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Our ref: AU017394

Date: 20 January 2026

State Assessment and Referral Agency
Department of State Development, Infrastructure and Planning
PO Box 2358
Cairns QLD 4870

Via – MyDas Gateway

Attn: Poppy Ellis-Southwell

Dear Poppy,

Daintree River Ferry Upgrades at Cape Tribulation Road, Lower Daintree
Information request response (pursuant to Section 13 of the Development Assessment Rules)
Your Ref: 2510-48963 SRA

We refer to the State Assessment and Referral Agency information request, dated 17 December 2025, for the development application over the above site.

Pursuant to sections 13.2 of the *Development Assessment Rules* we provide our response to this information request below.

In accordance with Section 13.3 of the *Development Assessment Rules*, we confirm that this letter and attachments constitute our response to Council's information request. Accordingly, we advise that you must proceed with assessment of this development application.

Information request response

1 Scope of Works and Development Plans

In reviewing the application material, further clarification is needed to fully understand the scope of works and the proposed development layout. The current information does not clearly identify dredging volumes, material characteristics, or whether mooring infrastructure will be replaced. Additionally, the plans provided do not give enough detail to assess the location and extent of works.

Response requested:

Please provide:

- The total volume (m^3) of dredge material (not the additional volume) and the total weight (in tonnes) to be removed, along with the density of the dredge material. Noting that the Planning Act 2016 requires volumetric information whereas the Environment Protection Act 1994 requires a unit of mass.
- Confirmation on whether mooring infrastructure on both the southern and northern sides will be replaced.
- Detailed and appropriately scaled drawings and/or plans showing:
    - The location of ferry concrete landing ramps, mooring infrastructure, and rock armouring.
    - Cross sections illustrating the pedestrian footpath in relation to the road widening for both the southern and northern sides.
    - Dredging cross sections.

- Engineering plans that include:
  - The location of all built structures, or structures to be modified or demolished, as a result of the proposed development.
  - Key features such as adjacent riverbanks, walls, sandbanks, structures, the limit of vegetation, relevant tidal planes (e.g. Highest Astronomical Tide (HAT), Mean High Water Springs (MHWS)) and/or other principal features of the immediate area.
  - The location and setting out details for cross-sections and any other information required to accurately define the area and to allow the site to be readily identified from the plan.
- All plans/drawings should include title, date and numbering suitable to identify the plan and should be mapped to GDA2020 projection.

Response

Volume of Dredge Material

The existing and proposed ferry crossing is located in a tidal area that is also influenced by climatic events, such as flooding in the wet season of Far North Queensland. The estimated quantity of dredge material of 994m^3 is as accurate as possible based upon a hydrographic survey at a point in time. 12 hours after the hydrographic survey is undertaken and subject to the extent of tidal and or rainfall influence, this amount of dredge material may change. It is impossible to provide an accurate volume and or total weight of quarry dredge material.

The estimated quantity of dredge material is provided at **Appendix A** and is based on a Hydrographic survey at a point in time.

It is important to note that this quantity of dredge material is consistent with the extant Environmental Authority EPPR01803613, issued to Douglas Shire Council and dated 16 January 2014, for ERA 16(1a) Dredging >1000t but <10000t per year and ERA 57(2a) Regulated Waste Transport (other than tyres) in 1 — 5 vehicles. The only change between the existing Environmental Authority and the proposal is the expansion of the area of the proposed dredging to accommodate a larger ferry. A copy of this Environmental Authority is provided at Appendix B. The inclusion of this ERA in the application as a new ERA was based on the advice of Officers of SARA.

The cross section of the dredging area are provided on the plans submitted with the application.

Refer to **Appendix A** – Hydrographic Survey and estimated Dredge Material.

Refer to **Appendix B** - Environmental Authority EPPR01803613

Detailed Design Drawings

Detailed design drawings have now been prepared for the development. Please note that whilst these drawings include road works and other land based operational works, these works do not form part of the application and are provided for information purposes only. The application is limited to the following:

- Operational Works (Prescribed Tidal Works);
- Operational Work (Marine Plant Disturbance);
- Operational Works (Interfering with Quarry Material above High-water

  Mark)

  Material Change of Use (Environmentally Relevant Activity 16 – Extractive and Screening Activities)
- Environmental Authority.

An application is not required for a Development Permit for Operational Works (Civil Works for accessways, car parking) as this is work that is operational work by a public sector entity that is not assessable by a local categorising instrument (*Planning Regulation 2017*, Schedule 7) and is not made assessable by the *Planning Regulation 2017,* Schedule 10.

The detailed design drawings accurately identifies the proposed works.

Refer to **Attachment C** – Detailed Design Drawings.

2 Construction Methodology

In reviewing the application material, further clarification is needed on how construction will be managed and staged, including environmental protection measures.

Response requested:

Please provide a construction methodology that includes:

- Any operational works occurring on site and expected timeframes.
- Staging of the development if applicable.
- Locations for laydown areas and stockpiles for operational works (road works and ferry ramps).
- Details of ancillary works.
- Measures employed to minimise impacts to the local receiving environment.

Response

A construction Methodology has been prepared by the principal contractor and is attached at **Appendix D.**

The construction methodology identified all operational works occurring on site and the applicable staging of the works. All laydown areas and stockpiles have been identified and confirms that environmental management will be in accordance with a Construction Environmental Management Plan, which will be consistent with the Environmental Management Plan submitted with the application.

Refer to **Attachment D** – Construction Methodology.

3 Environmental Risks

In reviewing the application material, further clarification is needed on how environmental risks have been assessed and managed. Under section 125(1)(l) of the Environmental Protection Act 1994, the application must include a technical assessment of environmental risks to the receiving environment. This assessment should cover potential impacts on air, water, noise, land, and waste and demonstrate how the avoid, minimise, and mitigate framework has been applied. This information is also required to undertake an assessment against State code 22.

Guidelines detailing the minimum information required for these assessments are available for:

- Air: Application requirements for activities with impacts to air https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=1840&name=eragl-air-impacts.pdf
- Land: Application requirements for activities with impacts to land https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=1839&name=eragl- land-impacts.pdf
- Noise: Application requirements for activities with noise impacts https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=1838&name=eragl- noise-impacts.pdf
- Water: Application requirements for activities with impacts to water https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=1837&name=eragl-water-impacts.pdf
- Waste: Application requirements for activities with waste impacts https://www.detsi.qld.gov.au/_global/policy-register/policy-register-pdf?getdoc=1836&name=era-gl-waste-impacts.pdf

Additionally, because the dredging activity involves the removal, transport, and placement of spoil, a Dredge Management Plan is required. This plan should align with the Dredging and Allocation of Quarry Material Guideline (https://www.des.qld.gov.au/policies?a=272936:policy_registry/cpm-gl-dredging.pdf) and provide detailed information on the dredging operation and associated environmental management measures.

Response requested:

Please provide:

- A technical risk assessment that identifies environmental values and associated risks for air, water, noise, land, and waste.
- A dredge management plan containing the following information:
    - The dredge operation including:
        - the proposed depth of extraction
        - type of equipment to be used
        - volume of bed material to be removed (in tonnes)
        - duration and timing of the dredging campaign
        - method by which the dredge spoil will be removed
        - method by which the dredge spoil will be transported
        - dredged material disposal methods
        - the method by which the spoil is to be contained within the area

- the method by which the spoil will be dewatered
- expected water quality parameters for any discharge
- detail on how the dredge spoil disposal area will be made fit for future land use.

- Operational plans to scale showing all relevant places (boundaries of dredging operation, including cross sections, estimated or modelled zone of influence of sediment plumes, location of designated disposal sites, sensitive receptors and all monitoring locations).
- A detailed description of sediment plume-associated monitoring program including the:
  - sampling regime and methods
  - monitoring sites.
- A detailed description of the assessment methodology to provide data in relation to trigger values that will define alert levels
- Clearly set out data handling and evaluation procedures that demonstrate how exceedance of alert levels will be determined.
- Management actions to be initiated if alert levels are exceeded.

Response

Technical Risk Assessment

Provided with the application were the following environmental assessments:

- Appendix J – Ecological Assessment, dated July 2025, by 4 Elements
- Appendix K - an Environmental Management Plan, dated July 2025 and prepared by 4 Elements
- Appendix L – Protected Plant Survey, Dated August 2024, prepared by 4 Elements.

These environmental and ecological assessments provide a detailed assessment of the environmental values and associated risks for air, water, noise, land, and waste. It is unclear what additional information is being requested in respect of this matter. It is considered that sufficient information has been provided with the application material to enable officers to properly assess the application.

Dredge Management Plan

The dredging is proposed to be undertaken consistent with the extant Environmental Authority EPPR-1803613, which was provided in the application material at Appendix O to the supporting planning statement submitted with the application. There would be no change to the dredging process or management as part of this application. The only change is the location of the dredge spoil area and an expansion of the area proposed to be dredged. The proposed development would not result in any greater environmental impact than that of the existing and lawfully approved dredging. The management of the current approved dredging operations is in accordance with the Dredge Management Plan prepared by Kellogg Brown & Root Pty Ltd, dated 7 December 2018. A copy of the Dredge Management Plan is provided at **Appendix E.**

For information purposes the historic quantities that have been dredged from the ferry channel are as follows:

- 2025 Total
  - April 2025 – 1,190m^3
  - July 2025 – 300m^3

    TOTAL – 1,490m^3
- 2024 Total
  - Jan 2024 – 3,380m^3
  - April 2024 – 180m^3
  - July 2024 – 2,280m^3
  - Aug 2024 – 2,220m^3

    TOTAL – 8,060m^3
- 2023 Total
  - March 2023 – 2,208m^3
  - July 2023 – 400m^3

- Sept2023 – 2,520m^3

  TOTAL – 5,128m^3

Refer to **Appendix B** - Environmental Authority EPPR01803613

Refer to **Appendix E –** Dredge Management Plan

4 Sediment Analysis

In reviewing the application material, further testing is needed to confirm sediment quality and manage Acid Sulfate Soils. This information is required to undertake an assessment against State code 22.

Response requested:

Please provide:

- Sediment analysis showing that the dredge material does not contain contaminants of concern in accordance with the National Assessment Guidelines for Dredging, 2009, available at https://www.dcceew.gov.au/sites/default/files/documents/guidelines09.pdf
- Details on ongoing sampling and monitoring/management of dredge material stockpiled.
- An Acid Sulfate Soil Management Plan in accordance with the Queensland Acid Sulfate Soil Technical Manual, available at: https://www.publications.qld.gov.au/dataset/cf17fb49-0ea5-4dee-82c9-32e09bf1eab5/resource/6d880993-4b80-45e3-9110-5c24fa7a7e75/download/soilmanagement-guidelines-version-5.1_1nov-2024_final.pdf. The plan should include details on the potential for acidic runoff.

Response

Acid Sulfate Soils Testing Results

As part of the application material, at Appendix O to the supporting Planning Statement is the results of Acid Sulfate Soils sampling of the proposed dredge material in the Daintree River. The sampling was conducted according to the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998. The samples were sent to a NATA accredited laboratory for analysis and all samples were below the weighted action criteria. This report is reproduced at **Appendix F** for ease of reference.

Refer to **Appendix F** - Acid Sulfate Soils Testing Results.

As per the application material provided all dredged material would be stored within the bunded area and subject to sampling and laboratory testing to determine the presence of Acid Sulfate Soils. No spoil would be reallocated within being tested.

In terms of ongoing management, this would be undertaken consistent with the extant Environmental Authority EPPR01803613 attached as **Appendix B** and in accordance with section 9.10 of the Environmental Management Plan submitted with the application and in accordance with the current dredge management plan provided at **Appendix E.**

Refer to **Appendix F** – Acid Sulfate Soils Testing results.

Refer to **Appendix E –** Dredge Management Plan.

5 Water Quality and Drainage

In reviewing the application material, further information is required to assess the application against PO13 of State code 8 and State code 22 in relation to the following statements:

- A Geotechnical investigation, prepared by GEO design, dated 10 January 2023, sampled boreholes on the southern side, including within proximity of the proposed alternative dredge spoil area. Borehole results for locations 1 & 2 indicate silty sand from 0-1.8m and marine clays from 1.8m. Within the report it is stated: “The results of the investigation, together with our experience with similar sites in this area, indicate that the darkly hued marine clays and sands are likely to be Potential Acid Sulfate Soils (PASS). If substantial excavation of these materials is proposed, further evaluation of PASS may be required”.
- Further cone penetrometer tests were completed on the southern and northern side, stating: “At the time of fieldwork groundwater was encountered at depths of between about 1-2 m below the current ground level. Groundwater was not observed in some of the test locations. It is expected that groundwater levels at the site will fluctuate throughout the year based on rainfall events and tidal variations. It Is not uncommon for ground water to reach near surface levels (<1 m) following periods of prolonged rainfall, particularly when coinciding with high tides”.

- A Basis of design engineering report, prepared by Hansen Engineering Group, dated 20 August 2025, includes existing drainage structures (culverts). It is stated: "to accommodate additional lanes five (5) sets of culverts will need to be extended and existing stormwater will outlet into legal discharge points and the design will have minor modifications to existing stormwater catchments and drainage points".

Response requested:

Please provide the following:

- Information demonstrating that the development is located, designed, and managed to avoid impacting the environmental values of the receiving waters, identify the water quality objectives for those waters, and incorporate siting and design measures to maintain or enhance water quality released to tidal waters in accordance with the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.
- An Erosion and Sediment Control Plan (ESCP) to ensure that the construction phase will be in compliance with the Earthworks - AS3798 (Guidelines on Earthworks) and Erosion & Sediment Control – Best Practice documents as specified by the International Erosion Control Association (Australasia).
- A site based stormwater management plan in accordance with the latest edition of the Queensland Urban Drainage Manual.
- Layout and cross section plans for the culverts (if tidally influenced i.e. MHWS or below).
- An earthworks plan showing the extent of cut and fill (characterise the extent of cut and fill in m^3).
- Details on how dewatering will be managed at the alternative dredge spoil area.

Response

Development Location, Design and Management

The application is for the upgrade of the existing Daintree Ferry. On this basis, it cannot feasibly be located elsewhere. Therefore the consideration of the assessment benchmarks containing in State Code 8 and State Code 22 is limited to the design and management of the development to avoid impact on environmental values.

In terms of State Code 8: Coastal Development and Tidal Works and specifically PO13, we would note that the proposed development has been designed to be an extension of the existing ferry operation and the works proposed are limited to accommodating that expansion. The water quality would be managed in accordance with the principals set out in the Environmental Management Plan submitted with the application.

Attached at **Appendix C** are Detailed Design Drawings that provide information on culvert design and earthworks.

All Acid Sulfate Soils and dewatering would be managed in accordance with the Dredge Management Plan provided at **Appendix E**. This is consistent with the management at the current location and in accordance with the Environmental Authority provided at **Appendix B**.

In respect of the request for an Erosion and Sediment Control Plan and A Site Based Stormwater Quality Management Plan, it is important to recognise that the application is for:

- Operational Works (Prescribed Tidal Works);
- Operational Work (Marine Plant Disturbance);
- Operational Works (Interfering with Quarry Material above High-water

  Mark)

  Material Change of Use (Environmentally Relevant Activity 16 – Extractive and Screening Activities)
- Environmental Authority.
- The work associated with the construction of roads and car parking, where not any of the above is not assessable development for the purpose of the application.

On this basis, the request for an Erosion and Sediment Control Plan and a Site Based Stormwater Quality Management Plan could only reasonably relate to the assessment of the operational works associated with Interfering with Quarry Material above High-water Mark and the dewatering of the Spoil Disposal Area. As a Site Based Stormwater Management Plan, prepared in accordance with the Queensland Urban Drainage Manual (QUDM) is not reasonable relevant to the assessment of the application it is not considered necessary to provide on in this instance; however, to assist officers in their assessment of the application, an Erosion and Sediment Control Plan is provided at **Appendix G**.

Refer to **Attachment C** – Detailed Design Drawings

Refer to **Appendix E –** Dredge Management Plan.

Refer to **Appendix B** - Environmental Authority EPPR01803613

Refer to **Appendix G** – Erosion and Sediment Control Plan

6 Rock Armouring

The proposed rock armouring may function as an erosion control structure, which requires further assessment under Performance Outcome (PO) PO12 of State code 8.

Erosion control structure means a structure designed to protect land or to permanently alter sediment transport processes and includes structures such as revetments (including seawalls), groynes, artificial reefs or breakwaters.

Response requested:

Please confirm whether the rock armouring meets the definition of an erosion control structure. If it does, please provide a Coastal Processes Report that explains:

- How the design reduces the severity of erosion on adjacent land.
- Its impact on sediment movement upstream and downstream of the proposed works.
- How the design minimises impacts on coastal processes and uses the minimum footprint feasible to effectively fulfil the function of the structures.

If the proposed rock armouring does not meet the definition of an erosion control structure, please provide an explanation why.

Further, please provide engineering plans (site, cross-section and demolition plans) showing the location and extent of demolition works and upgraded ferry ramps and rock armour walls, including tidal planes (HAT, MHWS etc.).

Response

The rock armouring referred to in the application material would be limited to scour protection at the base of the concrete ramps, as shown on Drawings RA-01 and RA-02 provided as part of the detailed design drawings attached as **Appendix C.**

The proposed rock scour protection would not permanently alter sediment transport and would not comprise a structure similar to a revetment, groyne, artificial reef or breakwater.

Refer to **Appendix C** – Detailed Design Drawings.

7 Dredge Spoil Area

In reviewing the application material, it is noted that your response to PO17 of State code 8 refers to the Environmental Assessment report which identifies the proposed dredge spoil area is in an area that has been previously cleared. However, it is unclear whether this area of cleared vegetation was undertaken lawfully.

Response requested:

Please provide evidence demonstrating that the vegetation clearing within the dredge spoil area was carried out in accordance with relevant legislative requirements.

Response

The proposed dredge spoil area would be located in an area identified as containing Category X Vegetation and, in part over an existing access road, and Category B Vegetation. The whole of the dredge spoil area would be accommodated within Lot 359 on SP215752, which has an area of 5,943m^2.

The proposed bunded spoil area, as per the detailed design drawings, would have an area of 1,170m^2 with approximately half of the spoil area located within the Category B Vegetation area or less than 600m^2.

Any required clearing would be undertaken in accordance with the Accepted clearing code for non-linear infrastructure and would not exceed the area limit of 0.5 hectares.

8 Coastal Processes

In reviewing the application material, further clarification is needed to demonstrate that dredging will not adversely affect coastal processes and coastal resources in accordance with PO22 of State code 8.

Response requested:

Please provide a coastal processes report for capital dredging that addresses:

- Turbidity impacts on reef and seagrass communities (if present).
- How benthic communities will not be smothered by sediments and ensure benthic habitats are not adversely impacted by changes to bed topography and hydrodynamics.
- Confirmation contaminant release limits do not exceed the levels set in the National Assessment Guidelines for Dredging (2009).
- Impacts to the bed profile of a waterway, either from dredging or disposal of dredge material, do not adversely

Response

The proposed dredging would be undertaken consistent with the extant Environmental Authority EPPR01803613 provided at Appendix B. The quantity of dredging would not alter and the only change would be a minor change to the area to be dredged to accommodate the increased size of ferry. There would be no increase in turbidity from dredging activities and no greater increase in contaminants. Given the existing dredging operations and that the proposed dredging operations would be consistent with these operations, a Coastal processes report is not considered necessary to demonstrate that the proposed dredging would not have a greater impact.

We look forward to continuing working with you on this development. In the meantime, if you have any queries please contact the writer (contact details below).

Yours sincerely,
for RPS AAP Consulting Pty Ltd

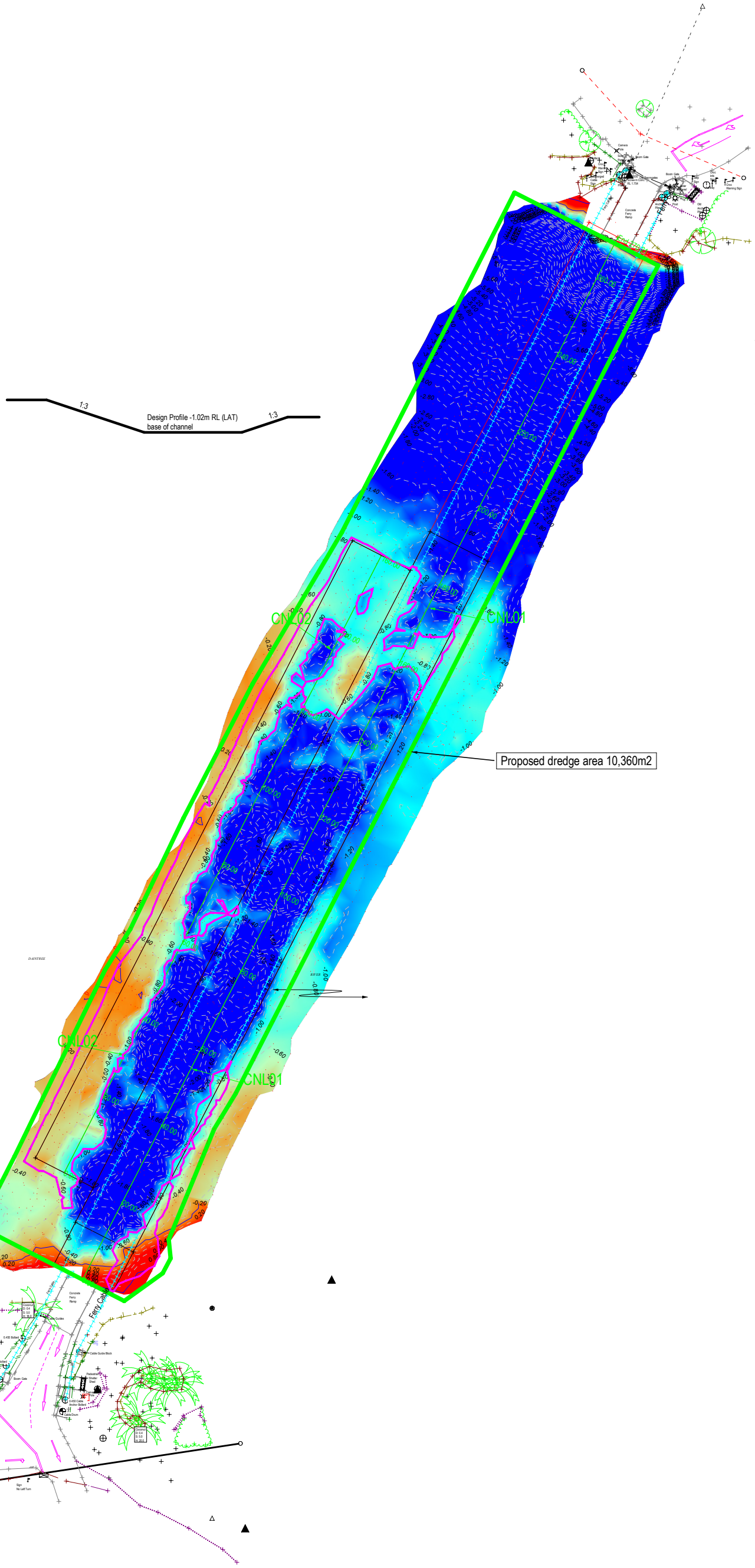


Patrick Clifton
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cc: Chief Executive Officer, Douglas Shire Council – Enquiries@douglas.qld.gov.au

Appendix A

Hydrographic Survey and estimated Dredge Material



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5. The title boundaries as shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

6. Underground services have not been plotted or have been plotted from records and are approximate only.
   Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

NOTES

Level Datum: LAT Vide RPS plan AU05051-16
Origin of Levels: PM123249

Contour Interval:0.2m
Index:1.0m

Origin of Coordinates: GDA2020

Meridian: MGA Zone 55

Field/Level Book:

0 25 50
metres

SCALE 1:500 IS APPLICABLE ONLY TO THE ORIGINAL SHEET SIZE (A1).
(1:1000 @ A3)

AMENDMENTS	
TEXT	
CHECKED	
DRAFTING CHECKED	
PROJECT MANAGER	PC OCK
SURVEYED	AD 14/4/25
DRAWN	DGP
CAD REF	AU017394-100.mjo
SHEET OF SHEETS	1 OF 1
SHEET SIZE	A1

Douglas Shire Council

Proposed Dredge Area
Daintree River Ferry Crossing
Daintree River
Cape Tribulation Road

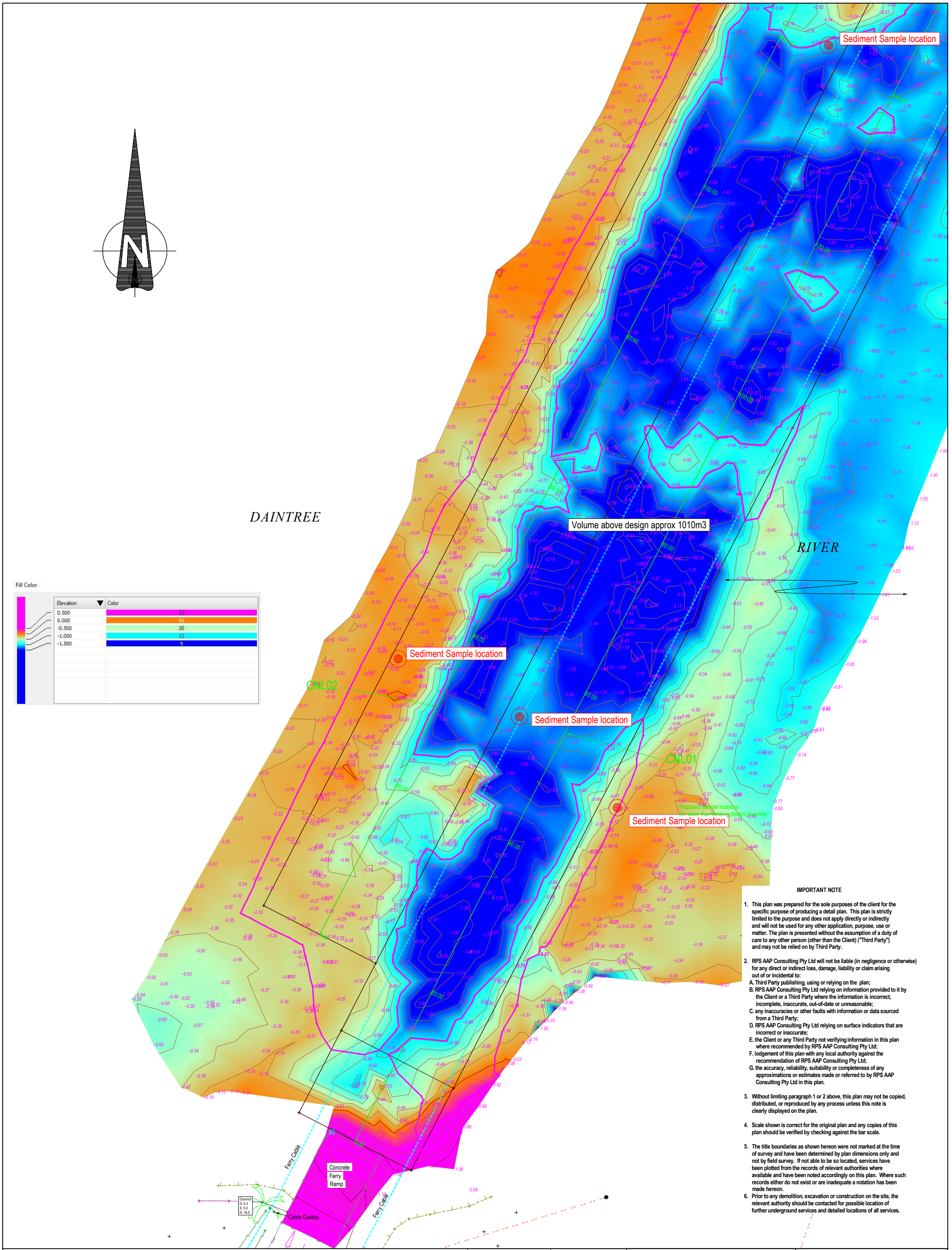
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5. The title boundaries as shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on this plan. Where such records either do not exist or are inadequate a notation has been made hereon.
6. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

NOTES

Level Datum: LAT (AHD levels Adjusted +1.58m)
Origin of Levels: PM123249
RL3.663 (Adjusted to LAT)
LAT levels adopted from KBR plan
"BEJ758-DW-CV-GEN-0004 Rev 1" provided by Douglas Shire Council.
LAT conversion in agreement with 2023 DTMR Semi Diurnal Tidal plane levels (Port Douglas Tidal plane levels)

Contour Interval: 0.2m
Index: 1.0m

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

Field/Level Book:

0 10 20
metres

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(1:400 @ A3)

AMENDMENTS	
PROJECT MANAGER	D Pinkham
SURVEYED	AD 03/02/25
DRAWN	DGP
CHECKED	
CAD REF	149780-137.MJO
SHEET	1 OF SHEETS 2
DRAFTING CHECKED	
SHEET SIZE	A1

Douglas Shire Council

Daintree Ferry Crossing
Hydrographic Survey
Daintree River
Cape Tribulation Road

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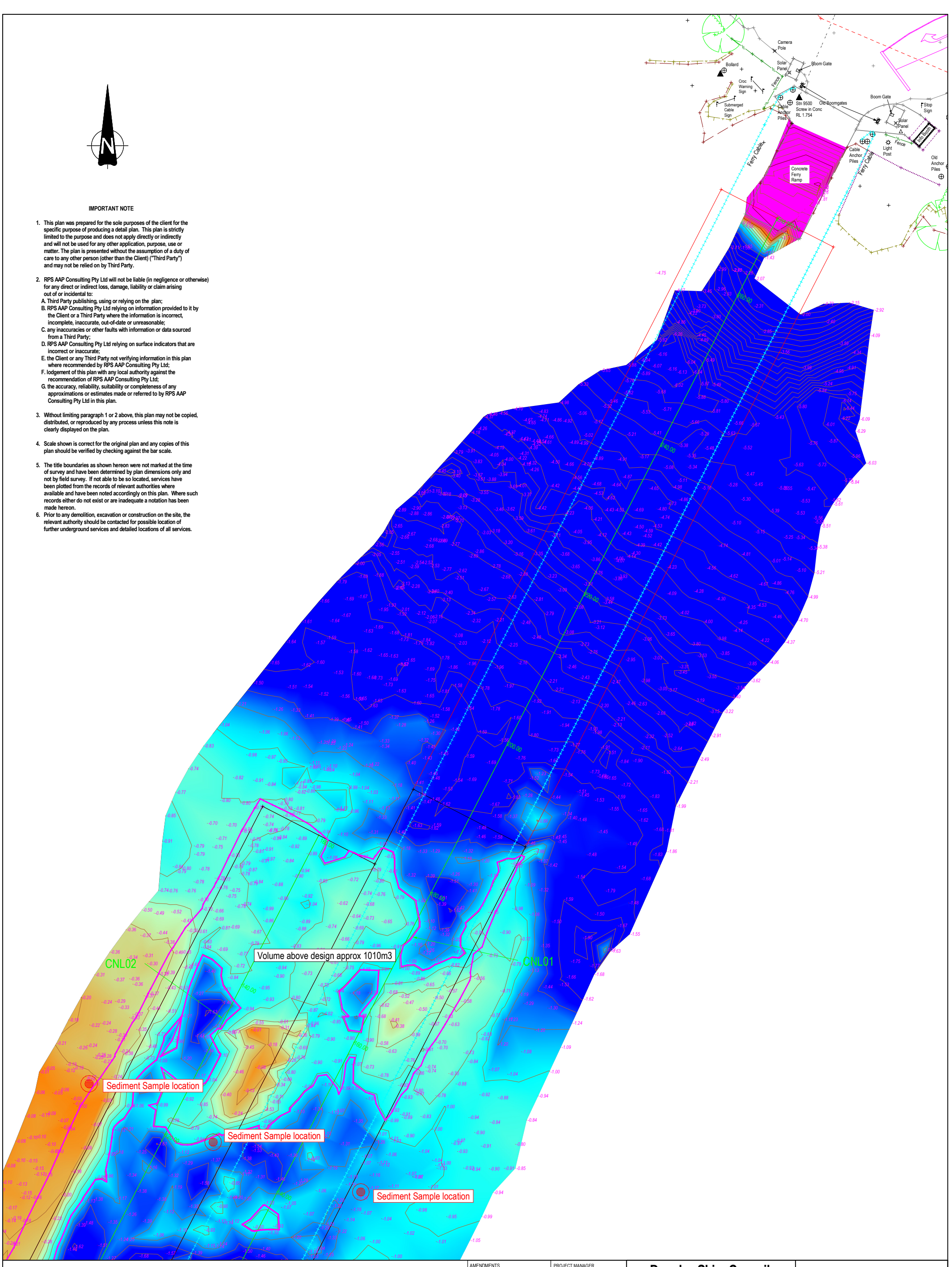
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NOTES

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Contour Interval: 0.2m
Index: 1.0m

0 10 20
metres

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

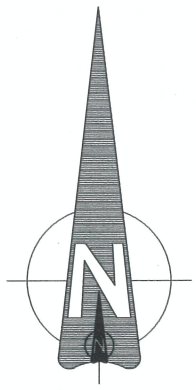
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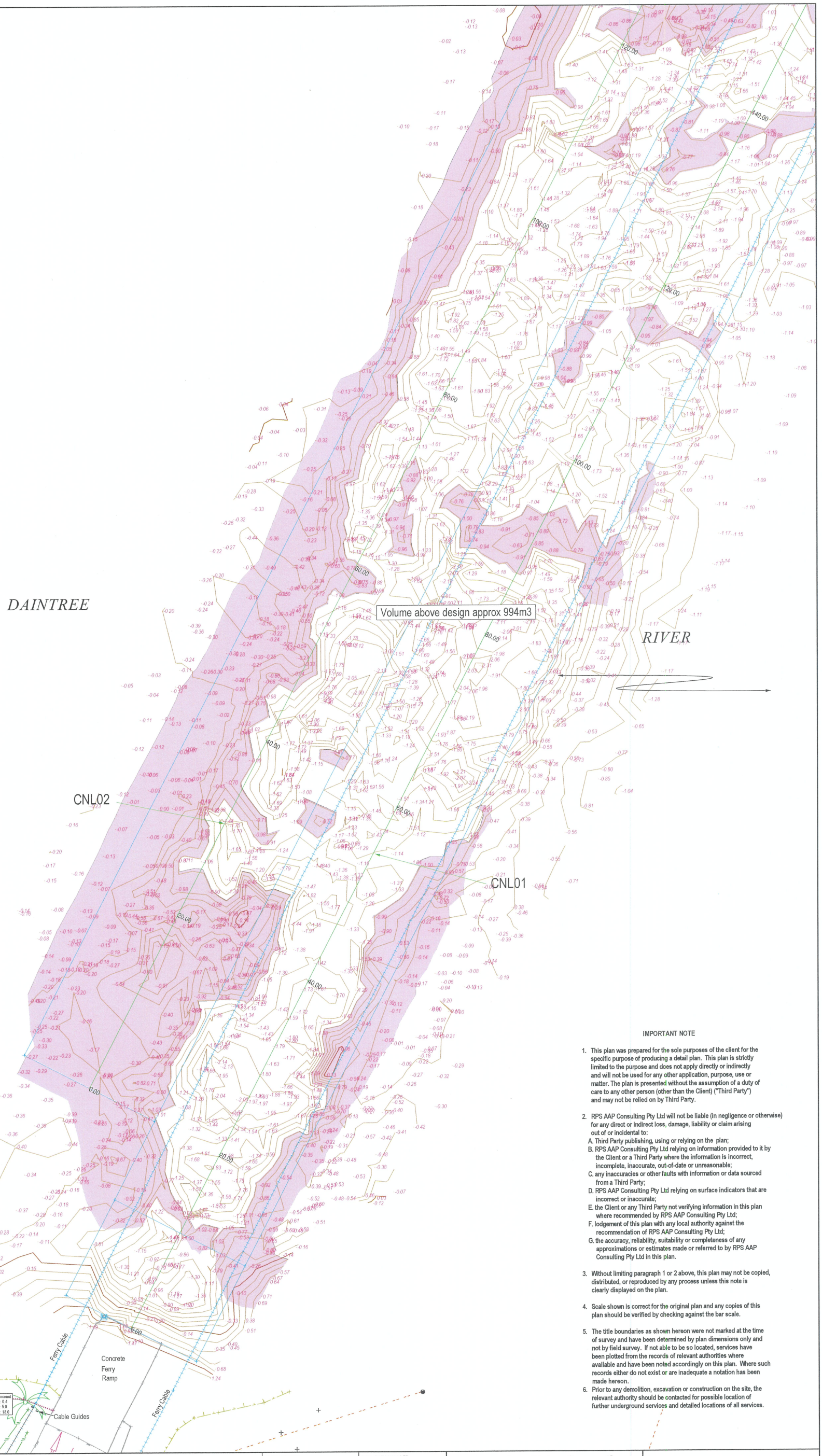
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(1:400 @ A3)

AMENDMENTS	PROJECT MANAGER D Pinkham	**Douglas Shire Council**	RPS AAP Consulting Pty Ltd ACN 117 883 173 5954 Captain Cook Highway Craiglie QLD 4877 T +61 7 4098 1148 F +61 7 4031 2942 W rpsgroup.com
	SURVEYED AD 03/02/25		
	DRAWN DGP	**Daintree Ferry Crossing** **Hydrographic Survey** **Daintree River** **Cape Tribulation Road**	
CHECKED	CAD REF 149780-137.MJO	SHEET 2 OF SHEETS 2	
DRAFTING CHECKED		SHEET SIZE A1	

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Index: 1.0m

0 10 20
metres

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

Field/Level Book:

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AMENDMENTS	PROJECT MANAGER	D Pinkham
	SURVEYED	AD 22/8/24
	DRAWN	DGP
CHECKED	CAD REF	149780-131.MJO
DRAFTING CHECKED	SHEET	1 OF SHEETS 2
	SHEET SIZE	A1

Douglas Shire Council

Daintree Ferry Crossing
Hydrographic Survey
Daintree River
Cape Tribulation Road

RPS AAP Consulting Pty Ltd
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Camera Pole
Solar Panel
Boom Gate
Bollard
Croc Warning Sign
Fence
Submerged Cable Sign
Cable Anchor Piles
Stn 9500 Screw in Conc RL 1.754
Old Boomgates
Boom Gate
Stop Sign
Solar Panel
Light Post
Fence
Cable Anchor Piles
Old Anchor Piles
Ferry Cable
Ferry Cable
Concrete Ferry Ramp
END 270.21
260.00
240.00
220.00
200.00
180.00
160.00
140.00
120.00
CNL02
CNL01
Volume above design approx 994m3

NOTES

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Index: 1.0m

0 10 20
metres

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

Field/Level Book:

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	SURVEYED: AD 23/8/24		5954 Captain Cook Highway Craiglie QLD 4877
	DRAWN: DGP	Daintree Ferry Crossing Hydrographic Survey Daintree River Cape Tribulation Road	T +61 7 4098 1148 F +61 7 4031 2942 W rpsgroup.com
CHECKED	CAD REF: 149780-131.MJO	SHEET 2 OF SHEETS 2	
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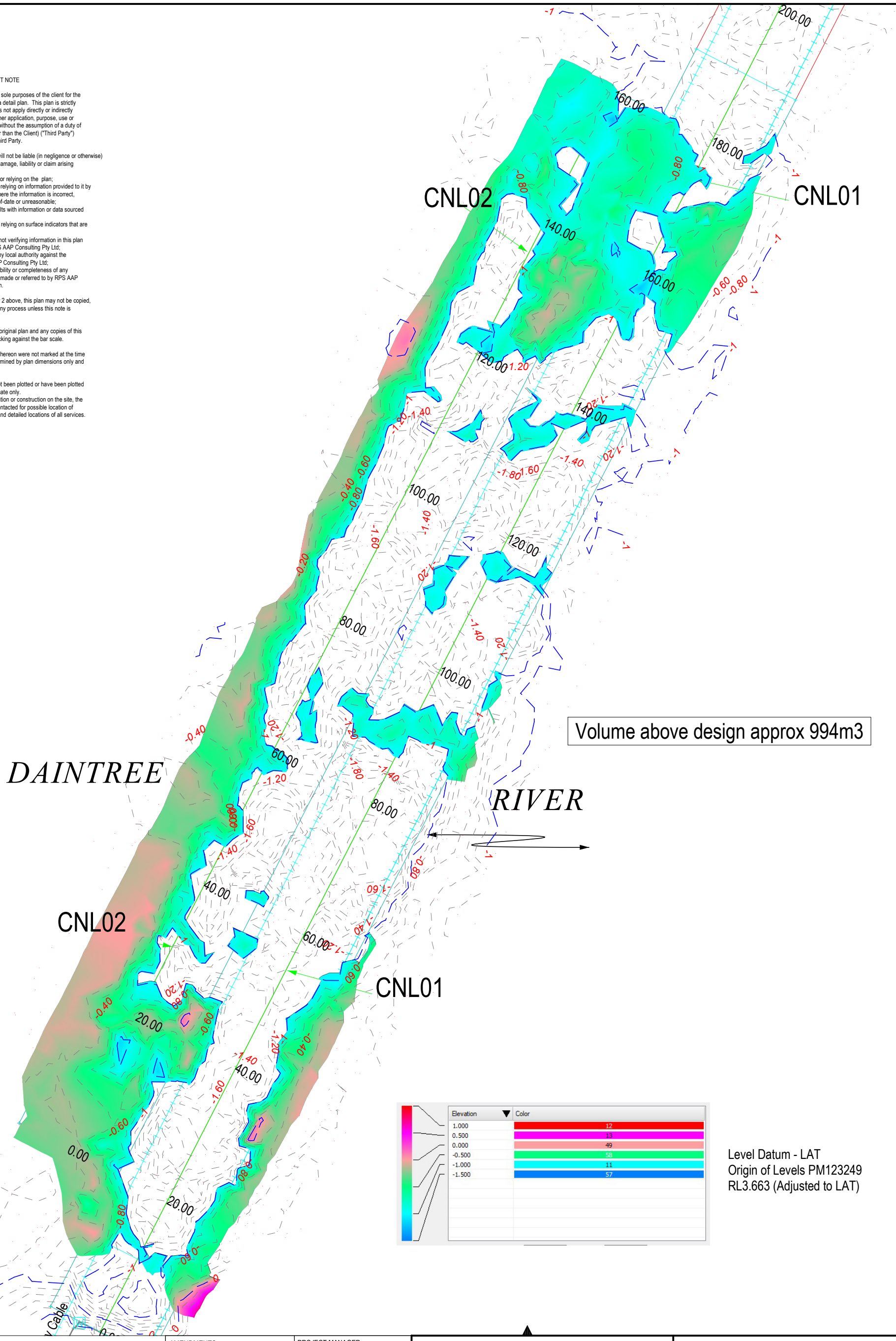
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6. Underground services have not been plotted or have been plotted from records and are approximate only.
   Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.



