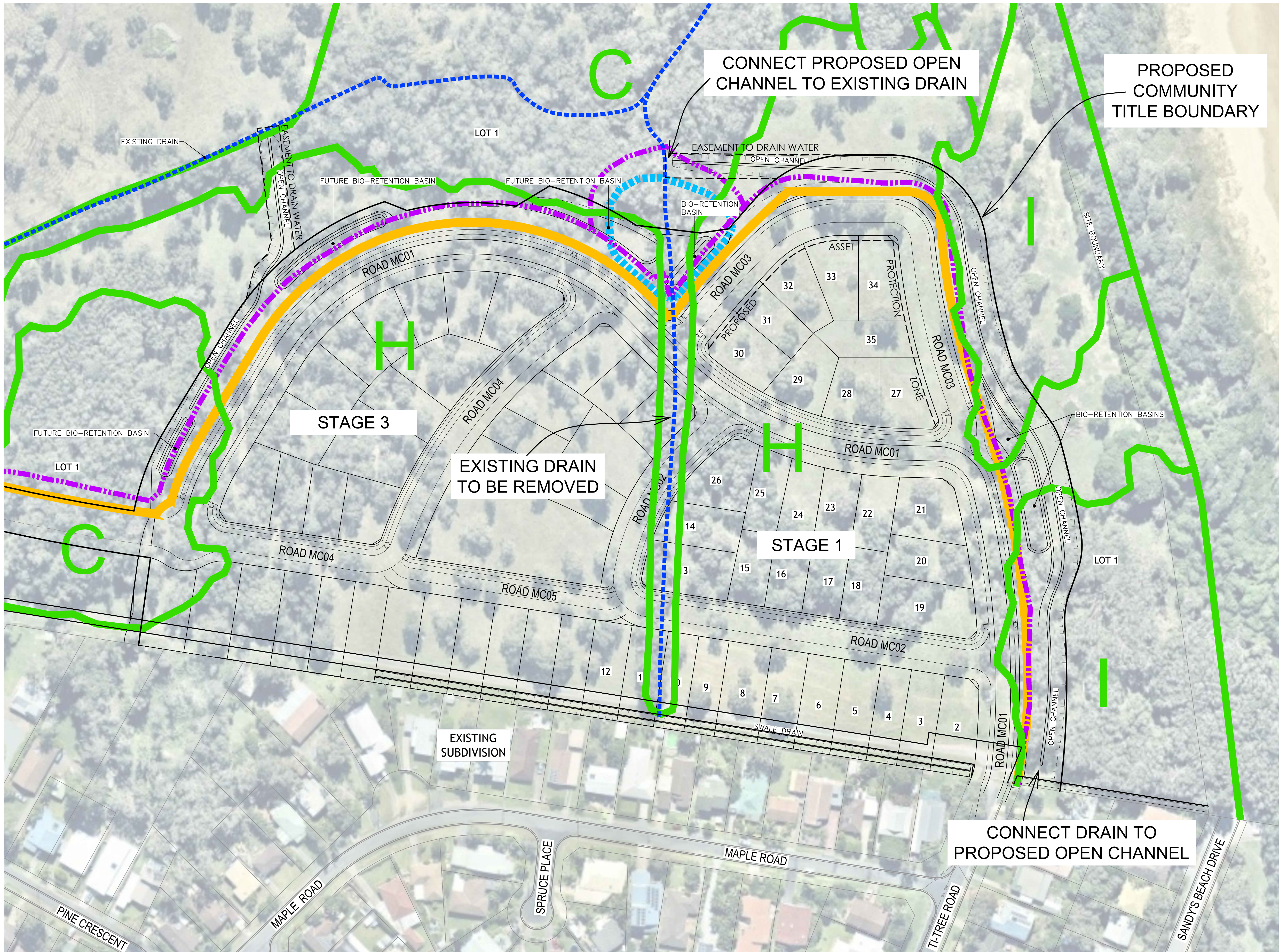
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Appendix A

STAGE 1 & 3 DEVELOPMENT PLAN

239312-VEG-001-A

100mm AT FULL SIZE



VEGETATION AREAS FROM CONACHER REPORT.
(Fig 2.1 ref:8109 3/9/2008)

- SWAMP SCLEROPHYLL FOREST
- DISTURBED WOODLAND
- SANDPLAIN FOREST (Melaleuca/Mesophytic sp. dominated)
- INDICATIVE BATTER EXTENT CONCEPT APPROVED ROADS
- LIMIT OF ROAD RESERVE (AS PER CONCEPT APPROVAL)
- EXISTING DRAIN
- APPROVED EXTENT OF WATER QUALITY CONTROL POND
(Patterson Britton & Partners "Conceptual layout of proposed Water Management Structures")

LOT 1 IS A PROPOSED COMMUNITY LOT

PRELIMINARY ISSUE
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REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES	 Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT Elite Constructions NSW Pty Ltd	PROPERTY DESCRIPTION SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		PROJECT SANDY BEACH			
							PLAN TITLE OVERALL SITE PLAN WITH ENGINEERING AND VEGETATION AREAS.								
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Appendix B

DRAFT ENGINEERING PLANS

239312-CENG-001(A)

100mm AT FULL SIZE



SUBDIVISION OF
LOT 22, D.P.1070182 &
LOT 497 & 498, D.P.227298
TI-TREE ROAD, SANDY BEACH
MAJOR PROJECT MP05_0083



LOCALITY SKETCH
N.T.S.

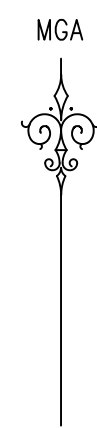
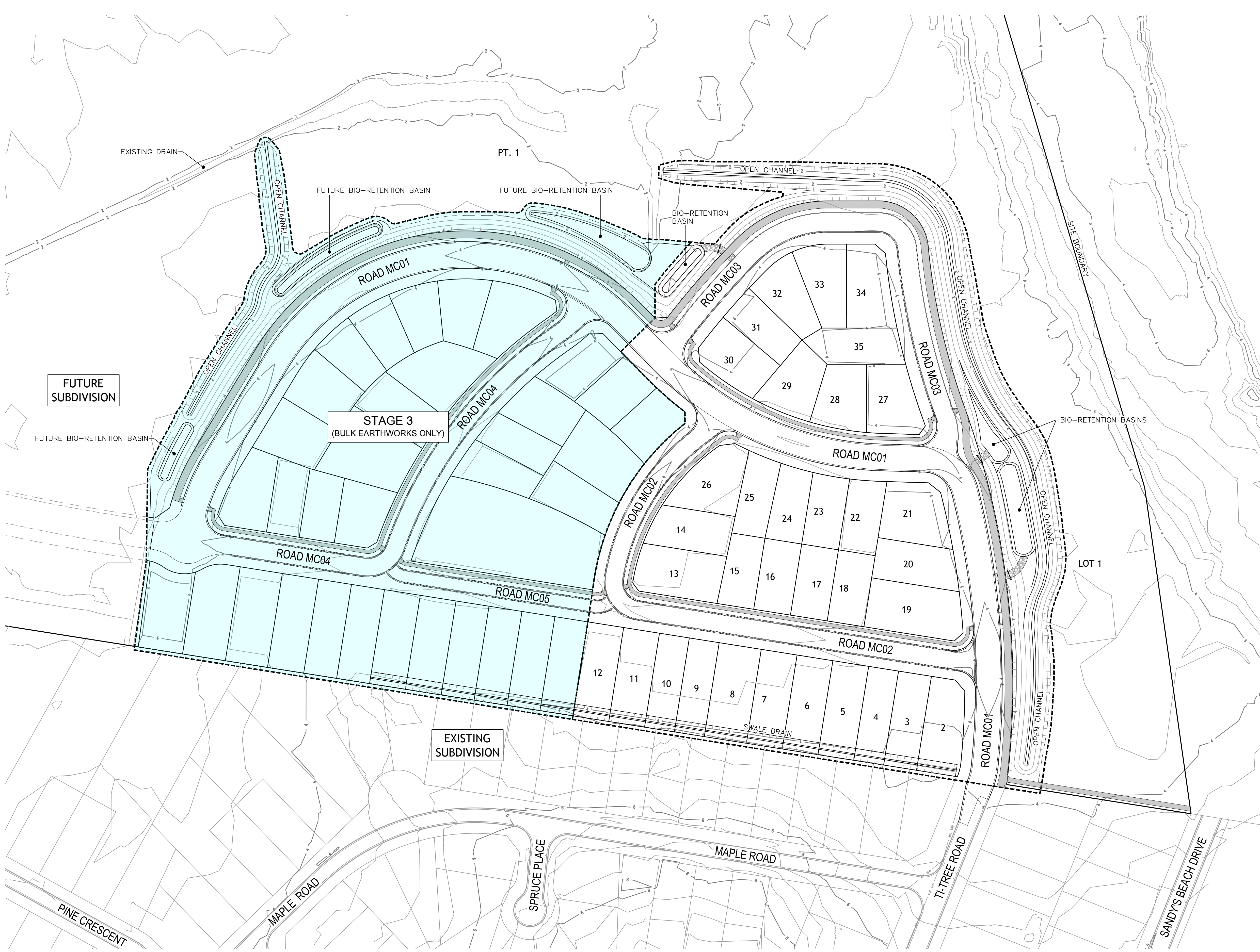
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239312-CENG-002	OVERALL SITE PLAN
239312-CENG-101	PROPOSED LOT LAYOUT AND GENERAL ARRANGEMENT – SHEET 1
239312-CENG-102	PROPOSED LOT LAYOUT AND GENERAL ARRANGEMENT – SHEET 2
239312-CENG-201	LONGITUDINAL SECTION – ROAD MC01 (CH. 0.000 TO CH. 330.000)
239312-CENG-202	LONGITUDINAL SECTION – ROAD MC01 (CH. 330.000 TO CH. 585.710)
239312-CENG-203	LONGITUDINAL SECTION – ROAD MC02
239312-CENG-204	LONGITUDINAL SECTION – ROAD MC03
239312-CENG-205	LONGITUDINAL SECTION – ROAD MC04
239312-CENG-206	LONGITUDINAL SECTION – ROAD MC05
239312-CENG-221	TYPICAL ROAD CROSS SECTIONS
239312-CENG-222	TYPICAL DRAIN SECTIONS AND BIO-RETENTION BASINS
239312-CENG-301	CUT AND FILL PLAN
239312-CENG-302	SITE SECTIONS
239312-CENG-801	EROSION AND SEDIMENTATION CONTROL PLAN
239312-CENG-802	EROSION AND SEDIMENTATION CONTROL DETAILS

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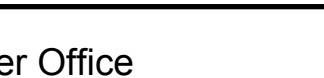
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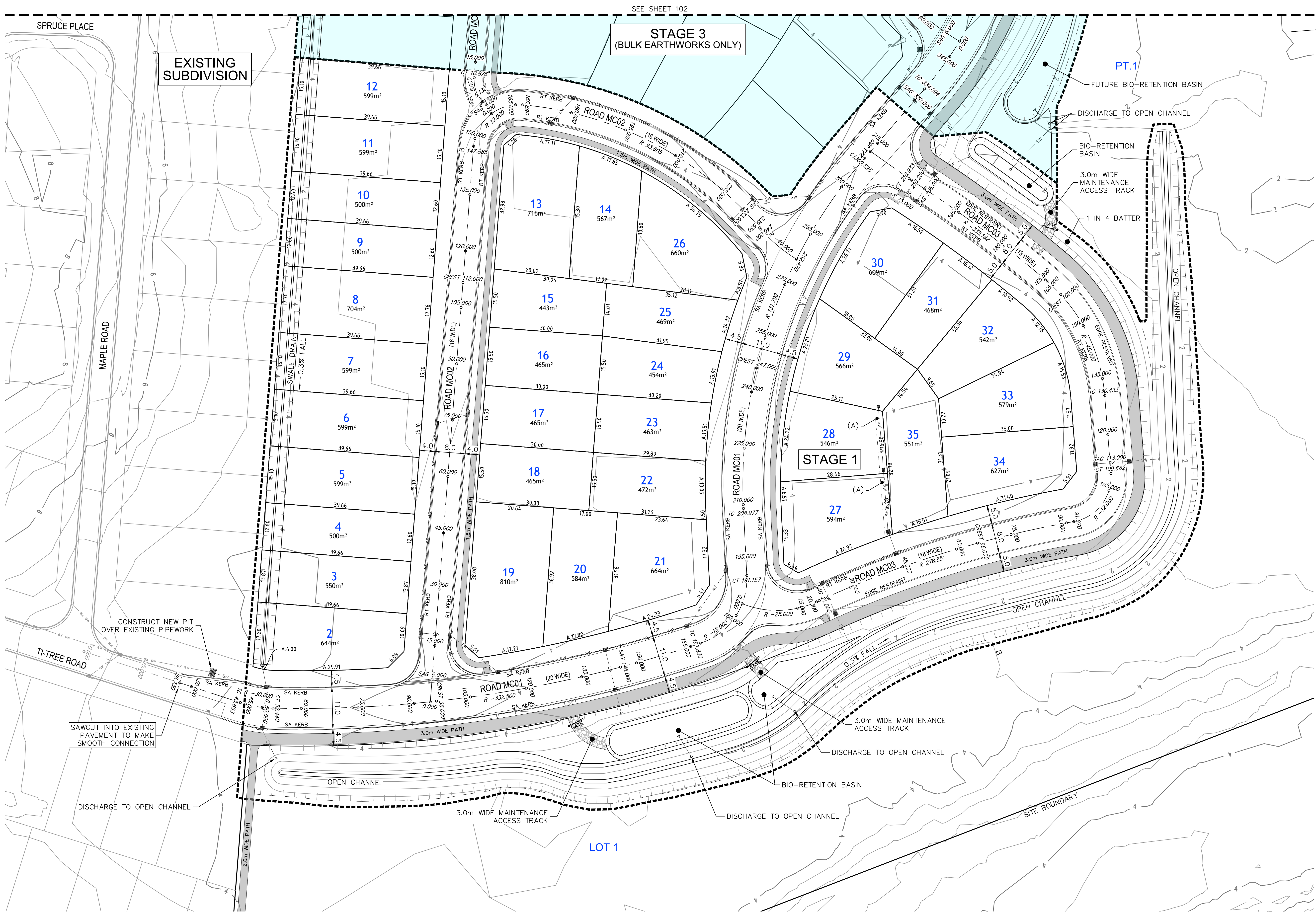
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100mm AT FULL SIZE