Level Datum - LAT
Origin of Levels PM123249
RL3.663 (Adjusted to LAT)

0 13 25

metres

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AMENDMENTS	
TEXT	
PROJECT MANAGER	D Pinkham
SURVEYED	AD 22/6/24
DRAWN	DGP
CHECKED	
DRAFTING CHECKED	
CAD REF	AU005051-132.mjo
SHEET OF SHEETS	1 OF 1
SHEET SIZE	A3

DOUGLAS SHIRE COUNCIL

Daintree Ferry Crossing
Hydrographic Survey
Daintree River
Cape Tribulation Road

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5954 Captain Cook Hwy
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Appendix B

Environmental Authority EPPR01803613

Department of Environment and Heritage Protection

DOUGLAS SHIRE COUNCIL
Received
File Name EH/APP/ ERA
Document No
16 JAN 2014
Attention EP
Information

Permit[1]

Environmental Protection Act 1994

Environmental authority EPPR01803613

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Permit[1] number: EPPR01803613

Environmental authority EPPR01803613 takes effect on 1 January 2014.

The first annual fee is payable within 20 business days of the anniversary date. The anniversary date of this environmental authority is the 12 November each year. An annual return and the payment of the annual fee which is currently $2,428.80 will be due each year on this day.

Environmental authority holder(s)

Name	Registered address
Douglas Shire Council	64-66 Front Street Mossman QLD 4870

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
ERA 16(1a) Dredging >1000t but <10000t per year	Lot 3 on Plan SP126928 Cape Tribulation Road, Daintree QLD 4873
ERA 57(2a) Regulated Waste Transport (other than tyres) in 1 – 5 vehicles	This activity is a mobile and temporary activity under the *Environmental Protection Act 1994.*

Additional information for applicants

Environmentally relevant activities:

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land:

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.

	29/2/13
Signature	Date

Mark Cavicchiolo
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Carrie Goldsmith
ES - Reg Serv - Northern – Cairns
PO Box 7230
Cairns QLD 4870
Phone: (07) 4222 5395
Fax: (07) 4222 5070
Email: carrie.goldsmith@ehp.qld.gov.au

Obligations under the *Environmental Protection Act 1994:*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority:

This environmental authority consists of the following parts

Applicable Part	ERA	Location
Part 1 – Daintree River Dredging	ERA 16(1a) Dredging >1000t but <10000t per year	Lot 3 on Plan SP126928 Cape Tribulation Road, Daintree QLD 4873
Part 2 – Regulated Waste Transport	ERA 57(2a) Regulated Waste Transport (other than tyres) in 1 – 5 vehicles	This activity is a mobile and temporary activity under the *Environmental Protection Act 1994.*

Part 1: Daintree River Dredging	
Agency interest: General	
Condition number	**Condition**
P1-G1	The maximum volume of sediment permitted to be removed at the Daintree River Ferry Crossing under the terms of this approval is 10,000m^3 in any twelve (12) month period commencing from the date of this approval.
P1-G2	In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.
P1-G3	Dredging of the Daintree River Ferry Crossing will only be conducted to facilitate safe navigation of the crossing by the Daintree River Ferry.

P1-G4	The operator of an ERA to which this approval relates must: • Install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; • Maintain such measures, plant and equipment in a proper and efficient condition; and • Operate such measures, plant and equipment in a proper and efficient manner.
P1-G5	From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out. The SBMP must address the following matters: • Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals; • Identification of environmental issues and potential impacts; • Control measures for routine operations to minimise likelihood of environmental harm; • Contingency plans and emergency procedures for non-routine situations; • Organisational structure and responsibility; • Effective communication; • Monitoring of contaminant releases; • Conducting environmental impact assessments; • Staff training; • Record keeping; and • Periodic review of environmental performance and continual improvement.
P1-G6	The site based management plan must not be implemented or amended in a way that contravenes any condition of this environmental authority.
P1-G7	Record, compile and keep all monitoring results required by this environmental authority and present this information to the administering authority when requested.
P1-G8	All records required by this environmental authority must be kept for 5 years.
P1-G9	Acid sulfate soils must be managed such that contaminants are not directly or indirectly released to any waters.

P1-G10	All areas used for the storage or treatment of acid sulfate soils or other contaminants must be constructed, installed and maintained: • So as to prevent any release of contaminants through the bed or banks of the pond to any waters (including ground water); • So that a freeboard of not less than 0.5 metres is maintained at all times; and • So as to ensure the stability of the bunded area's construction.
P1-G11	Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any bunded areas or other structures used for the storage or treatment of contaminants including acid sulfate soils or wastes.
P1-G12	All acid sulphate soils must be disposed of or managed within the authorised place.
P1-G13	Any temporary or permanent dewatering ponds or water bodies used to contain or treat acid sulphate soils must not be constructed on a watercourse.
P1-G14	Telephone the administering authorities Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.
P1-G15	A written notice detailing the following information must be provided to the administering authority within 14 days of any advice provided in accordance with this condition: • The name of the operator, including their approval / registration number; • The name and telephone number of a designated contact person; • Quantity and substance released; • Vehicle and registration details; • Person/s involved (driver and any others); • The location and time of the release; • The suspected cause of the release; • A description of the effects of the release; • The results of any sampling performed in relation to the release; • Actions taken to mitigate any environmental harm caused by the release; and • Proposed actions to prevent a recurrence of the release.
P1-G16	A competent person(s) must conduct any monitoring required by this approval.
P1-G17	All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated, and appropriately operated and maintained
P1-G18	The daily operation of the dredging activity and pollution control equipment must be carried out by a person(s) with appropriate experience and/or qualifications to ensure the effective operation of that control equipment.

P1-G19	An appropriate spill kit, personal protective equipment and relevant operator instructions / emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site.
P1-G20	Anyone operating under this approval must be trained in the use of the spill kit.
P1-G21	A record of all material dredged from the approved location must be kept detailing the following information: • Date of dredging; • Quantity of dredge material, including method of determination; • Description of dredge material; • Analysis of material in accordance with the latest edition of the administering authorities instructions for the treatment and management of acid sulfate soils; and • Destination of the dredge material including date and time of placement, quantity placed and method of volumetric determination.

Agency interest: Air

Condition number	Condition
P1-A1	When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include: • For a complaint alleging dust nuisance, dust deposition; and • For a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (pm) (PM10) suspended in the atmosphere over a 24hr averaging time.
P1-A2	The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.
P1-A3	The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

P1-A4	Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:
	• Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); OR
	• A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with:
	  • Australian Standard AS 3580.9.6 of 2003 (or more recent editions) 'Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method'; or
	  • Any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

Agency interest: Water

Condition number	Condition
P1-W1	Contaminants may only be released to waters from the release points and in compliance with the release limits listed in Table 1 – Water quality release limits. Monitoring shall be conducted and records kept of contaminant releases to waters from the release points at the frequency and for the parameters specified in Table 1 – Water quality release limits. All determinations of the quality of contaminants released will be: • Performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; and • Made in accordance with methods prescribed in the administering authorities Water Quality Sampling Manual, 3rd Edition, December 1999, or more recent additions or supplements to that document as such become available.

Table 1 – Water quality release limits

Release / monitoring point	Quality characteristic	Minimum	50th Percentile	Maximum	Monitoring frequency
Background site (B) 500 meters up-current of dredging site in Daintree River	Turbidity[3] pH[3] Dissolved Oxygen[3]	-	-	-	Daily when undertaking dredging
Impacted Site (1) 500 meters down-current of dredging site in Daintree River	Turbidity[3] pH[3] Dissolved Oxygen[3]	 Background Background – 10%	80th Percentile of Background or 10NTU whichever is greater[2]	No visible plume Background	Daily when undertaking dredging
Discharge point from bunded stockpile area	Turbidity[3] pH[3]	 6.5		No visible plume 9.0	Daily when releasing water from stockpile area

1. Levels based on the 80th percentile are derived using ANZECC (2000) methodology and are based on the reference site defined in Table 1.
2. The 50th and 80th percentile must be determined based on no more than five (5) consecutive samples.
3. Background and Impacted monitoring site turbidity values are to be determined with a nephelometer, pH values with a pH meter and Dissolved Oxygen values with a polarographic oxygen probe within a 60 minute time frame while activity is occurring.

P1-W2	Settled/treated stormwater runoff waters from those areas of the site that drain to the sediment control system must only be released in compliance with the release limits listed in Table 1 – Water quality release limits.
P1-W3	Erosion protection measures and sediment control measures must be implemented and maintained to prevent erosion and the release of sediment.
P1-W4	Contaminants other than settled/treated stormwater runoff waters must not be released from the site to waters.

Agency interest: Noise	
Condition number	**Condition**
P1-N1	The operator of the ERA must implement all reasonable and practical measures to prevent or minimise noise emissions from the undertaking of the activity. Such measures must include but not be limited to: • The use of four stroke outboard motors only to control movement of the sand barge; • Training and monitoring of equipment operators to ensure that there is no scraping of equipment parts on the concrete barge ramp; • The use of trailer brakes only when trucks are operated on the ferry; • The lining of the excavator engine bay with an appropriate noise retardant material; • Fitment of acoustic silencing / critical residential type mufflers to exhausts of plant equipment; and • The laying of rubber matting on the operational area of the deck of the ferry during dredging operations.
P1-N2	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include: • L_A 10, adj, 10 mins • L_A 1, adj, 10 mins • The level and frequency of occurrence of impulsive or tonal noise; • Atmospheric conditions including wind speed and direction; • Effects due to extraneous factors such as traffic noise; and • Location, date and time of recording.

Agency interest: Land	
Condition number	**Condition**
Nil conditions	

Agency interest: Waste	
Condition number	**Condition**
Nil conditions	
Agency interest: Social	
Condition number	**Condition**
P1-S1	The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request: • Time, date, name and contact details of the complainant; • Reasons for the complaint; • Any investigations undertaken; • Conclusions formed; and • Any actions taken.

Part 2: Regulated Waste Transport	
Agency interest: General	
Condition number	**Condition**
P2-G1	The holder of this environmental authority must ensure that permanent records are kept for every load of regulated waste transported under this environmental authority, which includes at a minimum, the following information: • Date the waste was collected, accepted or transported; • Description of waste collected, accepted or transported; • Quantity of waste collected, accepted or transported; • Origin and destination of the waste; • Results of any analysis (where applicable); and • Method of waste treatment, reprocessing or disposal. Note: Records of documents maintained in compliance with a waste tracking system established under the *Environmental Protection Act 1994* or any other law for regulated waste will be deemed to satisfy this condition.
P2-G2	The holder of this environmental authority shall ensure that the operation and maintenance of plant and equipment is carried out by or under the supervision of a person competent to operate and maintain the plant and equipment.
Agency interest: Air	
Condition number	**Condition**
Nil conditions	
Agency interest: Water	
Condition number	**Condition**
P2-W1	The holder of this environmental authority must ensure that regulated wastes from the loading, transport and unloading processes are not directly or indirectly released to any waters.
Agency interest: Stormwater Management	
Condition number	**Condition**
P2-SM1	The holder of this environmental authority must take all practicable steps to ensure that any spillage or leakage of regulated wastes listed in Table 1 of condition P2-WS1 does not enter any waters, roadside gutter or stormwater drainage system.

P2-SM2	Any spillage of regulated wastes must be cleaned up as quickly as practicable by dry methods wherever possible or by other methods using the minimum amount of water to effectively clean the affected area.
P2-SM3	The maintenance and cleaning of equipment must not be carried out in areas from which the regulated wastes listed in Table 1 of condition P2-WS1 can be released into any waters, roadside gutter or stormwater drainage system.
Agency interest: Land	
Condition number	**Condition**
Nil conditions	
Agency interest: Noise	
Condition number	**Condition**
Nil conditions	
Agency interest: Waste Management	
Condition number	**Condition**
P2-WS1	The holder of the environmental authority must only transport by vehicle on a highway the regulated waste(s) referred to in Table 1. **Table 1:**

Vehicle	Registration	Waste Acceptance Criteria
Mazda BT50 Extra Cab Ute	146SMK	Acid and acid solutions, arsenic, asbestos, barium, batteries, biocides, cadmium, caustic solutions, chromium, filter cake sludges and residues, grease interceptor trap effluent and residues, hydrocarbons(oxygen, nitrogen or sulphur), lead, mercury, metal finishing effluent and residues, nickel, paint sludges and residues, saline effluent and residues, timber preservative effluent and residues, treatment tank sludges and residues, tyres and zinc compounds.

P2-WS2	The holder of this environmental authority must, on request by an authorised person make any vehicle covered by this environmental authority available for inspection.
P2-WS3	The holder of this environmental authority must cause the residues from cleaning of vehicles, trailers, equipment, containers and hoses used to transport regulated wastes, plus absorbent materials used to clean up any spillage to be disposed of only at premises whose operator is licensed under the *Environmental Protection Act 1994* to receive such wastes.

P2-WS4	The holder of this environmental authority must take all reasonable precautions necessary to prevent the spillage during loading, unloading and transportation of regulated wastes.
P2-WS5	The holder of this environmental authority must ensure that any regulated waste is not transported in a container mixed with any other waste.
P2-WS6	The holder of this environmental authority must ensure that when any vehicle referred to in this environmental authority is carrying regulated waste and parked overnight, it is kept in a secured area.
P2-WS7	The holder of this environmental authority must advise the administering authority of any permanent change of business address or of the place where the vehicles are kept.
P2-WS8	Any container used to transport wastes listed in the waste acceptance criteria of Table 1 of condition P2-WS1 must be: • Constructed so as to prevent spillage or leakage of the regulated waste; and • Suitable for the regulated waste being transported.
P2-WS9	The holder of the environmental authority must cause a legible copy of this environmental authority to be carried in the cabin of the vehicle at all times whilst transporting regulated waste on a public road.
P2-WS10	When regulated waste is transported on a public road the holder of the environmental authority must cause: • Written instructions as to clean up to be available in the cabin of the vehicle in case of any escape, spill or leak of regulated waste from the vehicle; and • The administering authority to be immediately advised of any escape, spill or leak of regulated waste from the vehicle; and • Any escape, spill or leak of regulated waste from the vehicle to be immediately cleaned up; and • A spill kit to be available with the vehicle: and • Safety equipment to be available with the vehicle; and • An Emergency Procedure Guide(s) to be carried in the cabin of the vehicle.
P2-WS11	The holder of this environmental authority must within five (5) days of changing vehicles to transport regulated waste authorised by this environmental authority notify the administering authority in writing of such changes of vehicle. The notification must include details of: • The vehicle it is to replace; • New vehicle registration number; • New vehicle make; • New vehicle capacity; and • New vehicle type.

Agency interest: Monitoring and Reporting	
Condition number	**Condition**
P2-MR1	All complaints received by the holder of this environmental authority relating to releases of contaminants from operations of the environmentally relevant activity must be recorded and kept with the following details: • Time, date and nature of complaint; • Type of communication (telephone, letter, personal etc.); • Name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then "Not identified" is to be recorded); • Response and investigation undertaken as a result of the complaint; • Name of person responsible for investigating complaint; and • Action taken as a result of the complaint investigation and signature of responsible person.
P2-MR2	Where the holder of this environmental authority has not given notification to the administering authority under section 320 of the *Environmental Protection Act 1994*, as soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority, the holder of this environmental authority must notify the administering authority of the release by telephone or facsimile.
P2-MR3	Where the holder of this environmental authority has not given notification to the administering authority under section 320 of the *Environmental Protection Act 1994*, the notification of emergencies or incidents as required by condition number P2-MR2 must include but not be limited to the following: • The holder of this environmental authority; • The location of the emergency or incident; • The number of the environmental authority; • The name and telephone number of the designated contact person; • The time of the release; • The time the holder of this environmental authority became aware of the release; • The suspected cause of the release; • The environmental harm and or environmental nuisance caused, threatened, or to be caused by the release; and • Actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.

P2-MR4	Where the holder of this environmental authority has not given notification to the administering authority under section 320 of the *Environmental Protection Act 1994*, not more than fourteen (14) days following the initial notification of an emergency or incident, the holder of this environmental authority must provide written advice of the information supplied in accordance with condition number P2-MR3 in addition to: • Proposed actions to prevent a recurrence of the emergency or incident; and • Outcomes of actions taken at the time to prevent or minimise environmental harm and or environmental nuisance.

Definitions

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Term / Phrase	**Definition**
administering authority	Means the Department of Environment and Heritage Protection or its successor.
annual return	Means the return required by the annual notice under the *Environmental Protection Act 1994*
approved plans	Means the plans and documents listed in Schedule 1 of this document.
artificial waterway	Means an artificial channel, lake or other body of water. Artificial waterway includes: • An artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land; • Other artificial channels subject to the ebb and flow of the tide; and • Any additions or alterations to an artificial waterway.
authorised place	Means the place authorised under this environmental authority for the carrying out of the specified environmentally relevant activity(ies).
canal	Means an artificial waterway surrendered to the State. A canal is an artificial waterway connected, or intended to be connected, to tidal water; and from which boating access to the tidal water is not hindered by a lock, weir or similar structure.
clinical waste	means waste that has the potential to cause disease including, for example, the following: • Animal waste; or • Discarded sharps; or • Human tissue waste; or • Laboratory waste.
coastal dune	Means a ridge or hillock of sand or other material on the coast and built up by the wind.
commercial place	Means a place used as an office or for business or commercial purposes.

dredge spoil	Means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.
dwelling	means any of the following structures or vehicles that is principally used as a residence and includes: • A house, unit, motel, nursing home or other building or part of a building; or • A caravan, mobile home or other vehicle or structure on land; or • A water craft in a marina.
erosion prone area	Means an area declared to be an erosion prone area under the *Coastal Protection and Management Act 1995.*
high water mark	Means the ordinary high water mark at spring tides.
infectious waste	Means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.
intrusive noise	means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration that: • Is clearly audible to, or can be felt by, an individual; and • Annoys the individual In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 — 1997 Acoustics — Description and Measurement of Environmental Noise Part 2 Application to Specific Situations.
L_A 10, adj, 10 mins	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.
L_A 1, adj, 10 mins	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.
LA, max adj, T	Means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.
land	Means land excluding waters and the atmosphere.
mg/L	Means milligrams per litre.
noxious	Means harmful or injurious to health or physical wellbeing.
NTU	Means nephelometric turbidity units.

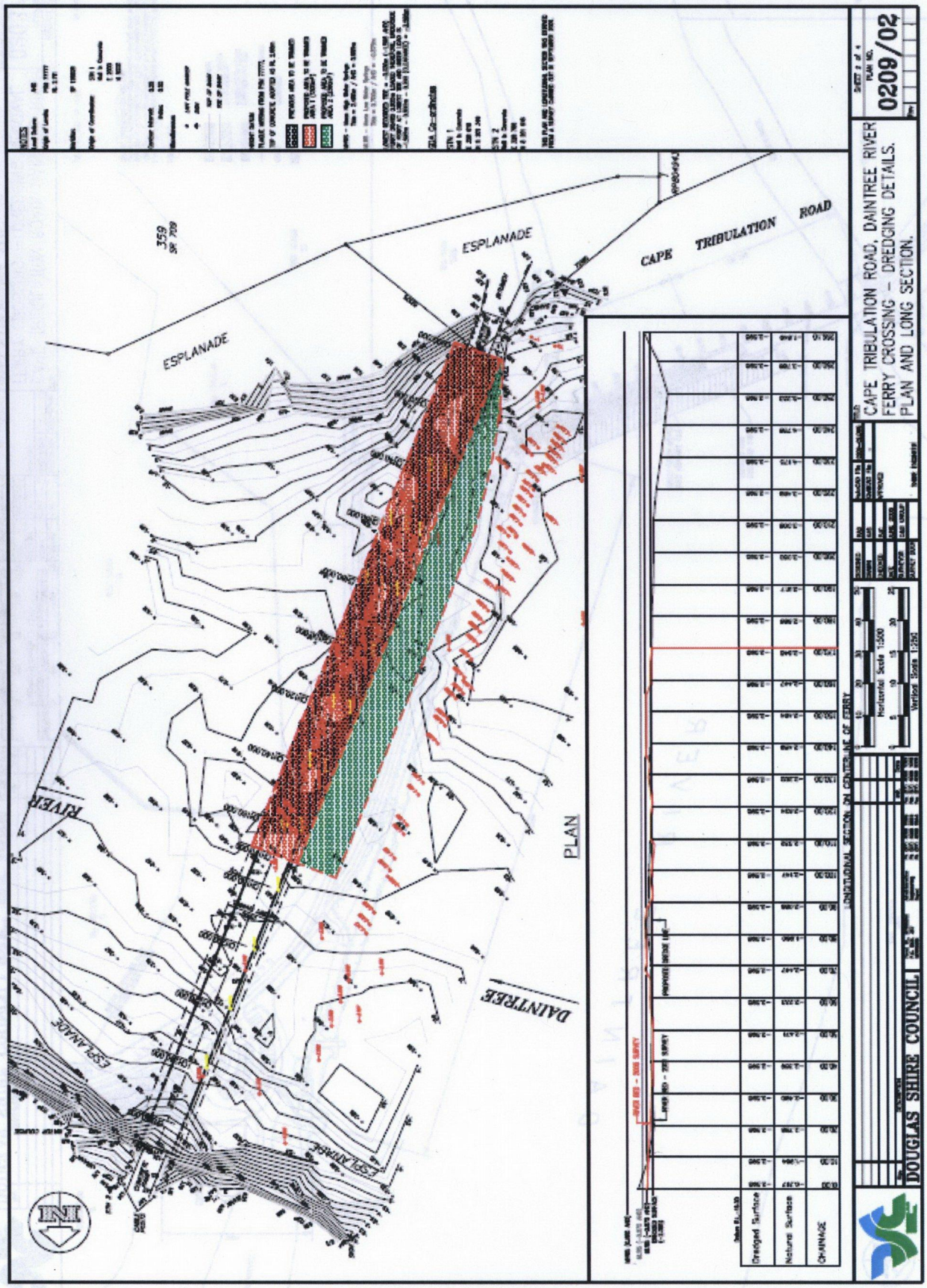
nuisance sensitive place	Includes: • A dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or • A motel, hotel or hostel; or • A kindergarten, school, university or other educational institution; or • A medical centre or hospital; or • A protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area, or • A public thoroughfare, park or gardens; or • A place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.
offensive	Means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.
ponded pasture	Means a permanent or periodic pondage of water in which the dominant plant species are pasture species used for grazing or harvesting.
protected area	Means: • A protected area under the Nature Conservation Act 1992; or • A marine park under the Marine Parks Act 1992; or • A World Heritage Area.
quarry material	Means material on State coastal land, other than a mineral within the meaning of any Act relating to mining. Material includes for example stone, gravel, sand, rock, clay, mud, silt and soil, unless it is removed from a culvert, stormwater drain or other drainage infrastructure as waste material.
regulated waste	means non-domestic waste mentioned in the Environmental Protection Regulation 2008 (whether or not it has been treated or immobilised), and includes: • For an element - any chemical compound containing the element; and • Anything that has contained the waste.
safety equipment	Means equipment available to lend protection to the driver of the vehicle covered by this environmental authority for the regulated waste being transported e.g. safety goggles, chemical resistant gloves, chemical resistant overalls, eye wash, touch, fire extinguisher(s).
site	Means land or tidal waters on or in which it is proposed to carry out the approved activity.

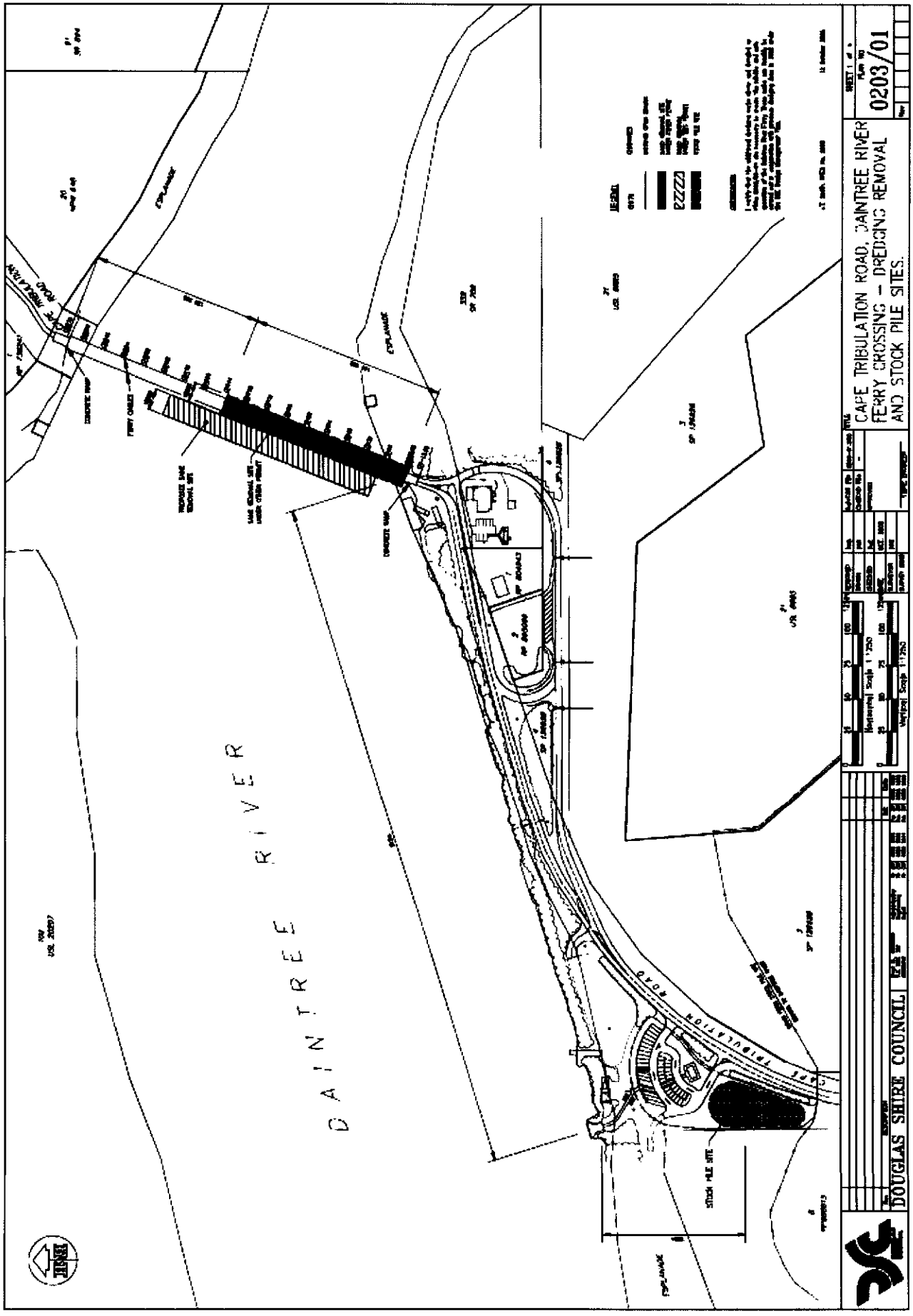
spill kit	Means container or stock of material which would enable a small spill, leak or escape of the regulated waste being transported to be safely and effectively cleaned up e.g broom, shovel, sealable bucket, absorbent material.
the holder of this environmental authority	Means Douglas Shire Council
tidal water	Means the sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides.
watercourse	Means a river, creek or stream in which water flows permanently or intermittently: • In a natural channel, whether artificially improved or not; or • In an artificial channel that has changed the course of the watercourse.
waters	Includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part- thereof.
You	Means the holder of this environmental authority or owner / occupier of the land which is the subject of this environmental authority.
50th percentile	Means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.
80th percentile	means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