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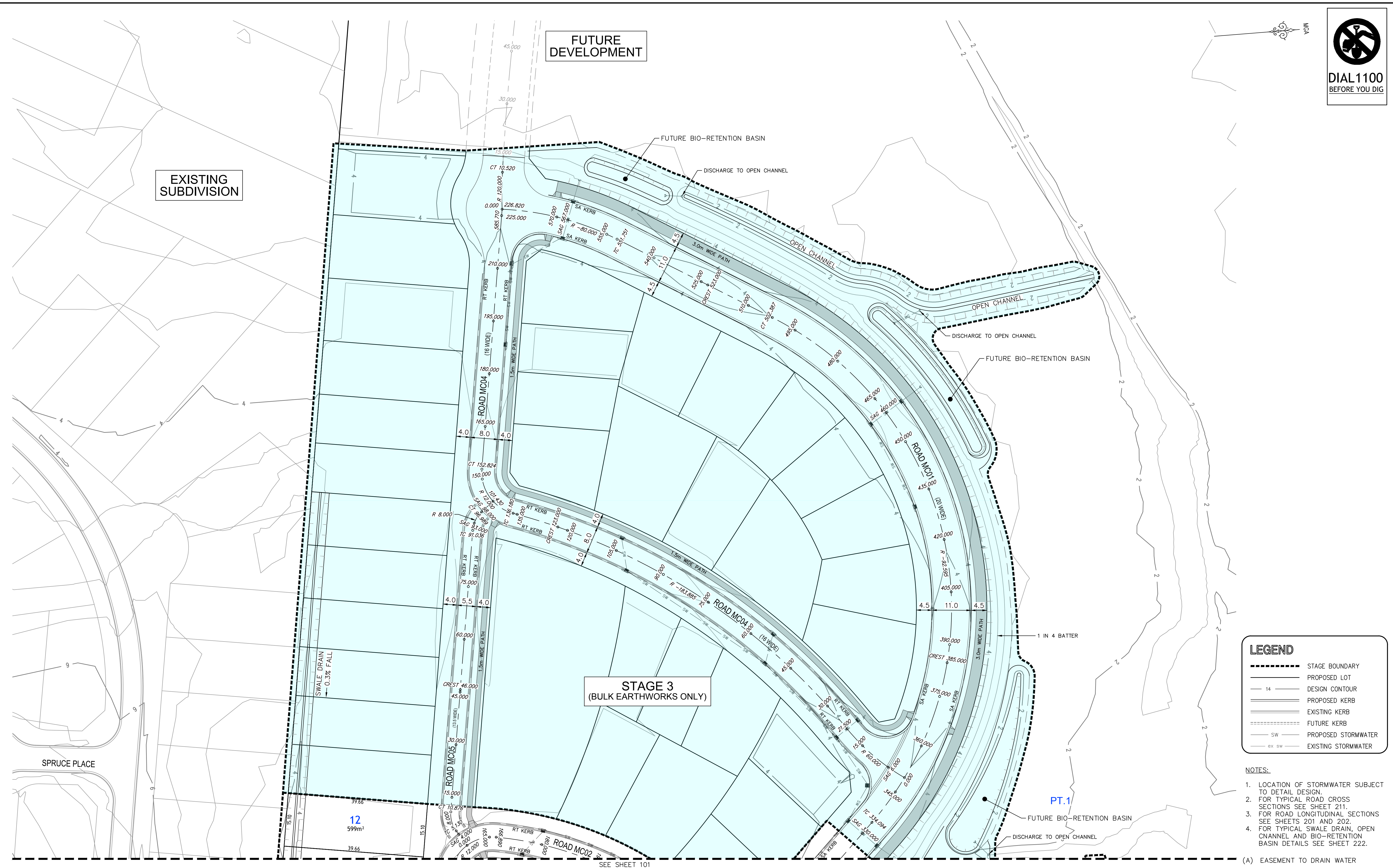
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- STAGE BOUNDARY
- PROPOSED LOT
- DESIGN CONTOUR
- PROPOSED KERB
- EXISTING KERB
- FUTURE KERB
- PROPOSED STORMWATER
- EXISTING STORMWATER

- NOTES:**
- LOCATION OF STORMWATER SUBJECT TO DETAIL DESIGN.
 - FOR TYPICAL ROAD CROSS SECTIONS SEE SHEET 211.
 - FOR ROAD LONGITUDINAL SECTIONS SEE SHEETS 201 AND 202.
 - FOR TYPICAL SWALE DRAIN, OPEN CHANNEL AND BIO-RETENTION BASIN DETAILS SEE SHEET 222.
- (A) EASEMENT TO DRAIN WATER

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LEGEND

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-----	PROPOSED LOT
-----	DESIGN CONTOUR
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-----	EXISTING KERB
-----	FUTURE KERB
-----	PROPOSED STORMWATER
-----	EXISTING STORMWATER

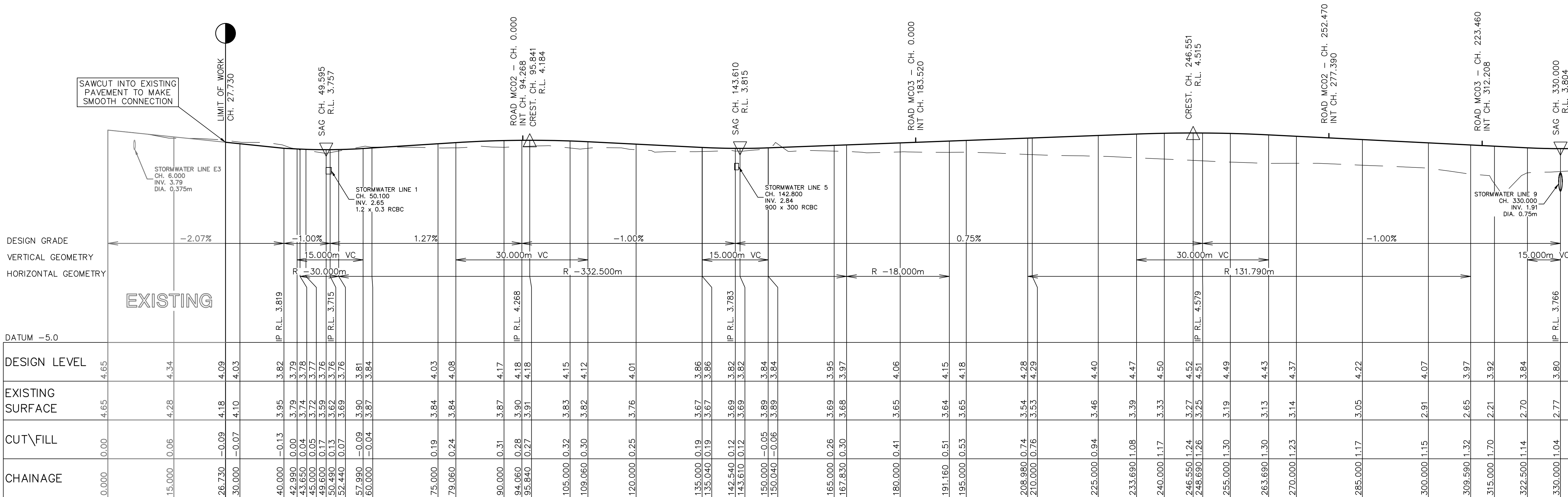
NOTES:

1. LOCATION OF STORMWATER SUBJECT TO DETAIL DESIGN.
2. FOR TYPICAL ROAD CROSS SECTIONS SEE SHEET 211.
3. FOR ROAD LONGITUDINAL SECTIONS SEE SHEETS 201 AND 202.
4. FOR TYPICAL SWALE DRAIN, OPEN CHANNEL AND BIO-RETENTION BASIN DETAILS SEE SHEET 222.

(A) EASEMENT TO DRAIN WATER

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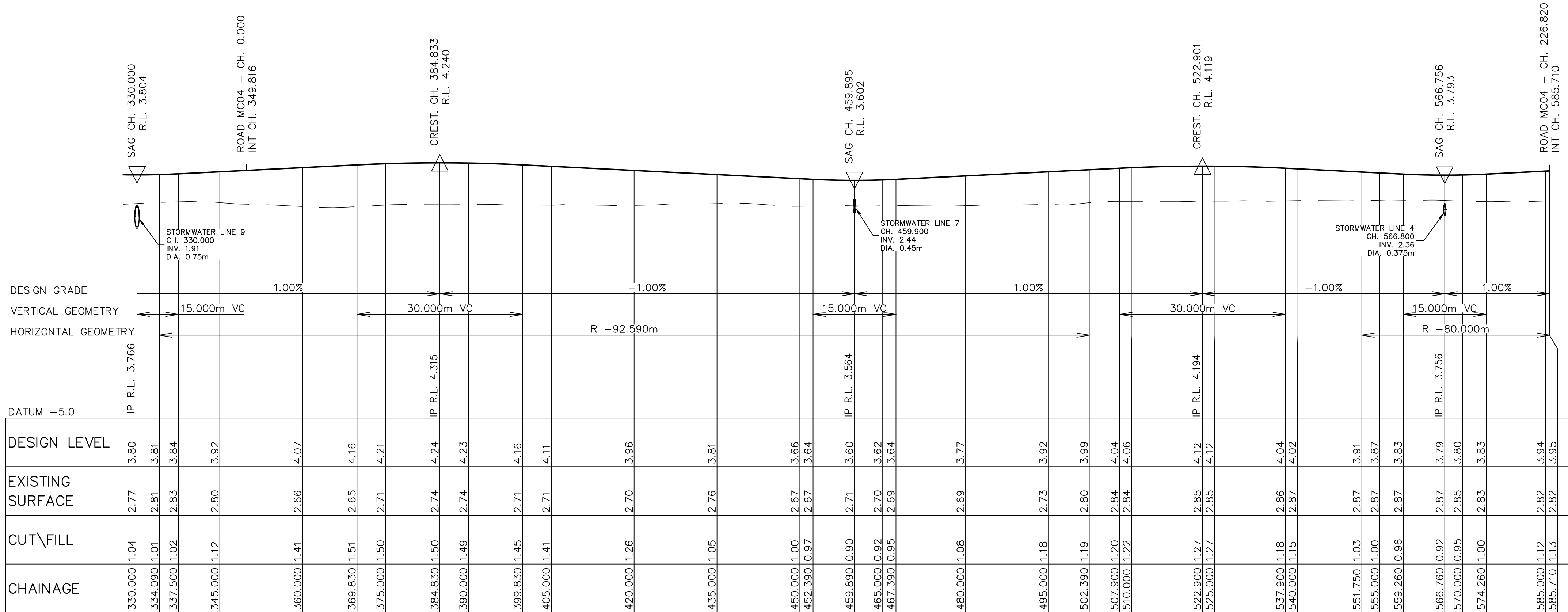


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VERTICAL SCALE 1:100

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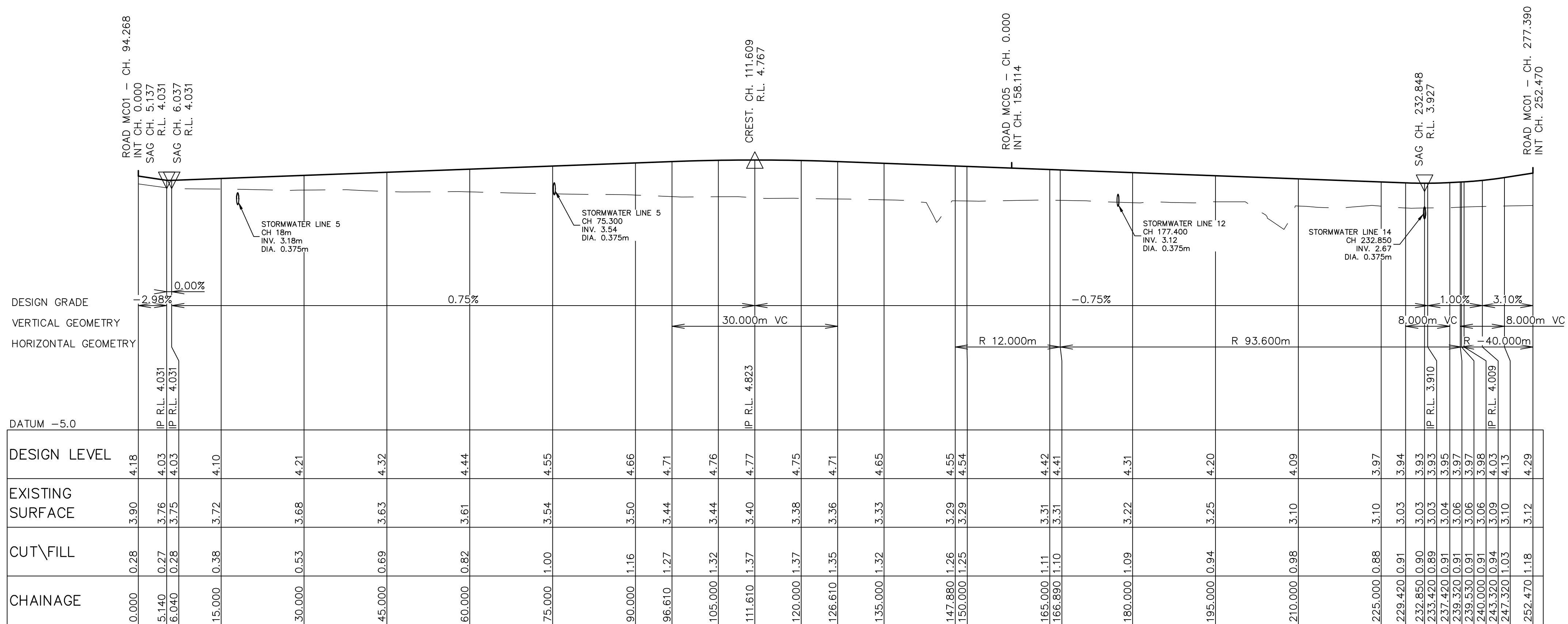
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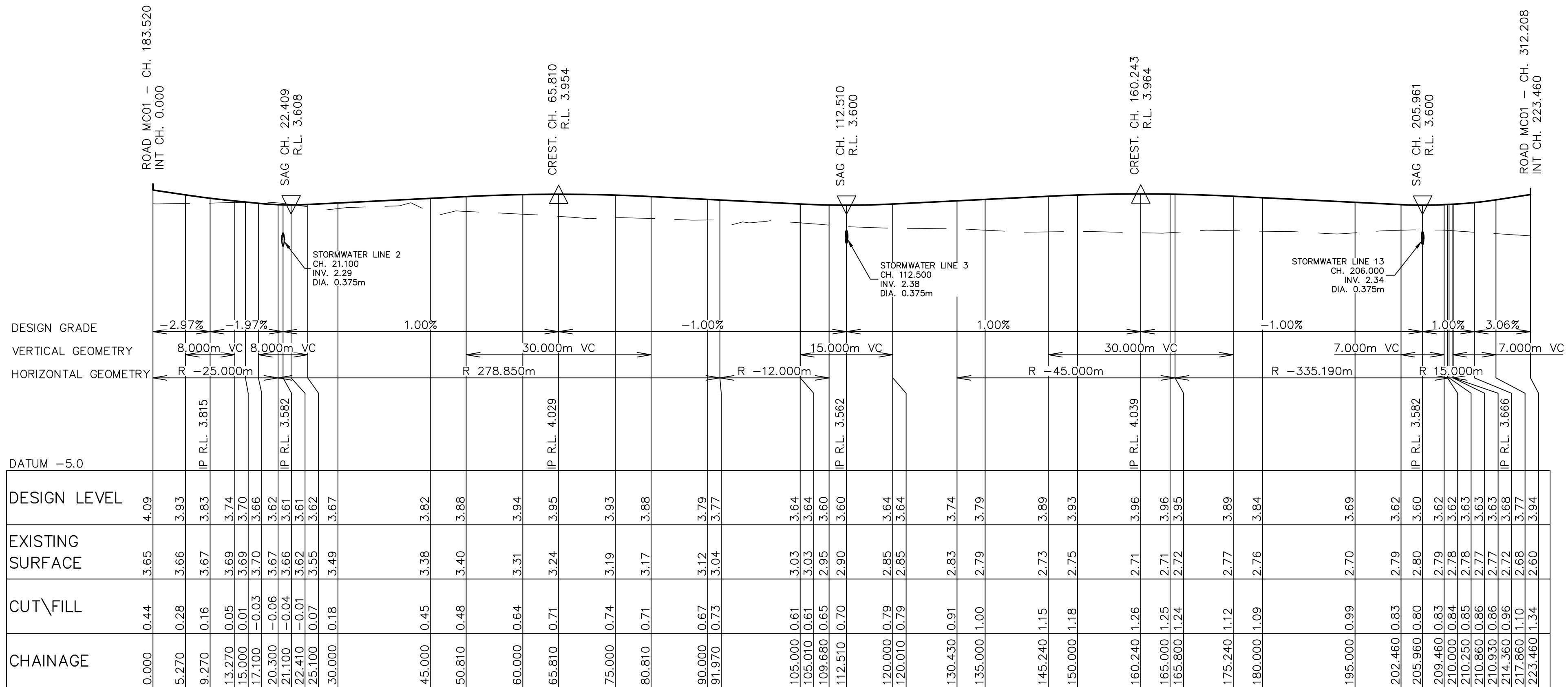
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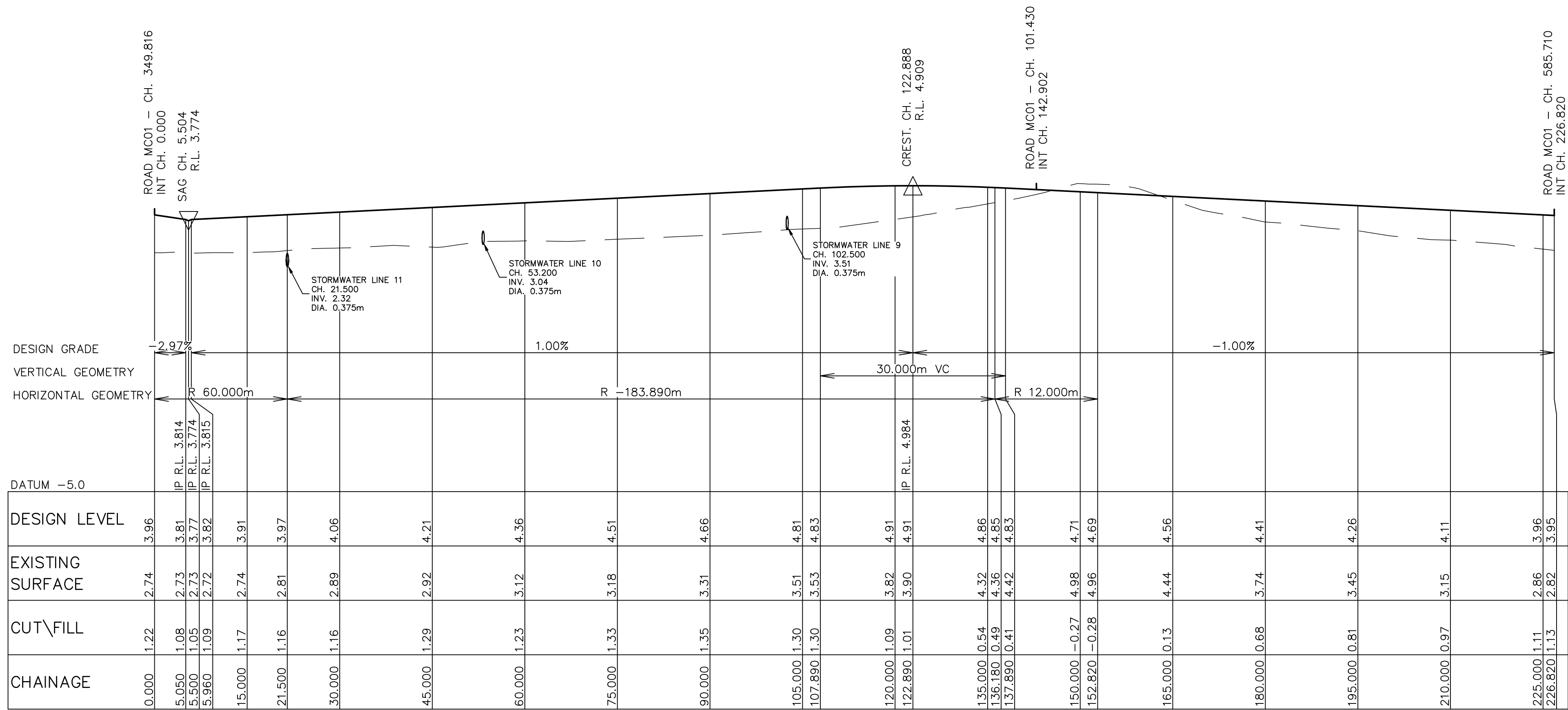
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HORIZONTAL SCALE 1:500
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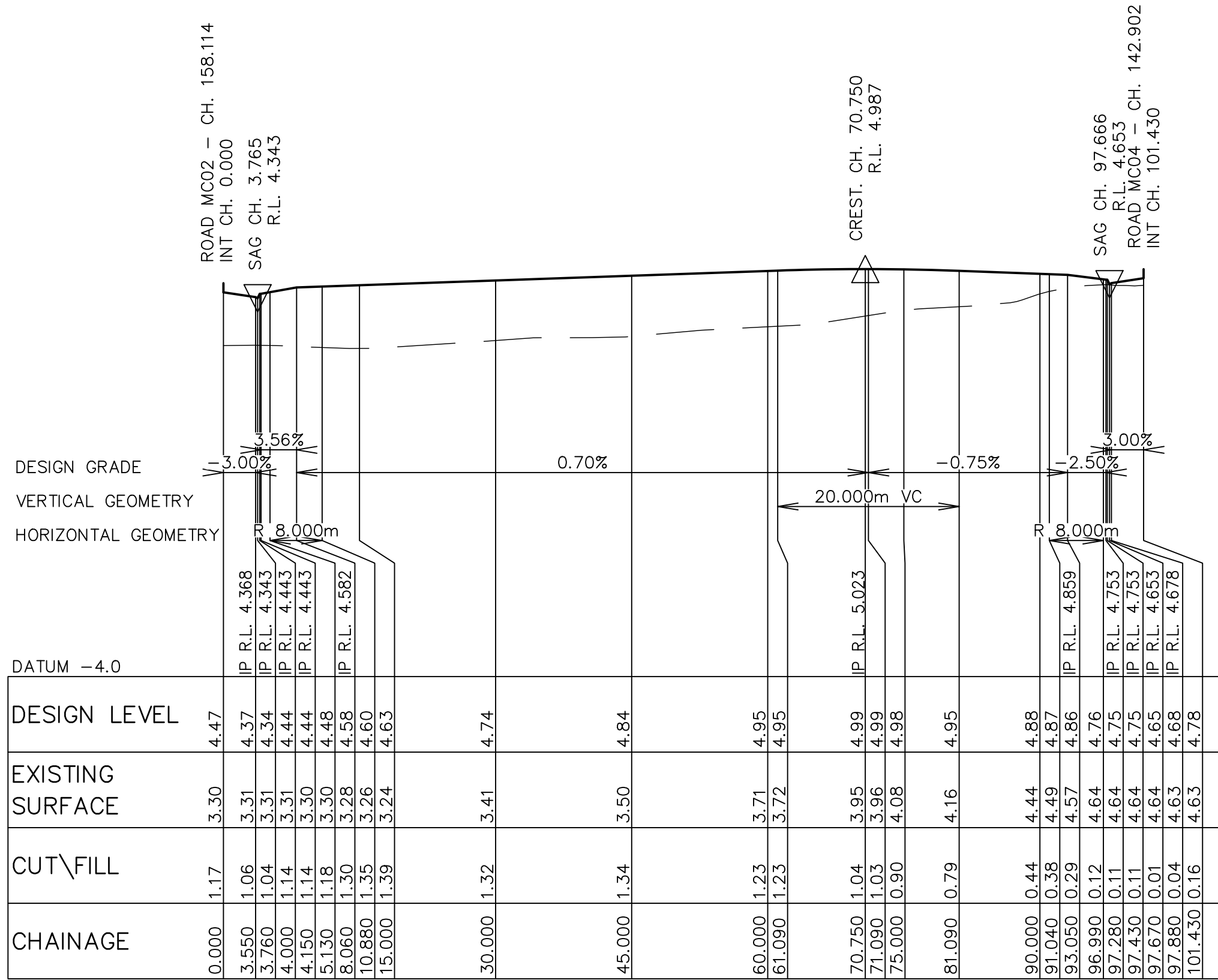


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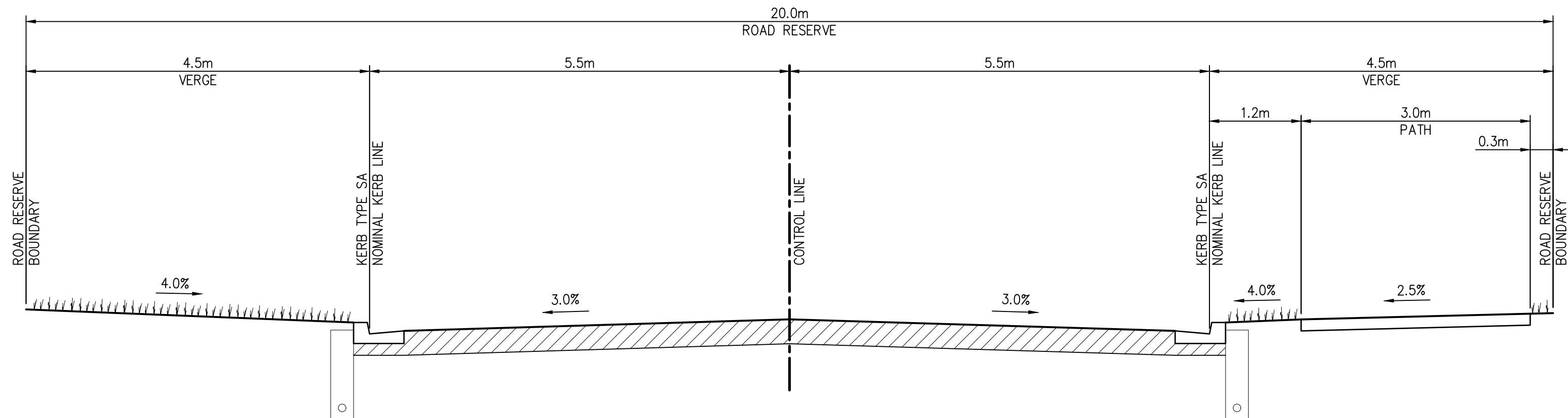


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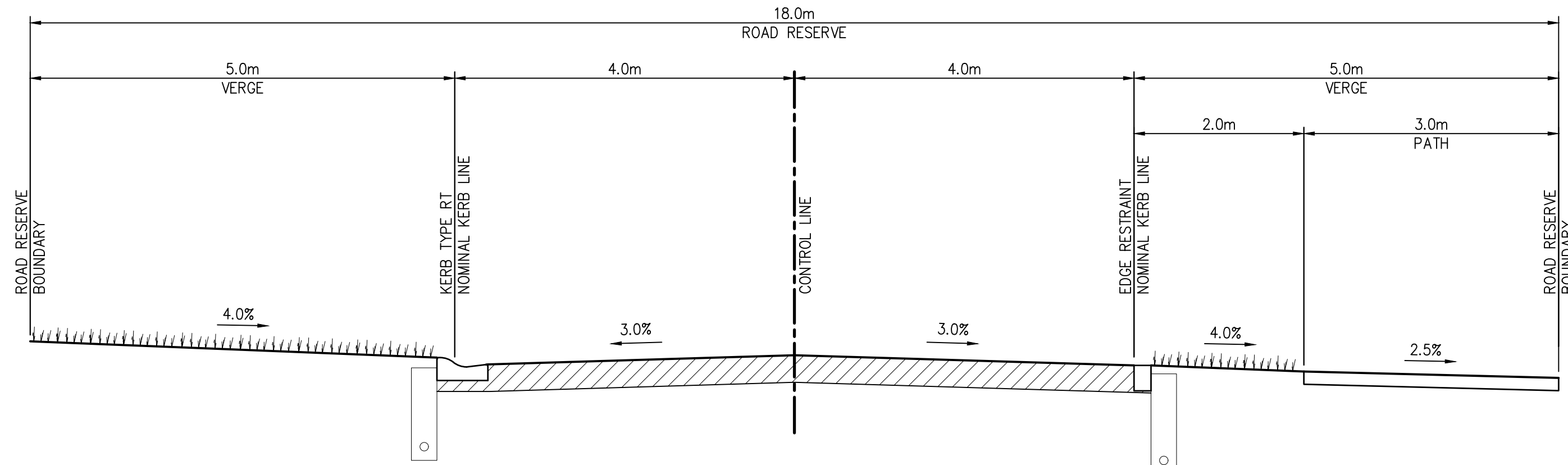
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PRELIMINARY ISSUE
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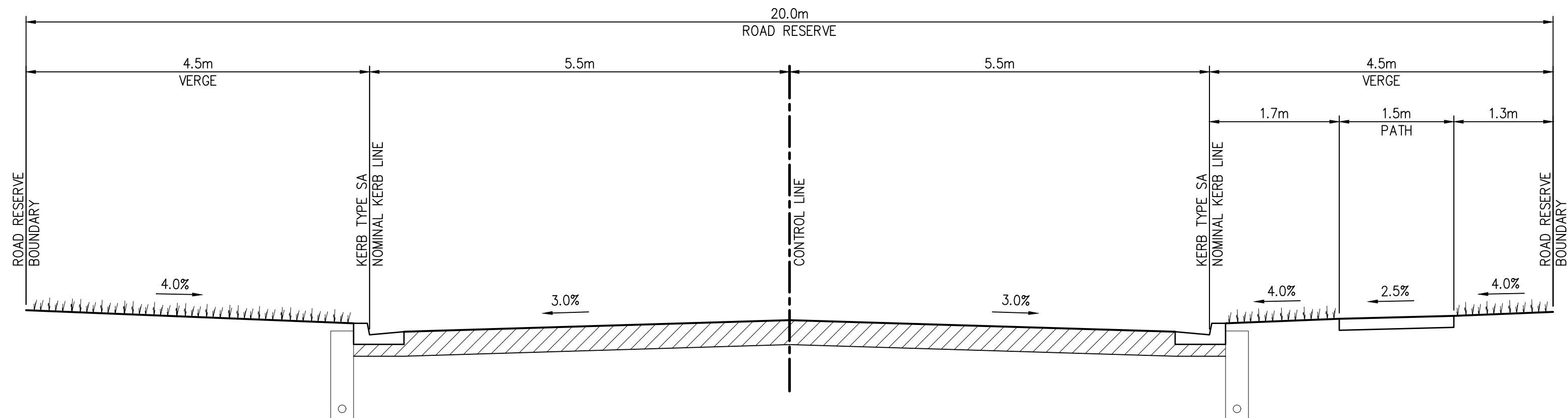
REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES		 Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT Elite Constructions NSW Pty Ltd	PROPERTY DESCRIPTION		PROJECT SANDY BEACH					
A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.	VERT  0 2 4 A1 / A3 1:100 / 1:200 HORIZ  0 10 20 A1 / A3 1:500 / 1:1000	SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH			PLAN TITLE LONGITUDINAL SECTION - ROAD MC05							
DESIGN FILE N:\							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED ADW Johnson		DATUM A.H.D.		PROJECT No. 239312	DISCIPLINE - CENG	NUMBER - 206	REV. A