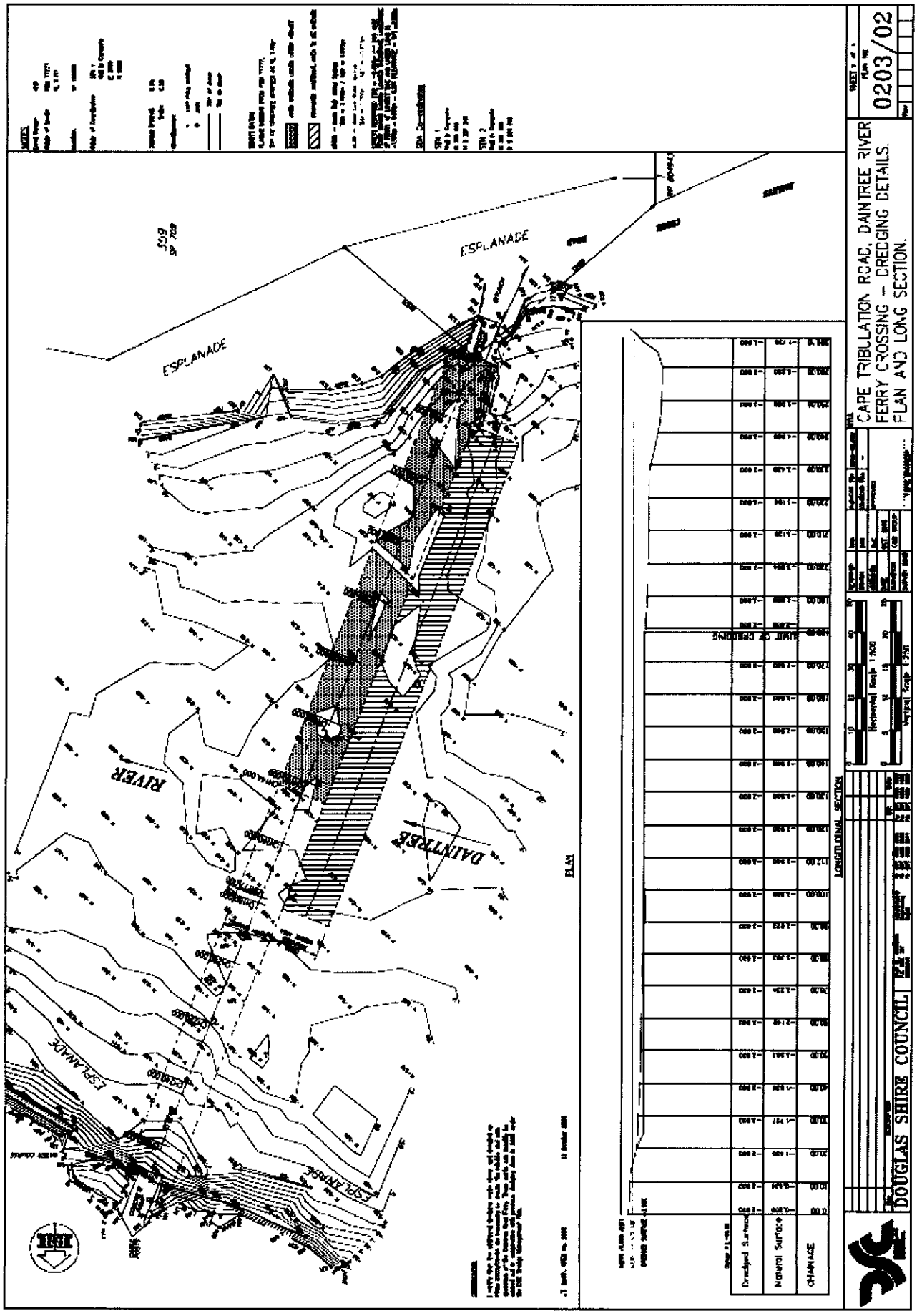
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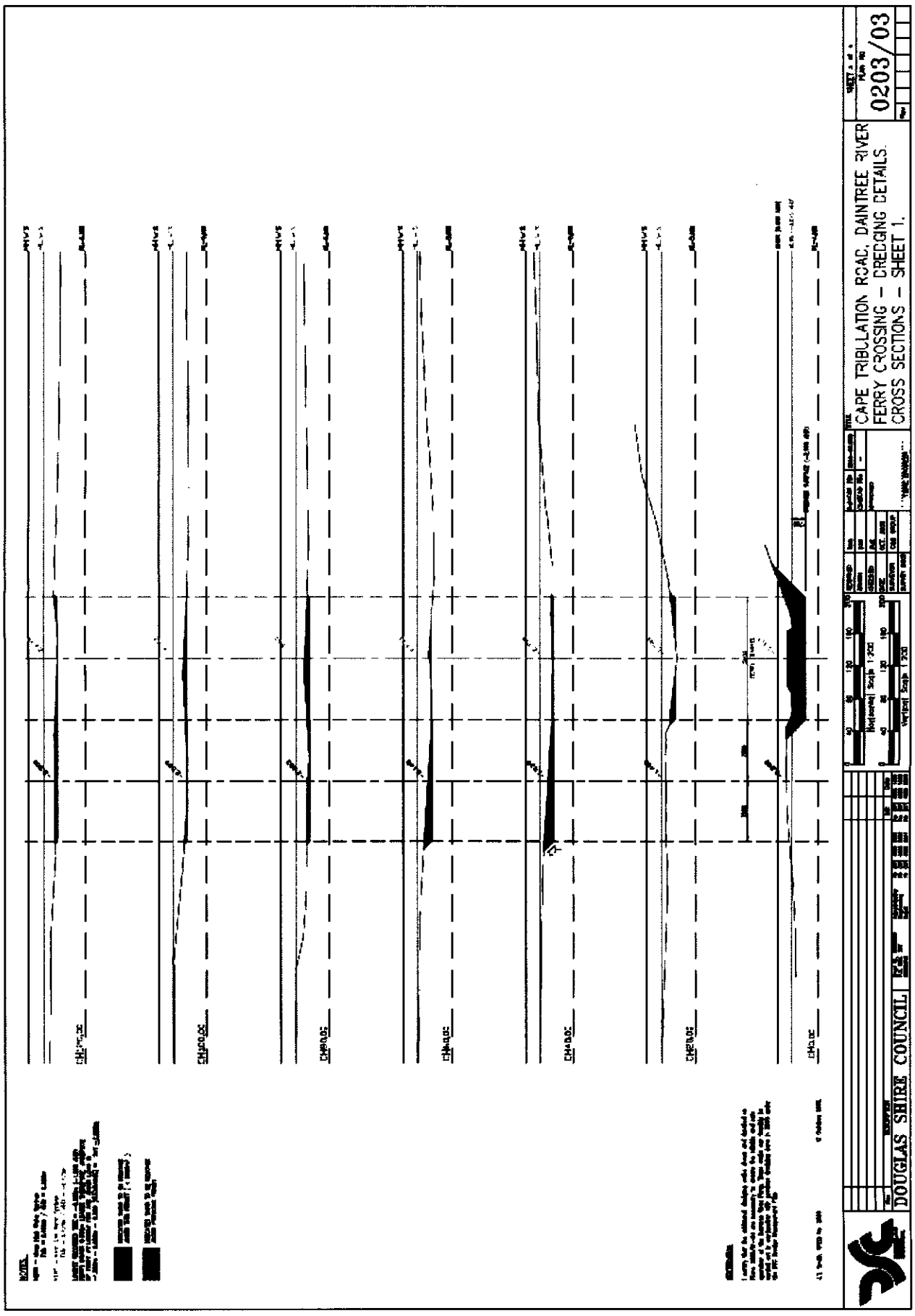
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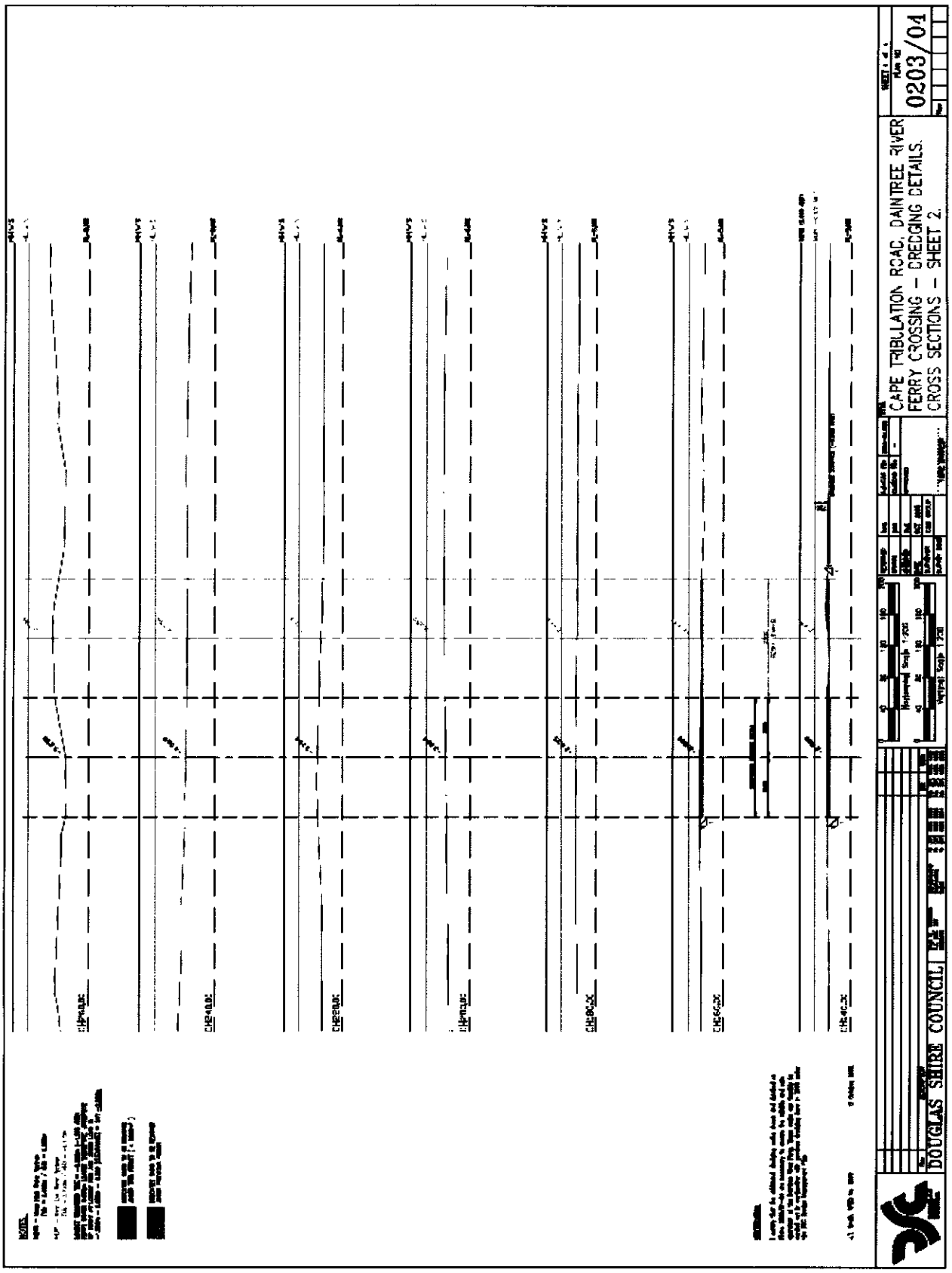
Plan No	Title	Applicable Part
0209/02	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Plan and Long Section Sheet 2 of 4	Cape Tribulation Road – Daintree (Part 1of this environmental authority)
0203/01	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Removal and Stock Pile Sites Sheet 1 of 4.	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/02	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Removal and Stock Pile Sites Sheet 2 of 4.	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/03	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Cross Sections Sheet 1	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/04	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Cross Sections Sheet 2	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)


ESPLANADE
CAPE TRIBULATION ROAD
ESPLANADE
359
SP 709
RIVER
DAINTREE
ESPLANADE
ESPLANADE
PLAN
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING - DREDGING DETAILS.
PLAN AND LONG SECTION.
0209/02
DOUGLAS SHIRE COUNCIL
Dredged Surface
Natural Surface
CHAINAGE


CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING – DREDGING REMOVAL
AND STOCK PILE SITES.
0203/01
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER
TRIBULATION ROAD
STOCK PILE SITE


ESPLANADE
ESPLANADE
RIVER
DAINTREE
ESPLANADE
ESPLANADE
PLAN
LONGITUDINAL SECTION
CHAINAGE
Natural Surface
Dredged Surface
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING - DREDGING DETAILS.
PLAN AND LONG SECTION.
0203/02
DOUGLAS SHIRE COUNCIL


DOUGLAS SHIRE COUNCIL
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING - DREDGING DETAILS
CROSS SECTIONS - SHEET 1.
0203/03

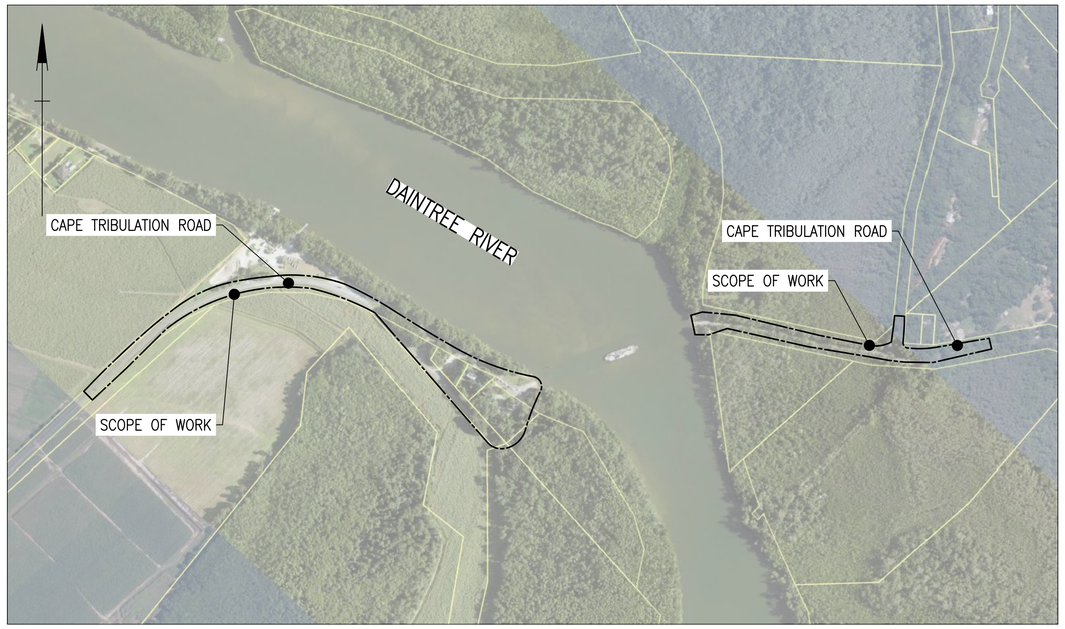


END OF PERMIT

Appendix C

Detailed Design Drawings

DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE



LOCALITY PLAN (IMAGE SOURCE: QLD GLOBE)

CIVIL DRAWING INDEX

Drawing Number	Revision	Date	Series Number	Drawing Description
25019-HEG-C01-DI-01	C	18/12/2025	DI-01	DRAWING INDEX AND LOCALITY PLAN
25019-HEG-C02-GN-01	C	18/12/2025	GN-01	GENERAL NOTES AND LEGEND - SHEET 1 / 2
25019-HEG-C02-GN-02	C	18/12/2025	GN-02	GENERAL NOTES AND LEGEND - SHEET 2 / 2
25019-HEG-C03-TS-01	C	18/12/2025	TS-01	TYPICAL CROSS SECTIONS - SHEET 1 / 3
25019-HEG-C03-TS-02	C	18/12/2025	TS-02	TYPICAL CROSS SECTIONS - SHEET 2 / 3
25019-HEG-C03-TS-03	A	18/12/2025	TS-03	TYPICAL CROSS SECTIONS - SHEET 3 / 3
25019-HEG-C04-GA-01	C	18/12/2025	GA-01	GENERAL ARRANGEMENT - SHEET 1 / 4
25019-HEG-C04-GA-02	C	18/12/2025	GA-02	GENERAL ARRANGEMENT - SHEET 2 / 4
25019-HEG-C04-GA-03	C	18/12/2025	GA-03	GENERAL ARRANGEMENT - SHEET 3 / 4
25019-HEG-C04-GA-04	C	18/12/2025	GA-04	GENERAL ARRANGEMENT - SHEET 4 / 4
25019-HEG-C04-GA-05	B	18/12/2025	GA-05	CONTROL LINE SETOUT TABLES - SHEET 1 / 1
25019-HEG-C04-GA-06	A	18/12/2025	GA-06	MC03 & MC04 LONG SECTIONS SHEET 1 / 1
25019-HEG-C05-EF-01	C	18/12/2025	EF-01	EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 1 / 4
25019-HEG-C05-EF-02	C	18/12/2025	EF-02	EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 2 / 4
25019-HEG-C05-EF-03	C	18/12/2025	EF-03	EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 3 / 4
25019-HEG-C05-EF-04	C	18/12/2025	EF-04	EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 4 / 4
25019-HEG-C06-DD-01	B	18/12/2025	DD-01	DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 1 / 3
25019-HEG-C06-DD-02	B	18/12/2025	DD-02	DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 2 / 3
25019-HEG-C06-DD-03	A	18/12/2025	DD-03	DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 3 / 3
25019-HEG-C07-PD-01	B	18/12/2025	PD-01	PAVEMENT AND CONSTRUCTION SETOUT SHEET 1 / 4
25019-HEG-C07-PD-02	B	18/12/2025	PD-02	PAVEMENT AND CONSTRUCTION SETOUT SHEET 2 / 4
25019-HEG-C07-PD-03	B	18/12/2025	PD-03	PAVEMENT AND CONSTRUCTION SETOUT SHEET 3 / 4
25019-HEG-C07-PD-04	B	18/12/2025	PD-04	PAVEMENT AND CONSTRUCTION SETOUT SHEET 4 / 4
25019-HEG-C08-SL-01	B	18/12/2025	SL-01	SIGNS AND LINEMARKING LAYOUT - SHEET 1 / 4
25019-HEG-C08-SL-02	B	18/12/2025	SL-02	SIGNS AND LINEMARKING LAYOUT - SHEET 2 / 4
25019-HEG-C08-SL-03	B	18/12/2025	SL-03	SIGNS AND LINEMARKING LAYOUT - SHEET 3 / 4
25019-HEG-C08-SL-04	B	18/12/2025	SL-04	SIGNS AND LINEMARKING LAYOUT - SHEET 4 / 4
25019-HEG-C08-SL-05	B	18/12/2025	SL-05	SIGNAGE SCHEDULE - SHEET 1 / 3
25019-HEG-C08-SL-06	B	18/12/2025	SL-06	SIGNAGE SCHEDULE - SHEET 2 / 3
25019-HEG-C08-SL-07	A	18/12/2025	SL-07	SIGNAGE SCHEDULE - SHEET 3 / 3

TOTAL NUMBER OF CIVIL DRAWINGS = 30

STRUCTURAL DRAWING INDEX

Drawing Number	Revision	Date	Series Number	Drawing Description
25019-HEG-S01-SN-01	B	18/12/2025	SN-01	STRUCTURAL NOTES - SHEET 1 / 2
25019-HEG-S01-SN-02	B	18/12/2025	SN-02	STRUCTURAL NOTES - SHEET 2 / 2
25019-HEG-S02-PI-01	B	18/12/2025	PI-01	PILE SCHEDULE AND DETAILS - SHEET 1 / 1
25019-HEG-S03-RA-01	B	18/12/2025	RA-01	RAMP LAYOUT PLAN - SHEET 1 / 2
25019-HEG-S03-RA-02	B	18/12/2025	RA-02	RAMP PLANK DETAILS - SHEET 2 / 2
25019-HEG-S04-PS-01	B	18/12/2025	PS-01	PEDESTRIAN SHELTER PLAN - SHEET 1 / 1
25019-HEG-S05-MI-01	B	18/12/2025	TB-01	TICKET BOOTH SLAB PLAN
25019-HEG-S05-MI-02	B	18/12/2025	AF-01	ANCHOR FOOTING DETAILS

TOTAL NUMBER OF STRUCTURAL DRAWINGS = 8

CIVIL ANNOTATIVE CROSS SECTION INDEX

Drawing Number	Revision	Date	Series Number	Drawing Description
25019-HEG-C08-XS-01 to 25019-HEG-C08-XS-70	B	18/12/2025	XS-01 to XS-70	ANNOTATIVE CROSS SECTION - SHEET 1 to SHEET 70

TOTAL NUMBER OF ANNOTATIVE CROSS SECTIONS = 70

TOTAL NUMBER OF DRAWINGS = 108

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: DRAWING INDEX AND LOCALITY PLAN

HANSEN ENGINEERING GROUP
www.hanseneng.com.au

Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

JAS-ANZ

THIS DRAWING IS COPYRIGHT ©
DO NOT SCALE DRAWING. ORIGINAL DRAWING IS A1 SIZE.

DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C01-DI-01

Revision: C

GENERAL NOTES

1. The site has been set out using:
   - 1.1. RPS survey 405566–2, dated 20 May 2021 (land survey).
   - 1.2. RPS survey PTD372854–1, dated 16 October 2024 (river survey).
   - 1.3. BRZ survey 25066_daintree Ferry_Extra Survey, dated August 2025 (additional land survey).
   - 1.4. Cultural Heritage survey, dated 20 November 2025 (additional land survey).
   - 1.5. Where detailed survey extents did not cover the design extents, LIDAR survey (2010) was used.
2. The survey and design coordinates are in GDA2020, MGA Zone 55 (GNSS coordinate system) and levels are referenced to the mAHD datum.
3. Care should be taken for any survey or design levels in reference to the Daintree River including RPS survey PTD372854–1, which are referenced to LAT datum.
4. Background aerial imagery is from the below sources and are shown for information purposes only:
   - 4.1. Esri Maps – AutoCAD 2025 MGA/20c–55 and GDA2020–C.
   - 4.2. Queensland Globe.
5. Chainages shown are based on the MC01 to MC09 design control lines.
6. All dimensions are in metres (m) unless noted otherwise (U.N.O).
7. A detailed digital 12D design model is available for the contractors information and can be provided upon request.

FNQROC SPECIFICATIONS AND STANDARD DRAWINGS NOTES

1. The project shall adopt Far North Queensland Regional Organisation of Councils (FNQROC) Specifications and Standard drawings as listed below and referenced throughout these notes and drawings:
   - 1.1. Specifications:
     - 1.1.1. S1 – Earthworks
     - 1.1.2. S2 – Road pavements
     - 1.1.3. S4 – Stormwater drainage
     - 1.1.4. S5 – Water reticulation
     - 1.1.5. S7 – Concrete works
     - 1.1.6. S8 – Landscaping
     - 1.1.7. S9 – Natural Area Restoration
   - 1.2. Standard drawings:
     - 1.2.1. S1000 – Concrete kerb and channel
     - 1.2.2. S1010 – Public utilities on road verges
     - 1.2.3. S1011 – Road crossing and footpath reinstatement for trench laid services
     - 1.2.4. S1027 – Security fencing
     - 1.2.5. S1035 – Pathways / bikeways
     - 1.2.6. S1040 – Street name sign
     - 1.2.7. S1041 – Traffic control devices
     - 1.2.8. S1046 – Excavation, bedding and backfilling of concrete pipes
     - 1.2.9. S1075 – Concrete pipe headwall 375 mm to 675 mm
     - 1.2.10. S1085 – Concrete pipe headwall, wingwalls and apron
2. These FNQROC specifications also refer to the Department of Transport and Main Roads (TMR) Main Road Technical Specifications (MRTS) as listed below and referenced throughout these notes and drawings:
   - 2.1. MRTS03 – Drainage, retaining structures and protective treatments
   - 2.2. MRTS04 – General earthworks
   - 2.3. MRTS05 – Unbound pavements
   - 2.4. MRTS11 – Sprayed bitumen surfacing (excluding emulsions)
   - 2.5. MRTS14 – Road furniture
   - 2.6. MRTS17 – Bitumen
   - 2.7. MRTS19 – Bitumen cutter and flux oils
   - 2.8. MRTS20 – Cutback bitumen
   - 2.9. MRTS22 – Supply of cover aggregate
   - 2.10. MRTS45 – Road surface delineation
3. These FNQROC specifications also refer to a suite of Australian Standards.
4. FNQROC specifications and standard drawings shall take precedence over all other referenced specifications. In the instance the specification required is not in the FNQROC specifications or standard drawings, MRTS shall be used. A Request For Information (RFI) to the designer shall be made to confirm adoption of the relevant MRTS specification.

UTILITY NOTES

1. Utilities shown on these plans are based Before You Dig Australia (BYDA), Douglas Shire Council (DSC) records, other GIS sources and limited detailed survey data, which is inaccurate and does not cover the entire site.
2. Potholing of Telstra services within the project footprint was undertaken and is shown in BRZ survey (August 2025), with additional Telstra pits located in the Cultural Heritage survey (20 November 2025).
3. Telecommunications, water and power utilities were also surveyed within the project foot print in RPS survey (20 May 2021).
4. The contractor shall positively identify all existing utilities on site and protect them during construction.
5. It is understood there are no existing sewer mains within the project site. The toilets at the Ferry House and 3 x public toilets use septic tanks.
6. Available survey, BYDA and GIS utility survey is shown on the existing features plans, refer to EF series.
7. Electrical utilities are shown on the electrical drawings, refer to RCG's drawings.
8. No construction works are to be undertaken within 3.0 m of any utility without prior consultation and approval from the relevant authority.
9. All utility trenching through roads shall be reinstated as per FNQROC S1011, modified to suit Pavement Type 2.

UTILITY NOTES CONT.

8. All utility trenching should be undertaken prior to pavement and footpath construction and sealing to achieve a neat and tidy finished surface throughout the project

EXISTING FEATURES AND DEMOLITION NOTES

1. All existing pavement, culvert headwalls, redundant concrete slabs / foundations and landscaping etc. that are not required as part of the permanent works shall be neatly removed to the extents necessary to complete construction and tie the design into existing. Refer to EF series.
2. Existing bolted on rubber speed bumps and kerb shall be removed from the existing pavement neatly to reveal the existing pavement. The existing pavement shall be inspected for suitability for re–use and tidied up to remove all debris, bolts and loose stones. In the instance the existing pavement is unsealed beneath these devices, a prime shall be placed prior to the existing pavement reseal.

GENERAL CIVIL WORKS NOTES

1. Civil works shall be undertaken in accordance with the FNQROC Specifications and Standard Drawings.
2. The Contractor is to ensure appropriate environmental permits are in place and they are familiar with the Cultural Heritage requirements prior to clearing.
3. Clearing, grubbing, and excavation shall include the removal of existing topsoil, concrete, seals, and deleterious material to their full depth to the locations shown on the EF series.
4. The contractor is to tie in all the earthworks neatly with the existing surface. Finished surface rock fill is to tie in with surrounding levels smoothly.
5. The design subgrade is based on Geotechnical Investigations completed by Geo Design (10 January 2023) and ETS Geo (14 August 2025). Limited tests were taken at the existing traffic lanes, shoulders or pavement due to the existing pavement being heavily bound.
6. The contractor shall submit their proposed construction and material testing frequencies and QA processes to the designer prior to commencement of construction for their review and approval. As a minimum, these shall be in accordance with FNQROC S1, S2, S4 and S7.

PAVEMENT AND SEAL NOTES

1. Based on the existing pavement, traffic loading and the site being frequently and significantly inundated, Pavement Type 1 has been proposed, which includes a heavily bound base and unbound granular subbase to match existing pavement, with an unsuitable subgrade treatment based on the insitu site conditions. Refer to the pavement details.
2. An assumed pavement design subgrade CBR of 3% has been adopted.
3. A neat saw–cut face shall be constructed at all new pavement tie–in locations with existing pavements with a stepped pavement profile as shown on the TS series to ensure adequate compaction. The saw–cut shall extend into sound, uncontaminated pavement.
4. In the instance an existing pavement stepped face cannot be achieved as shown on the TS series, a 1:1 pavement batter shall be constructed such that the existing and new pavement profile can be compacted at the pavement join.
5. All new pavements shall tie in neatly to existing pavements both transversely and longitudinally at tie in locations.
6. Where the pavement widening required is less than a standard constructible width for new pavement, the pavement saw–cut shall be shifted to suit the standard constructible width required for plant to place and compact the pavement.
7. After removal of existing culverts and installation of new culverts, the Contractor shall assess the resulting level difference between the top of culvert and pavement finished surface level to confirm the required pavement and fill depth either side and over the culvert. The contractor shall fill to subgrade either side of the culvert (if required), to allow suitable placement and compaction of the pavement layers over the culvert.
8. The unsuitable subgrade treatment shall be placed beneath culverts and is therefore not required at pavement subgrade over the culvert (refer to unsuitable subgrade treatment notes below).
9. Spray seal rates shown on drawings are indicative only and provided for estimating purposes. The Contractor is responsible for the final seal design based on prevailing site conditions and aggregate properties at the time of construction.
10. A prime must cure for 3 days before application of the final seal, in accordance with MRTS11.
11. The concrete footpath shall be constructed as per FNQROC S1035, as per the concrete jointing requirements shown on this standard drawing.

UNSUITABLE SUBGRADE TREATMENT NOTES

1. An unsuitable subgrade treatment is shown on the pavement details, which specifies a geofabric wrapped rock fill due to the frequent inundation and proximity to the Daintree River resulting in construction under wet conditions.
2. In the instance existing rock is exposed at subgrade level, the rock fill can be omitted. However, the proposed geotextile shall be placed to prevent granular material loss into existing rock voids and to ensure adequate pavement compaction.
3. Geotextile shall comply with MRTS27 Geotextiles (Separation and Filtration):
   - 3.1. Strength Class C.
   - 3.2. Filtration Class VI.
4. The unsuitable subgrade treatment depth has been specified as 300 mm based on the geotechnical investigation findings. If mechanical interlock with no movement under a proof roll is not achieved at the top of this 300 mm rock layer, the treatment will need to be removed and deepened to achieve mechanical interlock to ensure no movement prior to placement of the pavement subbase.
5. The unsuitable subgrade treatment has been shown directly beneath the pavement subbase in the pavement details. However, as shown on the TS series, in instances where the pavement is in fill, the unsuitable subgrade treatment shall be placed on the existing stripped surface prior to filling with embankment fill to pavement subbase.

UNSUITABLE SUBGRADE TREATMENT NOTES CONT.

6. It is noted, due to the limitations of the 12D modelling, that the unsuitable subgrade treatment has been modelled throughout the project as per the pavement details (beneath subbase). Therefore, in areas of fill, the annotated cross sections still show the unsuitable subgrade treatment beneath subbase rather than at existing stripped surface. In these instances, the Contractor shall install the unsuitable subgrade treatment on the existing stripped surface prior to filling with embankment fill to pavement subbase, as per Note 5 above and as shown on the TS series.
7. Rock fill shall consist of sound igneous, metamorphic or sedimentary rock or combination of these rock groups that will not disintegrate in water or when exposed to the weather. Rock fill shall be free from overburden, shale, clayey materials and organic matter. Rock shall be angular in shape and the least dimension of the rock shall not be less than half its greatest dimension.
8. The thickness of the rock shall be 2x d50 rock size.
9. All utility trenching should be undertaken prior to pavement and footpath construction and sealing to achieve a neat and tidy finished surface throughout the project

DRAINAGE NOTES

1. Drainage works shall be in accordance with the FNQROC Specifications and Standard Drawings.
2. Refer to FNQROC S4, S1046, S1078 and S1085 for the installation, bedding and backfilling to drainage pipes.
9. Concrete headwalls for pipes < 675 mm dia. can be installed as per FNQROC S1075. All larger pipes shall be as per TMR SD1304.
10. Proposed pre–cast headwalls, aprons and wingwalls should be confirmed with the designer.
11. Type H2S support using embankment installation for multiple concrete pipes shall be adopted as per S1046.
12. The contractor is to consider construction loadings on all drainage structures.
13. All dimensions relevant to setting out the culverts on site shall be verified by the contractor prior to construction and fabrication.
14. The contractor shall maintain the structure in a stable condition at all times and ensure no part is overstressed during construction activities.
15. All temporary works are the responsibility of the contractor and shall comply with the relevant standards, acts and legislation.
16. Existing culvert inverts levels are to be confirmed on site. If significant variances from the design invert level are found, contact the designer for direction.
17. Flood modelling has been undertaken by Venant Solutions (October 2025), to inform the design of the ferry ramp and scour protection requirements. Flood modelling shows frequent and significant inundation of the entire project site. Hydraulic assessments of culverts and table drains were not part of scope. No hydraulic checks, flow rate or afflux calculations have been undertaken as the design is replacing all existing culverts with the same size or larger.
7. Culverts, including end structures, shall be marine grade and C2 exposure classification to MRTS25.
8. Pipe classes are shown on the DD series.
9. The culvert foundations shall be inspected and tested prior to construction of the culverts to confirm they are suitable and well compacted as per the relevant specification. If soft or unsuitable material (low allowable bearing capacity) is encountered, it shall be removed and replacement with rock as per the unsuitable subgrade treatment notes and details (inclusive of the end structures).
10. The contractor shall locally adjust earthworks to smoothly tie in with the culvert inlets/outlets and headwalls/end structures.

SIGNAGE, PAVEMENT MARKING AND FURNITURE NOTES

1. All signage and line marking to be in accordance with Manual of Uniform Traffic Control Devices (MUTCD), FNQROC S2, MRTS14 and MRTS45.
2. Signs shall be set out as per FNQROC S1041.
3. Guideposts are to be installed as per TMR SD1356 and the MUTCD in the locations shown on the SL series. The distance from pavement edge shall be constant, generally between 1.2 m and 3.0 m.
4. Hazard marker posts shall be installed as per SD1851 at all culvert headwalls.
5. Refer to sign schedule for post size and foundation.
6. Refer to TMR SD 1363, 1365 and 1368 for signage footing details.
7. All sign posts are to be Grade C350LO.
4. Pavement marking shall be waterborne as per MRTS45.
5. Word, letter and number heights shall be as per AS1742.2 MUTCD Part 2 Section 5.5.2.2 and Figure 5.7.
6. Arrow heights shall be as per AS1742.2 MUTCD Part 2 Section 5.5.2.3 and Figure 5.9, 5.10.
6. Keep clear shall be as per AS1742.2 MUTCD Part 2 Section 5.5.2.6 and Figure 5.13.
7. Chevrons shall be as per AS1742.2 MUTCD Part 2 Section 5.5.1 and Figure 5.4, 5.5.
8. Disability markings shall be as per AS1428.1 (white) on a 1.0 m blue square.
9. Fencing for the Ferry House shall tie in neatly to the existing fencing. Extents are to be confirmed on site to match the road and culvert extents (existing fence alignment was not surveyed). Fence shall be as per FNQROC S1027.
10. Large diameter boulders are proposed to prevent vehicles accessing Cape Tribulation Road from the boat ramp car park. Boulders should be placed such that there is a maximum 1.5 m clearance between boulders to prevent vehicle access.

CULTURAL HERITAGE NOTES

1. There are two areas of significance identified by Yalanji People – "Yulba" Mud Mussel and Walking track south of Forest Creek road which is used to access Black Palm. No work is to occur within these areas. Refer to:
   - 1.1. Cultural Heritage Survey (20 November 2025).
   - 1.2. Daintree Ferry update Cultural Heritage assessment (Nov 2024).
2. These areas have been highlighted on these drawings.

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: GENERAL NOTES AND LEGEND - SHEET 1 / 2

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C02-GN-01

Revision: C

ROAD GEOMETRY NOTES

1. The project scope, as advised by Douglas Shire Council, was to adopt the existing road horizontal and vertical geometry and re-use the existing pavement to allow for better expenditure of available budget. Therefore, the existing road geometry and pavement has been adopted, resulting in unusual road geometry in some areas. Without significant reconstruction, this geometry cannot be brought up to current road design standards.
2. The project adopts a 40 km/h posted speed area due to the urbanised environment and high traffic and pedestrian usage within a confined, environmentally sensitive area. To further reduce vehicle speeds, warning and hazard signs have been proposed, in addition to speed bumps and bolted on rubber kerbs with posts to separate and direct traffic.
3. These features allow absolute minimum road geometry standards to be adopted in a safe and controlled manner.

SAFETY IN DESIGN NOTES

1. Hansen Engineering Group has prepared this design in accordance with the Work Health and Safety Regulation 2011 (QLD), considering foreseeable risks during construction, maintenance, use and demolition.
2. A detailed Safety in Design Risk Register has been prepared for this project and shall be read in conjunction with all drawings, specifications and supporting documents.
3. Refer to HEG SiD Report 25019-Daintree-SiD Register for further details. This register shall be updated by the Contractor, Client, and Operator/Maintainer throughout future project stages.
4. Hansen Engineering Group has discharged their duties as the designer under Clause 295 of the WHS Regulation.

DESIGN TRAFFIC NUMBERS

AADT = 860 (two-way, 2026)
HV = 11%
Growth factor = 1%
Assumed design subgrade = CBR 3%
ESA/HVAG = 0.98
NHVAG / HV = 2.0
NDT (20 years) = 7.2 x 10^5 HVAG
DESA (design traffic, 20 years) = 7.0 x 10^5 ESA

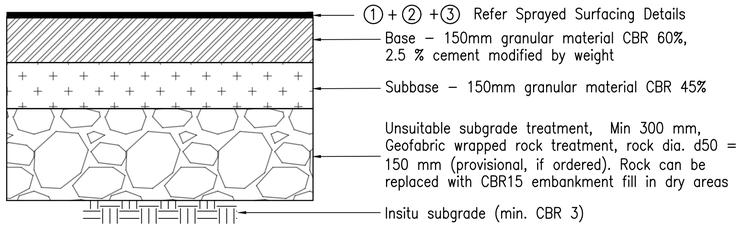
SPRAYED SURFACING DETAILS

① Prime (initial treatment), Binder Class AMC00, spray rate 0.8 L/m^2
② First Coat, Binder Class S10E spray rate 1.7 L/m^2
16mm precoated aggregate, spread rate 85 m^2/m^3
③ Second Coat, Binder Class S10E spray rate 1.2 L/m^2
10mm precoated aggregate, spread rate 130 m^2/m^3
④ Reseal, Binder Class S10E spray rate 1.4 L/m^2
10mm precoated aggregate, spread rate 130 m^2/m^3

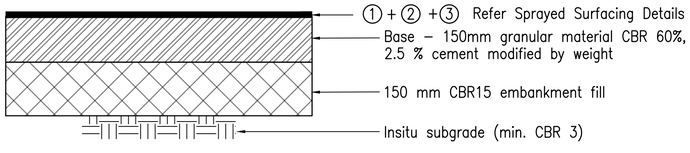
PAVEMENT TYPE 1 – EXISTING PAVEMENT RESEAL



PAVEMENT TYPE 2 – PAVEMENT WIDENING



PAVEMENT TYPE 3 – CAR PARKS



EXISTING LEGEND

- Property Boundary
- Existing surveyed features
- UG LV power (surveyed)
- OH Ergon power (surveyed)
- UG LV power (supplied by DSC)
- UG Telstra (surveyed)
- UG Telstra (BYDA)
- UG water main (surveyed)
- UG water main (supplied by DSC)
- Existing light pole
- Existing sewer manhole
- Existing Telstra marker
- Existing Telstra pit
- Existing solar powered light pole
- Existing sign
- Existing drainage pit with grate
- Existing electrical pit
- Existing ticket booth
- Existing speed hump
- Existing mooring pile
- Existing cable piles
- Existing water tap
- Existing timber bollard
- Existing pedestrian shelter

EXISTING FEATURES LEGEND

- Existing road to be removed and landscaped
- Clearing and grubbing extent
- Existing concrete to be demolished
- Existing bolted on rubber kerb and speed bumps to be demolished
- Existing culvert and headwall to be demolished
- Existing fencing to be demolished

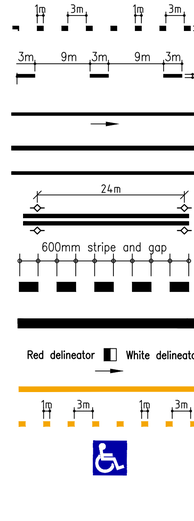
PROPOSED LEGEND

- Design control line
- Fencing
- Speed bump
- Boom gate
- Bolted on rubber kerb with posts
- Wheel stop
- Sign
- Relocated ticket booth
- Relocated pedestrian shelter
- Large diameter boulder
- Future infringement camera (by others)
- Cultural heritage vegetation line and exclusion zone
- Pavement Batter
- Proposed Culvert
- Concrete footpath / median
- Structural concrete, refer structural drawings
- Dredge spoil bund

PAVEMENT LEGEND

- Pavement Type 1 – Existing pavement reseal
- Pavement Type 2 – Pavement widening
- Pavement Type 3 – Car parks
- Concrete footpath

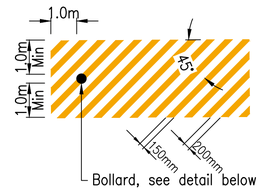
PROPOSED LINE MARKING LEGEND



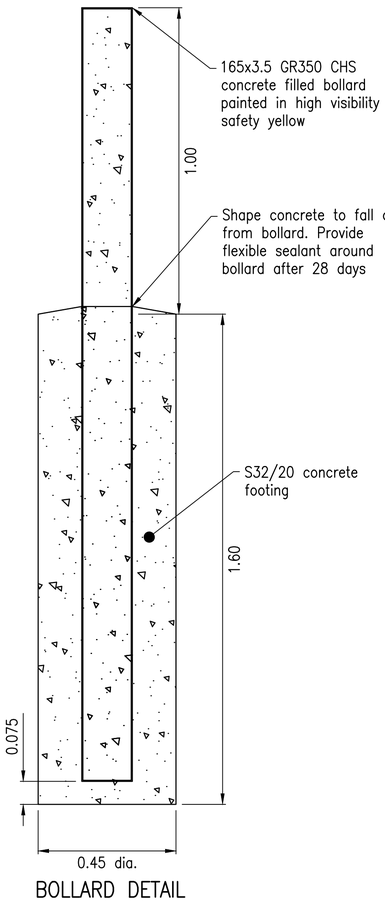
RAISED PAVEMENT MARKER LEGEND:

◁	Unidirectional	– Red
◇	Bidirectional	– Yellow
◇	Unidirectional	– Yellow

PWD BAY DETAILS:



PWD Chevron Linemarking – Yellow



BOLLARD DETAIL

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: GENERAL NOTES AND LEGEND - SHEET 2 / 2