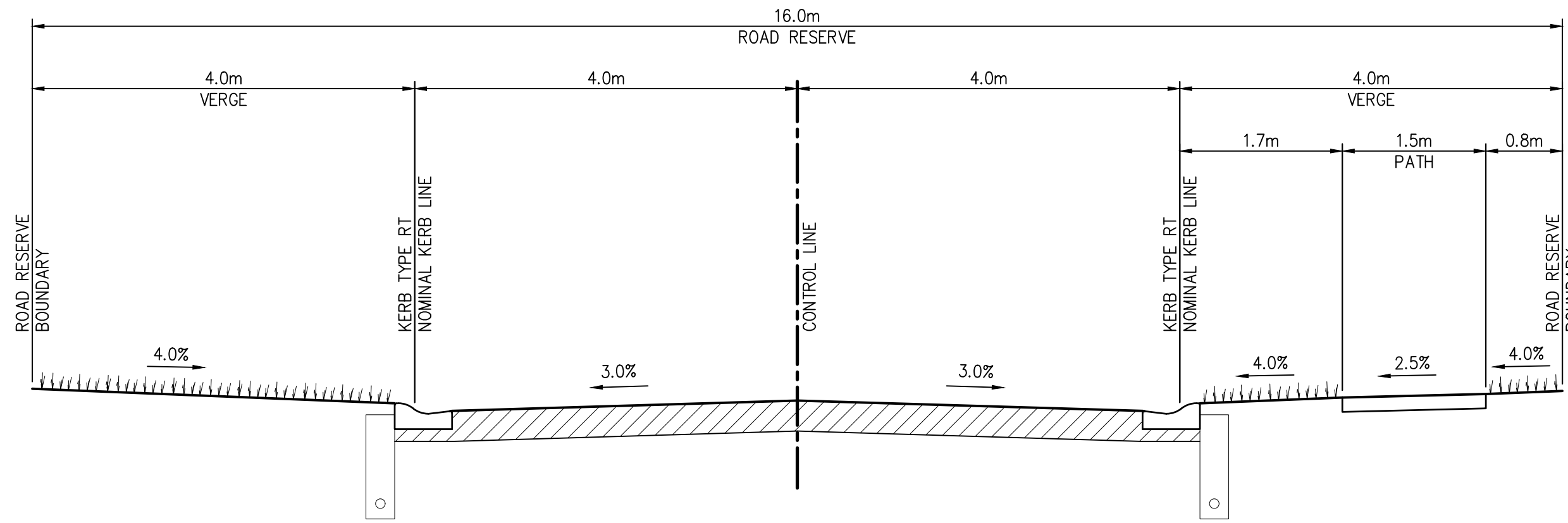
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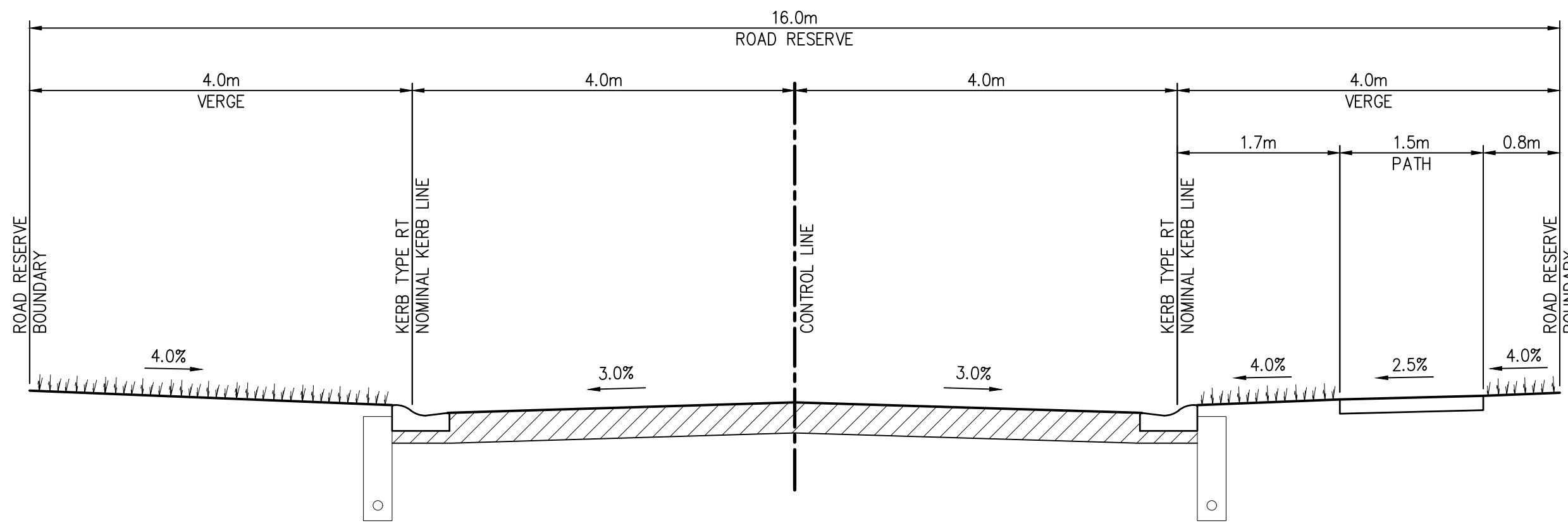
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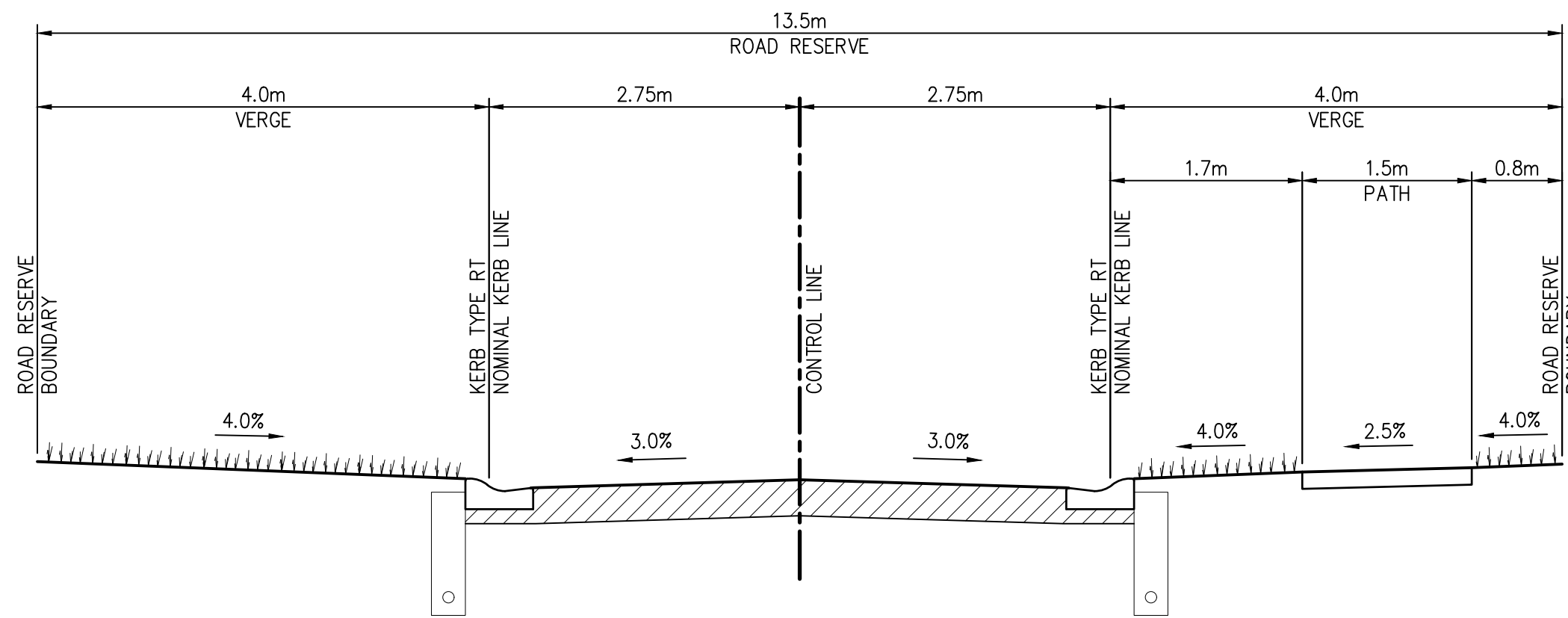
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(CH. 194.334 TO CH. 300.545)
SCALE – 1:50



TYPICAL ROAD RESERVE CROSS SECTION – ROAD MC04
SCALE – 1:50

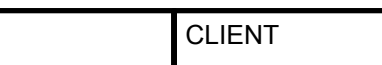


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TYPICAL ROAD RESERVE CROSS SECTION – ROAD MC05
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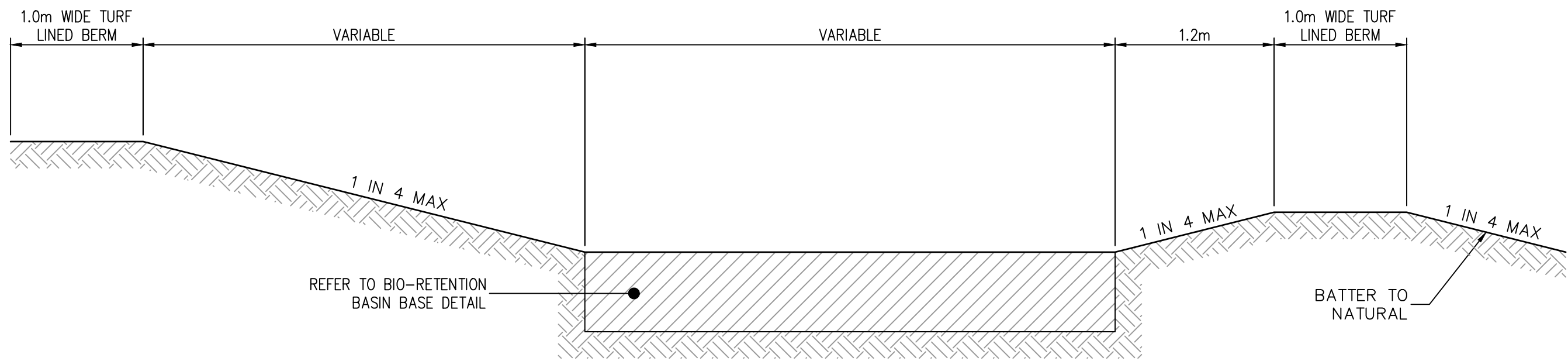
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REV.		DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES		Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT Elite Constructions NSW Pty Ltd	PROPERTY DESCRIPTION		PROJECT SANDY BEACH				
A		07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.	 A1 / A3 1:50 / 1:100				SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		PLAN TITLE TYPICAL ROAD CROSS SECTIONS				
DESIGN FILE N:\								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED ADW Johnson	DATUM A.H.D.	PROJECT No. 239312	DISCIPLINE - CENG	NUMBER - 221	REV. A	

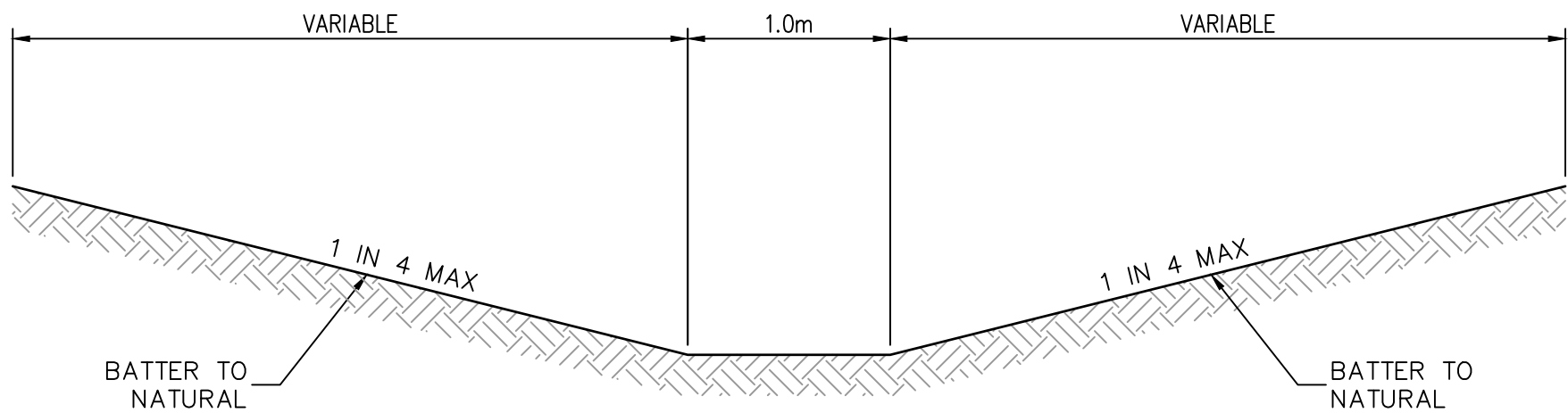
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A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.	0 1 2 1:50 / 1:100
							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

Hunter Office
Unit 7/335 Hillsborough Rd
Warners Bay N.S.W. 2282
Phone: (02) 4978 5100
Fax: (02) 4978 5199
email: hunter@adwjohnson.com.au
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ABN 62 129 445 398

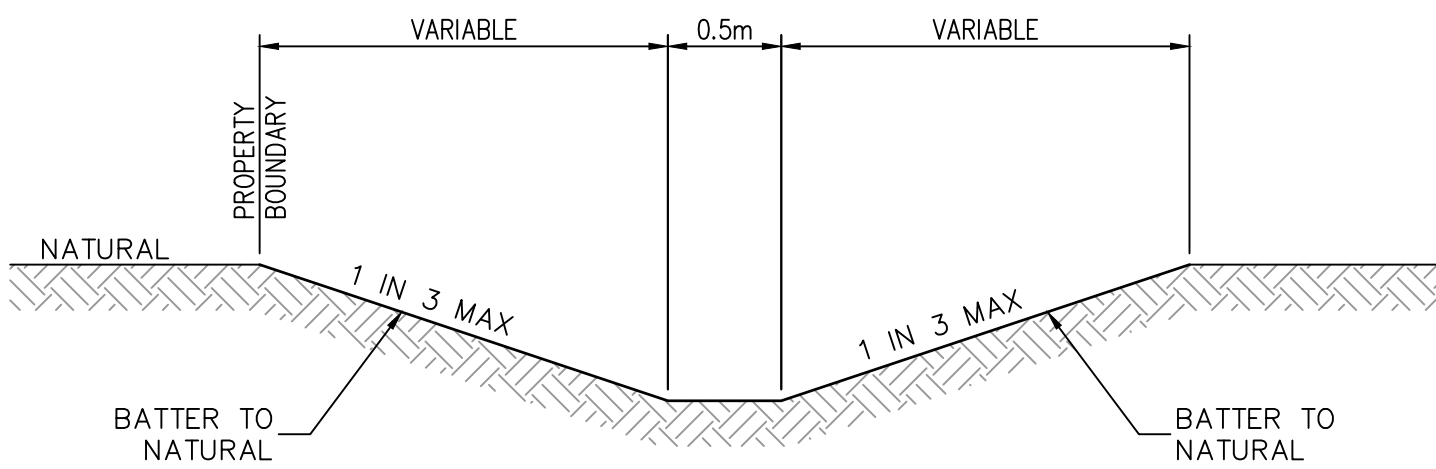
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Elite Constructions NSW Pty Ltd		SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		SANDY BEACH		
SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.	
ADW Johnson	A.H.D.	239312	- CENG	221	A	



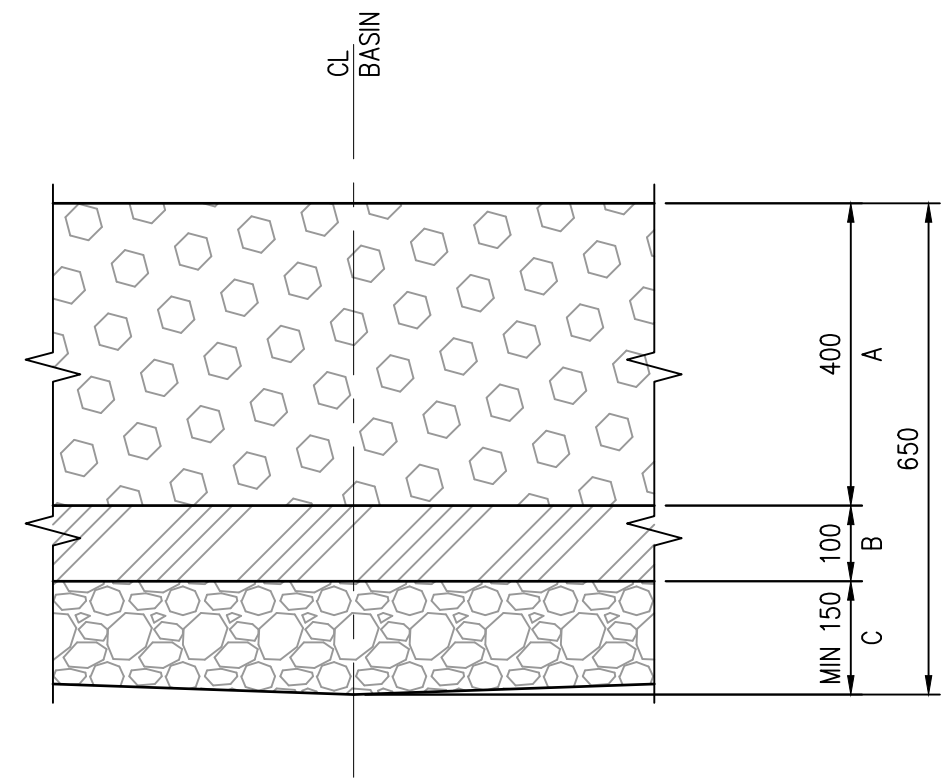
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N.T.S.



TYPICAL OPEN CHANNEL DETAIL
N.T.S.



TYPICAL SWALE DRAIN DETAIL
N.T.S.



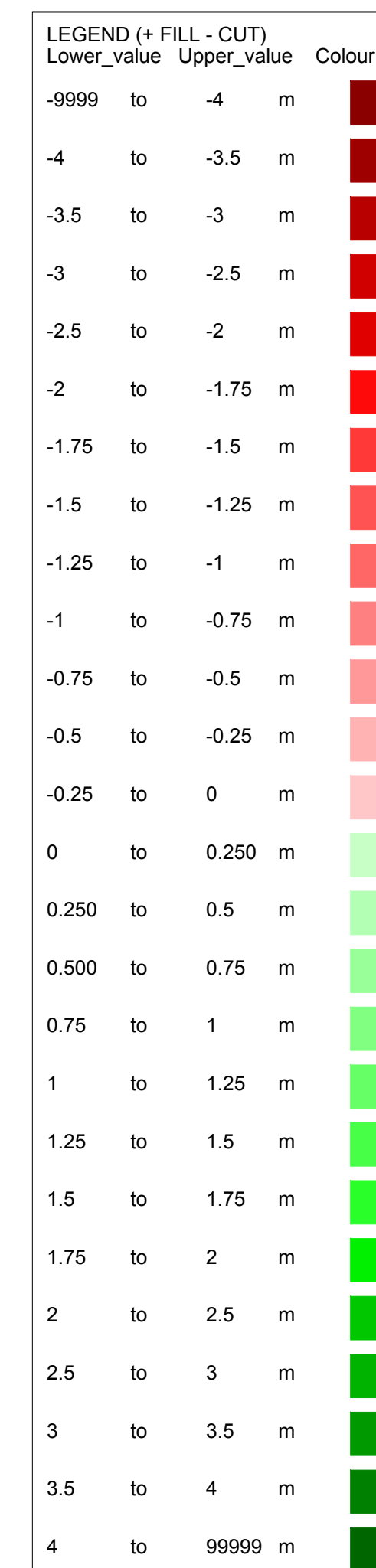
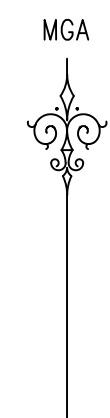
BIO-RETENTION BASIN BASE DETAIL
SCALE 1:10

BIORETENTION SPECIFICATION

LAYER	DETAILS	PARTICLE SIZE & DISTRIBUTION																		
FILTER A	- CLEAN WELL GRADED LOAMY SAND (CONTAINING ALL PARTICLE TYPES/SIZES LISTED IN THE ADJACENT COLUMN & SATISFYING THE DISTRIBUTION RANGES SPECIFIED FOR EACH) - SATURATED HYDRAULIC CONDUCTIVITY 150-250mm/hr - ORTHOPHOSPHATE CONTENT <80mg/kg - TOTAL NITROGEN <1000mg/kg - TOP 100mm SHOULD BE AMELIORATED IN ACCORDANCE WITH SECTION 3 OF FAWB FILTER MEDIA GUIDELINES.	<table><tr><td>CLAY & SILT</td><td><3%</td><td>(<0.05mm)</td></tr><tr><td>VERY FINE SAND</td><td>5-30%</td><td>(0.05-0.15mm)</td></tr><tr><td>FINE SAND</td><td>10-30%</td><td>(0.15-0.25mm)</td></tr><tr><td>MEDIUM TO COARSE SAND</td><td>40-60%</td><td>(0.25-1.0mm)</td></tr><tr><td>COARSE SAND</td><td>7-10%</td><td>(1.0-2.0mm)</td></tr><tr><td>FINE GRAVEL</td><td><3%</td><td>(2.0-3.4mm)</td></tr></table>	CLAY & SILT	<3%	(<0.05mm)	VERY FINE SAND	5-30%	(0.05-0.15mm)	FINE SAND	10-30%	(0.15-0.25mm)	MEDIUM TO COARSE SAND	40-60%	(0.25-1.0mm)	COARSE SAND	7-10%	(1.0-2.0mm)	FINE GRAVEL	<3%	(2.0-3.4mm)
CLAY & SILT	<3%	(<0.05mm)																		
VERY FINE SAND	5-30%	(0.05-0.15mm)																		
FINE SAND	10-30%	(0.15-0.25mm)																		
MEDIUM TO COARSE SAND	40-60%	(0.25-1.0mm)																		
COARSE SAND	7-10%	(1.0-2.0mm)																		
FINE GRAVEL	<3%	(2.0-3.4mm)																		
TRANSITION B	- CLEAN WELL GRADED SAND WITH LESS THAN 2% FINES. - PARTICLE SIZE DISTRIBUTION TO ENSURE FILTER MATERIAL BRIDGED	D ₁₅ (TRANSITION LAYER) ≤ 5 x D ₈₅ (FILTER LAYER) NOMINAL DIAMETER RANGE 0.6-2.0mm																		
DRAINAGE C	- CLEAN FINE GRAVEL - PARTICLE DISTRIBUTION TO ENSURE TRANSITION LAYER BRIDGED	D ₁₅ (DRAINAGE LAYER) ≤ 5 x D ₈₅ (TRANSITION LAYER) NOMINAL DIAMETER RANGE 2.0-5.0mm																		

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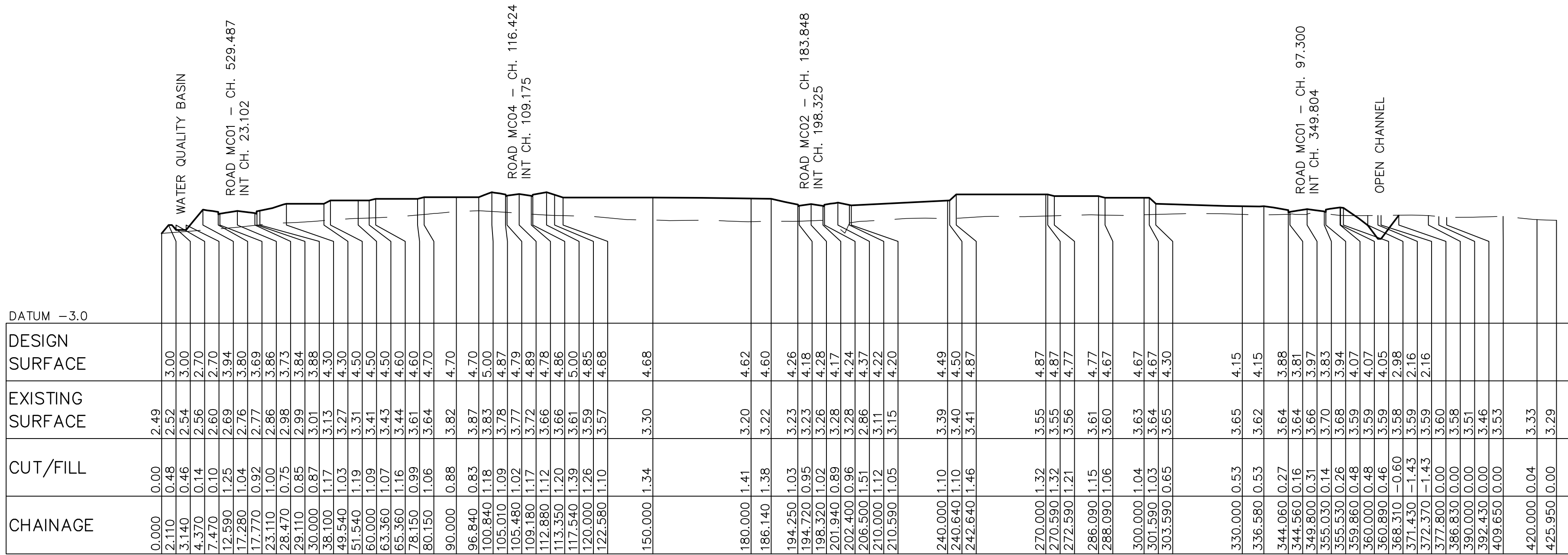
REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES		Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT Elite Constructions NSW Pty Ltd	PROPERTY DESCRIPTION		PROJECT SANDY BEACH			
A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.					SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		PLAN TITLE TYPICAL DRAIN SECTIONS AND BIO-RETENTION BASINS			
DESIGN FILE N:\							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED ADW Johnson	DATUM A.H.D.	PROJECT No. 239312	DISCIPLINE - CENG -	NUMBER 222	REV. A



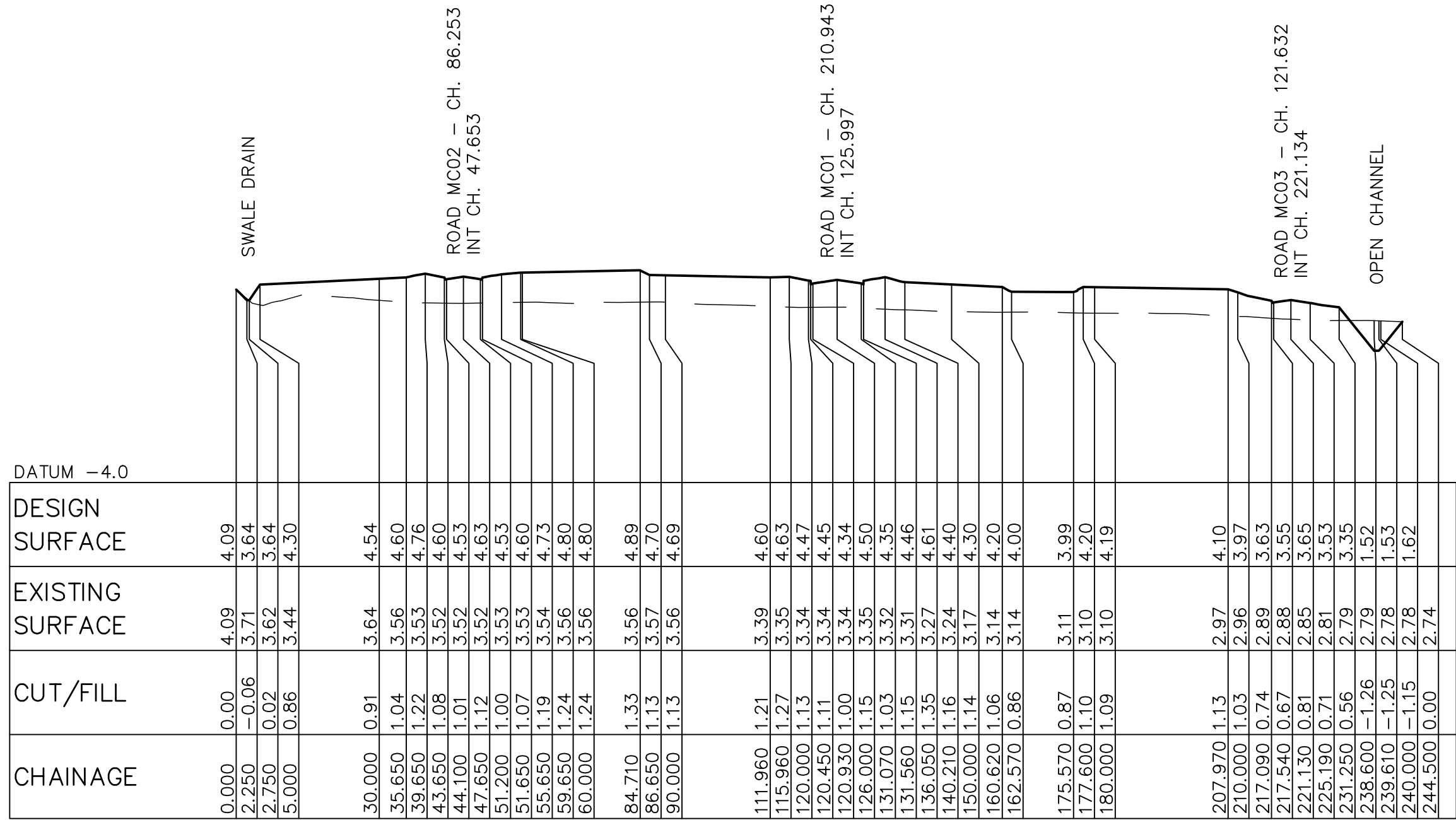
1. FOR SITE SECTIONS SEE SHEET 302.

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Plotted By: paulg Plot Date: 19/06/17 - 16:16 Cad File: N:\239312\Drawings\ENG\Concept Eng\239312-CENG-301(A).dwg



SITE SECTION B-B
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:200



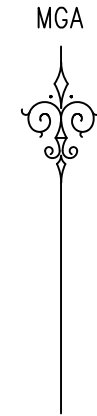
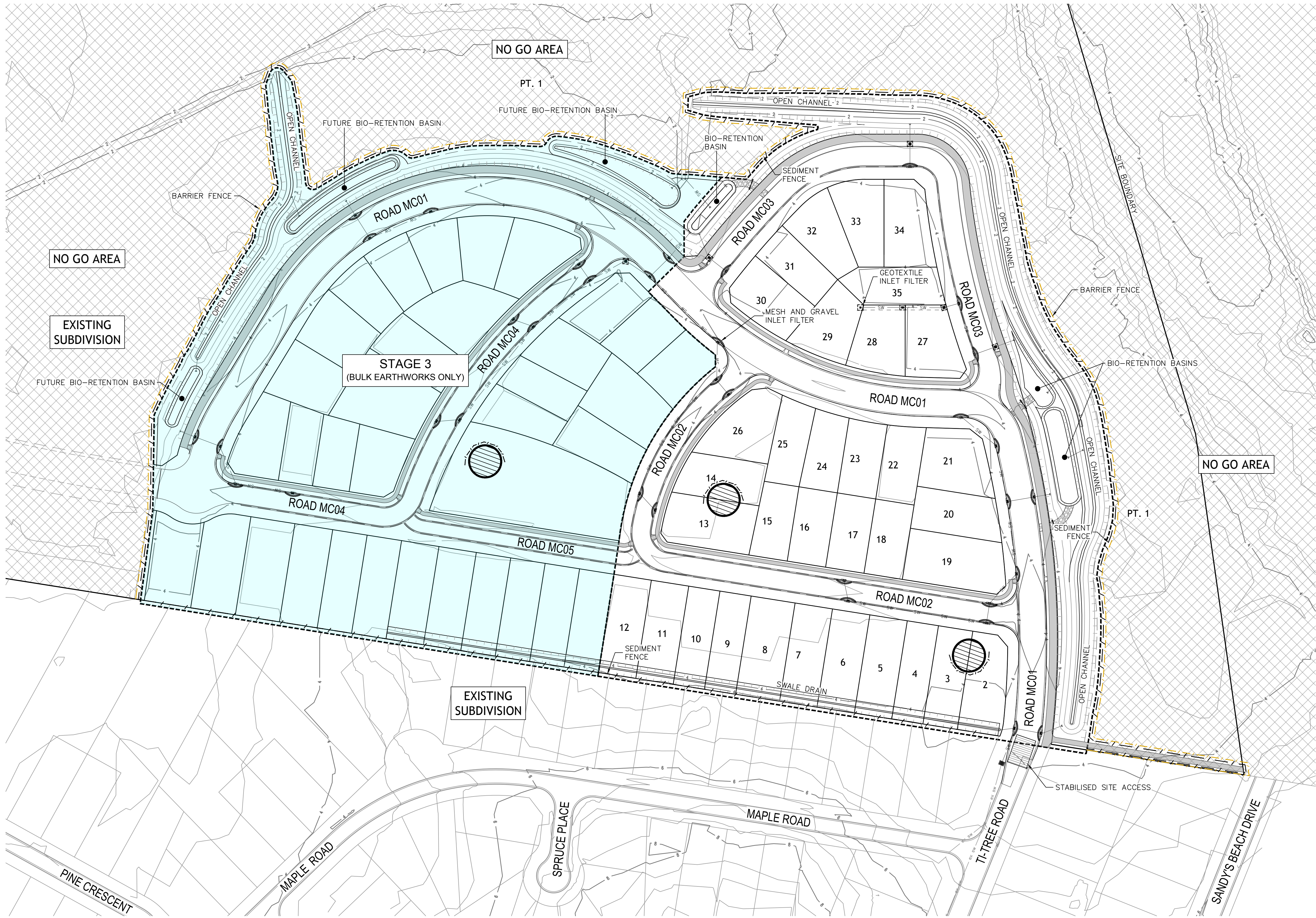
SITE SECTION A-A
HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:200