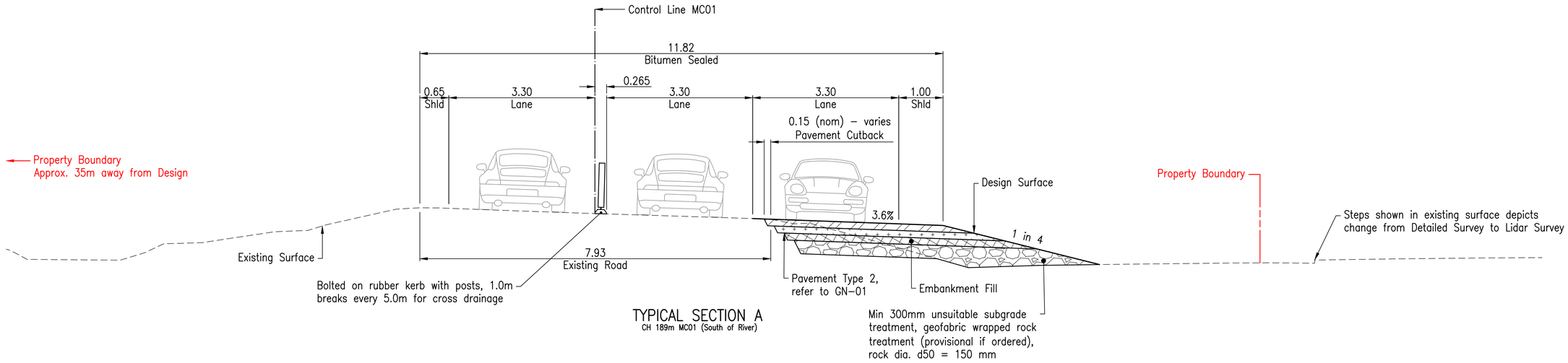
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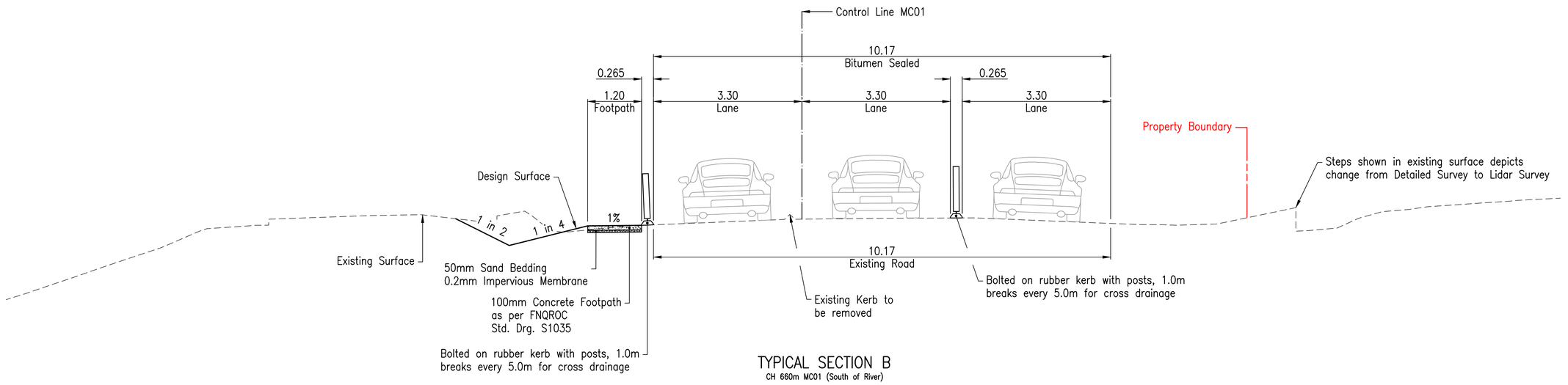
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DETAILED DESIGN

Job Number: 25019
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Revision: C



TYPICAL SECTION A
CH 189m MC01 (South of River)



TYPICAL SECTION B
CH 660m MC01 (South of River)

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
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A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

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Scales
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Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: TYPICAL CROSS SECTIONS - SHEET 1 / 3

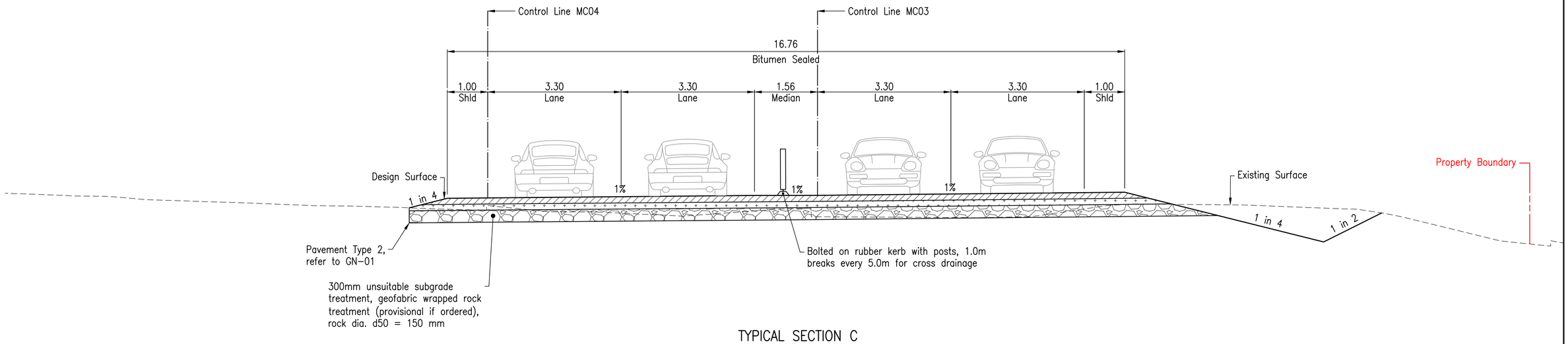
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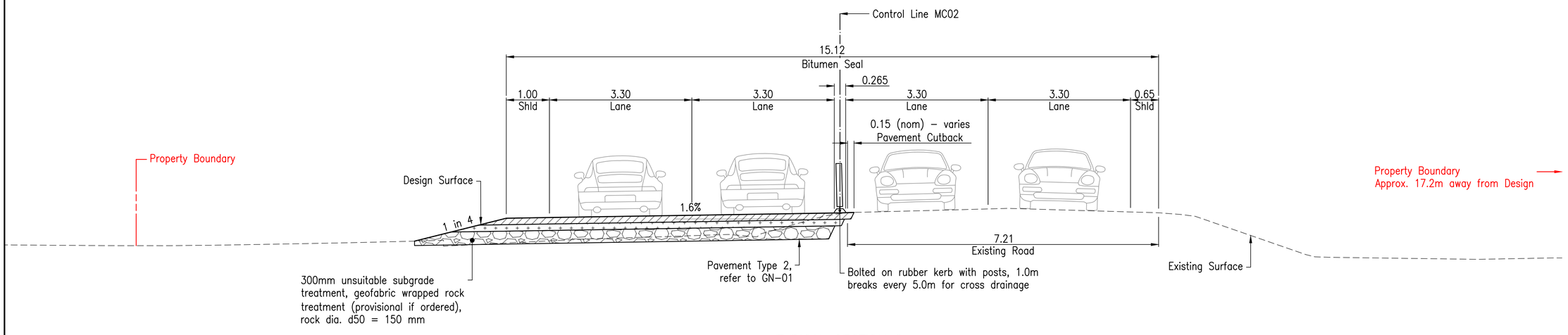
DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C03-TS-01
Revision: C



TYPICAL SECTION C

CH 322m MC03
CH 126m MC04 (South of River)



TYPICAL SECTION D

CH 114m MC02 (North of River)

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

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Scales: 0 1.0 2.0m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: TYPICAL CROSS SECTIONS - SHEET 2 / 3

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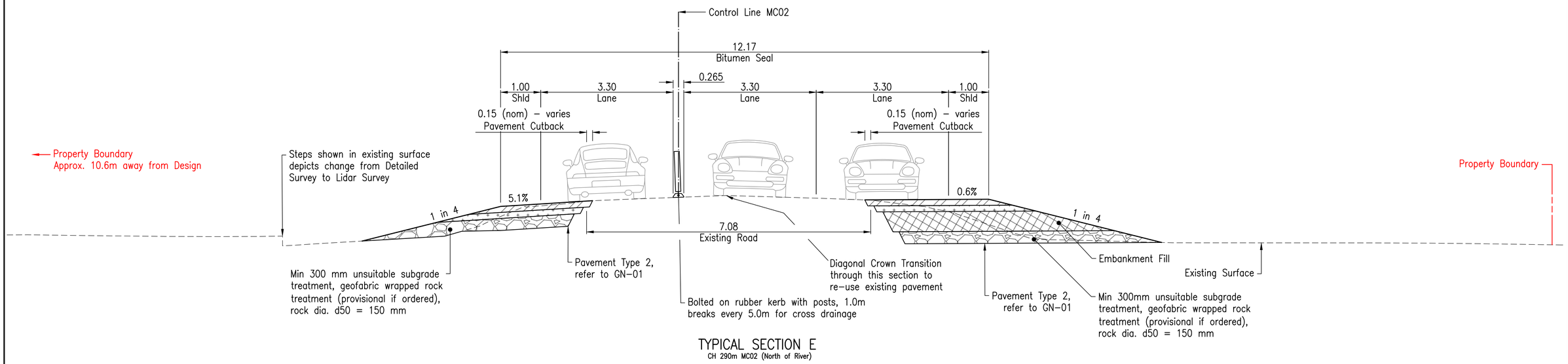
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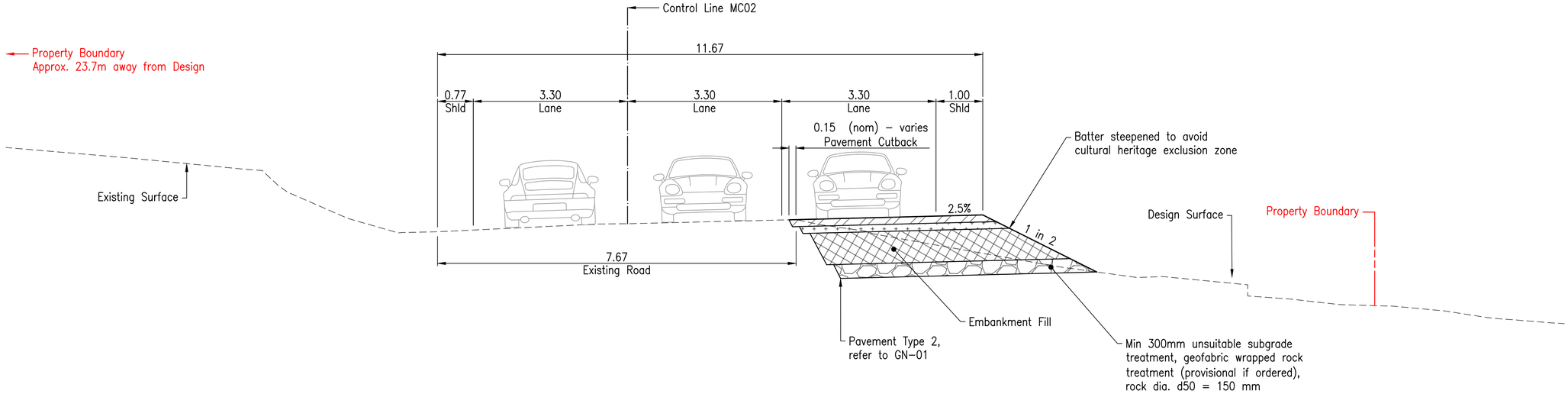
Job Number: 25019

Drawing Number: 25019-HEG-C03-TS-02

Revision: C



TYPICAL SECTION E
CH 290m MC02 (North of River)



TYPICAL SECTION F
CH 404m MC02 (North of River)

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

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Scales
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Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: TYPICAL CROSS SECTIONS - SHEET 3 / 3

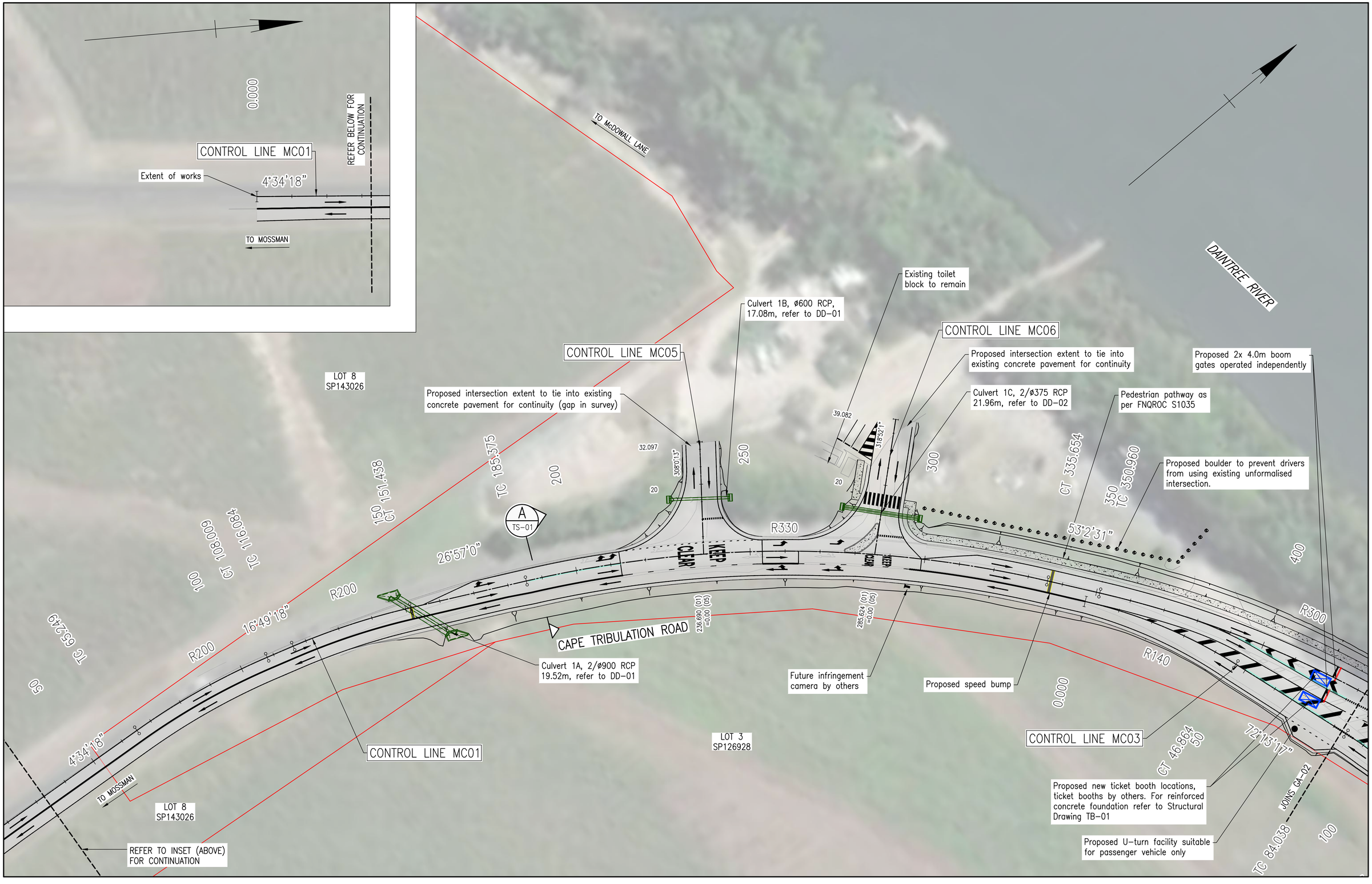
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Revision: A



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A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: GENERAL ARRANGEMENT - SHEET 1 / 4

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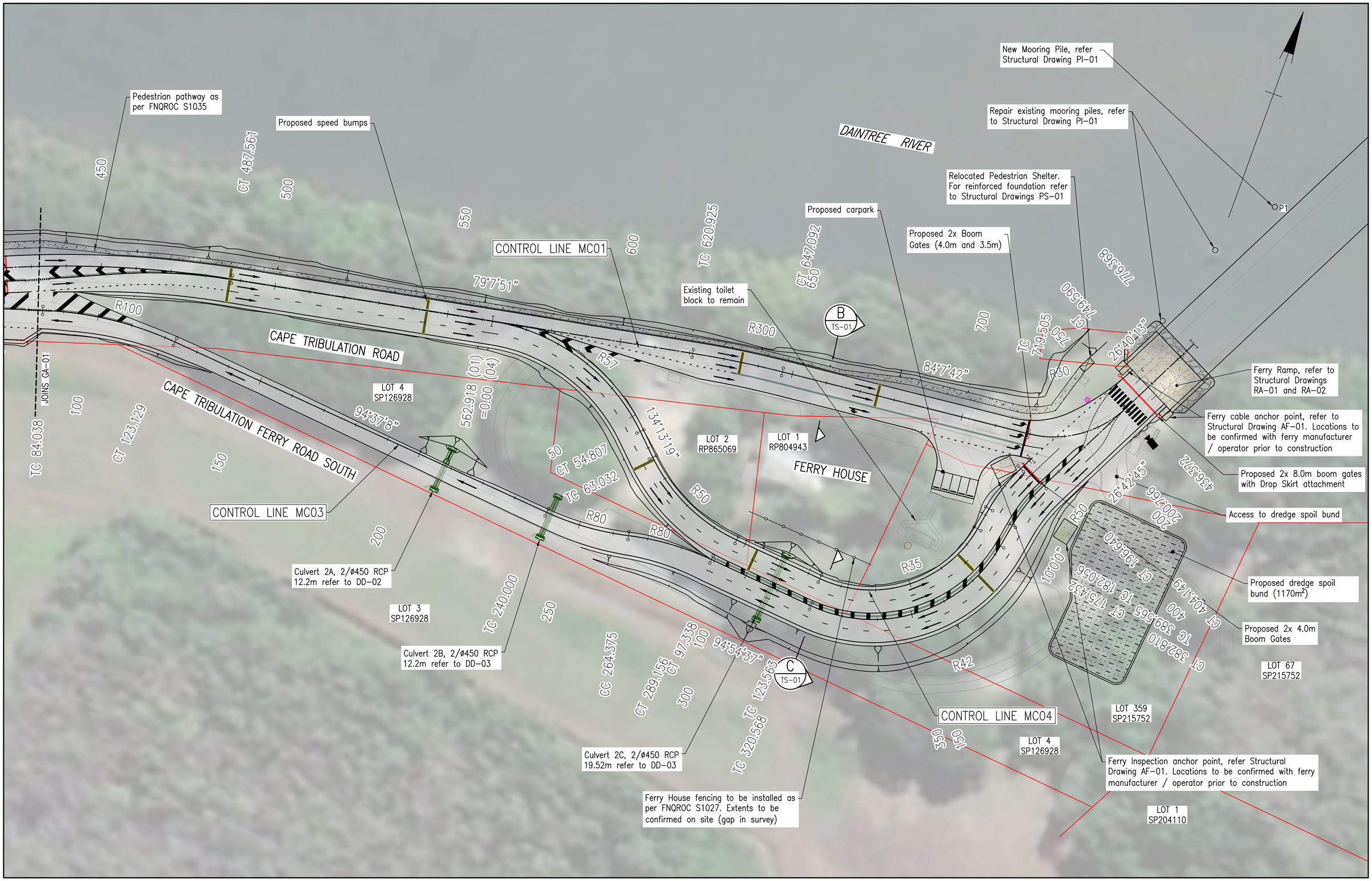
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C04-GA-01

Revision: C



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A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: GENERAL ARRANGEMENT - SHEET 2 / 4

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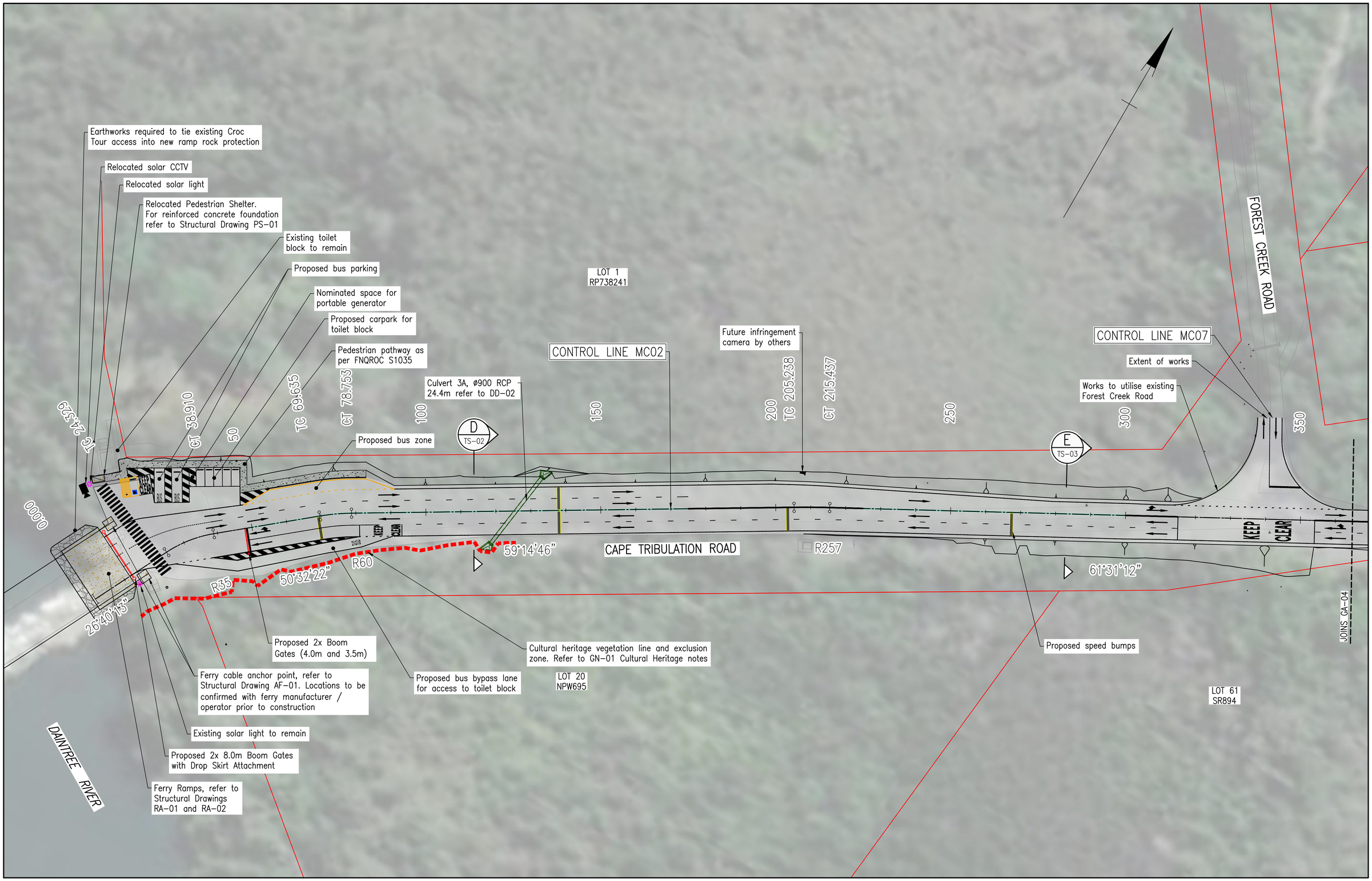
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Job Number: 25019

Drawing Number: 25019-HEG-C04-GA-02

Revision: C



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A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: GENERAL ARRANGEMENT - SHEET 3 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C04-GA-03
Revision: C



Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: GENERAL ARRANGEMENT - SHEET 4 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C04-GA-04

Revision: C

CONTROL LINE SETOUT – MC01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328226.235	8201114.106	2.087	4°34'18.35"	LINE		65.249
TC	65.249	328231.436	8201179.147	2.237	4°34'18.35"	ARC	200.000	42.761
CT	108.009	328239.358	8201221.085	2.247	16°49'18.33"	LINE		8.075
TC	116.084	328241.695	8201228.814	2.198	16°49'18.33"	ARC	200.000	35.354
CT	151.438	328254.856	8201261.577	2.163	26°57'00.00"	LINE		33.936
TC	185.375	328270.236	8201291.828	2.084	26°57'00.00"	ARC	330.000	150.279
CT	335.654	328365.994	8201405.963	2.297	53°02'31.27"	LINE		15.306
TC	350.960	328378.224	8201415.166	2.419	53°02'31.27"	ARC	300.000	136.601
CT	487.561	328502.023	8201470.061	3.045	79°07'51.22"	LINE		133.364
TC	620.925	328632.995	8201495.209	3.270	79°07'51.22"	ARC	300.000	26.167
CT	647.092	328658.875	8201499.017	3.077	84°07'42.40"	LINE		72.413
TC	719.505	328730.908	8201506.425	2.266	84°07'42.40"	ARC	−30.000	30.085
CT	749.590	328754.648	8201522.802	2.234	26°40'12.70"	LINE		26.777
E	776.368	328766.667	8201546.730		26°40'12.70"			

CONTROL LINE SETOUT – MC02

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328893.007	8201782.193	−0.024	26°40'13.34"	LINE		24.329
TC	24.329	328903.927	8201803.934	1.911	26°40'13.34"	ARC	35.000	14.581
CT	38.910	328912.959	8201815.246	1.901	50°32'22.30"	LINE		30.725
TC	69.635	328936.681	8201834.773	1.990	50°32'22.30"	ARC	60.000	9.118
CT	78.753	328944.132	8201840.012	2.001	59°14'46.41"	LINE		126.485
TC	205.238	329052.830	8201904.690	2.366	59°14'46.41"	ARC	257.000	10.199
CT	215.437	329061.696	8201909.730	2.288	61°31'12.00"	LINE		155.870
TC	371.307	329198.703	8201984.057	4.534	61°31'12.00"	ARC	−53.500	31.052
CT	402.358	329220.312	8202005.747	4.930	28°15'55.36"	LINE		38.119
TC	440.477	329238.364	8202039.321	3.585	28°15'55.36"	ARC	280.000	48.369
CS	488.846	329264.826	8202079.737	3.019	38°09'46.82"	TRANSITION		30.000
ST	518.846	329284.191	8202102.645	2.988	41°13'56.72"	LINE		7.794
E	526.640	329289.328	8202108.507	3.024	41°13'56.72"			

CONTROL LINE SETOUT – MC03

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328377.418	8201410.429	2.237	72°13'16.75"	ARC	140.000	46.864
CT	46.864	328418.842	8201431.872	2.366	72°13'16.75"	LINE		37.174
TC	84.038	328454.240	8201443.223	2.426	72°13'16.75"	ARC	100.000	39.091
CT	123.129	328492.827	8201447.674	2.397	94°37'08.34"	LINE		116.871
TC	240.000	328609.319	8201438.262	2.513	94°37'08.34"	ARC	−80.000	24.374
CC	264.375	328633.537	8201440.002	2.453	77°09'43.39"	ARC	80.000	24.781
CT	289.156	328658.160	8201441.708	2.360	94°54'36.94"	LINE		31.412
TC	320.568	328689.456	8201439.020	2.581	94°54'36.94"	ARC	−42.000	62.242
CT	382.810	328734.413	8201473.572	2.688	10°00'00.00"	LINE		6.755
TC	389.565	328735.586	8201480.225	2.627	10°00'00.00"	ARC	50.000	14.584
CT	404.149	328740.163	8201494.018	2.136	26°42'44.96"	LINE		32.223
E	436.372	328754.648	8201522.802	2.235	26°42'44.96"			

CONTROL LINE SETOUT – MC04

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328576.029	8201484.271	3.152	134°13'19.02"	ARC	57.000	54.807
CT	54.807	328626.531	8201469.142	2.555	134°13'19.02"	LINE		8.225
TC	63.032	328632.426	8201463.405	2.506	134°13'19.02"	ARC	−50.000	34.306
CT	97.338	328663.018	8201449.421	2.342	94°54'36.94"	LINE		26.225
TC	123.563	328689.147	8201447.176	2.515	94°54'36.94"	ARC	−35.000	51.869
CT	175.432	328726.611	8201475.970	2.715	10°00'00.00"	LINE		6.624
TC	182.056	328727.761	8201482.493	2.649	10°00'00.00"	ARC	50.000	14.584
CT	196.640	328732.338	8201496.286	2.285	26°42'45.00"	LINE		4.126
E	200.766	328734.193	8201499.972	2.245	26°42'45.00"			

CONTROL LINE SETOUT – MC05

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
S	0.000	328296.949	8201335.582	2.133	308°00'13.35"	LINE	32.097
E	32.097	328271.658	8201355.345	2.002	308°00'13.35"		

CONTROL LINE SETOUT – MC06

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
S	0.000	328328.445	8201372.975	2.145	318°52'01.32"	LINE	39.082
E	39.082	328302.736	8201402.411	2.322	318°52'01.32"		

CONTROL LINE SETOUT – MC07

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.LEN
S	0.000	329172.064	8201969.605	3.268	330°31'12.00"	LINE	29.000
E	29.000	329157.793	8201994.850	3.740	330°31'12.00"		

KERB RETURN SETOUT – MC01 MC05

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328280.493	8201316.871	2.174	308°00'13.42"	ARC	−23.500	34.284
E	34.284	328274.945	8201347.700	1.969	308°00'13.42"			

KERB RETURN SETOUT – MC05 MC01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328280.179	8201354.397	2.010	128°00'13.42"	LINE		8.799
TC	8.799	328287.113	8201348.979	2.164	128°00'13.42"	ARC	−12.500	19.467
E	28.266	328304.554	8201351.001	2.233	38°46'29.34"			

KERB RETURN SETOUT – MC01 MC06

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328311.237	8201359.058	2.237	318°52'01.39"	ARC	−20.000	28.521
E	28.521	328311.109	8201385.222	2.164	318°52'01.39"			

KERB RETURN SETOUT – MC06 MC01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328323.585	8201386.140	2.172	46°51'55.04"	ARC	−9.000	14.452
E	14.452	328336.517	8201385.493	2.308	46°51'55.04"			

KERB RETURN SETOUT – MC02 MC07

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	329145.001	8201958.678	2.367	330°31'12.00"	ARC	−25.000	39.706
CT	39.706	329154.843	8201992.955	3.422	330°31'12.00"	LINE		0.198
E	39.904	329154.746	8201993.128	3.437	330°31'12.00"			

SOUTH CARPARK SETOUT – MC01

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328699.310	8201496.274	2.493	174°07'42.40"	ARC	9.500	14.923
CT	14.923	328709.732	8201487.796	2.429	174°07'42.40"	LINE		5.500
DIS	20.423	328710.295	8201482.324	2.406	84°07'42.40"	LINE		12.500
DIS	32.923	328722.729	8201483.603	2.352	354°07'42.40"	LINE		5.500
TC	38.423	328722.166	8201489.074	2.328	354°07'42.40"	ARC	9.500	14.923
E	53.345	328730.645	8201499.496	2.264	84°07'42.40"			

NORTH CARPARK SETOUT – MC02

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	328915.435	8201826.047	1.871	329°34'44.78"	LINE		10.834
DIS	10.834	328909.949	8201835.389	1.863	239°34'44.78"	LINE		29.379
DIS	40.213	328884.615	8201820.513	1.804	320°49'52.18"	LINE		2.024
DIS	42.237	328883.337	8201822.082	1.798	230°49'48.25"	LINE		4.800
DIS	47.037	328879.615	8201819.050	1.782	140°49'45.52"	LINE		5.400
DIS	52.437	328883.026	8201814.864	1.764	230°49'48.25"	LINE		8.417
DIS	60.853	328876.501	8201809.548	1.731	127°08'45.53"	LINE		11.206
DIS	72.059	328885.433	8201802.781	1.686	203°30'13.60"	LINE		3.193
DIS	75.253	328884.160	8201799.853	1.701	116°42'44.96"	LINE		2.500
DIS	77.752	328886.393	8201798.729	1.731	26°42'15.92"	LINE		5.717
TC	83.469	328888.961	8201803.836	1.821	26°42'15.92"	ARC	15.149	6.823
CT	90.292	328893.275	8201809.048	1.943	52°30'33.51"	LINE		27.929
E	118.221	328915.435	8201826.047	1.871	52°30'33.51"			

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: CONTROL LINE SETOUT TABLES - SHEET 1 / 1

HANSEN ENGINEERING GROUP

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

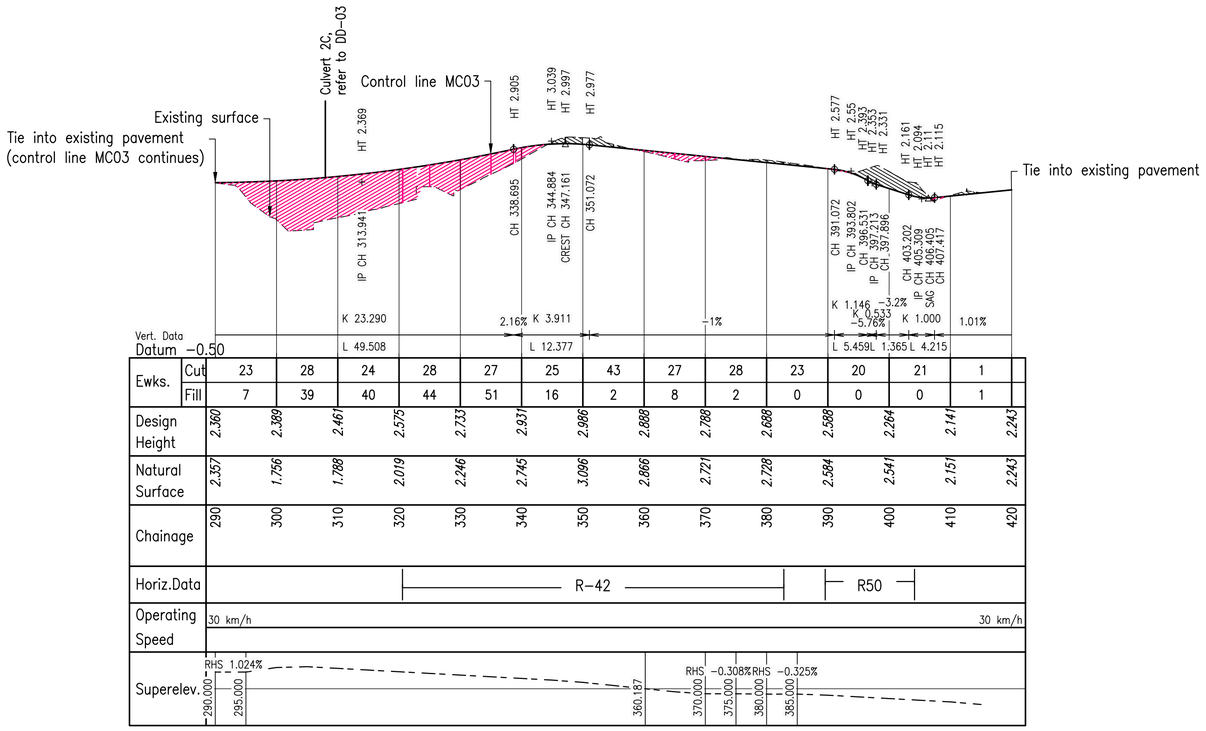
Job Number: 25019

Drawing Number: 25019-HEG-C04-GA-05

Revision: B

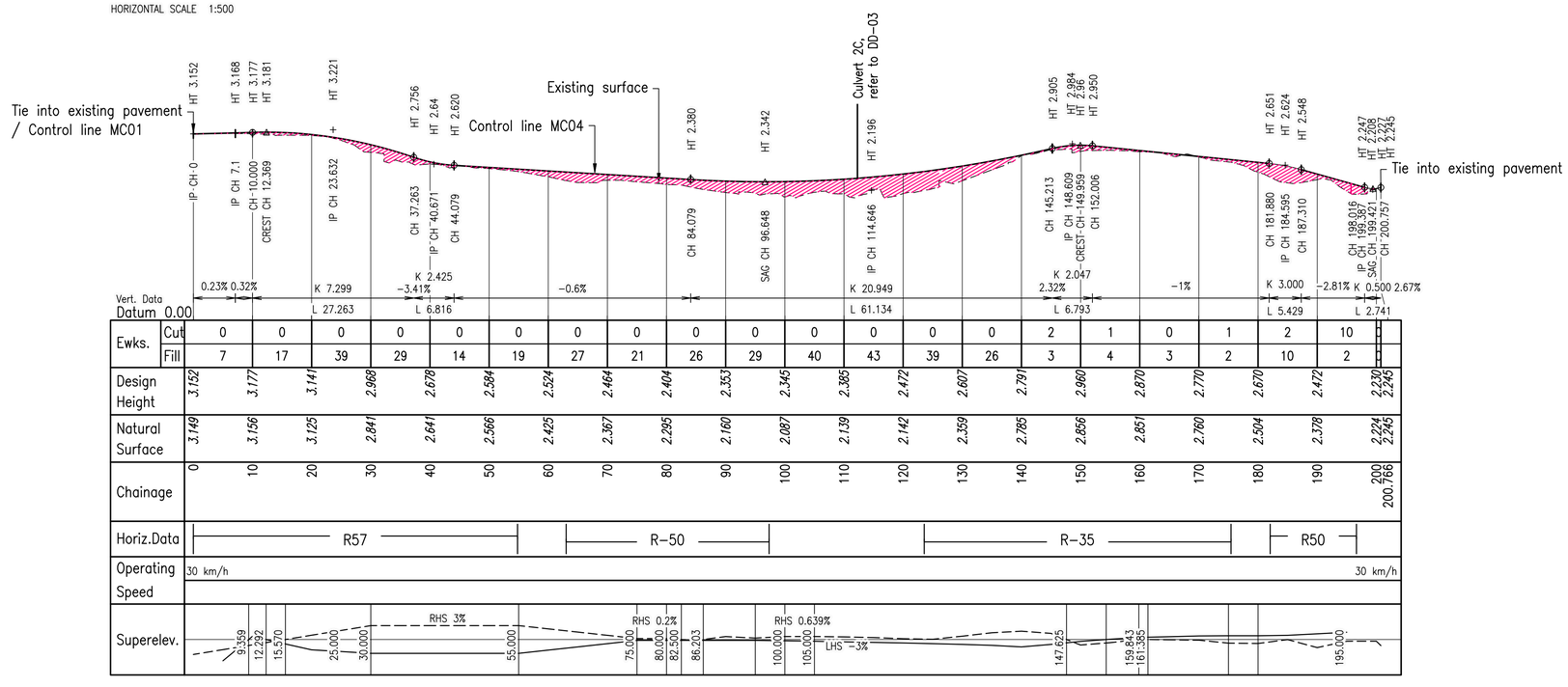
NOTES

1. Earthowrks cut and fill shown in the long sections are to the design surface and does not consider pavement subgrade, and are therefore indicative only.