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REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES	 Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT Elite Constructions NSW Pty Ltd	PROPERTY DESCRIPTION SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		PROJECT SANDY BEACH										
A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.	PLAN TITLE SITE SECTIONS															
DESIGN FILE N:\							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE			SURVEYED ADW Johnson		DATUM A.H.D.		PROJECT No. 239312		DISCIPLINE - CENG -		NUMBER 302		REV. A		
																						

239312-CENG-801(A)

100mm AT FULL SIZE

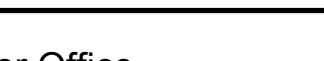


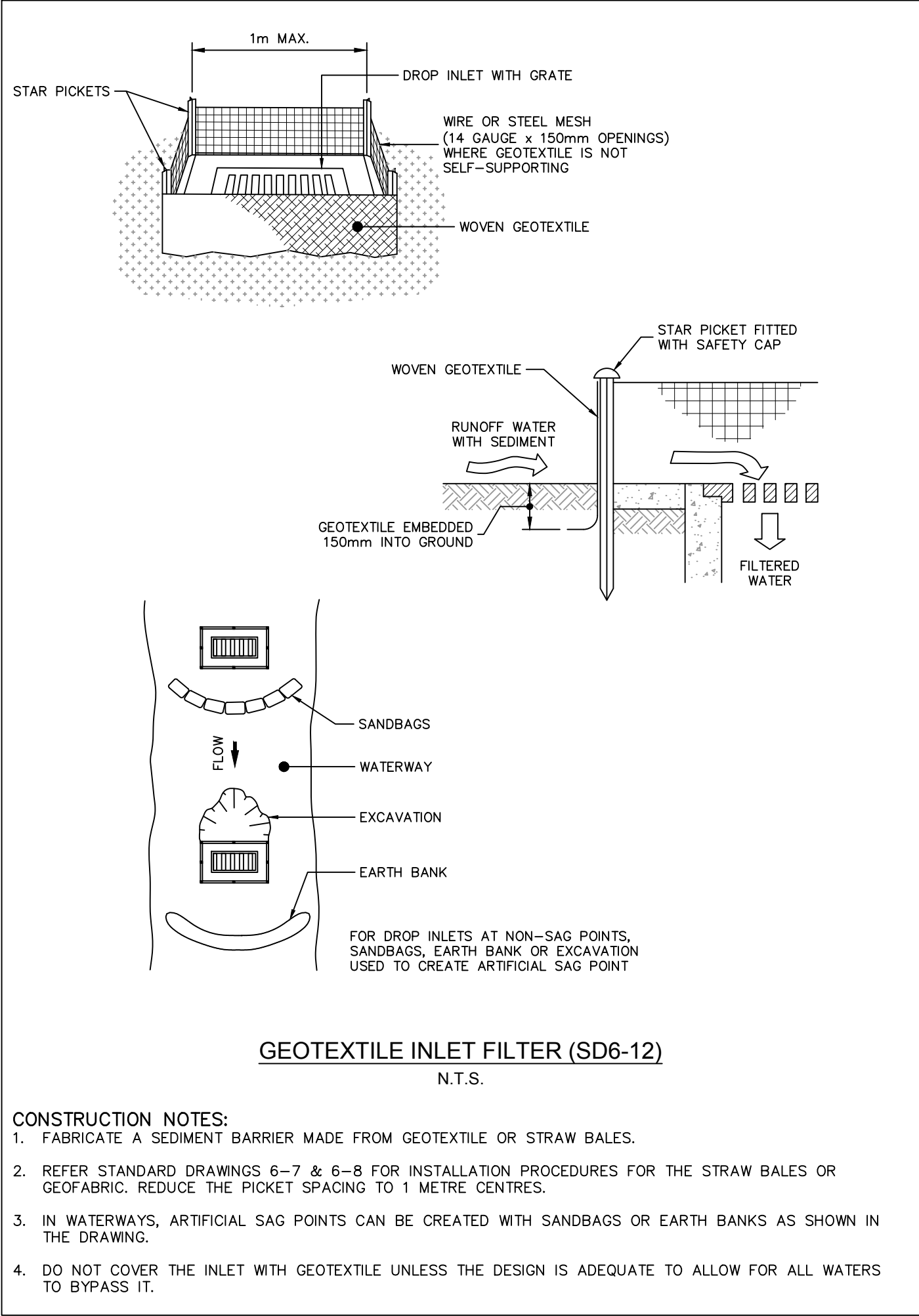
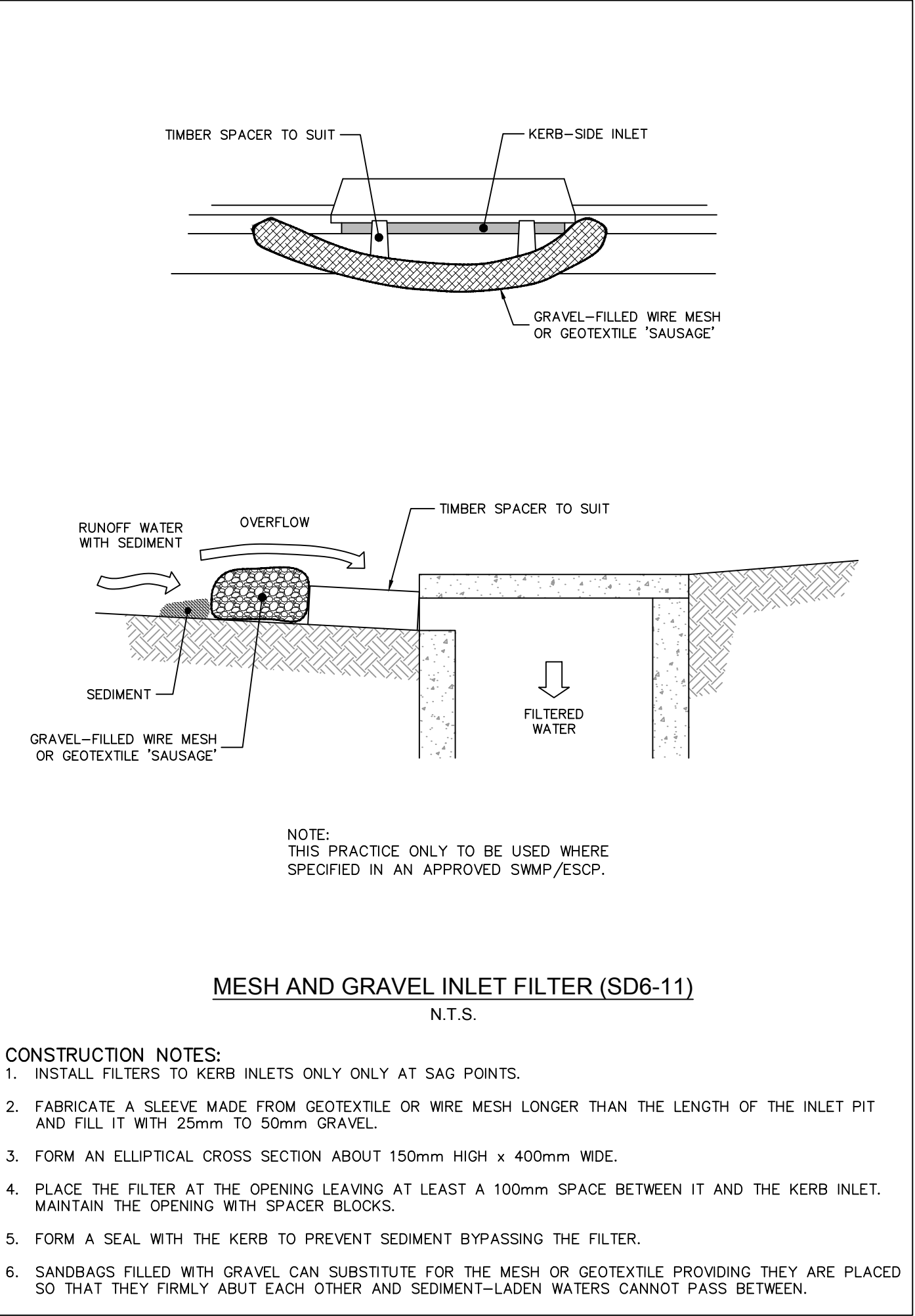
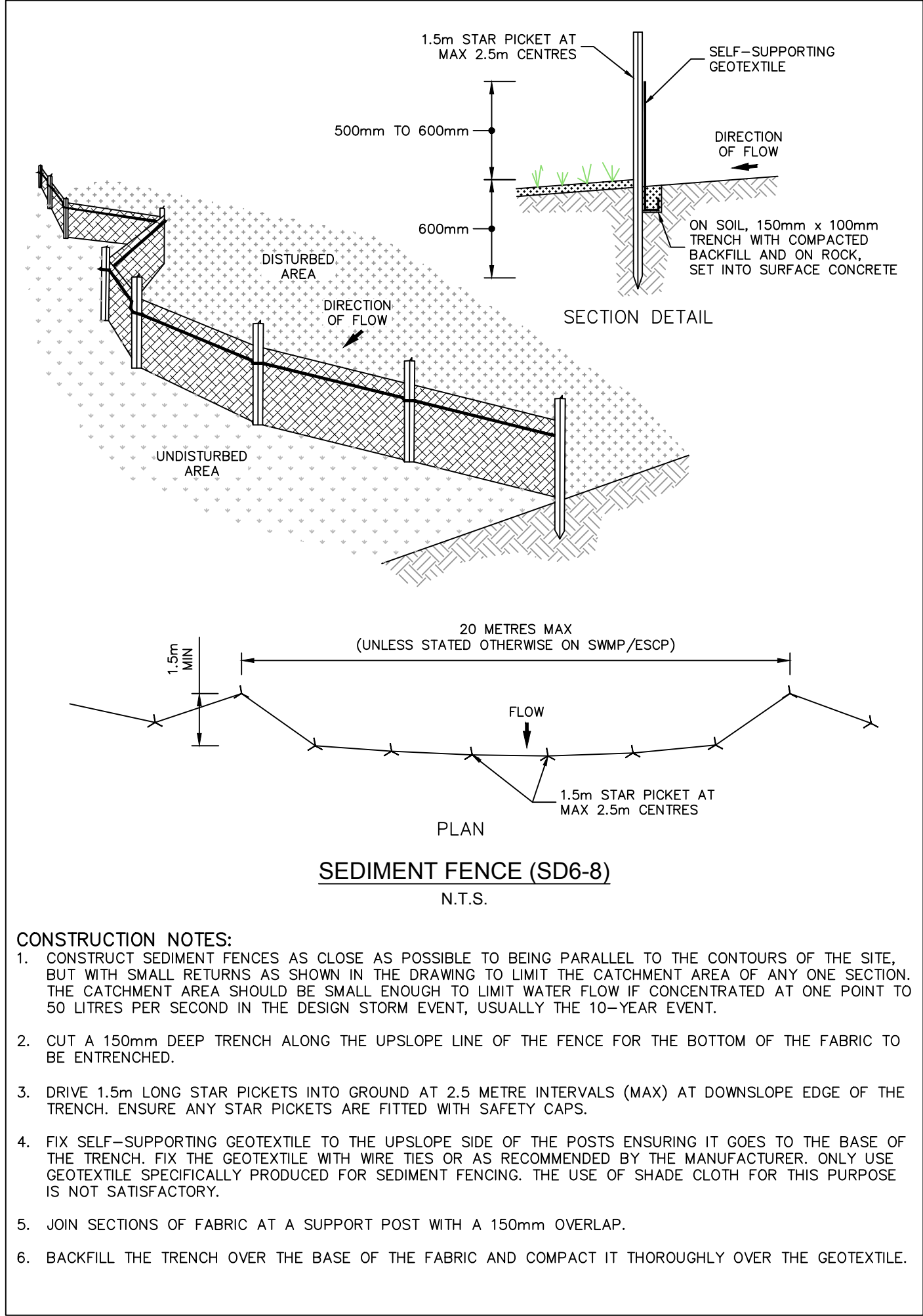
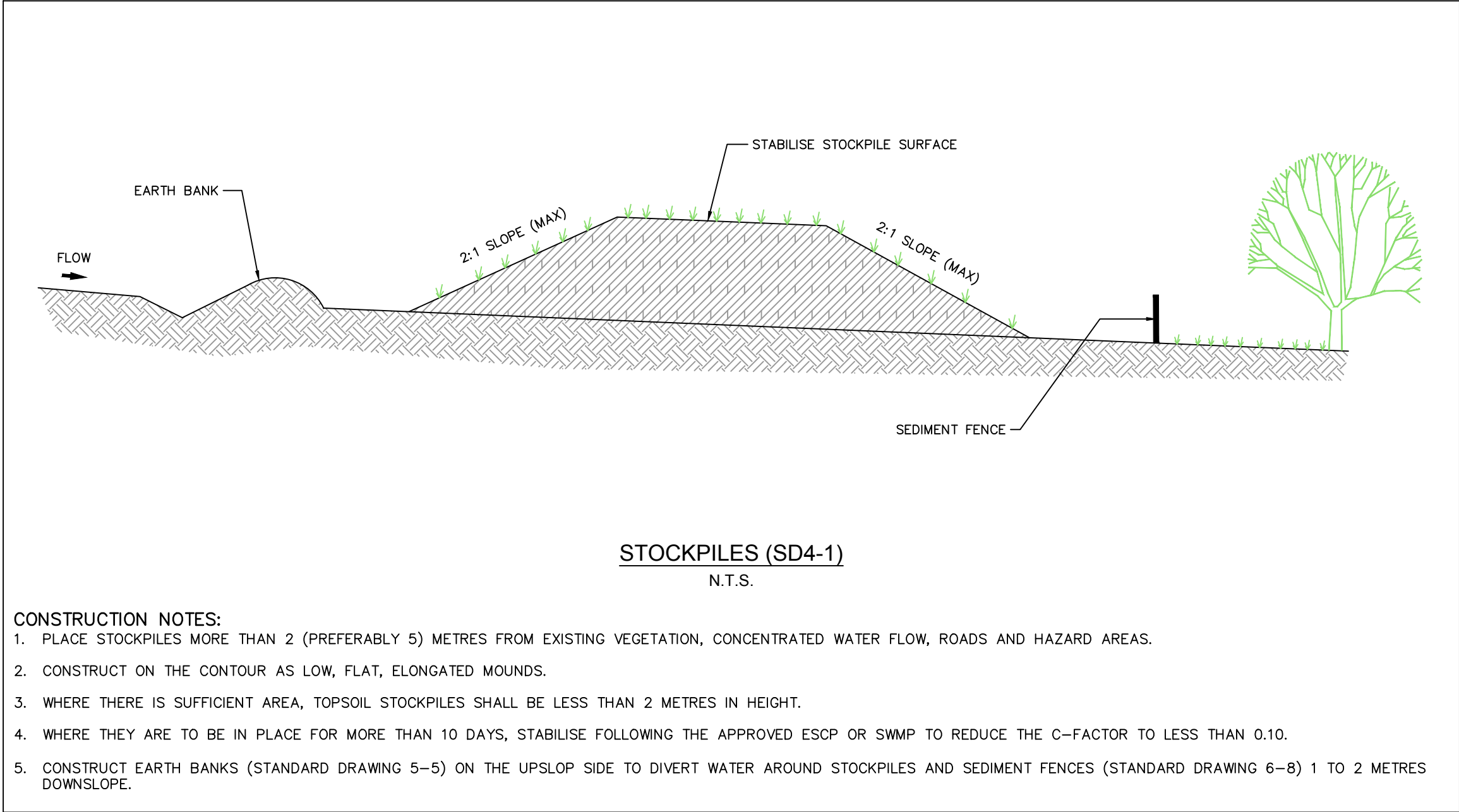
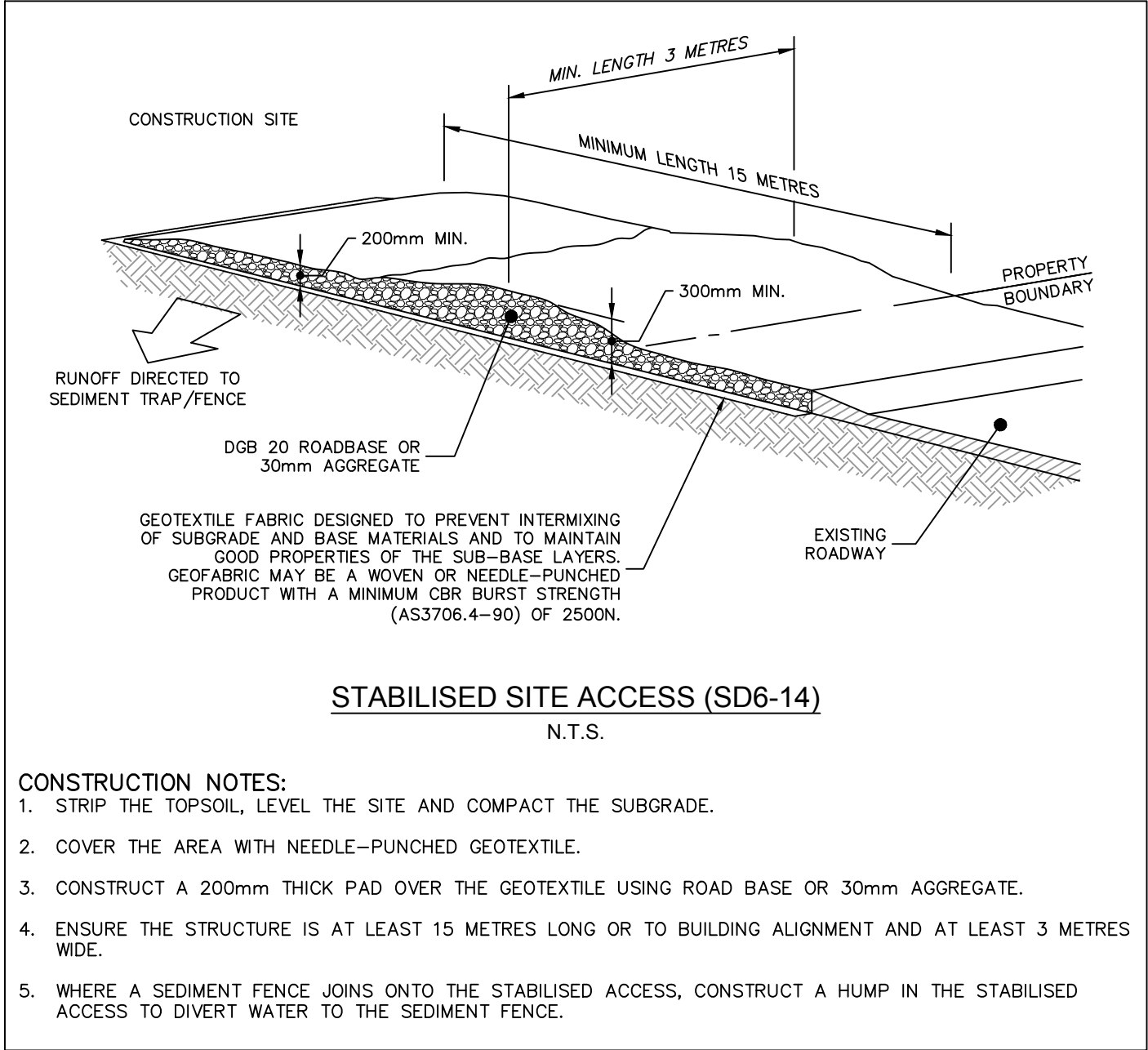
LEGEND

- EXISTING LOT BOUNDARY
- PROPOSED LOT BOUNDARY
- PROPOSED KERB
- EXISTING KERB
- DESIGN SURFACE CONTOURS
- EXTENT OF BATTER
- PROPOSED STORMWATER
- EXISTING STORMWATER
- SEDIMENT FENCE
- BARRIER FENCE
- MESH AND GRAVEL INLET FILTER
- DIVERSION DRAIN
- GEOTEXTILE INLET FILTER
- STABILISED SITE ACCESS
- PROPOSED STOCKPILE LOCATION

CONTOUR INTERVAL = 0.5m

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A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.					SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH		PLAN TITLE EROSION AND SEDIMENTATION CONTOL PLAN			
DESIGN FILE N:\							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED ADW Johnson	DATUM A.H.D.	PROJECT No. 239312	DISCIPLINE - CENG -	NUMBER 801	REV. A



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REV.	DATE	AMENDMENT	DRAWN	CHECK	DESIGN	VERIFY	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	07.06.2017	PRELIMINARY ISSUE	J.N.	L.G.	M.A.	L.G.	0 10 20 30 A1 / A3 1:600 / 1:1200	Hunter Office Unit 7/335 Hillsborough Rd Warners Bay N.S.W. 2282 Phone: (02) 4978 5100 Fax: (02) 4978 5199 email: hunter@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	Elite Constructions NSW Pty Ltd	SUBDIVISION OF LOT 22, D.P.1070182 & LOT 497 & 498, D.P.227298 TI-TREE ROAD, SANDY BEACH	SANDY BEACH	ADW Johnson	A.H.D.	239312	- CENG -	802	A
DESIGN FILE N:\			ALL DIMENSIONS ARE IN METRES. DO NOT SCALE														

Appendix C

DRAFT LANDSCAPE PLANS

LOT 22 DP1070182 & LOT 497 & 498 DP227298

SANDY BEACH NORTH STATEMENT OF LANDSCAPE INTENT

FOR:
Elite Construction NSW Pty Ltd
June 2017

CONTENTS

Location & Context	1<
Design Statement	2<
Landscape Master Plan	3<
Landscape Planting Plan	4<
Typical landscape section	5<
Planting Palette	6<

LOCATION & CONTEXT

The subject site comprises the follow property descriptions:

- Lot 22 on DP1070182,
- Lot 497 on DP227298, &
- Lot 498 on DP227298

Located in the area known as Sandy Beach of Woolgoolga within the Coffs Harbour Local Government Area (LGA) the site is approximately 22km north of Coffs Harbour.

The site is defined by the Pacific Highway to the west, the coastal foreshore to east, existing residential pocket to the south and Hearn's Lake wetland environment to the north.

The site comprises direct access to the coastal foreshore and beach environment of Sandy Beach. The Dammerels Head coastal seascape feature provides a clearly defined natural landscape marker to the south of the site.

With close proximity to the Pacific Highway future residents will have convenient access to the surrounding services and wider natural landscape features, such as the Wedding Bells State Forest. The State Forest provides a visually prominent backdrop to the west.

The site currently comprises a coastal rural character framed by low density residential development.



Image courtesy of Google Maps



Images courtesy of onthehouse.com.au

DESIGN STATEMENT

The key landscape design principles applied to the landscape concept comprise the following:

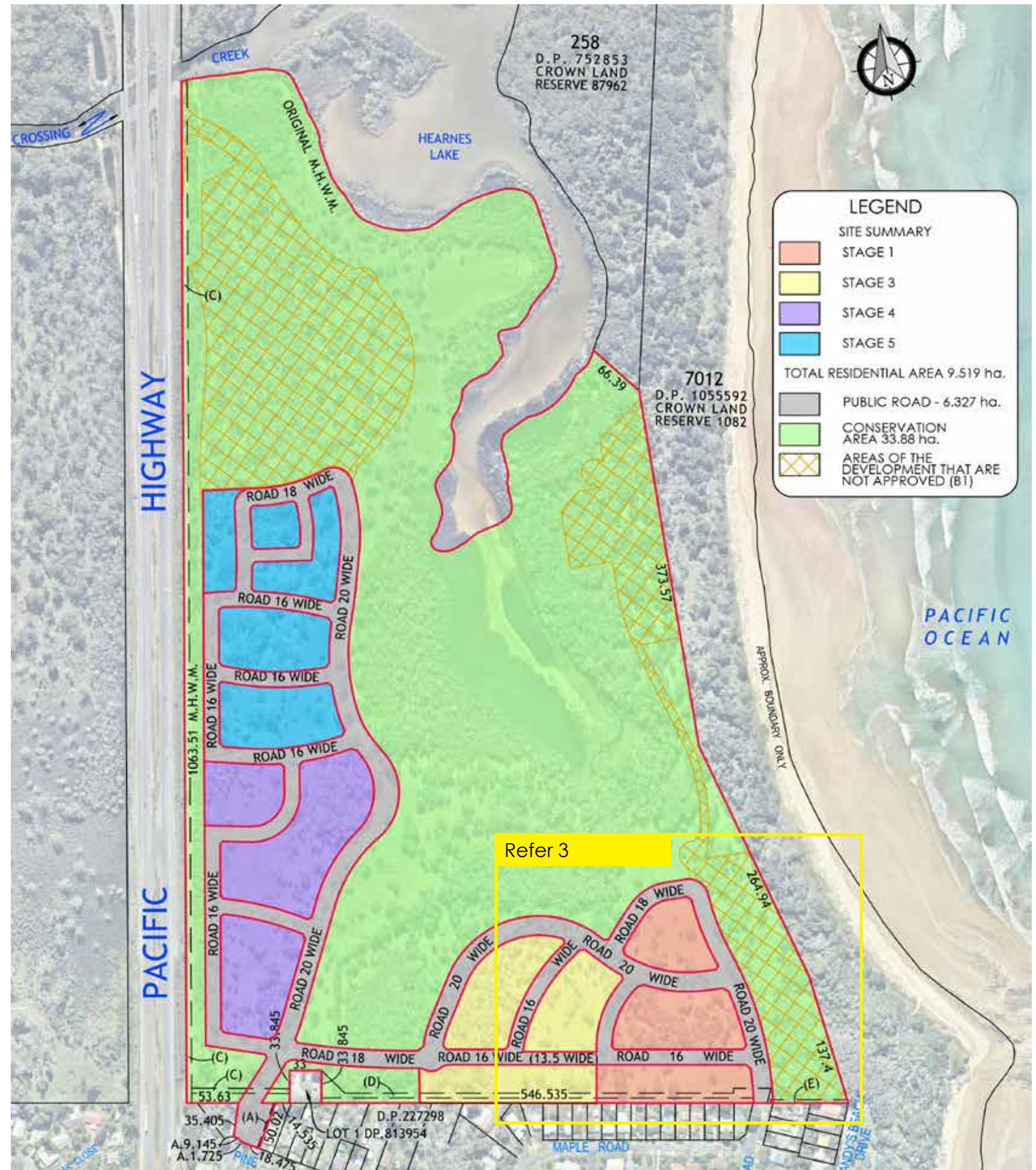
- Enhancing (maximising planting opportunities)
- Connected (multiple access points and lines of movement)
- Diverse (a planting palette that provides a mix of natives and exotics)
- Enduring (sustainable and resilient material selection)
- Comfortable (humanised scale where you can be yourself)
- Vibrant (providing spaces for spaces for interaction and activity)
- Safe (open sight lines and security where appropriate)

The landscape concept for the proposed residential development is based on the surrounding context, response to the proposed urban and civil layout, and the desired outcomes of the Coffs Harbour Development Control Plan 2015.

The design intent is to contribute positively to the image, identity and overall quality of Sandy Beach providing a contemporary landscape environment reflective of the above landscape design principles.

The landscape concept plan comprises the following key design outcomes:

- Coastal suitable street tree planting with an informal character to reflect the relaxed coastal character (refer to planting palette)
- Provision for 3m wide concrete shared pedestrian and bicycle path along coastal park frontage with links to surrounding residents
- Vehicle control and access to future dedicated public open space
- Integration of Water Sensitive Urban Design devices within the dedicated public open including appropriate plant selection (refer to planting palette)
- Provision of 1.5m wide concrete footpath within turf verge for future residents and visitors.



Schematic Development Plan courtesy of MHDP Architects Pty Ltd

LANDSCAPE MASTER PLAN

Legend

- 1 Landscape entry statement (subject to detail design and approval)
- 2 3m wide concrete shared pedestrian and bicycle path (selected colour oxide and finish)
- 3 Coastal street tree planting (refer to planting palette)
- 4 Maintenance vehicle control access gate within alignment of timber bollards (to Coffs Harbour City Council specifications)
- 5 Planted Water Sensitive Urban Design stormwater quality device (refer to planting palette)
- 6 Potential future controlled pedestrian beach access path (subject to future detail design and approval)
- 7 Turf seeding to Stage 3 bulk earthworks (subject to detail design and approval)
- 8 Coastal buffer tree planting to future dedicated public open space
- 9 Indicative driveway locations based on proposed typical dwelling architectural layouts
- 10 Existing residential houses



LANDSCAPE PLANTING PLAN

Legend

- Primary Street Tree (HARPULLIA pendula)
- Secondary Street Tree (CUPANIOPSIS anacardioides)
- Coastal Buffer Park Tree (Varies refer to planting palette)
- Native Detention Basin Planting (Varies refer to planting palette)