VERTICAL SCALE 1:50

HORIZONTAL SCALE 1:500



Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: MC03 & MC04 LONG SECTIONS - SHEET 1 / 1

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

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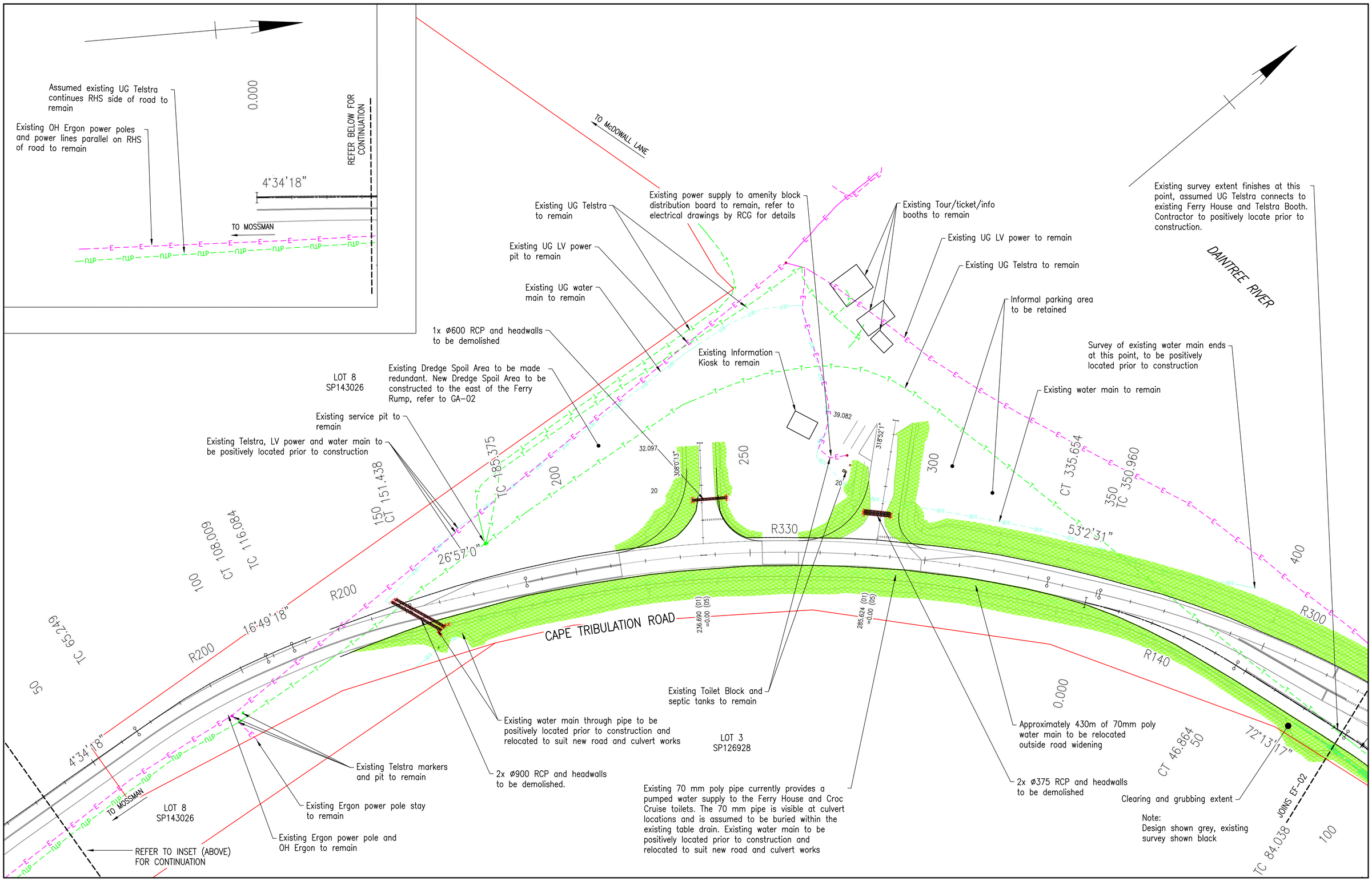
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DETAILED DESIGN

Job Number 25019

Drawing Number 25019-HEG-C04-GA-06

Revision A



Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 1 / 4

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Design	ES
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C05-EF-01

Revision: C

UG Telstra, to Ferry House and Telstra Booth to remain. Contractor to positively locate prior to construction.

Existing UG LV feeds existing ticket booth, Ferry House, phone booth, street light. Refer to electrical drawings by RCG for details

Existing switchboard to be decommissioned and replaced with new, refer to electrical drawings by RCG for details

Existing Ferry Mooring Piles to be repaired

Clearing and grubbing extent.

Existing speedbumps to be demolished

Existing speedbumps to be demolished

DAINTREE RIVER

Existing ticket booths to be relocated 200m west. Existing slabs to be demolished

Existing service pit to remain

Existing cable guide blocks to be demolished

Existing cable piles to be demolished

Existing fence to be demolished

Existing road to be demolished, pavement material to be reused if suitable

Existing bollards to be removed

Existing timber bollards to remain

Existing solar boom gates to be demolished

Existing concrete slab to be demolished

Existing speedbumps to be demolished

Existing cable piles to be demolished

Existing lane dividers to be demolished

Existing light to remain

Existing Ferry ramp to be demolished

Existing Ferry water supply point to be relocated

Existing cable guide block to be demolished

Existing fence to be demolished

Existing Pedestrian shelter to be relocated. Existing concrete slab to be demolished

Existing CCTV to remain

Existing solar boom gates to be demolished

Existing Cable Piles to be demolished

Existing Hydraulic Cable Drum Reels to demolished

Existing service pit to remain

CAPE TRIBULATION ROAD

CAPE TRIBULATION FERRY ROAD SOUTH

JOINS EF-01

LOT 4 SP126928

LOT 2 RP865069

LOT 1 RP804943

FERRY HOUSE

LOT 3 SP126928

LOT 359 SP215752

LOT 67 SP215752

LOT 4 SP126928

LOT 1 SP204110

Existing drainage pit with grate to be demolished

2x Ø450 RCP and headwall to be demolished

Existing UG Telstra service under proposed new road alignment has been pot holed:
Telstra conduit = 1.3mAHD
Existing F.S.L = 2.6mAHD
Subgrade = 2.0mAHD
Care shall be taken during works to not damage the existing Telstra service

2x Ø450 RCP and headwalls to be demolished

Approximately 430m of 70mm poly pipe to be relocated outside road widening

Existing Ferry house to remain

Existing Ferry house fence to be demolished and new to be installed

Existing water main through pipe to be positively located prior to construction and relocated to suit new road and culvert works

2x Ø450 RCP and headwalls to be demolished

Existing septic tank to remain

Existing Telstra Phone booth to remain. UG Telstra cables and UG LV within carpark has been serviced located depth unknown. Contractor to positively locate prior to construction.

Note:
Design shown grey, existing survey shown black

Existing road to be demolished, pavement material to be reused if suitable

Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales 0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 2 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
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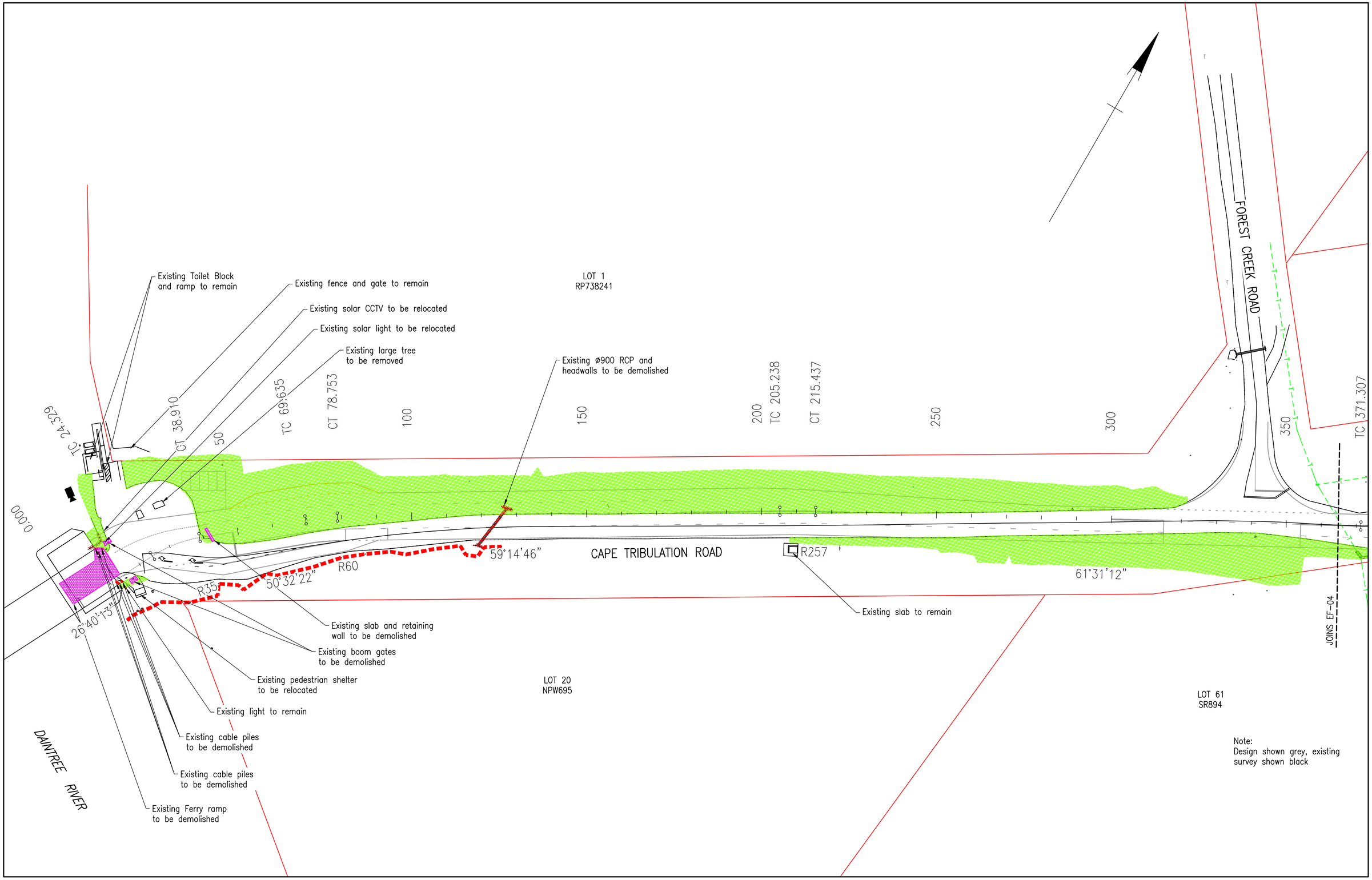
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DETAILED DESIGN

Job Number 25019

Drawing Number 25019-HEG-C05-EF-02

Revision C



Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 3 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

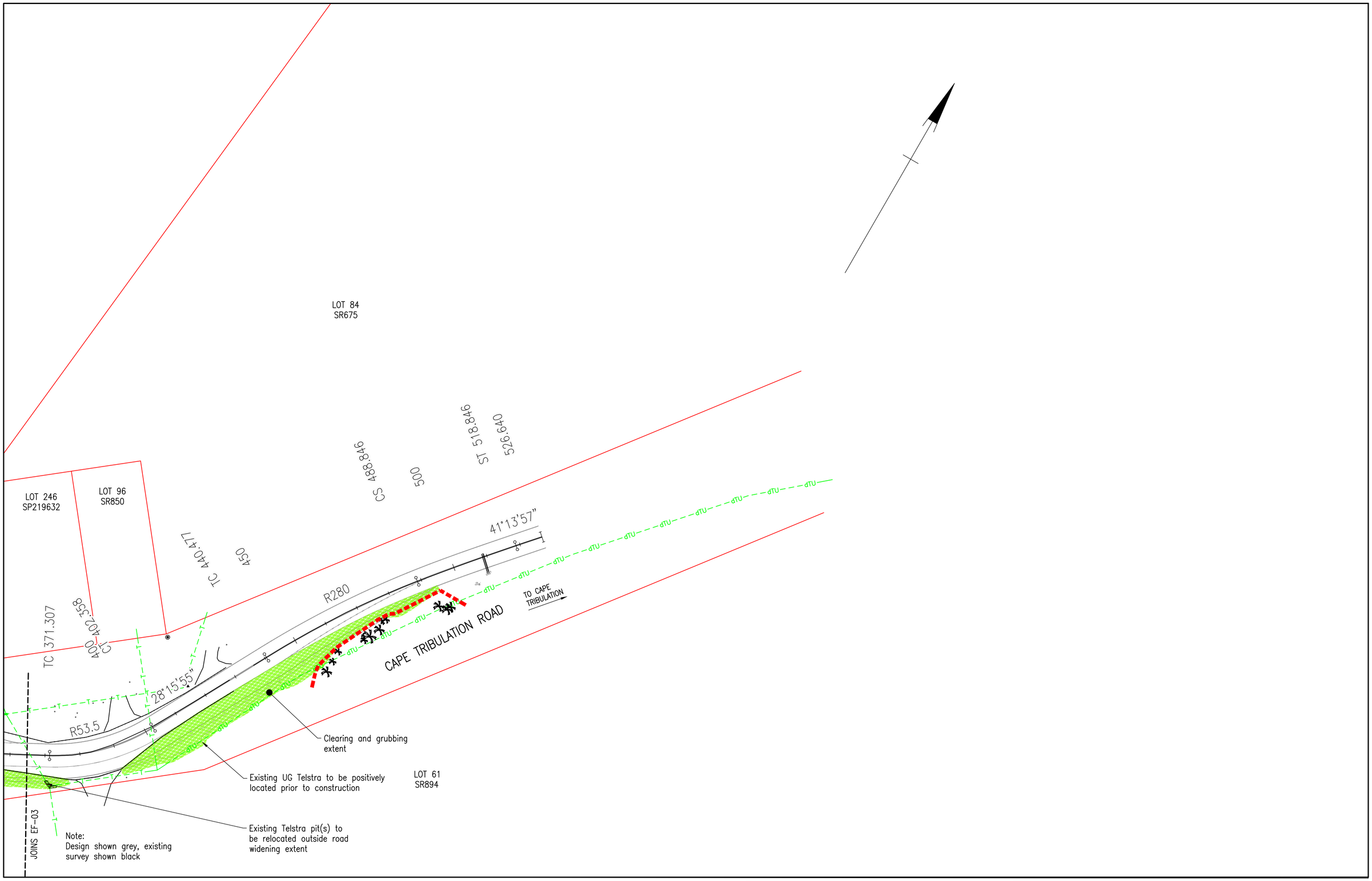
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C05-EF-03

Revision: C



Rev	Description	By	Appd	Date
C	100% Submission	PS	ES	18/12/2025
B	70% Submission	PS	ES	4/11/2025
A	30% Submission	PS	ES	19/09/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

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Drawing Title: EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 4 / 4

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C05-EF-04

Revision: C

DRAINAGE SCHEDULE

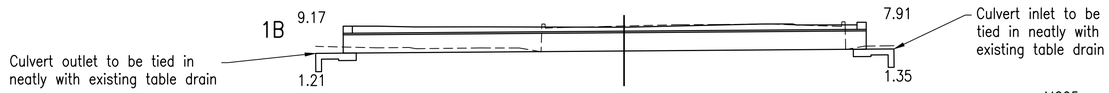
Culvert								Base Slab / Footing				Headwall		Apron		Cutoff Wall			Wingwall 1			Wingwall 2			Blinding	Excavation (m³)		Backfill			Filters	
Alignment	Chainage (m)	Skew No.	ID	Structure	Pipe Class	Exp Class	Installation Type	Concrete (m³)	Rebar (kg)	Fabric (m²)	Fabric Type	Concrete (m³)	Rebar (kg)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Fabric (m²)	Fabric Type	Length (m)	Concrete (m³)	Rebar (kg)	Length (m)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Culvert	Inlet / Outlet	Overlay (m³)	Fill (m³)	Foundation (m³)	Block Count	Strip Count
MC01	151.455	45.0	1A	2/900 RCP (16/2.44)	2	C2	New	2.1	51.7	4.5	SL81	1.7	114.5	3.3	294.5	0.8			L 3.3 @ 15° R 3.3 @ 15°	2.1	202.0	L 1.5 @ 30° R 1.5 @ 30°	1.0	86.3	1.3	149.3		25.3	15.1	18.3		4
MC05	15.91	90.0	1B	600 RCP (7/2.44)	6	C2	New	0.6	12.4	1.6	SL92	0.8	9.9	0.6	55.8	0.3									0.2	12.6		7.2	2.9	4.9		
MC06	12.07	90.0	1C	2/375 RCP (18/2.44)	3	C2	New	0.5	11.7	1.4	SL92	0.5	13.0	0.6	55.1	0.3									0.2	25.4		13.0	3.5	7.3		
MC03	207.985	90.0	2A	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.6	63.9	0.4									0.3	31.7		8.0	2.3	4.6		
MC03	241.135	90.0	2B	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	64.3	0.4									0.3	35.7		8.0	2.3	4.6		
MC03	307.969	90.0	2C	2/450 RCP (16/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	65.4	0.4									0.3	46.9		13.0	3.8	7.5		
MC02	125.749	128.7	3A	900 RCP (10/2.44)	3	C2	New	0.6	12.8	1.2	SL81	0.7	53.5	1.6	147.0	0.4			L 2.8 @ 15° R 2.8 @ 15°	1.7	124.5	L 1.5 @ 30° R 1.5 @ 30°	0.9	84.2	0.6	78.7		14.0	12.0	13.3		4
				Total Quantities				5.6	128.5			5.5	231.4	8.1	746.0	3.0				3.8	326.5		1.9	170.5	3.2	380.3		88.5	41.9	60.5		8
				Total Fabric (Area / Type)				5.6 / SL81 7.8 / SL92																								

Drainage notes

1. Refer to GN–01 drainage notes.
2. TMR's Culvert7 software has been used to design and document the cross drainage culverts. The outputs shown on these drawings are standard outputs from this software which relate to TMR specifications and standard drawings. For this project, FNQROC specifications and standard drawings are to be adopted. Therefore, FNQROC specifications and standard drawings take precedence over any TMR specifications and standard drawings referenced within these standard outputs. In particular, the below FNQROC standard drawings and specifications shall be adopted:
   - 2.1. S1046 – Excavation, bedding and backfilling of concrete pipes
   - 2.2. S1075 – Concrete pipe headwall 375 mm to 675 mm
   - 2.3. S1085 – Concrete pipe headwall, wingwalls and apron.
   - 2.4. S1 – Earthworks
   - 2.5. S4 – Stormwater drainage
   - 2.6. S7 – Concrete works
3. Refer to GN–01 Drainage Notes and Unsuitable Subgrade Treatment Notes for further information.

Culvert 1A notes

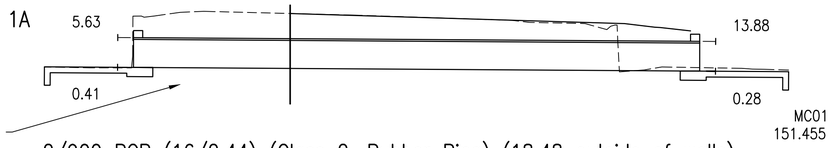
1. Contractor to locate existing underground Telstra utility through culvert prior to construction.
2. Contractor to determine whether existing utility is above or below culvert.
3. Contractor to contact Telstra representative to confirm suitable construction methodology for demolition of existing culvert and installation of new culvert around existing Telstra utility.
4. If the Telstra utility is above the existing culvert, confirm with Telstra whether it should be propped, supported and protected throughout construction, and left above the new culvert, or whether it should be lowered beneath new culvert.
5. If the Telstra utility is below the existing culvert, confirm with Telstra whether there is a clash with the new culvert invert or foundation bedding / rock material, and coordinate construction sequencing and material installation with existing utility.



MC05
15.91

600 RCP (7/2.44) (Class 6, Rubber Ring) (17.08 outside of walls)

Reinforced Conc. Footing 0.6m³, Headwall 0.8m³, Apron 0.6m³, C/O Wall 0.3m³
Overlay Material 7.2m³ Backfill Material 2.9m³
Bedding/Haunch Material 4.9m³ (HS2)
Standard Drawings – 1305, 1359
Basis for dimensions:
External Dia. 699mm, Pipe Thick. 51mm, Headwall Ht. 230mm
Exposure Classification: C2



Existing Telstra underground telecommunications has been surveyed through this existing culvert. The exact location is unknown. Refer to Culvert 1A notes.

MC01
151.455

2/900 RCP (16/2.44) (Class 2, Rubber Ring) (18.48 outside of walls)
Skew Angle 45° Skew Number 45 (19.52 overall length)

Wingwalls (Left W1 3.3, α 15°, W2 1.5, β 30°) (Right W1 3.3, α 15°, W2 1.5, β 30°)
Reinforced Conc. Footing 2.1m³, Apron 3.3m³, C/O Wall 0.8m³, Headwall 1.7m³, Wingwalls 3.0m³
Overlay Material 25.3m³ Backfill Material 15.1m³
Bedding/Haunch Material 18.3m³ (HS2)
Standard Drawings – 1304, 1359
Basis for dimensions:
External Dia. 1029mm, Pipe Thick. 57mm, Headwall Ht. 230mm
Exposure Classification: C2

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 1 / 3

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

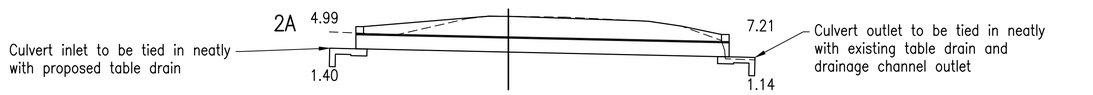
Job Number: 25019
Drawing Number: 25019-HEG-C08-DD-01
Revision: B

DRAINAGE SCHEDULE

Culvert								Base Slab / Footing				Headwall		Apron		Cutoff Wall			Wingwall 1			Wingwall 2			Blinding	Excavation (m³)		Backfill			Filters	
Alignment	Chainage (m)	Skew No.	ID	Structure	Pipe Class	Exp Class	Installation Type	Concrete (m³)	Rebar (kg)	Fabric (m²)	Fabric Type	Concrete (m³)	Rebar (kg)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Fabric (m²)	Fabric Type	Length (m)	Concrete (m³)	Rebar (kg)	Length (m)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Culvert	Inlet / Outlet	Overlay (m³)	Fill (m³)	Foundation (m³)	Block Count	Strip Count
MC01	151.455	45.0	1A	2/900 RCP (16/2.44)	2	C2	New	2.1	51.7	4.5	SL81	1.7	114.5	3.3	294.5	0.8			L 3.3 @ 15° R 3.3 @ 15°	2.1	202.0	L 1.5 @ 30° R 1.5 @ 30°	1.0	86.3	1.3	149.3		25.3	15.1	18.3		4
MC05	15.91	90.0	1B	600 RCP (7/2.44)	6	C2	New	0.6	12.4	1.6	SL92	0.8	9.9	0.6	55.8	0.3									0.2	12.6		7.2	2.9	4.9		
MC06	12.07	90.0	1C	2/375 RCP (18/2.44)	3	C2	New	0.5	11.7	1.4	SL92	0.5	13.0	0.6	55.1	0.3									0.2	25.4		13.0	3.5	7.3		
MC03	207.985	90.0	2A	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.6	63.9	0.4									0.3	31.7		8.0	2.3	4.6		
MC03	241.135	90.0	2B	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	64.3	0.4									0.3	35.7		8.0	2.3	4.6		
MC03	307.969	90.0	2C	2/450 RCP (16/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	65.4	0.4									0.3	46.9		13.0	3.8	7.5		
MC02	125.749	128.7	3A	900 RCP (10/2.44)	3	C2	New	0.6	12.8	1.2	SL81	0.7	53.5	1.6	147.0	0.4			L 2.8 @ 15° R 2.8 @ 15°	1.7	124.5	L 1.5 @ 30° R 1.5 @ 30°	0.9	84.2	0.6	78.7		14.0	12.0	13.3		4
				Total Quantities				5.6	128.5			5.5	231.4	8.1	746.0	3.0				3.8	326.5		1.9	170.5	3.2	380.3		88.5	41.9	60.5		8
				Total Fabric (Area / Type)				5.6 / SL81 7.8 / SL92																								

Drainage notes

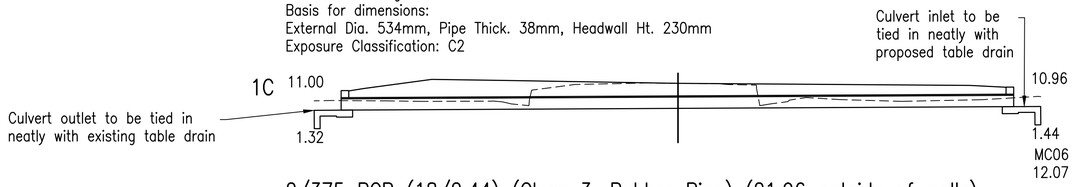
1. Refer to GN-01 drainage notes.
2. TMR's Culvert7 software has been used to design and document the cross drainage culverts. The outputs shown on these drawings are standard outputs from this software which relate to TMR specifications and standard drawings. For this project, FNQROC specifications and standard drawings are to be adopted. Therefore, FNQROC specifications and standard drawings take precedence over any TMR specifications and standard drawings referenced within these standard outputs. In particular, the below FNQROC standard drawings and specifications shall be adopted:
   - 2.1. S1046 – Excavation, bedding and backfilling of concrete pipes
   - 2.2. S1075 – Concrete pipe headwall 375 mm to 675 mm
   - 2.3. S1085 – Concrete pipe headwall, wingwalls and apron.
   - 2.4. S1 – Earthworks
   - 2.5. S4 – Stormwater drainage
   - 2.6. S7 – Concrete works
3. Refer to GN-01 Drainage Notes and Unsuitable Subgrade Treatment Notes for further information.



MC03
207.985

2/450 RCP (10/2.44) (Class 2, Rubber Ring) (12.19 outside of walls)

Reinforced Conc. Footing 0.6m³, Headwall 0.6m³, Apron 0.6m³, C/O Wall 0.4m³
Overlay Material 8.0m³ Backfill Material 2.3m³
Bedding/Haunch Material 4.6m³ (HS2)
Standard Drawings – 1305, 1359
Basis for dimensions:
External Dia. 534mm, Pipe Thick. 38mm, Headwall Ht. 230mm
Exposure Classification: C2



MC06
12.07

2/375 RCP (18/2.44) (Class 3, Rubber Ring) (21.96 outside of walls)

Reinforced Conc. Footing 0.5m³, Headwall 0.5m³, Apron 0.6m³, C/O Wall 0.3m³
Overlay Material 13.0m³ Backfill Material 3.5m³
Bedding/Haunch Material 7.3m³ (HS2)
Standard Drawings – 1305, 1359
Basis for dimensions:
External Dia. 445mm, Pipe Thick. 38mm, Headwall Ht. 230mm
Exposure Classification: C2

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 2 / 3

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

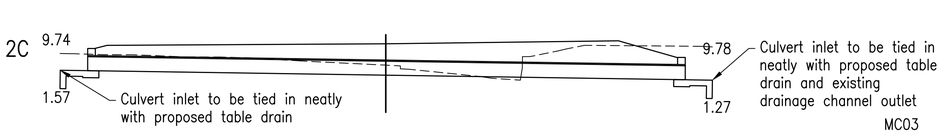
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DETAILDED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C08-DD-02
Revision: B

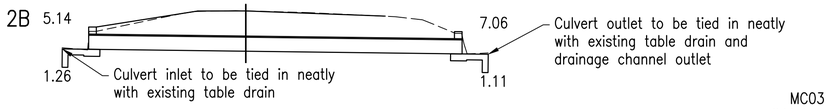
DRAINAGE SCHEDULE

Culvert								Base Slab / Footing				Headwall		Apron		Cutoff Wall			Wingwall 1			Wingwall 2			Blinding	Excavation (m³)		Backfill			Filters	
Alignment	Chainage (m)	Skew No.	ID	Structure	Pipe Class	Exp Class	Installation Type	Concrete (m³)	Rebar (kg)	Fabric (m²)	Fabric Type	Concrete (m³)	Rebar (kg)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Fabric (m²)	Fabric Type	Length (m)	Concrete (m³)	Rebar (kg)	Length (m)	Concrete (m³)	Rebar (kg)	Concrete (m³)	Culvert	Inlet / Outlet	Overlay (m³)	Fill (m³)	Foundation (m³)	Block Count	Strip Count
MC01	151.455	45.0	1A	2/900 RCP (16/2.44)	2	C2	New	2.1	51.7	4.5	SL81	1.7	114.5	3.3	294.5	0.8			L 3.3 @ 15° R 3.3 @ 15°	2.1	202.0	L 1.5 @ 30° R 1.5 @ 30°	1.0	86.3	1.3	149.3		25.3	15.1	18.3		4
MC05	15.91	90.0	1B	600 RCP (7/2.44)	6	C2	New	0.6	12.4	1.6	SL92	0.8	9.9	0.6	55.8	0.3									0.2	12.6		7.2	2.9	4.9		
MC06	12.07	90.0	1C	2/375 RCP (18/2.44)	3	C2	New	0.5	11.7	1.4	SL92	0.5	13.0	0.6	55.1	0.3									0.2	25.4		13.0	3.5	7.3		
MC03	207.985	90.0	2A	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.6	63.9	0.4									0.3	31.7		8.0	2.3	4.6		
MC03	241.135	90.0	2B	2/450 RCP (10/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	64.3	0.4									0.3	35.7		8.0	2.3	4.6		
MC03	307.969	90.0	2C	2/450 RCP (16/2.44)	2	C2	New	0.6	13.3	1.6	SL92	0.6	13.5	0.7	65.4	0.4									0.3	46.9		13.0	3.8	7.5		
MC02	125.749	128.7	3A	900 RCP (10/2.44)	3	C2	New	0.6	12.8	1.2	SL81	0.7	53.5	1.6	147.0	0.4			L 2.8 @ 15° R 2.8 @ 15°	1.7	124.5	L 1.5 @ 30° R 1.5 @ 30°	0.9	84.2	0.6	78.7		14.0	12.0	13.3		4
				Total Quantities				5.6	128.5			5.5	231.4	8.1	746.0	3.0				3.8	326.5		1.9	170.5	3.2	380.3		88.5	41.9	60.5		8
				Total Fabric (Area / Type)				5.6 / SL81 7.8 / SL92																								



2/450 RCP (16/2.44) (Class 2, Rubber Ring) (19.51 outside of walls)

Reinforced Conc. Footing 0.6m³, Headwall 0.6m³, Apron 0.7m³, C/O Wall 0.4m³
Overlay Material 13.0m³ Backfill Material 3.8m³
Bedding/Haunch Material 7.5m³ (HS2)
Standard Drawings – 1305, 1359
Basis for dimensions:
External Dia. 534mm, Pipe Thick. 38mm, Headwall Ht. 230mm
Exposure Classification: C2

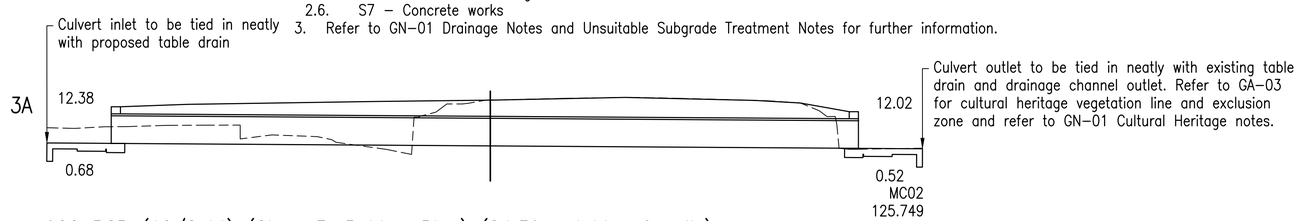


2/450 RCP (10/2.44) (Class 2, Rubber Ring) (12.19 outside of walls)

Reinforced Conc. Footing 0.6m³, Headwall 0.6m³, Apron 0.7m³, C/O Wall 0.4m³
Overlay Material 8.0m³ Backfill Material 2.3m³
Bedding/Haunch Material 4.6m³ (HS2)
Standard Drawings – 1305, 1359
Basis for dimensions:
External Dia. 534mm, Pipe Thick. 38mm, Headwall Ht. 230mm
Exposure Classification: C2

Drainage notes

1. Refer to GN–01 drainage notes.
2. TMR's Culvert7 software has been used to design and document the cross drainage culverts. The outputs shown on these drawings are standard outputs from this software which relate to TMR specifications and standard drawings. For this project, FNQROC specifications and standard drawings are to be adopted. Therefore, FNQROC specifications and standard drawings take precedence over any TMR specifications and standard drawings referenced within these standard outputs. In particular, the below FNQROC standard drawings and specifications shall be adopted:
   - 2.1. S1046 – Excavation, bedding and backfilling of concrete pipes
   - 2.2. S1075 – Concrete pipe headwall 375 mm to 675 mm
   - 2.3. S1085 – Concrete pipe headwall, wingwalls and apron.
   - 2.4. S1 – Earthworks
   - 2.5. S4 – Stormwater drainage
   - 2.6. S7 – Concrete works
3. Refer to GN–01 Drainage Notes and Unsuitable Subgrade Treatment Notes for further information.



900 RCP (10/2.44) (Class 3, Rubber Ring) (24.39 outside of walls)
Skew Angle 39° Skew Number 128.7 (24.40 overall length)

Wingwalls (Left W1 2.8, α 15°, W2 1.5, β 30°) (Right W1 2.8, α 15°, W2 1.5, β 30°)
Reinforced Conc. Footing 0.6m³, Apron 1.6m³, C/O Wall 0.4m³, Headwall 0.7m³, Wingwalls 2.7m³
Overlay Material 14.0m³ Backfill Material 12.0m³
Bedding/Haunch Material 13.3m³ (HS2)
Standard Drawings – 1304, 1359
Basis for dimensions:
External Dia. 1029mm, Pipe Thick. 64mm, Headwall Ht. 230mm
Exposure Classification: C2

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: DRAINAGE CROSS SECTIONS AND DETAILS - SHEET 3 / 3

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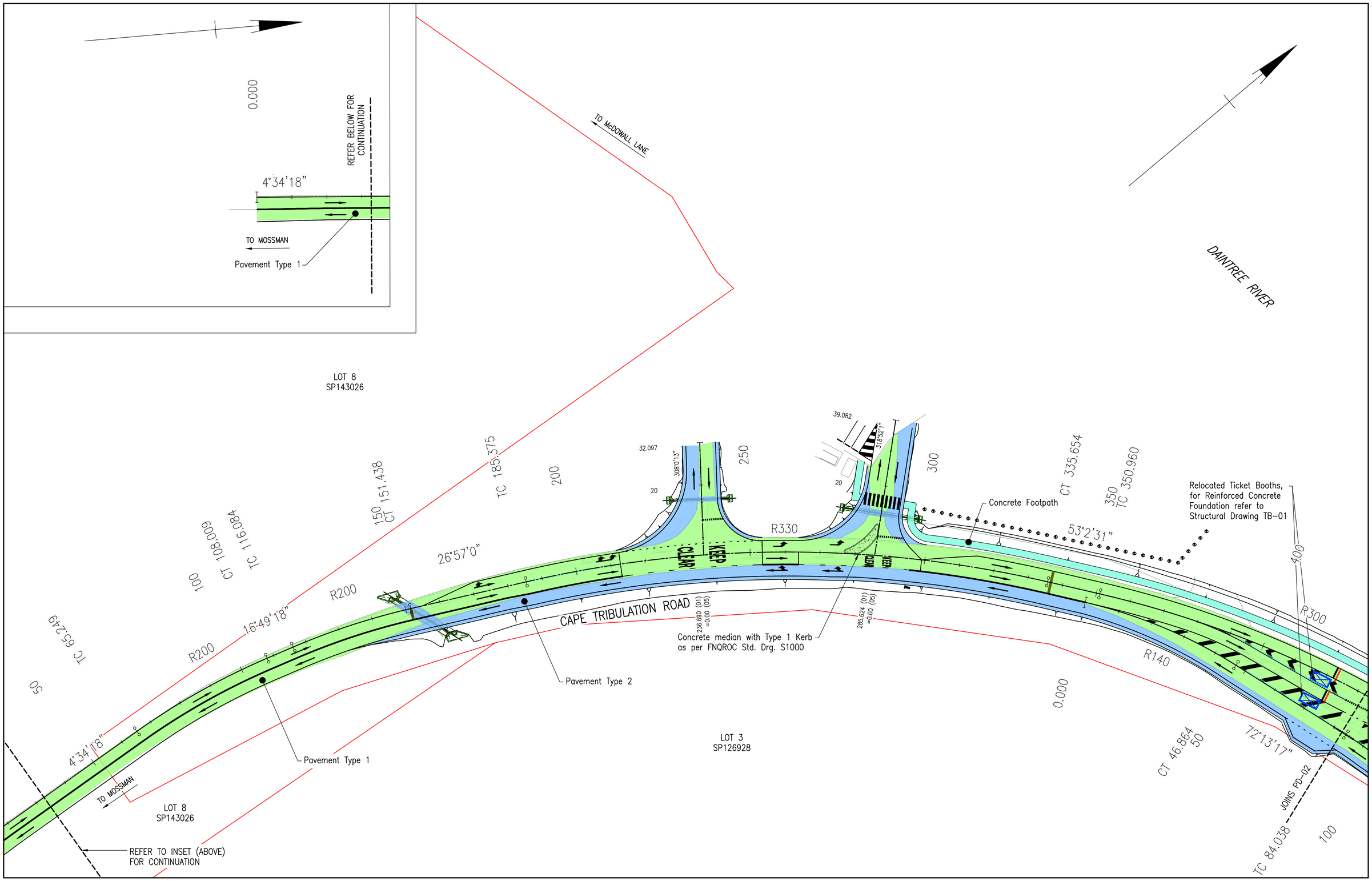
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Date	18/12/2025
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Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C08-DD-03
Revision: A



Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: PAVEMENT AND CONSTRUCTION SETOUT - SHEET 1 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
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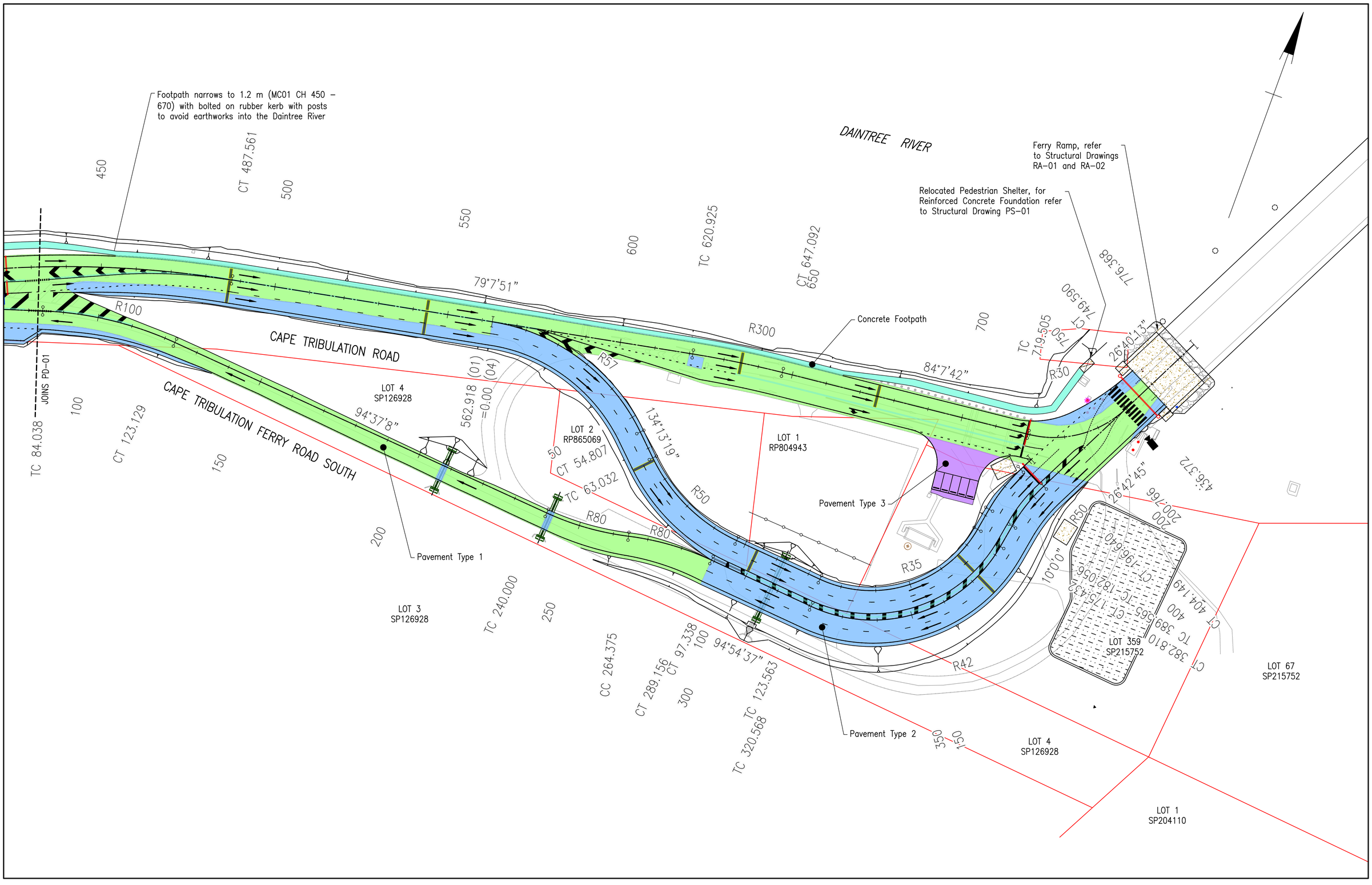
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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C07-PD-01

Revision: B



Rev	Description	By	Appd	Date
	AMENDMENTS			
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: PAVEMENT AND CONSTRUCTION SETOUT - SHEET 2 / 4

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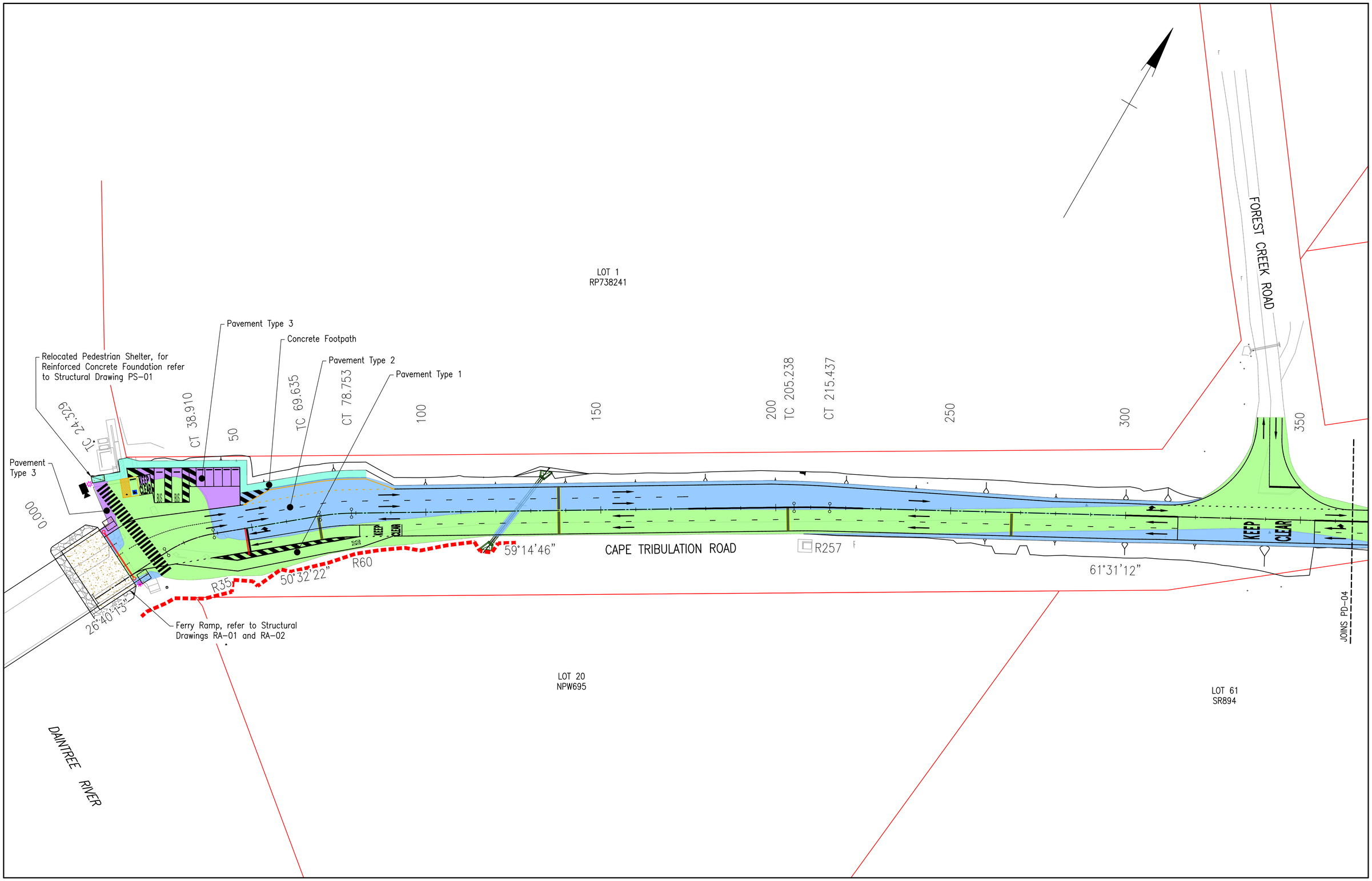
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Date	18/12/2025
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Approved	ES
RPEQ No.	

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ISO 9001 ISO 14001 ISO 45001

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DETAILDED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C07-PD-02
Revision: B



Rev	Description	By	Appd	Date
	AMENDMENTS			
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: PAVEMENT AND CONSTRUCTION SETOUT - SHEET 3 / 4

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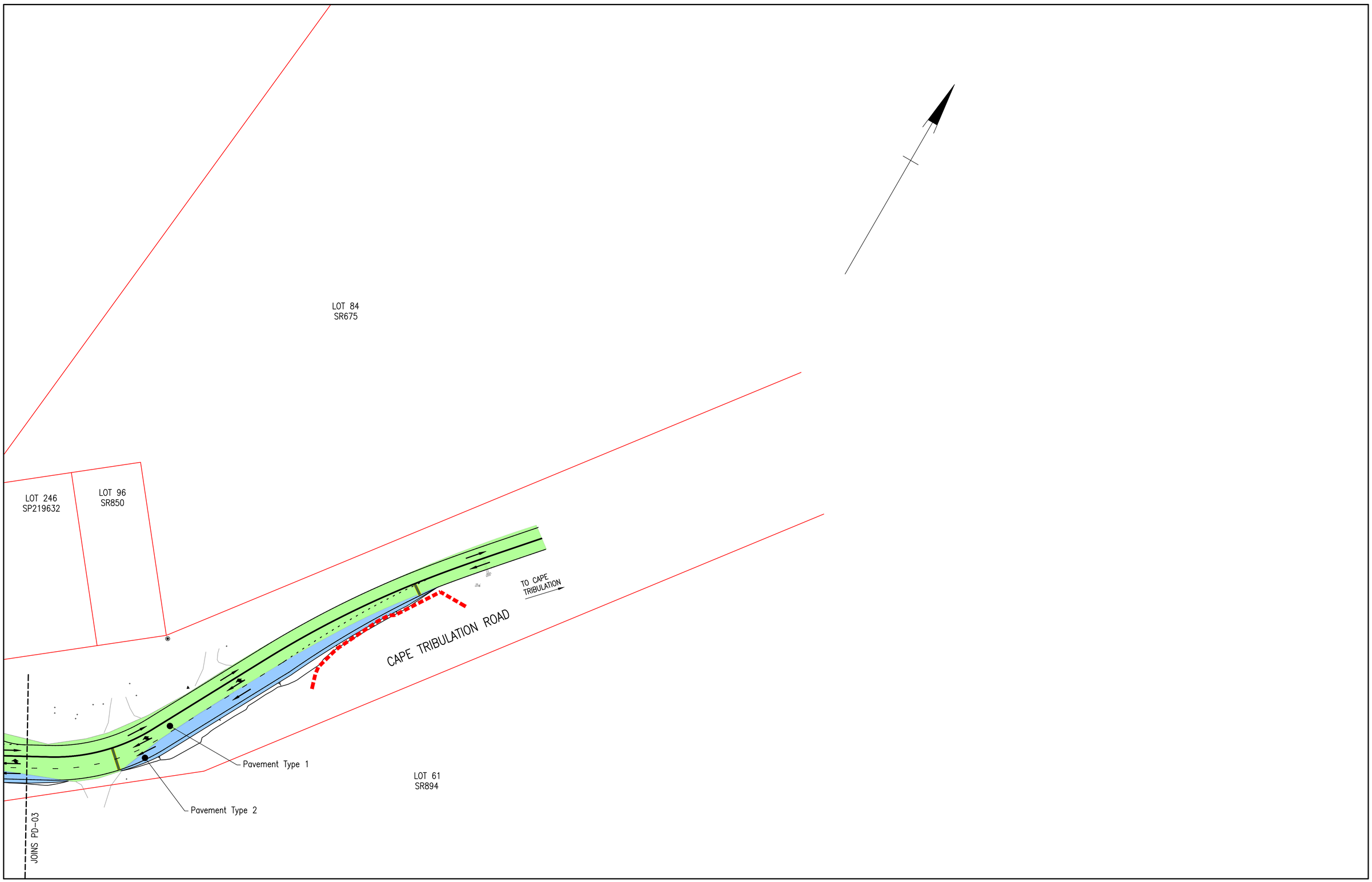
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Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

JAS-ANZ ISO 9001 ISO 14001 ISO 45001

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DETAILDED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C04-GA-03
Revision: B



Rev	Description	By	Appd	Date
	AMENDMENTS			
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: PAVEMENT AND CONSTRUCTION SETOUT - SHEET 4 / 4

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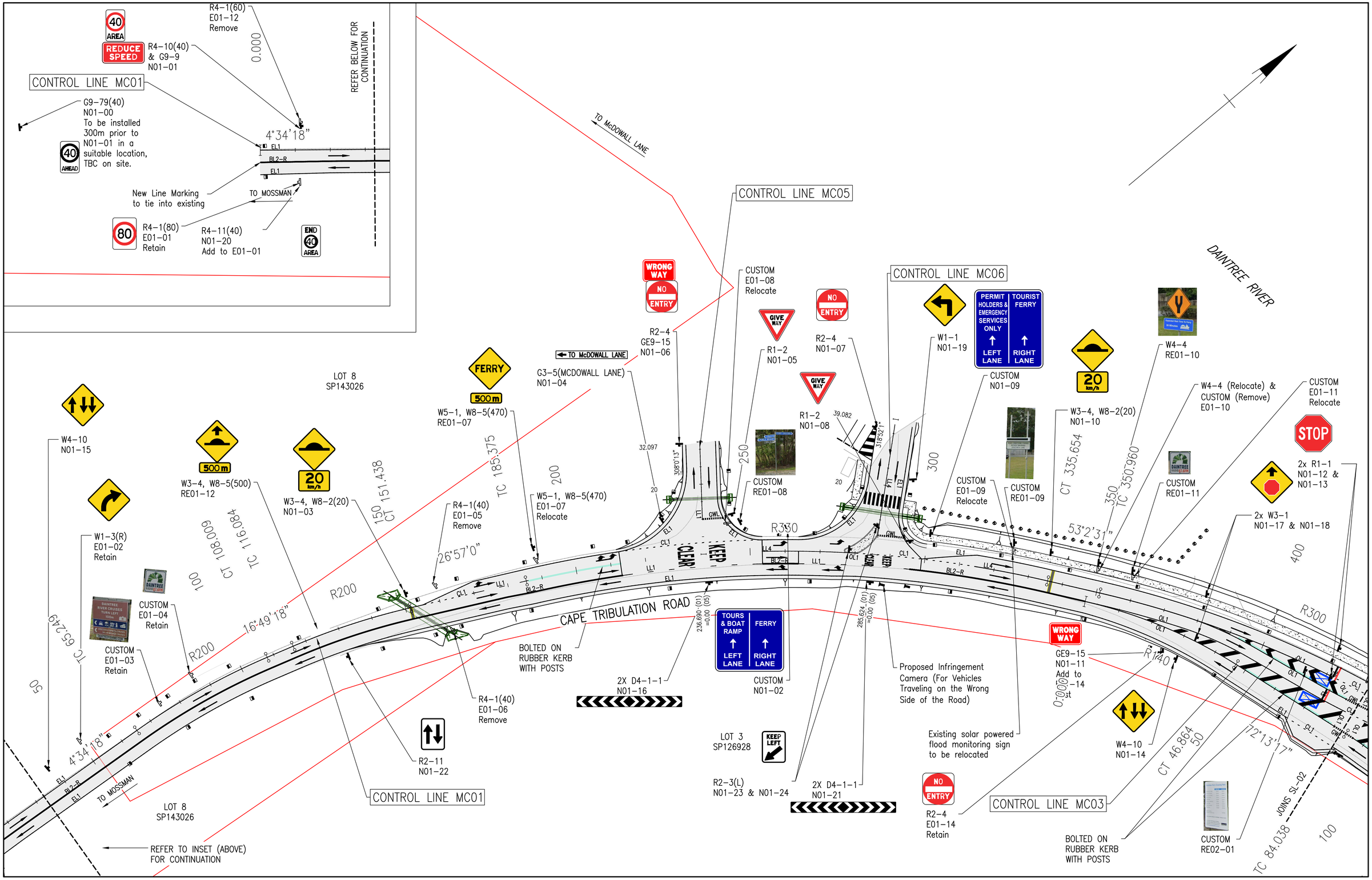
Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C07-PD-04
Revision: B



Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNS AND LINEMARKING LAYOUT - SHEET 1 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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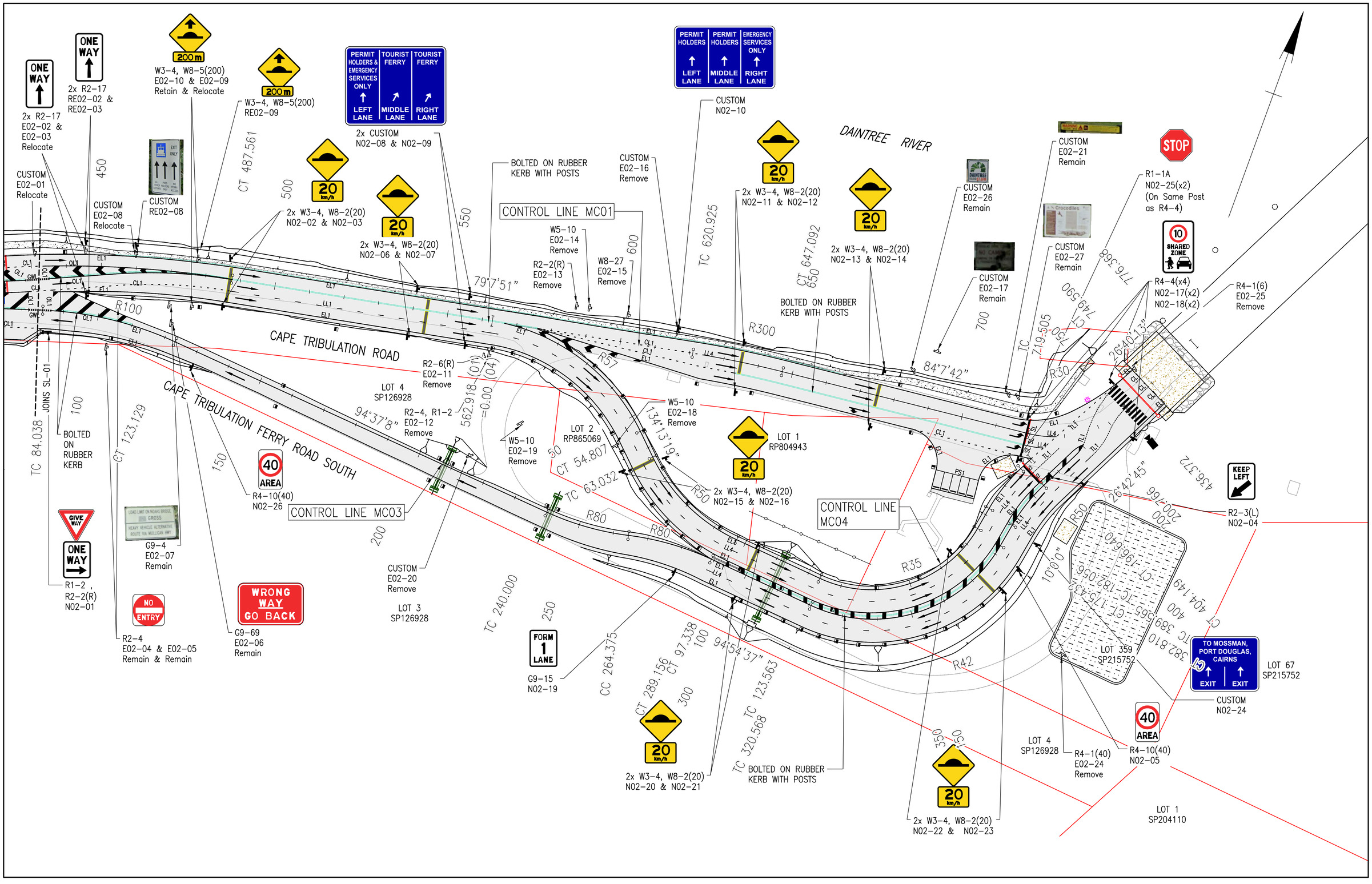
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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-01

Revision: B



Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: SIGNS AND LINEMARKING LAYOUT - SHEET 2 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C08-SL-02
Revision: B

CONTROL LINE MC07

CONTROL LINE MC02

FOREST CREEK ROAD

CAPE TRIBULATION ROAD

R257

LOT 1
RP738241

LOT 20
NPW695

LOT 61
SR894

JOINS SL-04

DAINTREE RIVER

R5-31(R)
RE03-08

R5-31(R)
E03-08
Relocate

R4-4(x3)
N03-12

R5-31(L)
E03-07
Relocate

R5-31(L)
RE03-07

NO PARKING
N03-01

CUSTOM
E03-11
Relocate

PUBLIC TOILETS
RE03-10

PUBLIC TOILETS
E03-10
Relocate

R5-20(R)
N03-13

R5-20(L)
N03-14

DRIVE LEFT
RE03-12

W2-4(L)
E03-13
Relocate

W2-4(L)
RE03-13

R4-10(40)
N03-09

CUSTOM
RE03-11

CUSTOM
RE03-15

CUSTOM
E03-15
Relocate

R4-1(40)
E03-14
Remove

DRIVE LEFT
E03-12
Relocate

BOLTED ON RUBBER
KERB WITH POSTS

G9-15
N03-05

Proposed Infringement
Camera (For Vehicles
Traveling on the Wrong
Side of the Road)

GE9-15, R2-4
N03-08

R4-1(40)
N03-09

CUSTOM
E03-20
Remain

G9-18, WAYFINDING
E03-18
Remain

R1-1
E03-21
Remain

QPWS CROC
RE03-06

CUSTOM
RE03-02

QPWS CROC
E03-06
Relocate

CUSTOM
E03-02
Relocate

R1-1
E03-05
Relocate

R1-1A
RE03-05 (on
same post
as R4-4)

PREPARE
TO STOP
W8-27
E03-09
Remain

2x W3-4, W8-2(20)
N03-03 & N03-04

W3-4, W8-2(20)
N03-02

W3-4, W8-2(20)
N03-07

W3-4, W8-2(20)
N03-10

CUSTOM
N03-06

CUSTOM
N03-11

2x D4-1-1
E03-17
Relocate

2x D4-1-1
RE03-17

MIRROR
RE03-19

MIRROR
E03-19
Relocate

CUSTOM
E03-04
Remain

CUSTOM
E03-03
Remain

QPWS CROC
E03-01
Remain

59°14'46"

50°32'22"

26°40'15"

61°31'12"

R60

R35

CT 24.329

CT 38.910

CT 69.635

CT 78.753

TC 205.238

CT 215.437

000'0

50

100

150

200

250

300

350

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNS AND LINEMARKING LAYOUT - SHEET 3 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

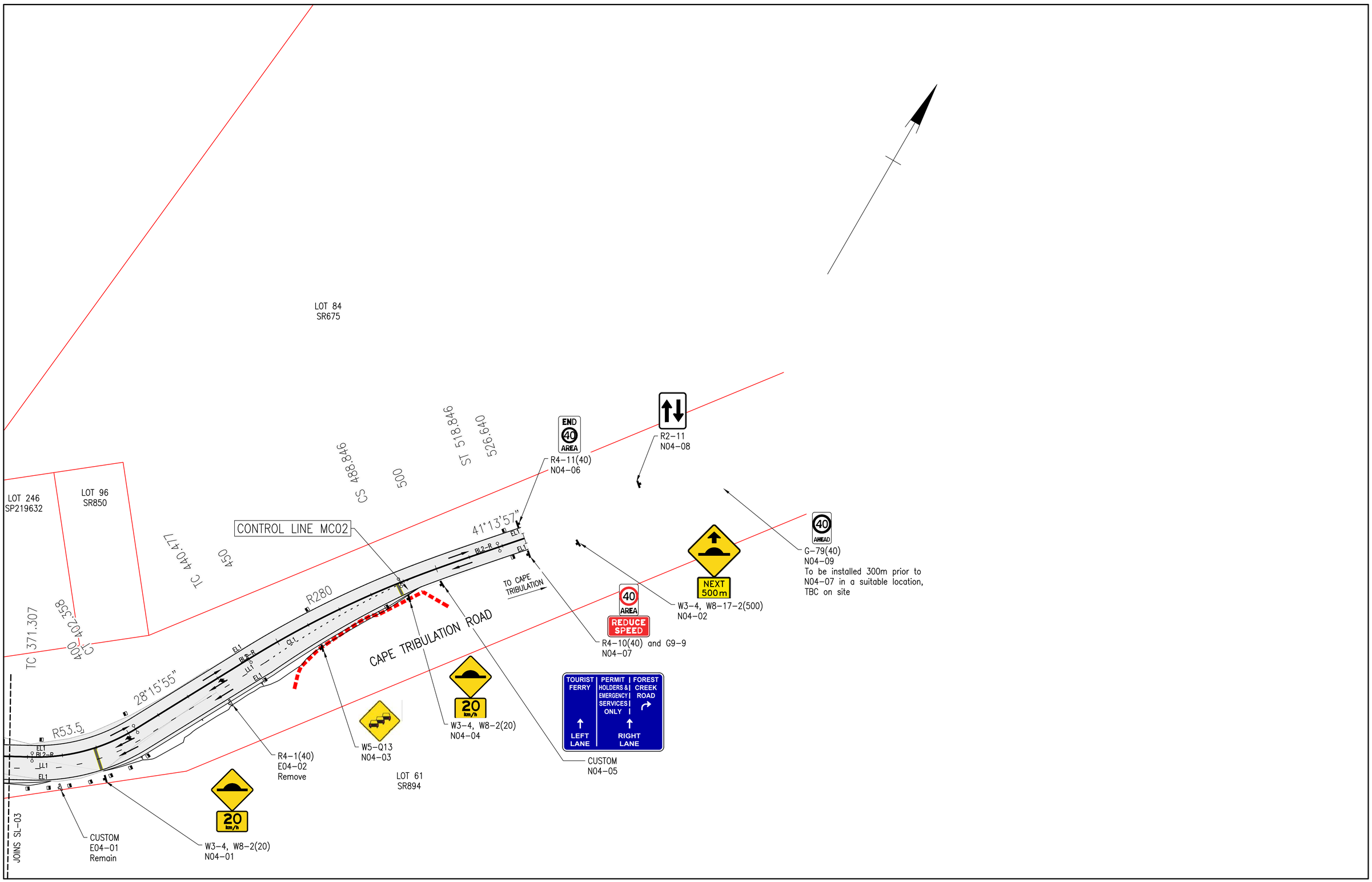
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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-03

Revision: B



Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales
0 5 10 15 20m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNS AND LINEMARKING LAYOUT - SHEET 4 / 4

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-04

Revision: B

SIGNAGE LEGEND

				EXISTING LOCATION			PROPOSED LOCATION			SIGN DETAILS		POST DETAILS		MOUNTING	FOOTING		
CODE	#Posts	SIGN ID	DESCRIPTION	CONTROL LINE	CHAINAGE	STATUS	LHS/RHS	CONTROL LINE	CHAINAGE	SIGN SIZE	#POSTS	POST SIZE	LENGTH (m)	HEIGHT (m)	D (m)	L (m)	ADDITIONAL DETAILS
E01-01	1	R4-1(80)	POSTED SPEED 80KM/H	MC01	10	RETAIN											
E01-02	1	W1-3(R)	RIGHT CURVE	MC01	50	RETAIN											
E01-03	2	CUSTOM	CUSTOM G11-9; FERRY SIGN, GUIDE SIGNS	MC01	70	RETAIN											
E01-04	1	CUSTOM	CUSTOM DAINTREE RADIO	MC01	87	RETAIN											
E01-05	1	R4-1(40)	POSTED SPEED 40KM/H	MC01	160	REMOVE											
E01-06	1	R4-1(40)	POSTED SPEED 40KM/H	MC01	160	REMOVE											
E01-07	1	W5-1, W8-5(470)	FERRY AND DISTANCE TO SIGN	MC01	190	RELOCATE											Salvage and relocate to RE01-07
E01-08	2	CUSTOM	WAY FINDING	MC05	10	RELOCATE											Salvage and relocate to RE01-08
E01-09	2	CUSTOM	CUSTOM FLOOD SIGN	MC01	325	RELOCATE											Salvage and relocate to RE01-09
E01-10	1	W4-4, CUSTOM	FORK IN ROAD AND CUSTOM FERRY	MC01	350	RELOCATE											Salvage and relocate W4-4 to RE01-10 remove custom sign
E01-11	1	CUSTOM	CUSTOM DAINTREE RADIO	MC01	360	RELOCATE											Salvage and relocate to RE01-11
E01-12	1	R4-1(40)	POSTED SPEED 60KM/H	MC01	10	REMOVE											
E01-14	1	R2-4	NO ENTRY	MC03	25	RETAIN											
E02-01	2	CUSTOM	FERRY PRICE SIGN	MC01	430	RELOCATE											Salvage and relocate to RE02-01
E02-02	1	R2-17	ONE WAY SIGN	MC01	445	RELOCATE											Salvage and relocate to RE02-02
E02-03	1	R2-17	ONE WAY SIGN	MC01	445	RELOCATE											Salvage and relocate to RE02-03
E02-04	1	R2-4	NO ENTRY	MC03	105	REMAIN											
E02-05	1	R2-4	NO ENTRY	MC03	105	REMAIN											
E02-06	1	G9-69	WRONG WAY GO BACK	MC03	120	REMAIN											
E02-07	2	G9-4	BRIDGE LOAD RATING	MC01	470	REMAIN											
E02-08	2	Custom	CUSTOM FERRY LANES	MC01	460	RELOCATE											Salvage and relocate to RE02-08
E02-09	1	W3-4, W8-5(200)	SPEED BUMP AHEAD AND 200M DISTANCE SIGN	MC01	477	RELOCATE											Salvage and relocate to RE02-09
E02-10	1	W3-4, W8-5(200)	SPEED BUMP AHEAD AND 200M DISTANCE SIGN	MC01	477	REMOVE											
E02-11	1	R2-6(R)	NO RIGHT TURN	MC04	0	REMOVE											
E02-12	1	R2-4, R1-2	NO ENTRY, GIVE WAY	MC04	1	REMOVE											
E02-13	1	R2-2(R)	ONE WAY	MC01	585	REMOVE											
E02-14	1	W5-10	SPEED BUMP	MC01	590	REMOVE											
E02-15	1	W8-27	PREPARE TO STOP	MC01	600	REMOVE											
E02-16	1	CUSTUM	PURCHASE TICKETS HERE	MC01	615	REMOVE											
E02-17	2	CUSTOM	CUSTOM NO CAMPING	MC01	690	REMAIN											
E02-18	1	W5-10	SPEED BUMP	MC04	55	REMOVE											
E02-19	1	GE9-15	WRONG WAY	DIRT ROAD	–	REMOVE											
E02-20	1	CUSTOM	CUSTOM RETURN TO FERRY	DIRT ROAD	–	REMOVE											
E02-21	1	CUSTOM	QUEENSLAND PARK AND WILDLIFE SERVICES CROCODILE SIGN	MC01	710	REMAIN											
E02-24	1	R4-1(40)	POSTED SPEED LIMIT 40KM/H	MC03	375	REMOVE											
E02-25	1	R4-1(6)	POSTED SPEED LIMIT 6KM/H	MC04	175	REMOVE											
E02-26	1	CUSTOM	CUSTOM DAINTREE RADIO	MC01	690	RETAIN											
E02-27	1	CUSTOM	CUSTOM CROCODILE INFO	MC01	715	RETAIN											
E03-01	2	QPWS CROC	QUEENSLAND PARK AND WILDLIFE SERVICES CROCODILE SIGN	MC02	25	REMAIN											
E03-02	2	CUSTOM	CUSTOM FERRY PRICES	MC02	10	REMAIN											
E03-03	2	CUSTOM	CUSTOM CROCODILE INFO	MC02	20	REMAIN											
E03-04	1	CUSTOM	CUSTOM DAINTREE RADIO	MC02	19	REMAIN											
E03-05	1	R1-1	STOP SIGN	MC02	18	REMAIN											
E03-06	2	QPWS CROC	QUEENSLAND PARK AND WILDLIFE SERVICES CROCODILE SIGN	MC02	11	REMAIN											
E03-07	1	R5-31(L)	DISABLED PARKING TO LEFT SIGN	MC02	25	RELOCATE											Salvage and relocate to RE03-07
E03-08	1	R5-31(R)	DISABLED PARKING TO RIGHT SIGN	MC02	27	RELOCATE											Salvage and relocate to RE03-08
E03-09	1	W8-27	PREPARE TO STOP	MC02	75	REMAIN											
E03-10	1	PUBLIC TOILETS	PUBLIC TOILETS SIGN	MC02	45	RELOCATE											Salvage and relocate to RE03-10
E03-11	1	CUSTOM	CUSTOM CAPE TRIBULATION INFORMATION	MC02	40	RELOCATE											Salvage and relocate to RE03-11
E03-12	1	DRIVE LEFT	DRIVE LEFT IN AUSTRALIA	MC02	62	RELOCATE											Salvage and relocate to RE03-12
E03-13	2	W2-4(L)	T INTERSECTION TO THE LEFT	MC02	75	RELOCATE											Salvage and relocate to RE03-13
E03-14	1	R4-1(40)	POSTED SPEED LIMIT 40KM/H	MC02	120	RELOCATE											Salvage and relocate to RE03-14
E03-15	1	CUSTOM	CUSTOM SCHOOL BUS SIGN	MC02	155	RELOCATE											Salvage and relocate to RE03-15
E03-16	1	W8-27	PREPARE TO STOP	MC02	160	REMAIN											
E03-17	2	D4-1-1	2XD4-1-1 BIDIRECTIONAL HAZARD	MC02	345	RELOCATE											Salvage and relocate to RE03-17
E03-18	2	G9-18, WAYFINDING	NO THROUGH ROAD AND WAYFINDING SIGN	MC02	350	REMAIN											
E03-19	1	TRAFFIC MIRROR	TRAFFIC MIRROR	MC02	350	RELOCATE											Salvage and relocate to RE03-19
E03-20	2	CUSTOM	CUSTOM ROUTE SIGN	MC02	355	REMAIN											
E03-21	1	R1-1	STOP SIGN	MC07	15	REMAIN											
E04-01	1	CUSTOM	CUSTOM PRIVATE PROPERTY	MC02	380	REMAIN											
N01-00	1	G9-79-40	POSTED SPEED 40KM/H AHEAD			NEW	LHS	MC01	TBC	A	1	60.3 OD	3.3	2	0.3	0.75	Place prior to the start of the project – locations to TBC
N01-01	1	R4-10(40), G9-9	40KM/H AREA, REDUSE SPEED			NEW	LHS	MC01	10	A	1	60.3 OD	4.375	2	0.3	0.75	
N01-02	2	CUSTOM	CUSTOM FERRY SIGN			NEW	LHS	MC01	260	A	2	88.9 OD	4.9	2	0.3	1.10	
N01-03	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	150	A	1	60.3 OD	3.8	2	0.3	0.75	