North
0 10 20 30 40 50m
Scale 1:1000@A3

GROUP GSA

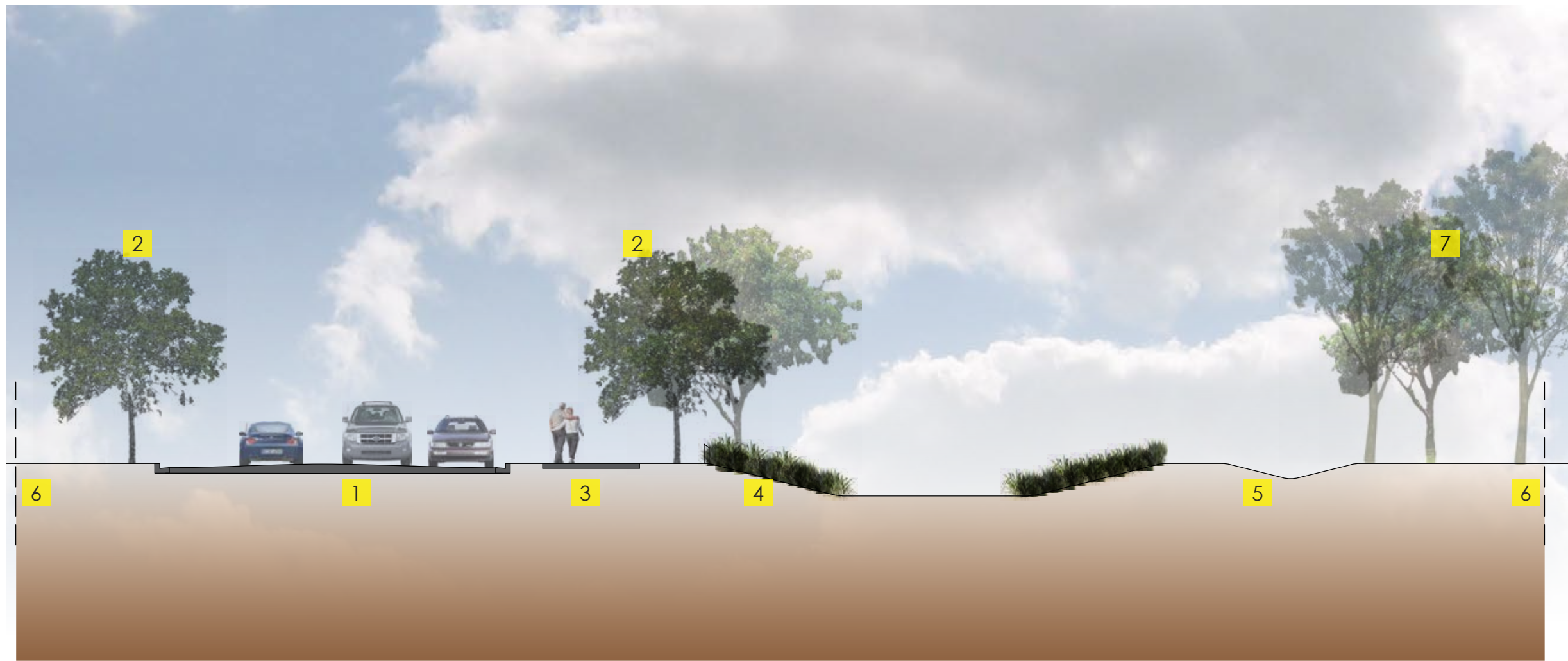
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SANDY BEACH NORTH | STATEMENT OF LANDSCAPE INTENT | JUNE 2017

TYPICAL LANDSCAPE SECTION

Legend

- 1 Road 1 20m wide corridor with 11m wide carriageway
- 2 Coastal street tree with turf verge (refer to planting palette)
- 3 3m wide concrete shared pedestrian bicycle pathway (selected colour oxide and finish)
- 4 Planting to WSUD basin batter (refer to planting palette)
- 5 turfed open channel
- 6 Proposed lot boundary
- 7 Coastal buffer tree planting (refer to planting palette)



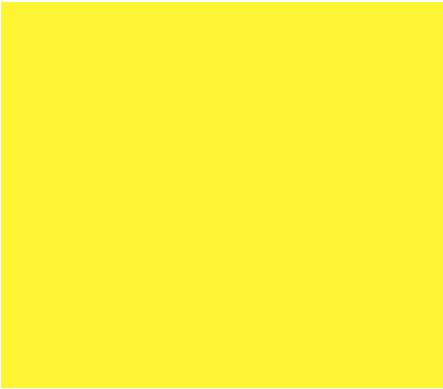
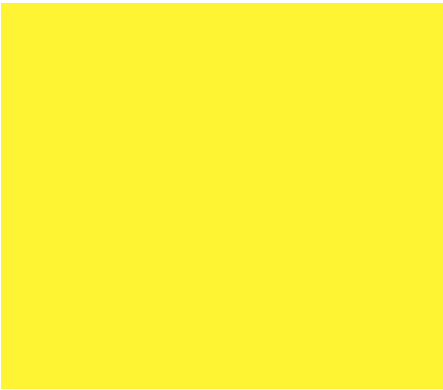
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GROUP GSA

FOR ELITE CONSTRUCTION NEWS PTY LTD

SANDY BEACH NORTH | STATEMENT OF LANDSCAPE INTENT | JUNE 2017

PLANTING PALETTE



Species	Common Name
STREET TREES	
CUPANIOPSIS anacardioides	Tuckeroo
HARPULLIA pendula	Tupilwood
COASTAL BUFFER PARK TREES	
BANKSIA integrifolia	Coast Banksia
CASUARINA equisetifolia	Coastal She-Oak
CUPANIOPSIS anacardioides	Tuckeroo
PANDANUS tectorius	Screwpine
SHRUBS	
CALLISTEMON viminalis cv.	Slim
GREVILLEA rosmarinifolia cv.	Crimson Villea
KUNZEA ambigua cv.	Rivan
Magnolia x Michelia x Yunnanensis	Fairy White
SYZYGium australe cv.	Elite
GROUNDCOVERS	
EREMOPHILA glabra cv	Blue Horizon
CASUARINA glauca cv	Free Fall
LIRIOPE muscari cv	Evergreen Giant
LIRIOPE muscari cv	Just Right
LOMANDRA longifolia	Matt Rush
RHAGODIA spinescens cv.	Aussie Flat Bush
BIO-RETENTION BASIN	
CAREX appressa	Tall Sedge
CYPERUS polystachyos	Bunchy Sedge
JUNCUS krasussii	Sea Rush
LOMANDA longifolia	Matt Rush
CALLISTEMON salignus	White Bottlebrush
MELALEUCA sieberi	Small-leaved Paperbark



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7

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ARN 3990

Appendix D

WALLUM FROGLET HABITAT REPORT



**REPORT ON WALLUM FROGLET
HABITAT EXTENT AND PROTECTION MEASURES**

FOR

**APPROVED CONCEPT PLAN STAGE 1 & 3 AREAS
SANDY BEACH NORTH
RESIDENTIAL SUBDIVISION**

**TI-TREE ROAD
SANDY BEACH**

**REPORT ON WALLUM FROGLET
HABITAT EXTENT AND PROTECTION MEASURES
FOR
APPROVED CONCEPT PLAN STAGE 1 & 3 AREAS
SANDY BEACH NORTH
RESIDENTIAL SUBDIVISION
TI-TREE ROAD
SANDY BEACH**

Conacher Consulting Pty Ltd

Environmental and Land Management Consultants

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PREFACE

This report on Wallum Froglet (*Crinia tinnula*) habitat extent and protection measures has been prepared by *Conacher Consulting* to address Part C3 of the Further Environmental Assessment Requirements identified within the Concept Approval for the approved areas of stage 1 and stage 3 of the Sandy Beach North Residential Subdivision at Ti-Tree Road, Sandy Beach NSW.

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1. INTRODUCTION

1.1 Background

This report on Wallum Froglet (*Crinia tinnula*) habitat extent and protection measures has been prepared by *Conacher Consulting* to address Part C3 of the Further Environmental Assessment Requirements identified within the Concept Approval for the approved areas of stage 1 and stage 3 of the Sandy Beach North Residential Subdivision at Ti-Tree Road, Sandy Beach NSW.

There is currently a Concept Approval (dated December 2010) for a Residential Subdivision within a portion of the site. As part of the current approval the following previous reports which included assessments of significance for threatened species were prepared:

- Ecological Survey and Assessment Report (*Conacher Environmental Group* 2008)
- Ecological Survey and Assessment Addendum Report (*Conacher Environmental Group* 2010)

A Threatened Species Assessment Addendum Report and Conservation Area Management Plan have also been prepared by Conacher Consulting (2015a; 2015b).

Part C2 of the Concept Approval states that Pursuant to section 75P(2)(C) of the Act, the following environmental assessment requirements apply in respect to future stages of the project, "*Clarification of the nature and extent of Wallum Froglet habitat, including details of protective measures to mitigate against impacts to this species*".

This Report provides updated mapping and description of the extent of the Wallum Froglet habitats present within the site.

1.2 Site Characteristics

The planning and cadastral details of the subject site are provided in Table 1.1.

TABLE 1.1 SITE DETAILS	
Location	Lot 22 DP 1070182
Site Area	Approximately 49.5 hectares
Proposed Development Area	Approximately 6.6 hectares
Local Government Area	Coffs Harbour
Existing Land Use	Agriculture

1.3 Proposed Development

It is proposed to construct a residential housing subdivision within the Stage 1 and Stage 3 areas of the subject site subject which have Concept Plan approval. Detailed plans of the proposal have been provided as separate documentation to this report.

2. ASSESSMENT OF EXTENT OF HABITATS PRESENT

2.1. WALLUM FROGLET HABITAT AND ECOLOGY DETAILS

The Wallum Froglet (*Crinia tinnula*) is a species of small terrestrial frog restricted to coastal areas of southern Queensland and central and northern New South Wales. This species lives in wallum habitats consisting of low lying freshwater wetlands, paperbark swamps and wet heaths in coastal areas on acidic, nutrient poor sandy soils. Habitat usage during non-breeding periods is not well documented, however breeding habitats and surrounding areas are considered likely to be utilised (Cogger 2000; Myer *et al.*, 2006).

Males call throughout the year from secluded positions beside water or while afloat, particularly after heavy periods of rain (Anstis 2002).

The suitability of breeding habitats is subject to weather conditions and seasonal variation associated with the following factors:

- presence of water
- water depth (preference for shallow water)
- water and associated soil pH, (preference for acidic habitats)
- water nutrient levels (preference for lower nutrient levels)
- Salinity (preference for fresh water)
- turbidity (can withstand some turbidity)
- hydroperiod (preference for hydroperiods which exclude fish species)
- presence of predators (often influenced by hydroperiod and water chemistry)

2.2 NATURE AND EXTENT OF WALLUM FROGLET HABITAT

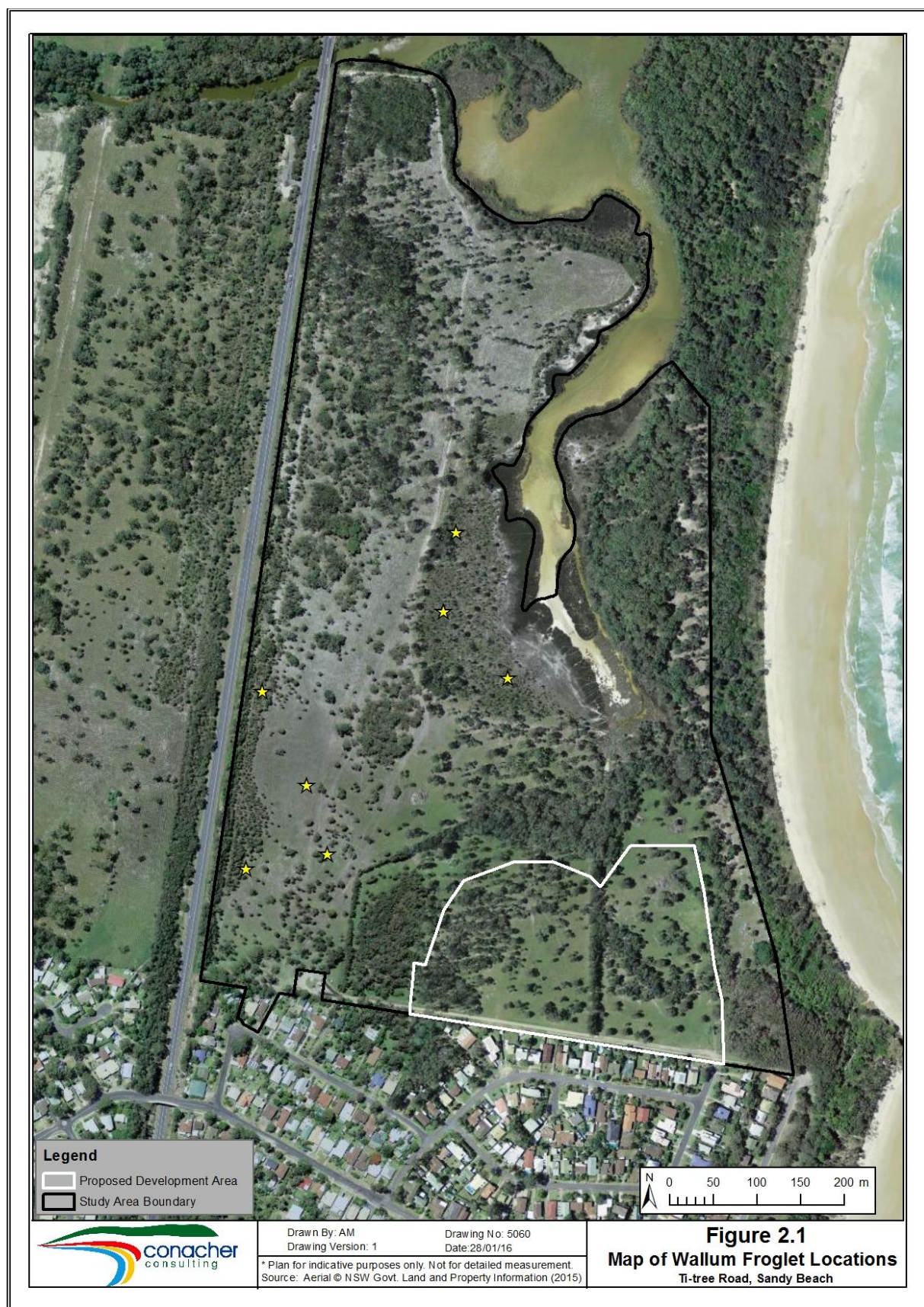
The Wallum Froglet has been detected calling from two low lying areas containing surface water during surveys in March 2004 following several days of rainfall. The location of these observations is shown in Figure 2.1. The observation locations include an area of Low Wallum Heath along the western areas of Hearn's Lake and a similar area of vegetation in the south-west part of the site where runoff from the Pacific Highway ponds on the site.

The following additional site surveys for this species:

- Nocturnal listening, call playback and spotlight survey: 09/07/15 - 1.5hrs (1700-1830)
- Diurnal search and habitat assessment survey: 10/07/15 - 4 hrs (0830-1230)
- Nocturnal listening, call playback and spotlight survey: 10/07/15 – 1hr (1730-1830)

No Wallum Froglets were observed during the additional surveys undertaken. During the recent habitat surveys, no areas of Wallum Froglet habitat were observed within the proposed development area. The development area contains mostly dry habitats which have been affected by the historical construction of a man-made drainage channel which intersects the centre of the site.

Based on the site survey records and presence of areas of higher quality habitat for this species within the western sections of the site, it is considered that this species does not utilise the proposed development area as habitat. The observed areas of habitat for this species occur at and surrounding the locations of where this species has previously been observed within the site, as shown in Figure 2.1.



3. MITIGATION MEASURES FOR WALLUM FROGLET HABITAT PROTECTION

The objective of the following mitigation and habitat protection measures is to prevent harm from impacts associated within the proposed development to the identified habitat locations for this species within the western sections of the site. No known habitats for this species are present within the proposed development area.

The following protective measures to mitigate impacts on this species should be implemented for the proposal:

- Implementation of erosion and sedimentation controls;
- Installation of protection fencing around development areas to prevent impacts to retained habitats;
- Proper identification and management of acid sulphate soils;
- No stockpiling of materials in drainage line areas;
- Implementation and maintenance of suitable construction site water management protocols;
- Rehabilitation of the Conservation Areas of the site in accordance with the Conservation Area Management Plan; and
- Utilisation of suitable stormwater design and control measures to provide habitat for this species where possible and prevent changes to water chemistry in known habitat areas.

The mitigation measures identified above have been addressed in the Statement of Commitments for the proposal and/or in detailed separate reports prepared as additional information to this report.

4. CONCLUDING COMMENTS

Based on the details provided this report and the ecological surveys, assessments and management previously completed for this project it is concluded that:

- i. The areas of identified habitat for this species are located outside of the proposed Stage 1 and Stage 3 development areas.
- ii. The protective measures outlined within this report should be implemented to mitigate against potential impacts associated with the proposed development.

REFERENCES

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