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNAGE SCHEDULE - SHEET 1 / 3

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-05

Revision: B

SIGNAGE LEGEND

				EXISTING LOCATION			PROPOSED LOCATION			SIGN DETAILS	POST DETAILS			MOUNTING	FOOTING		
CODE	#Posts	SIGN ID	DESCRIPTION	CONTROL LINE	CHAINAGE	STATUS	LHS/RHS	CONTROL LINE	CHAINAGE	SIGN SIZE	#POSTS	POST SIZE	LENGTH (m)	HEIGHT (m)	D (m)	L (m)	ADDITIONAL DETAILS
N01-04	1	G3-5(MCDOWALL LANE)	STREET NAME			NEW	LHS	MC01	225	A	1	60.3 OD	3.3	2	0.3	0.75	
N01-05	1	R1-2	GIVE WAY			NEW	RHS	MC05	12	A	1	60.3 OD	3.3	2	0.3	0.75	
N01-06	1	R2-4, GE9-15	NO ENTRY, WRONG WAY			NEW	RHS	MC05	35	A	1	60.3 OD	3.3	2	0.3	0.75	
N01-07	1	R2-4	NO ENTRY			NEW	LHS	MC06	40	A	1	60.3 OD	3	2	0.3	0.75	
N01-08	1	R1-2	GIVE WAY			NEW	RHS	MC06	5	A	1	60.3 OD	3	2	0.3	0.75	
N01-09	2	CUSTOM	CUSTOM FERRY SIGN			NEW	LHS	MC01	300	A	2	88.9 OD	4.9	2	0.3	1.10	
N01-10	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	335	A	1	60.3 OD	4.7	2	0.3	0.75	
N01-11	0	GE9-15	WRONG WAY			NEW	RHS	MC03	25	A							ADD TO E01-14 POST
N01-12	1	R1-1	STOP			NEW	RHS	MC01	420	A	1	60.3 OD	3.5	2	0.3	0.75	
N01-13	1	R1-1	STOP			NEW	LHS	MC01	420	A	1	60.3 OD	3.5	2	0.3	0.75	
N01-14	1	W4-10	TWO LANES OPPOSING			NEW	RHS	MC03	30	B	1	60.3 OD	3.5	2	0.3	0.75	
N01-15	1	W4-10	TWO LANES OPPOSING			NEW	LHS	MC01	40	A	1	60.3 OD	3.5	2	0.3	0.75	
N01-16	3	2X D4-1-1	BIDIRECTIONAL HAZARD MARKER			NEW	RHS	MC01	190	A	3	60.3 OD	3.33	1.2	0.3	0.75	
N01-17	1	W3-1	STOP SIGN AHEAD			NEW	LHS	MC01	380	A	1	60.3 OD	4.5	2	0.3	0.75	
N01-18	1	W3-1	STOP SIGN AHEAD			NEW	LHS	MC03	33	A	1	60.3 OD	4.5	2	0.3	0.75	
N01-19	1	W1-1(L)	SHARP TURN LEFT			NEW	RHS	MC06	25	A	1	60.3 OD	3.5	2	0.3	0.75	
N01-20	1	R4-11(40)	END 40 AREA			NEW	LHS	MC01	10	A							ADD TO E01-01 POST
N01-21	3	2X D4-1-1	BIDIRECTIONAL HAZARD MARKER			NEW	RHS	MC01	285	A	3	60.3 OD	3.33	1.2	0.3	0.75	
N01-22	1	R2-11	BIDIRECTIONAL TRAFFIC			NEW	RHS	MC01	130	A	1	60.3 OD	3.775	2	0.3	0.75	
N01-23	1	R2-3(L)	KEEP LEFT			NEW	LHS	MC01	277	A	1	60.3 OD	3.33	1.2	0.3	0.75	
N01-24	1	R2-3(L)	KEEP LEFT			NEW	LHS	MC01	285	A	1	60.3 OD	3.33	1.2	0.3	0.75	
N02-01	1	R1-2, R2-2	ONE WAY, GIVE WAY			NEW	RHS	MC03	85	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-02	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC01	487	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-03	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	487	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-04	1	R2-3 (L)	KEEP LEFT			NEW	RHS	MC03	420	A	1	60.3 OD	2.4	1.2	0.3	0.75	
N02-05	1	R4-1(40)	40KM/H			NEW	RHS	MC03	380	A	1	60.3 OD	3.3	2	0.3	0.75	
N02-06	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC01	540	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-07	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	540	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-08	2	CUSTOM	CUSTOM FERRY LANE SIGN			NEW	RHS	MC01	555	A	3	88.9 OD	4.65	2	0.3	1.10	
N02-09	2	CUSTOM	CUSTOM FERRY LANE SIGN			NEW	LHS	MC01	555	A	3	88.9 OD	4.65	2	0.3	1.10	
N02-10	2	CUSTOM	CUSTOM LANE SIGN			NEW	LHS	MC01	615	A	2	76.1 OD	4.5	2	0.3	1	
N02-11	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC01	635	A	1	60.3 OD	4.1	2	0.3	0.75	
N02-12	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	635	A	1	60.3 OD	4.1	2	0.3	0.75	
N02-13	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC01	675	A	1	60.3 OD	4.1	2	0.3	0.75	
N02-14	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC01	675	A	1	60.3 OD	4.1	2	0.3	0.75	
N02-15	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC04	65	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-16	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC04	65	A	1	60.3 OD	4.5	2	0.3	0.75	
N02-17	1	R4-4	SHARED ZONE 10KM/H			NEW	RHS	MC01	755	A	1	60.3 OD	2.5	2	0.3	0.75	
N02-18	1	R4-4	SHARED ZONE 10KM/H			NEW	LHS	MC03	430	A	1	60.3 OD	3.775	2	0.3	0.75	
N02-19	1	G9-15	FORM 1 LANE			NEW	RHS	MC03	260	A	1	60.3 OD	4.3	2	0.3	0.75	
N02-20	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC04	103	A	1	60.3 OD	4.3	2	0.3	0.75	
N02-21	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC04	103	A	1	60.3 OD	4.3	2	0.3	0.75	
N02-22	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC04	165	A	1	60.3 OD	4.3	2	0.3	0.75	
N02-23	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC03	375	A	1	60.3 OD	4.3	2	0.3	0.75	
N02-24	2	CUSTOM	CUSTOM LANE SIGN			NEW	RHS	MC03	390	A	2	76.1 OD	4.6	2	0.3	1	
N03-01	1	NO PARKING	NO PARKING IN DRIVEWAY			NEW	LHS	MC02	30	A	1	60.3 OD	3.775	2	0.3	0.75	
N03-02	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC02	70	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-03	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC02	147	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-04	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	LHS	MC02	147	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-05	1	G9-15	FORM ONE LANE			NEW	LHS	MC02	200	A	1	60.3 OD	3.775	2	0.3	0.75	
N03-06	2	CUSTOM	CUSTOM LANE SIGN			NEW	RHS	MC02	190	A	2	76.1 OD	4.5	2	0.3	1	
N03-07	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC02	205	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-08	1	GW9-15, R2-4	NO ENTRY AND WRONG WAY			NEW	LHS	MC02	245	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-09	1	R4-1(40)	POSTED SPEED LIMIT 40KM/H			NEW	LHS	MC02	275	A	1	60.3 OD	3.775	2	0.3	0.75	
N03-10	1	W3-4, W8-2(20)	SPEED BUMP AND 20 KM/H			NEW	RHS	MC02	267	A	1	60.3 OD	4.375	2	0.3	0.75	
N03-11	2	CUSTOM	CUSTOM LANE SIGN			NEW	RHS	MC02	310	A	2	76.1 OD	4.5	2	0.3	1	
N03-12	1	R4-4	SHARED ZONE 10KM/H			NEW	LHS	MC02	13	A	1	60.3 OD	3.775	2	0.3	0.75	
N03-13	1	R5-20(R)	BUS ZONE TO RIGHT			NEW	LHS	MC02	50	A	1	60.3 OD	3.775	2	0.3	0.75	
N03-14	1	R5-20(L)	BUS ZONE TO LEFT			NEW	LHS	MC02	90	A	1	60.3 OD	3.775	2	0.3	0.75	
N04-01	1	W3-4, W8-2(20)	SPEED BUMP AND 20KM/H			NEW	RHS	MC02	390	A	1	60.3 OD	4.375	2	0.3	0.75	
N04-02	1	W3-4, W8-17-2(500)	SPEED BUMP AHEAD AND NEXT 500M			NEW	RHS	MC02	540	A	1	60.3 OD	4.375	2	0.3	0.75	
N04-03	1	W5-Q13	QUEUING SIGN			NEW	RHS	MC02	460	A	1	60.3 OD	3.775	2	0.3	0.75	
N04-04	1	W3-4, W8-2(20)	SPEED BUMP AND 20KM/H			NEW	RHS	MC02	490	A	1	60.3 OD	4.375	2	0.3	0.75	
N04-05	2	CUSTOM	CUSTOM LANE SIGN			NEW	RHS	MC02	500	A	2	76.1 OD	4.5	2	0.3	1	
RE01-07	1	W5-1, W8-5(470)	FERRY AND DISTANCE TO SIGN			RELOCATED	LHS	MC01	190		1	60.3 OD	4.375	2	0.3	0.75	
RE01-08	2	CUSTOM	WAY FINDING			RELOCATED	RHS	MC05	10		1	60.3 OD	3.775	2	0.3	0.75	

Rev	Description	By	Appd	Date
B	100% Submission	PS	ES	18/12/2025
A	70% Submission	PS	ES	28/10/2025

AMENDMENTS

DURACK

Scales

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNAGE SCHEDULE - SHEET 2 / 3

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Design	ES
Drawn	PS
Date	18/12/2025
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DETAILDED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-06

Revision: B

SIGNAGE LEGEND

				EXISTING LOCATION			PROPOSED LOCATION			SIGN DETAILS	POST DETAILS			MOUNTING	FOOTING		
CODE	#Posts	SIGN ID	DESCRIPTION	CONTROL LINE	CHAINAGE	STATUS	LHS/RHS	CONTROL LINE	CHAINAGE	SIGN SIZE	#POSTS	POST SIZE	LENGTH (m)	HEIGHT (m)	D (m)	L (m)	ADDITIONAL DETAILS
RE01-09	2	CUSTOM	CUSTOM FLOOD SIGN			RELOCATED	LHS	MC01	325		2	76.1 OD	4.5	2	0.3	1	
RE01-10	1	W4-4	FORK IN ROAD			RELOCATED	LHS	MC01	350		1	60.3 OD	3.775	2	0.3	0.75	
RE01-11	1	CUSTOM	CUSTOM DAINTREE RADIO			RELOCATED	LHS	MC01	360		1	60.3 OD	3.775	2	0.3	0.75	
RE02-01	2	CUSTOM	FERRY PRICE SIGN			RELOCATED	LHS	MC01	4.15		2	76.1 OD	4.5	2	0.3	1	
RE02-02	1	R2-17	ONE WAY SIGN			RELOCATED	LHS	MC01	445		1	60.3 OD	3.775	2	0.3	0.75	
RE02-03	1	R2-17	ONE WAY SIGN			RELOCATED	RHS	MC01	445		1	60.3 OD	3.775	2	0.3	0.75	
RE02-08	2	R6-17	CUSTOM FERRY LANES			RELOCATED	RHS	MC01	460		2	76.1 OD	4.5	2	0.3	1	
RE02-09	1	W3-4, W8-5(200)	SPEED BUMP AHEAD AND 200M DISTANCE SIGN			RELOCATED	LHS	MC01	477		1	60.3 OD	4.375	2	0.3	0.75	
RE03-07	1	R5-31(L)	DISABLED PARKING TO LEFT SIGN			RELOCATED	LHS	MC02	25		1	60.3 OD	3.775	2	0.3	0.75	
RE03-08	1	R5-31(R)	DISABLED PARKING TO RIGHT SIGN			RELOCATED	LHS	MC02	27		1	60.3 OD	3.775	2	0.3	0.75	
RE03-10	1	PUBLIC TOILETS	PUBLIC TOILETS SIGN			RELOCATED	LHS	MC02	45		1	60.3 OD	3.775	2	0.3	0.75	
RE03-11	2	CUSTOM	CUSTOM CAPE TRIBULATION INFORMATION			RELOCATED	LHS	MC02	45		2	76.1 OD	2	0.5	0.3	1	
RE03-12	1	DRIVE LEFT	DRIVE LEFT IN AUSTRALIA			RELOCATED	LHS	MC02	95		1	60.3 OD	3.775	2	0.3	0.75	
RE03-13	2	W2-4(L)	T INTERSECTION TO THE LEFT			RELOCATED	LHS	MC02	105		1	60.3 OD	3.775	2	0.3	0.75	
RE03-14	1	R4-1(40)	POSTED SPEED LIMIT 40KM/H			RELOCATED	LHS	MC02	120		1	60.3 OD	3.775	2	0.3	0.75	
RE03-15	2	CUSTOM	CUSTOM SCHOOL BUS SIGN			RELOCATED	LHS	MC02	155		2	76.1 OD	4.5	2	0.3	1	
RE03-17	2	D4-1-1	2XD4-1-1 BIDIRECTIONAL HAZARD			RELOCATED	RHS	MC02	345		3	60.3 OD	3.33	1.2	0.3	0.75	
RE03-19	1	MIRROR	TRAFFIC MIRROR			RELOCATED	RHS	MC02	350		1	60.3 OD	3.775	2	0.3	0.75	

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: SIGNAGE SCHEDULE - SHEET 3 / 3

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C08-SL-07

Revision: A

GENERAL NOTES

1. Refer to drawing GN-01 for General Notes and Civil Notes.
2. Comply with the latest edition of all referenced standards.
3. The contractor shall give a minimum of 48hrs notice for inspection prior to constructing elements.
4. These drawings shall be read in conjunction with all other consultants drawings and specifications.
5. All dimensions relevant to setting out and off-site work shall be verified by the contractor before construction and fabrication.
6. The contractor shall maintain the structure in a stable condition at all times and ensure no part is overstressed during construction activities.
7. The contractor shall engage an RPEQ Engineer to provide certification of all propping, shoring, temporary works, falseworks and other temporary elements where required by the Workplace Health and Safety Act, SAA Standards and other applicable legislation at their own cost.
8. Where there is a discrepancy between the structural drawings and other consultants drawings, the contractor shall, prior to commencement of construction, contact the principals representative for clarification.
9. The contractor shall coordinate all services to ensure there are no clashes with structural elements, the contractor shall locate existing services and contact principals representative for advice if clashes occur.
10. Where trade names have been used for particular product requirements, an equivalent product may be submitted for engineering approval prior to use.
11. All proprietary products shall be fixed in accordance with the manufacturer's requirements to withstand the applicable design loads unless specifically varied by the documents.

DESIGN LOADS

1.The structural design criteria are as follows.

General:
- Building classification: 10b
- Importance level 2
- Design life: 50 years
- Annual probability of exceedance 1:500 (wind)
- 1:500 (earthquake)

Imposed loads (to AS1170.0 & .1):
- Ground Slabs: 5.0 kPa
- Stairways: 2.5 kPa
- Roof: 0.25 kPa
- Ramps: Sm1600 to AS5100.2

Wind loads (to AS1170.2):
- Region: C
- Terrain category: 2
- Climate multiplier Mc = 1.05
- Directional multiplier Md = 0.9
- Terrain / height multiplier Mz cat = 1.0
- Topographic multiplier Mt = 1.0
- Shielding multiplier Ms = 1.0
- Design gust wind speed Vdes = 62.4 m/s

Earthquakes loads (to AS1170.4):
- Probability factor kp = 1.0
- Hazard factor Z = 0.6
- Earthquake design category 2
- Site sub-soil class De

Marine loads (to AS4997):

Design vessel:
- Unladen mass: 370t
- Laden mass: 480t
- Operating velocity: 2m/s
- Max velocity: 4m/s
- Dimensions: 63.73mx17.3mx1.75m
- Draft: 0.46m (unladen), 0.6m (laden)

Mooring Pile:
- 1% AEP river velocity: 1m/s
- Berthing velocity: 0.6 m/s
- Debris mat: 1.2m
- Mooring rated bollard capacity: 200kN
- Mooring pile has NOT been designed for abnormal berthing loads.

Dry dock inspection Anchor points:
- Max ground gradient: 20%
- Rolling resistance coefficient: 0.01
- Mass of attachments: 1t
- Dynamic factor: 1.5
- ULS factor: 2.0

Cable Anchor points:
- Operating velocity: 2m/s
- 1% AEP river velocity: 1m/s
- Dynamic factor: Nil
- ULS factor: 2.0

2. Marine loads based on preliminary vessel information only. Final vessel design to be submitted to Engineer for confirmation prior to construction.
3. During inspection, the vessel shall be anchored to at least 2 anchor points at all times, and a load distribution device shall be used to ensure equal load distribution over all anchor points.
4. Final cable anchor loads and details to be provided by vessel manufacturer.

FOUNDATION AND EARTHWORKS

1. Design has been performed based on geotechnical assessment report 22092AA-D-R01-v2 by Geo|Design
2. All slabs, footings, and foundations shall be founded on an allowable bearing capacity of 100 kPa and shall be confirmed by a suitably qualified geotechnical engineer prior to construction.
3. Any soft spots, uncontrolled fill or sandy clay shall be excavated and replaced with Type 2.1 granular fill compacted to at least 98% SRDD or crushed rock fill wrapped in geofabric material.
4. All earthworks shall be in accordance with AS3798.

STEELWORK

1. In accordance with the requirements of AS/NZS5131 the construction categories for this project are defined below:

ELEMENT	IMPORTANCE LEVEL	SERVICE CATEGORY	FABRICATION CATEGORY	CONSTRUCTION CATEGORY
ALL STRUCTURAL STEELWORK U.N.O	IL2	SC1	FC1	CC2

2. All steelwork shall be executed in accordance with the current edition of the relevant codes of practice:
   - AS 1111 – ISO Metric hexagon bolts and screws.
   - AS 1112 – ISO Metric hexagon nuts, including thin nuts, slotted nuts and castle nuts.
   - AS 1214– Hot-dip galvanized coatings on threaded fasteners.
   - AS/NZS 1252.1 – High-strength steel fastener assemblies for structural engineering – bolts, nuts and washers.
   - AS/NZS 1163 – Cold-formed structural steel hollow sections.
   - AS/NZS 1554 – Structural steel welding.
   - AS 1559 – Hot-dip galvanized steel bolts and associated nuts and washers for tower construction.
   - AS/NZS 1594 – Hot-rolled steel flat products.
   - AS/NZS 3678 – Structural steel – hot-rolled plates, floorplates and slabs.
   - AS/NZS 3679.1 – Structural steel hot-rolled bars and sections.
   - AS/NZS 3679.2 – Structural steel welded I sections.
   - AS 4100 – Steel structures.
   - AS/NZS 4600 – Cold-formed steel structures.
   - AS/NZS 5131 – Structural steelwork – fabrication and erection.
3. Unless noted otherwise, all steel shall be in accordance with AS 3678, AS 3679, AS 1163.
   - Hot rolled sections – grade 300 plus
   - Welded sections (WB, WC) – grade 300 plus
   - Plates – grade 250
   - RHS, SHS and CHS – grade 350
4. All dimensions shall be carefully verified by the contractor on site on site before commencing fabrication.
5. Refer to the general notes for the required construction categories for this project.
6. Steelwork shop drawings are to be submitted to the principals representative for review 14 days prior to commencement of fabrication.
7. All cleats, stiffener plates and gussets shall be 10mm plate unless noted otherwise.
8. All structural steel fixing details, where not specifically shown are to be in accordance with AISC Structural Connection Details.
9. All bolts shall be M20 grade 8.8/S unless noted otherwise.
10. All bolts to be hot dip galvanized unless noted otherwise.
11. All bolts shall be hexagonal head with the bolt grade and manufacturer's name in the head.



12. For bolts other than as noted above, the following notation is used:
    Bolts – designated by the number, diameter, grade and tightening method

MARK	4.6/S	8.8/S	8.8/TB	8.8/TF
BOLT GRADE	4.6	8.8	8.8	8.8
AUSTRALIAN STANDARD	AS 1111	AS 1252	AS 1252	AS 1252
TIGHTENING METHOD	SNUG TIGHTENED	SNUG TIGHTENED	FULLY TENSIONED (REFER NOTE 17)	FULLY TENSIONED (REFER NOTE 17)

13. Unless noted otherwise, all bolt grading shall be as follows:

Bolt size	Grade
M10	4.6/s
M12	4.6/s
M16	8.8/s
M20	8.8/s
M24	8.8/s

14. All hold down bolts shall be grade 4.6/S unless noted otherwise.
15. Bolt hole size shall be:
    - Bolt diameter plus 2mm for steel to steel connections.
    - Bolt diameter plus 4mm for steel to concrete connections (cast-in bolts).
    - Bolt diameter plus 4mm for steel to concrete connections (chemical/mechanical anchor bolts).
16. Contact surfaces of TF and TB connections shall be left unpainted and free of scale unless otherwise specified. (inorganic zinc silicate paint is acceptable in 8.8/TF joints).
17. All high strength structural bolts nominated as grade 8.8/TF or 8.8/TB shall be tightened by the 'part-turn' method as described in AS 4100. Bolts and nuts shall carry permanent location marks in the form of a punch mark or direct tension indicator (DTI) at no additional cost.
18. Where shop splices are necessary in beam, other than indicated on the structural drawings, the position and nature of the splice shall be submitted to the engineer for approval.
19. All hot dip galvanized members shall be provided with vent holes.
20. "Chemset" refers to Ramset Chemset 801 chemical anchoring system installed in accordance with manufacturer's specifications (i.e. spacing, depth, hole clean-out, placement & load times etc.) or approved equivalent.
21. 10% of chemical anchors to be tested. Contractor to obtain proof loads from the manufacturer.
22. Purlin and girt members and fixings shall be Lysaght/Stramit cold formed sections U.N.O. designed in accordance with AS/NZS 4600. No substitution shall be made without written approval from the engineer.
23. Trimming members shall be provided for all mechanical/hydraulic penetrations. Trimming members shall be the same size as adjacent members unless noted otherwise. Trimming members shall be provided for valleys and ridges and shall be the same size as the adjacent members unless noted otherwise.
24. Unless noted otherwise, purlin, girt and bridging systems shall be as specified by Lysaght/Stramit. All bolting, laps and bridging strictly to manufacturer's specification.
25. All steels to be Australasian Certification Authority for Reinforcing and Structural Steels (ACRS) certified.
26. Hollow section ends are to be sealed with 4mm thick plates and continuous fillet welds unless noted otherwise.
27. All welding shall be performed by a qualified welder in accordance with AS 1554.
28. Unless noted otherwise, all welds shall be 6mm continuous fillet welds.
29. All welds shall be 'SP' category.
30. All weld metal shall have a nominal tensile strength (fuw) of 490MPa minimum.
31. All welds shall be chipped off to remove all slag.
32. Minimum extent of NDE to AS/NZS 1554.1 of all welds shall be as follows:

WELD CATEGORY	EXTENT OF NON DESTRUCTIVE EXAMINATION (NDE)			
	VISUAL MEANS		OTHER MEANS	
	SCANNING	EXAMINATION	MAGNETIC PARTICAL OR LIQUID PENETRANT	RADIOGRAPHY OR ULTRASONICS
GP	100%	15%	1%	NIL
SP	100%	30%	5%	5%
BUTT WELDS IN PILES	100%	100%	100%	100%

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL

Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE

Drawing Title: STRUCTURAL NOTES - SHEET 1 / 2

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-S01-SN-01

Revision: B

CONCRETE AND REINFORCEMENT

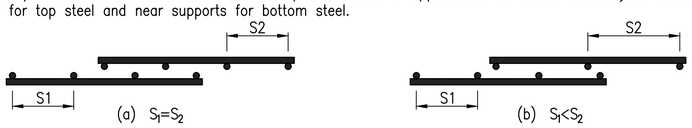
1. All concrete work shall be executed in accordance with the following codes, unless specifically varied by the contract documents.
   - AS 2870 – Residential Slabs and Footings.
   - AS 3600 – Concrete Structures.
   - AS 3610 – Formwork For Concrete.
   - AS/NZS 4671 – Steel Reinforcing Materials.
2. The characteristic compressive strength of concrete (f'c), slump, maximum aggregate size and exposure classification shall be as follows:

LOCATION	f'c AT 28 DAYS (MPa)	SLUMP (mm)	MAX. AGGREGATE SIZE (mm)	EXPOSURE CLASSIFICATION
GENERAL FOOTINGS	S50	80	20	B2
GROUND SLABS	S50	80	20	B2
ALL OTHER	S50	80	20	B2
PRECAST RAMPS	S50	80	20	C2
DRY DOCK ANCHOR	S50	80	20	B2
CABLE ANCHOR	S50	80	20	C2

   All cement is to be GP, GB, or SR as required complying with AS3972. At least 25% fly ash shall be used as a cement substitute.
3. No additives shall be added or applied to the concrete mix without the approval of the engineer.
4. Refer slab plan for design notes for slab on ground.
5. Provide 200 micron visqueen under all slabs. Lap and tape all joints.
6. The nominal concrete cover (mm) to reinforcement steel and strands shall be as follows U.N.O.:

ELEMENT	COMMENT	COVER
GENERAL FOOTINGS	CAST AGAINST GROUND	55
SLAB ON GROUND	CAST AGAINST BLINDING	45
PRECAST RAMPS	RIGID FORMS & INTENSE COMPACTION	60
DRY DOCK ANCHOR	CAST AGAINST GROUND	55
CABLE ANCHOR	CAST AGAINST GROUND	85

7. All concrete shall be mechanically vibrated in accordance with AS 3600. Vibrators shall not be used to spread concrete.
8. Sizes shown are structural sizes and do not include applied finishes.
9. All exposed edges shall have 15mm chamfer U.N.O.
10. Reinforcement is shown diagrammatically and not in true project.
11. No chases or holes other than those shown on the structural drawings will be permitted in concrete members without prior approval of the engineer.
12. Formwork finishes and finish class as per the Architects specification.
13. Welding of reinforcement will not be permitted without approval from engineer.
14. Stripping of formwork shall be as per AS 3610.
15. Stripping of formwork and repropping of suspended slabs and beams shall be carried out progressively so that, at no stage is the slab or beam unsupported until it is permitted to fully remove all propping.
16. In multi–story construction, props shall be located in the same position on each floor so that they will be continuous in their support from floor to floor. Where the number of props on a floor is reduced, the remaining props shall be located directly under props on the floor above.
17. Splices in reinforcement to be made in places shown or approved in all cases. Generally at the midspan for top steel and near supports for bottom steel.



18. Where not shown on the drawings, the lapped length shall be as follows:

Bar	Minimum lap length for horizontal bars with greater than 300mm cast below (mm)	Minimum lap length for all other bars
N12	600	450
N16	800	600
N20	1000	750
N24	1300	1000
N28	1650	1250
N32	2000	1550
N36	2400	1850
N40	2800	2150

   Lengths shown in the above table are based on AS 5100.5 for D500N reinforcement in tension or compression, using 40MPa concrete with minimum 40mm cover, minimum 100mm centres at maximum stress. If the contractor requires a development length and/or a lap length for a different scenario, then the contractor shall submit a request to the designer.
19. All starter bars to reinforced concrete walls, columns and all masonry walls and piers are to be tied into the footing reinforcement.
20. No construction or expansion joints are permitted unless shown on drawings.
21. Concrete testing results to be provided at two tests per work lot.
22. All concrete testing shall be performed ny NATA registered laboratories.
23. Non–shrink grout shall be Parchem Conbextra CB Cementitious, or approved equivalent installed in accordance with manufacturer's specifications.
24. Where service pipes penetrate concrete elements, provision should be made to allow movement of the element.
25. All carbon reinforcing steel to be Australasian Certification Authority for Reinforcing and Structural Steels (ACRS) certified.

PROTECTIVE COATINGS

1. All steelworks outside of the tidal zone shall be hot dipped galvanized to at least HDG600 in accordance with AZ4680 and AS2312.2 or painted with an approved protective coating system as per Table 3.6 of AS2312.1 selected to achieve 25 years life to first maintenance.
2. Piles shall be protected as per Piling Notes and the pile details.

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AMENDMENTS

DURACK

Scales: NTS

Client: DURACK CIVIL

Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE

Drawing Title: STRUCTURAL NOTES - SHEET 2 / 2

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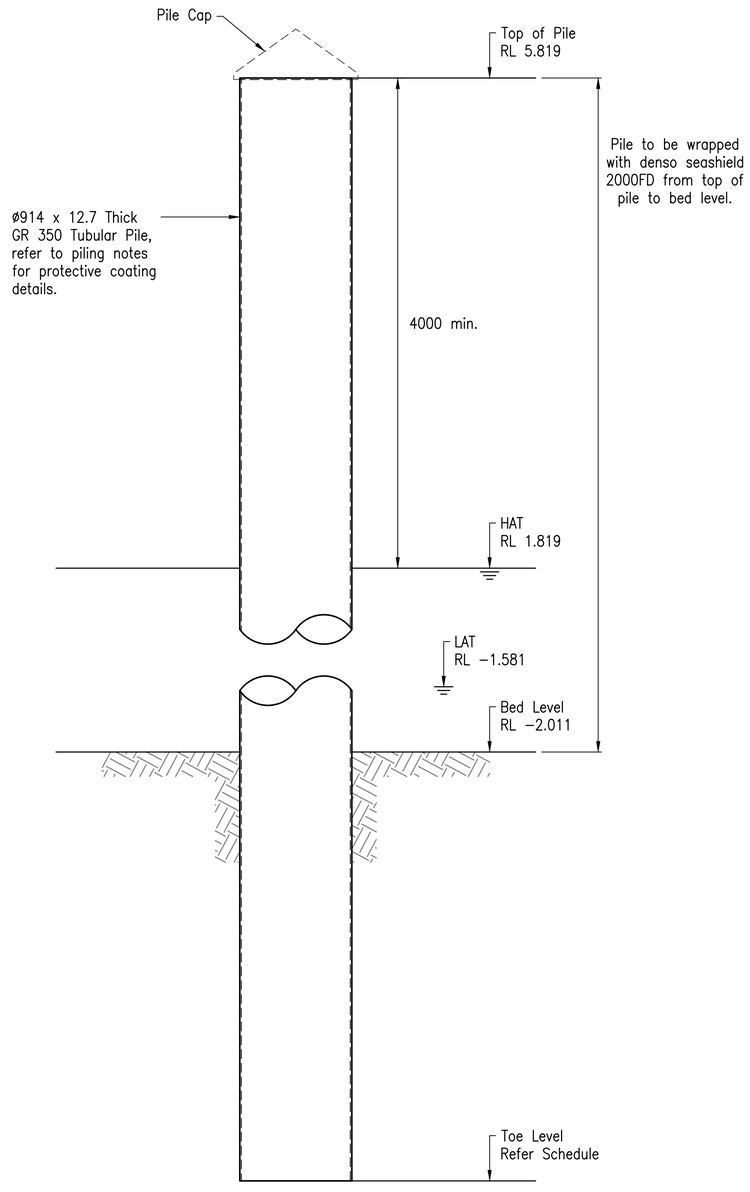
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-S01-SN-02

Revision: B



MOORING PILE ELEVATION
Scale 1:25

PILE SCHEDULE										
PILE MARK	EASTING	NORTHING	PILE SIZE	CUTOFF LEVEL	MIN. TOE LEVEL	CONTINGENCY ALLOWANCE	TOTAL LENGTH	ULS COMPRESSION	ULS TENSION	COMMENTS
	(m)	(m)		(m AHD)	(m AHD)	(m)	(m)	(kN)	(kN)	
P1	328775.011	8201591.437	914 dia. 12.7 thick gr. 350	5.8	−20	2	27.8	–	–	Mooring Pile south

PILING NOTES

1. All locations are preliminary only and to be coordinated with ferry supplier and operator prior to construction
2. All piles shall be grade 350 welded tubular steel piles to AS3678.
3. All piles must be driven to achieve the design loads & minimum embedments of not less than the values shown in the Piling Schedule.
4. The Piling Contractor shall engage a suitably qualified geotechnical engineer RPEQ to supervise and certify piling works.
5. For the purposes of preliminary design, a geotechnical strength reduction factor (phig) of 0.5 has been assumed. The piling contractor's RPEQ may vary the adopted value of phig based on the level of testing, supervision, and ground conditions encountered during works.
6. At least one pile per pile group shall be tested with PDA and PDM for the full depth of driving. Pile P1 (Mooring Pile) shall be tested.
7. Estimated founding levels shown in the Piling Schedule are approximate values only. A 2m overdrive allowance has been included. The Piling Contractor shall perform their own assessment and may increase or decrease the overdrive/contingency allowance to suit their proposed construction method.
8. All piles shall be coated with the following marine protective coating system or an approved equivalent:
   - Abrasive blast clean to AS 1627.4 Class 2.5 finish.
   - Apply two coats of International Marine Coatings Interzone 954 to 500 microns DFT total from top of pile to at least 1m below bed/ground level or 1m below LAT (whichever is lower).
   - Apply Denso SeaShield 2000FD from top of pile to bed/ground level.
9. Positional tolerance for all piles shall be +/− 75mm. If final positions are outside of tolerance, refer to Engineer for advice.
10. Any alternative pile designs shall be certified by the Piling Contractor's RPEQ and submitted to the Administrator for approval.
11. Pile locations are preliminary only and to be coordinated with the vessel manufacturer and operator prior to construction.
12. Refer to existing pile inspection report by PMG, reference 6139/FD78_Final Report. Existing piles shall be inspected and repaired, including as a minimum:
    - 12.1. Remove all flaking or delaminating paint or other protective coatings and prepare surfaces for new coatings.
    - 12.2. Path weld 10 mm thick plates over holes or other defects with more than 0.5mm section loss with 6mm CFW, full perimeter. Plate shall extend at least 50 mm beyond all defects in all directions.
    - 12.3. Remove any corroded bolts, fixings, plates or attachments and replace with new like−for−life.
    - 12.4. Apply new marine protective coating system as per notes above.

Rev	Description	By	Appd	Date
	AMENDMENTS			
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

DURACK

Scales
0 0.5 1.0m

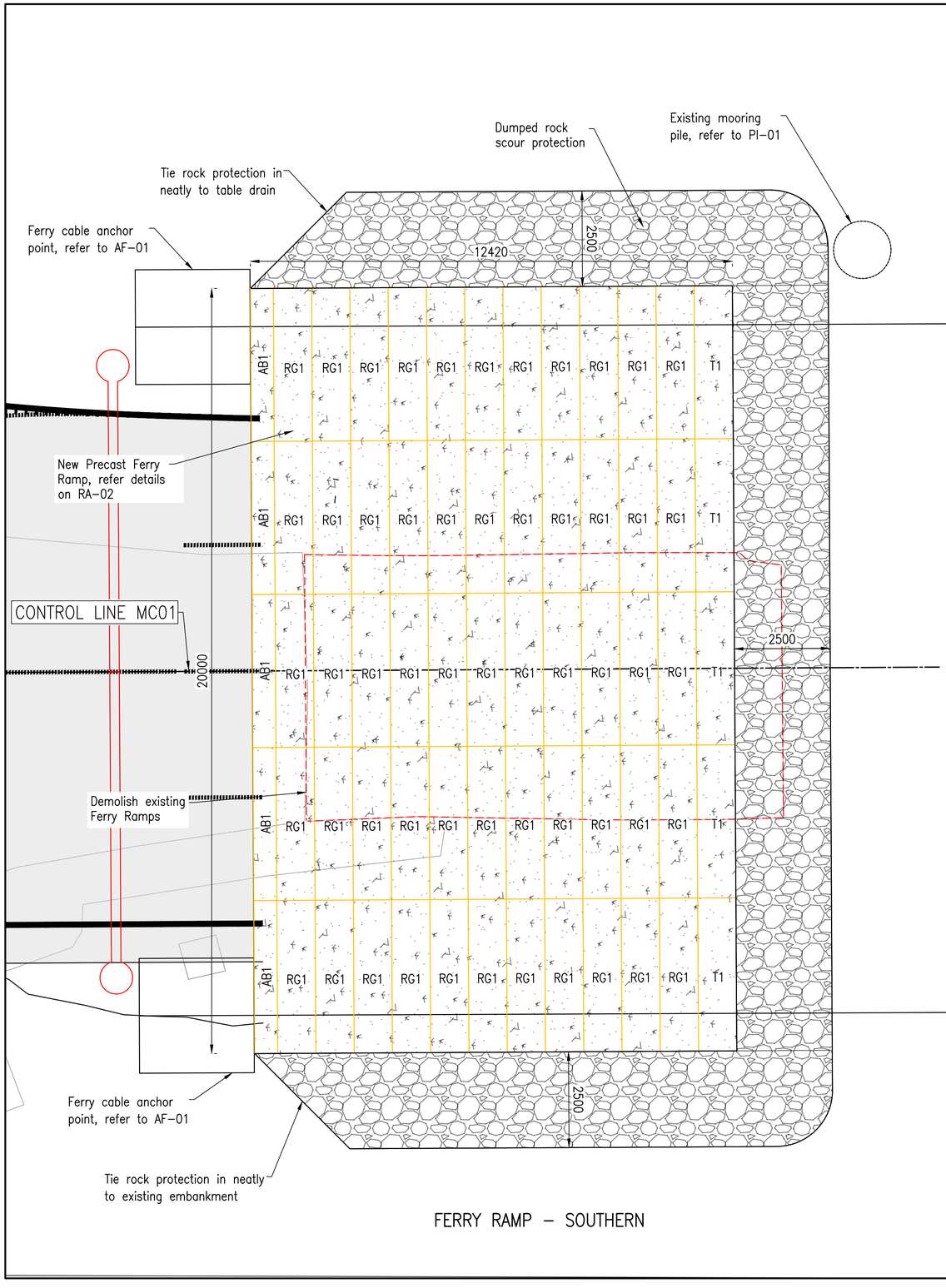
Client: DURACK CIVIL
Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE
Drawing Title: PILE SCHEDULE AND DETAILS - SHEET 1 / 1

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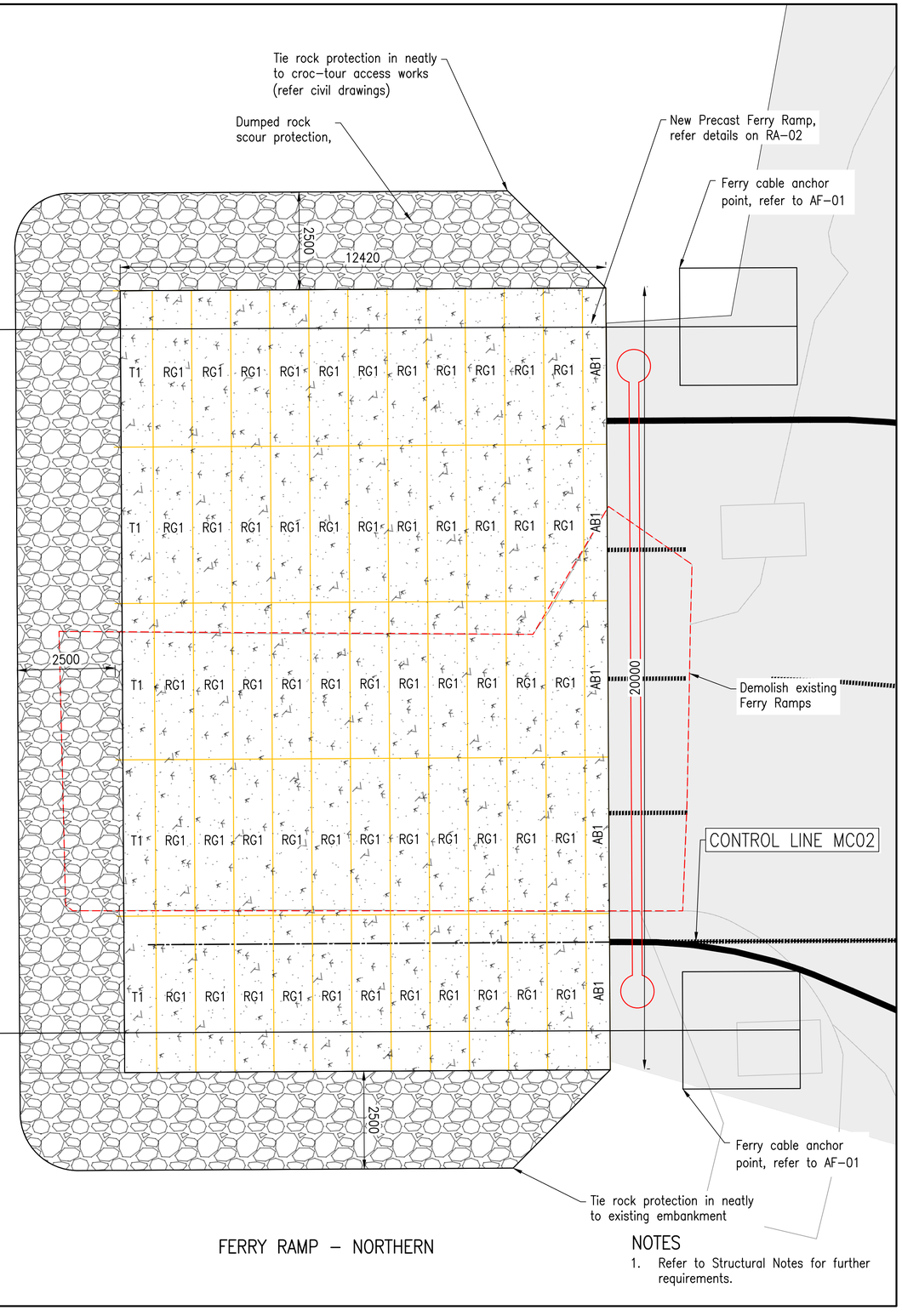
Design	TH
Drawn	SR
Date	18/12/2025
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Approved	TH
RPEQ No.	

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DETAILED DESIGN
Job Number: 25019
Drawing Number: 25019-HEG-S02-PI-01
Revision: B



FERRY RAMP – SOUTHERN



FERRY RAMP – NORTHERN

NOTES

1. Refer to Structural Notes for further requirements.

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales: 0 1.0m 2.0m

Client: DURACK CIVIL

Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE

Drawing Title: RAMP LAYOUT PLAN - SHEET 1 / 2

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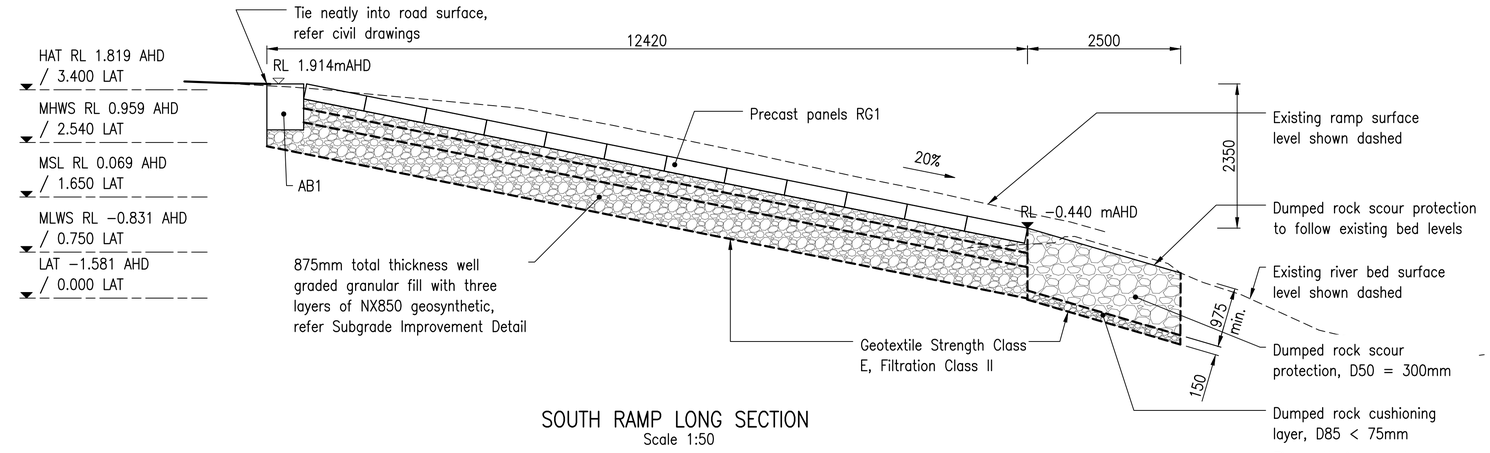
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DETAILED DESIGN

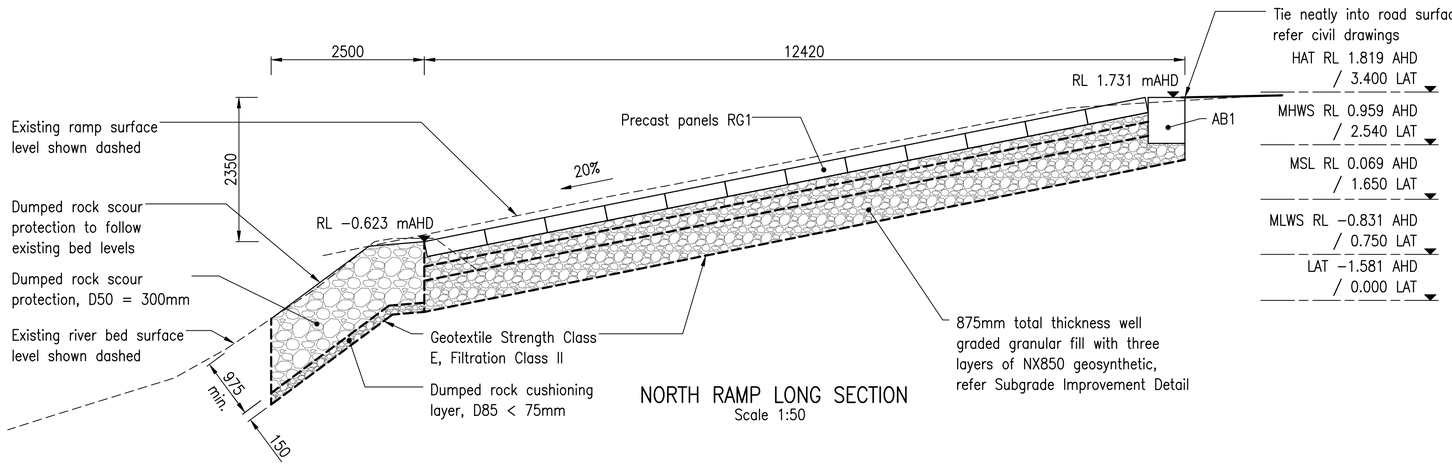
Job Number: 25019

Drawing Number: 25019-HEG-S03-RA-01

Revision: B



SOUTH RAMP LONG SECTION
Scale 1:50



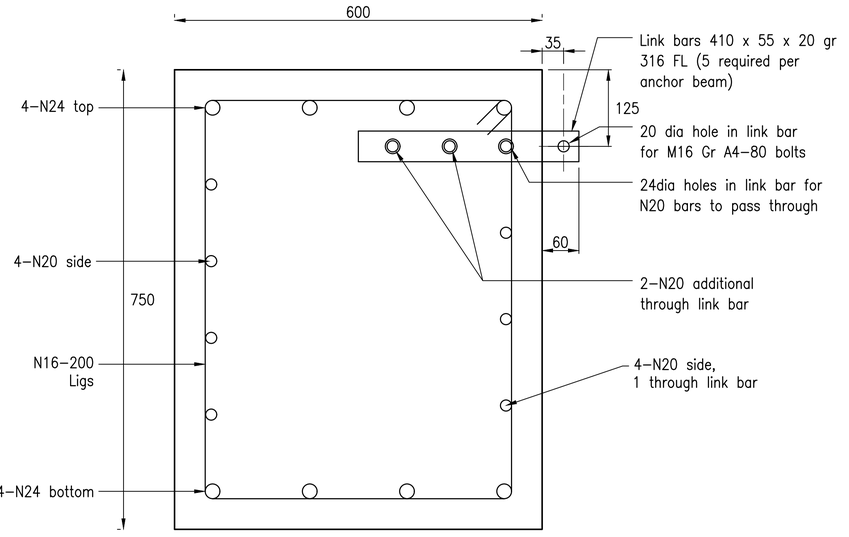
NORTH RAMP LONG SECTION
Scale 1:50

PLANK SCHEDULE			
MARK	LxWxD	NO. REQ'D	COMMENTS
AB1	4000x600x750	10	Pre−cast anchor beam.
RG1	4000x1000x250	110	Plank. Use standard TMR mould with increased depth.
T1	4000x1000x250	10	Toe plank. Use standard TMR mould with increased depth.
	TOTAL	130	

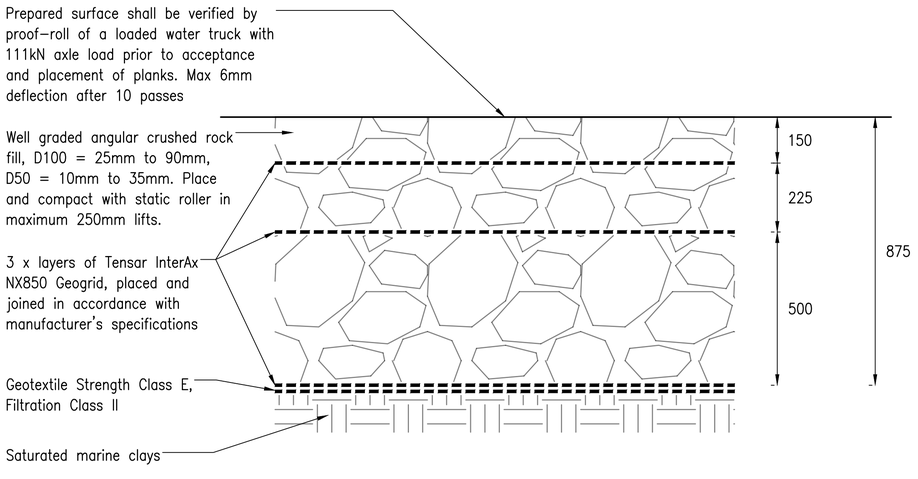
NOTES

1. Refer to Structural Notes for further requirements.
2. Pre−cast planks shall be generally as per TMR Std Dwgs:
   - SD4000
   - SD4030
   - SD4032

   Except depth, reinforcement, and link bars as shown.
3. All reinforcement shall be hot dipped galvanised.
4. All inserts and link bars shall be stainless steel Gr316 and all bolts shall be stainless steel GrA4−80
5. Any voids or annulus around AB1 shall be grout−filled insitu after installation and prior to adjacent planks being connected, to ensure adequate bond with ground.

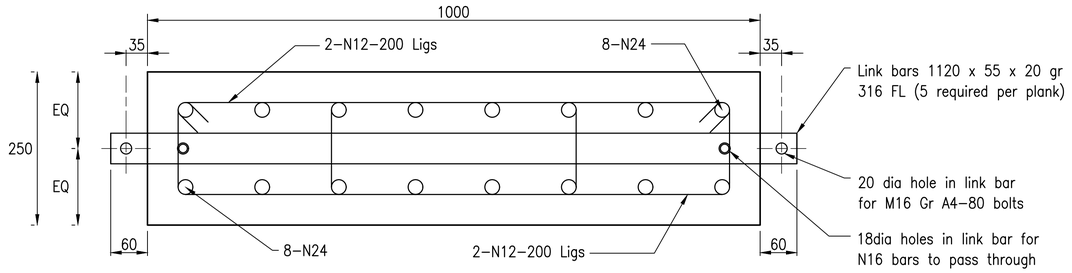


AB1 TYPICAL SECTION
Scale 1:5



0 100 200 300 400mm

SUBGRADE IMPROVEMENT DETAIL
Scale 1:10



RG1 TYPICAL SECTION
(OTHERS SIMILAR)
Scale 1:5

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales
0 1.0 2.0m
0 50 100 150 200mm

Client: DURACK CIVIL
Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE
Drawing Title: RAMP PLANK DETAILS - SHEET 2 / 2

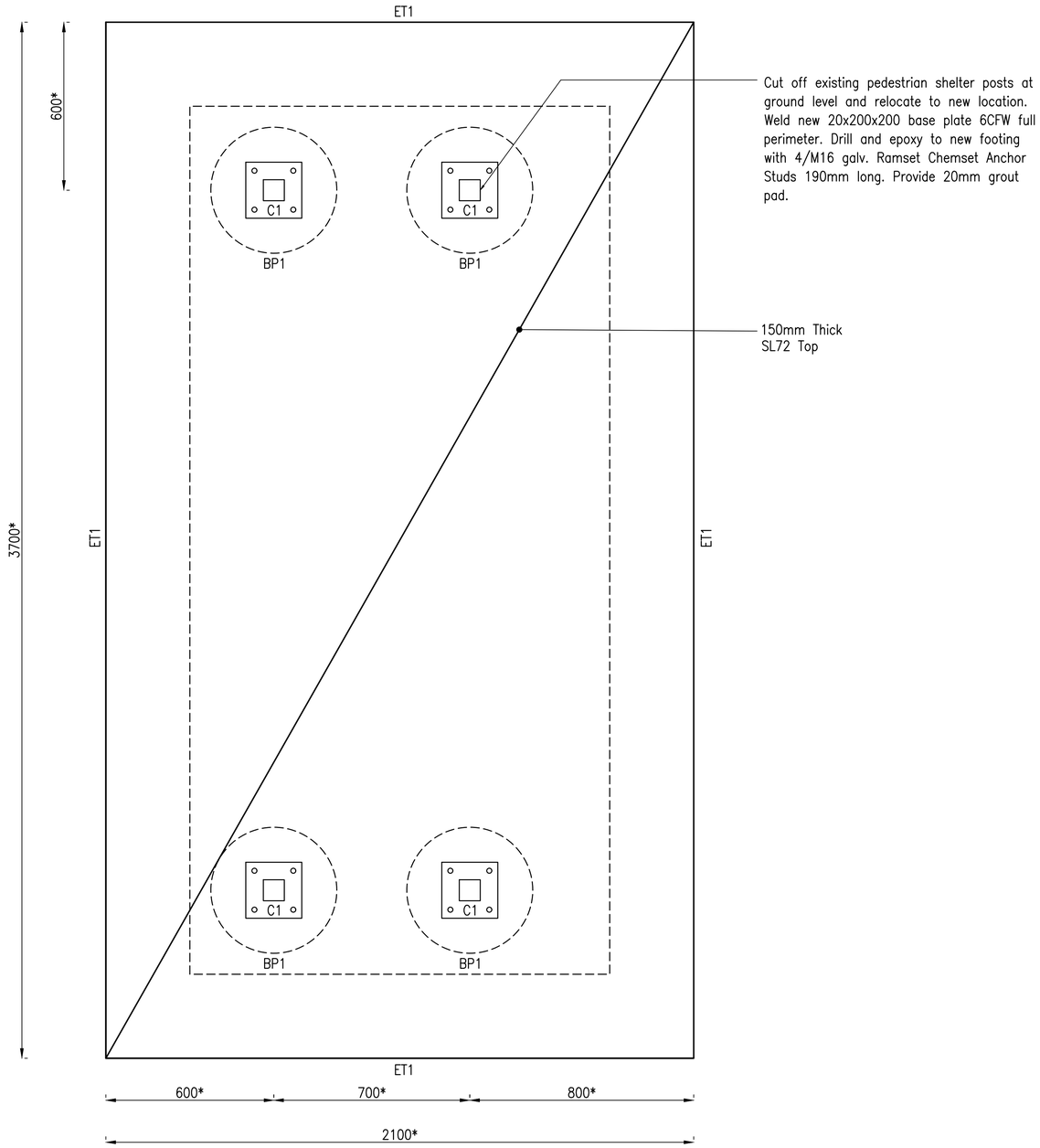
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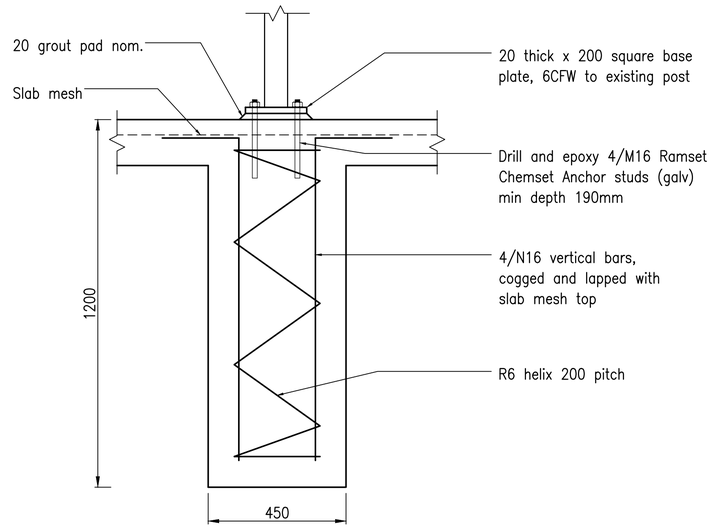
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Drawing Number: 25019-HEG-S03-RA-02
Revision: B



SLAB AND FOOTING PLAN
Scale 1:10

*Dimension shown indicatively, to be confirmed on site.

MEMBER SCHEDULE
C1 = 75 x 4 SHS (assumed, existing)
ET1 = 300 x 300 L11TM3 Bottom
BP1 = 450ø x 1200 Deep, 4–N16 with R6–200 helix



BP1 DETAIL
Scale 1:10

NOTES
1. Refer to Structural Notes for further requirements.

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales
0 0.1 0.2 0.3 0.4m

Client: DURACK CIVIL
Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE
Drawing Title: PEDESTRIAN SHELTER PLAN - SHEET 1 / 1

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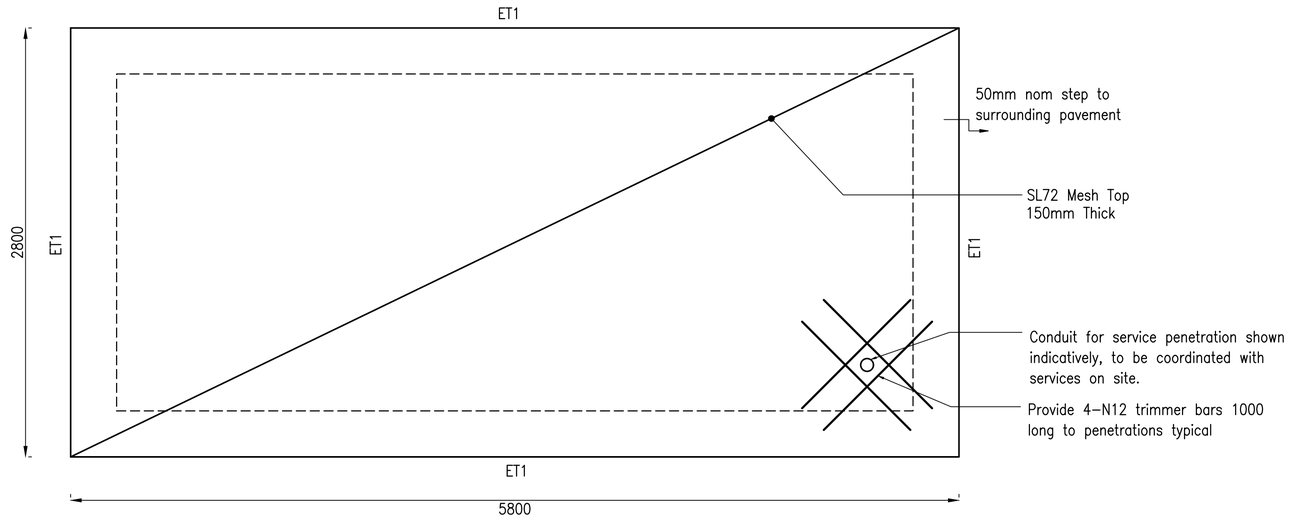
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-S04-PS-01
Revision: B

MEMBER SCHEDULE

ET1 – 300 x 300 L11TM3 Bottom



TICKET BOOTH SLAB PLAN

Scale 1:20

NOTES

1. Refer to Structural Notes for further requirements.

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales

0 0.2 0.4 0.6 0.8m

Client: DURACK CIVIL

Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE

Drawing Title: TICKET BOOTH SLAB PLAN

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Approved	TH
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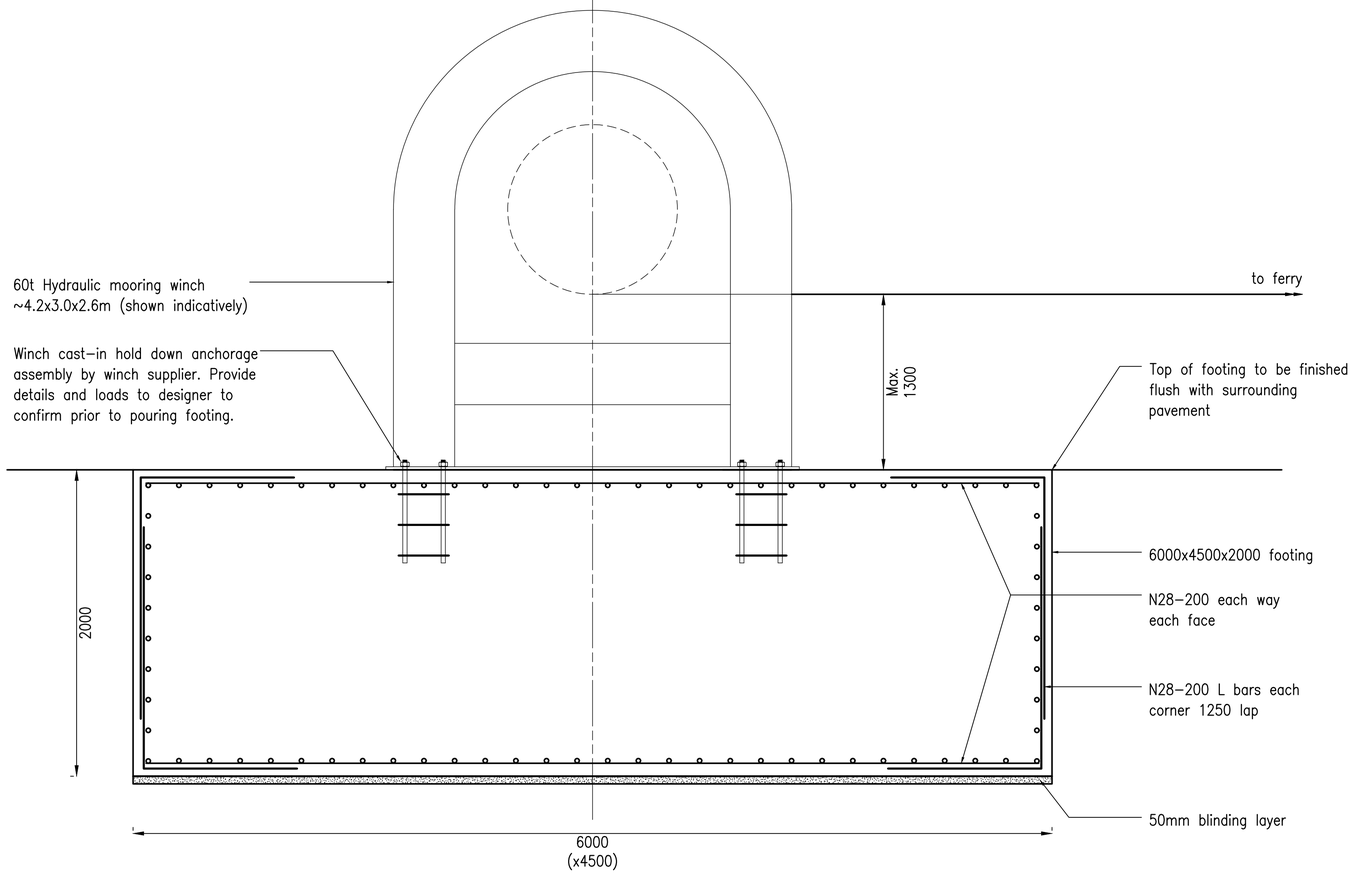
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DETAILED DESIGN

Job Number: 25019

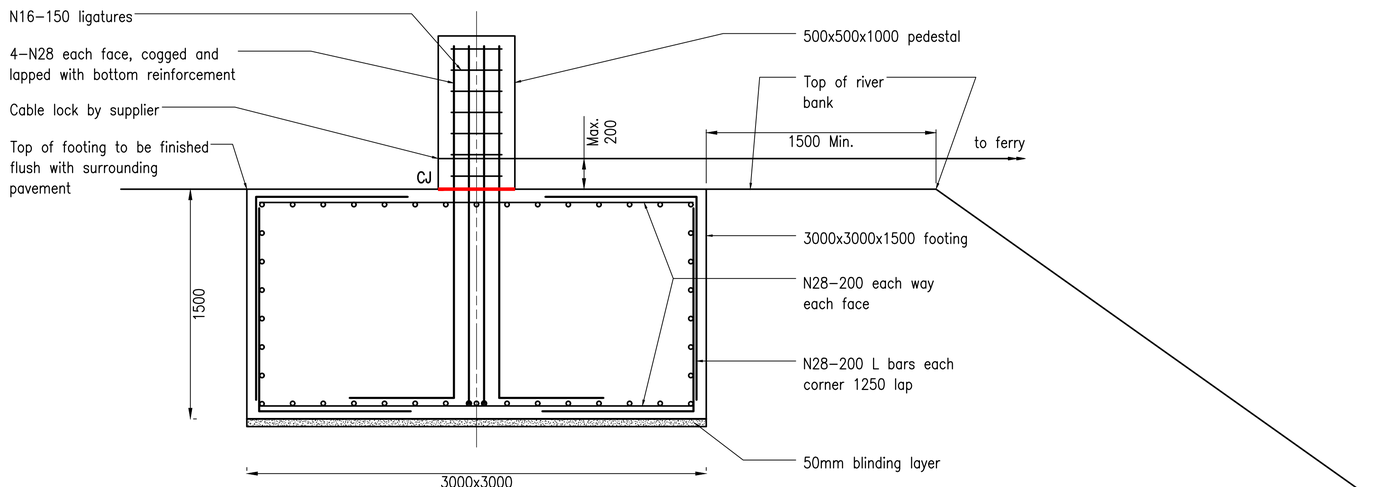
Drawing Number: 25019-HEG-S05-TB-01

Revision: B



DRY DOCK INSPECTION ANCHOR FOOTING

Scale 1:20



CABLE ANCHOR FOOTING

Scale 1:20

NOTES

1. Refer to Structural notes for further requirements.
2. Locations and loads for anchor points must be confirmed with ferry manufacturer and operator prior to construction.

Rev	Description	By	Appd	Date
B	100% Submission	SR	TH	4/11/2025
A	70% Submission	PS	TH	4/11/2025

AMENDMENTS

DURACK

Scales: 0 0.2 0.4 0.6 0.8m

Client: DURACK CIVIL

Project: DAINTREE FERRY INFRASTRUCTURE UPGRADE

Drawing Title: ANCHOR FOOTING DETAILS

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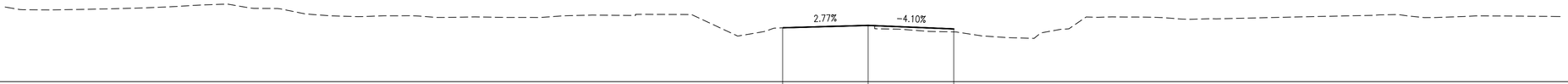
DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-S06-AF-01

Revision: B

CONTROL LINE MC01
X = 328227.829
Y = 8201134.042
Z = 2.071

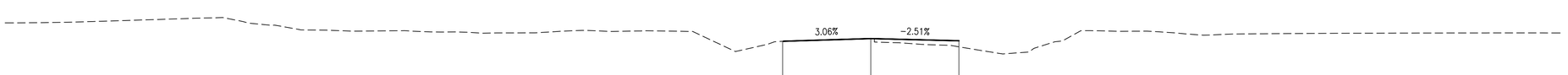


Datum 0.00

DESIGN HEIGHT	2.071	2.162	2.027
EXISTING SURFACE	2.071	2.162	1.912
OFFSETS	0.000	3.300	6.600

CHAINAGE 20

CONTROL LINE MC01
X = 328227.032
Y = 8201124.074
Z = 2.082

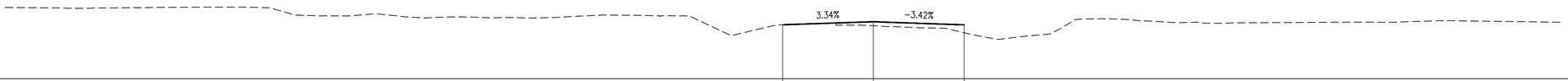


Datum 0.00

DESIGN HEIGHT	2.082	2.186	2.100
EXISTING SURFACE	2.082	2.186	1.867
OFFSETS	0.000	3.400	6.800

CHAINAGE 10

CONTROL LINE MC01
X = 328226.235
Y = 8201114.106
Z = 2.087



Datum 0.00

DESIGN HEIGHT	2.087	2.204	2.084
EXISTING SURFACE	2.087	2.051	1.779
OFFSETS	0.000	3.500	7.000

CHAINAGE 0

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 1 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

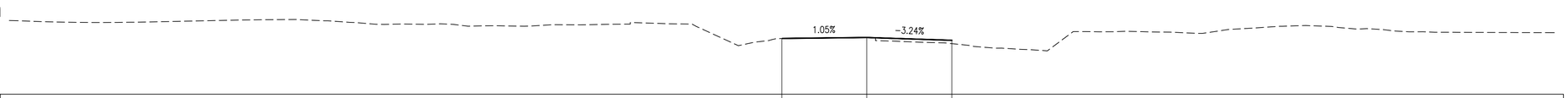
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-01
Revision: A

CONTROL LINE MC01
X = 328230.221
Y = 8201163.947
Z = 2.155



Datum 0.00

DESIGN HEIGHT	2.155	2.190	2.083	
EXISTING SURFACE	2.155	2.190	1.954	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 50

CONTROL LINE MC01
X = 328229.424
Y = 8201153.979
Z = 2.109



Datum 0.00

DESIGN HEIGHT	2.109	2.171	2.052	
EXISTING SURFACE	2.109	2.171	1.972	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 40

CONTROL LINE MC01
X = 328228.627
Y = 8201144.010
Z = 2.095



Datum 0.00

DESIGN HEIGHT	2.095	2.165	2.031	
EXISTING SURFACE	2.095	2.165	1.967	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 30

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 2 / 75

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Date	18/12/2025
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Approved	ES
RPEQ No.	

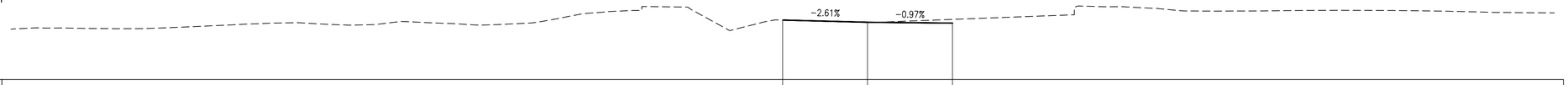
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-02
Revision: A

CONTROL LINE MC01
X = 328233.153
Y = 8201193.795
Z = 2.306

Datum 0.00

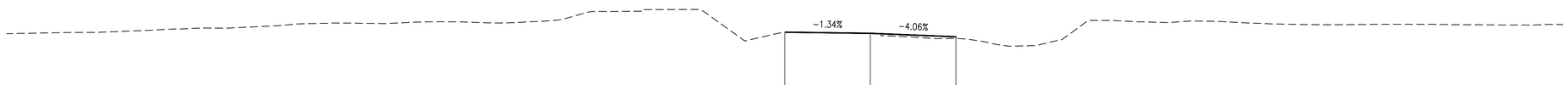


DESIGN HEIGHT	2.306	2.220	2.188
EXISTING SURFACE	2.306	2.220	2.332
OFFSETS	0.000	3.300	6.600

CHAINAGE 80

CONTROL LINE MC01
X = 328231.871
Y = 8201183.878
Z = 2.253

Datum 0.00

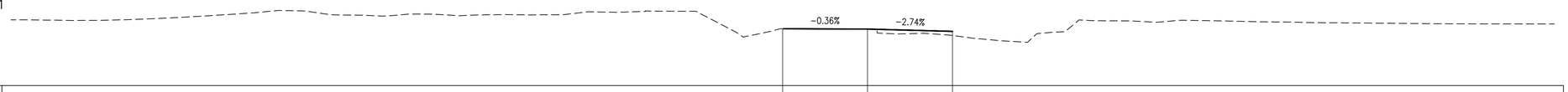


DESIGN HEIGHT	2.253	2.209	2.075
EXISTING SURFACE	2.253	2.209	2.009
OFFSETS	0.000	3.300	6.600

CHAINAGE 70

CONTROL LINE MC01
X = 328231.018
Y = 8201173.915
Z = 2.217

Datum 0.00



DESIGN HEIGHT	2.217	2.205	2.114
EXISTING SURFACE	2.217	2.205	1.954
OFFSETS	0.000	3.300	6.600

CHAINAGE 60

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 3/ 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

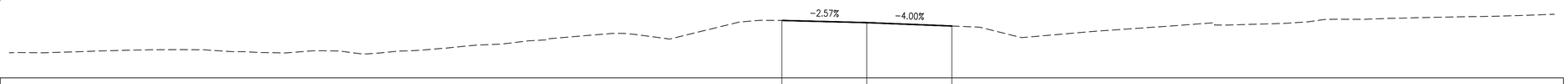
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-03
Revision: A

CONTROL LINE MC01
X = 328239.934
Y = 8201222.990
Z = 2.234

Datum 0.00

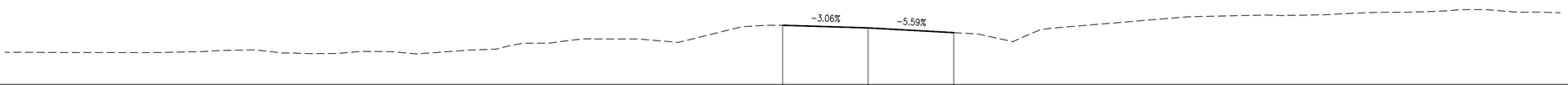


DESIGN HEIGHT	2.234	2.149	2.017	
EXISTING SURFACE	2.234	2.149	2.017	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 110

CONTROL LINE MC01
X = 328237.194
Y = 8201213.374
Z = 2.293

Datum 0.00

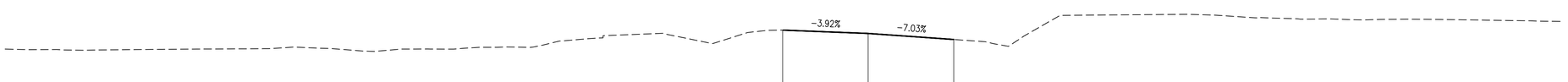


DESIGN HEIGHT	2.293	2.192	2.008	
EXISTING SURFACE	2.293	2.192	2.008	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 100

CONTROL LINE MC01
X = 328234.929
Y = 8201203.635
Z = 2.339

Datum 0.00



DESIGN HEIGHT	2.339	2.210	1.978	
EXISTING SURFACE	2.339	2.210	1.978	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 90

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 4 / 75

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-04
Revision: A

CONTROL LINE MC01
X = 328249.966
Y = 8201251.239
Z = 2.174

Datum 0.00

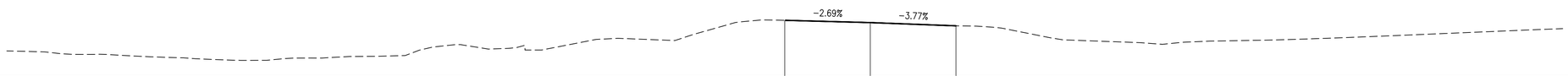


DESIGN HEIGHT	2.174	2.099	1.975	1.953	
EXISTING SURFACE	2.174	2.099	1.975	1.927	
OFFSETS	0.000	3.300	6.600	7.194	

CHAINAGE 140

CONTROL LINE MC01
X = 328246.182
Y = 8201241.983
Z = 2.189

Datum 0.00



DESIGN HEIGHT	2.189	2.100	1.976	
EXISTING SURFACE	2.189	2.100	1.976	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 130

CONTROL LINE MC01
X = 328242.865
Y = 8201232.551
Z = 2.190

Datum 0.00



DESIGN HEIGHT	2.190	2.102	1.881	
EXISTING SURFACE	2.175	2.102	1.860	
OFFSETS	0.000	3.300	6.600	

CHAINAGE 120

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 5 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

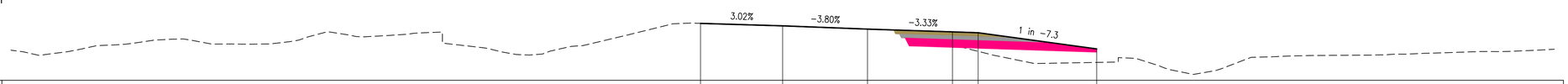
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-05
Revision: A

CONTROL LINE MC01
X = 328263.268
Y = 8201278.123
Z = 2.113

Datum 0.00

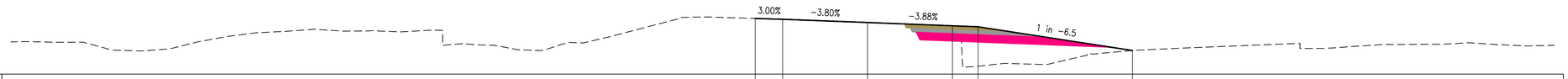


DESIGN HEIGHT	2.210	2.113	1.988	1.878	1.845	1.218	
EXISTING SURFACE	2.212	2.113	1.988	1.374	1.123	0.693	
OFFSETS	3.194	0.000	3.300	6.600	7.600	12.208	

CHAINAGE 170

CONTROL LINE MC01
X = 328258.736
Y = 8201269.209
Z = 2.130

Datum 0.00

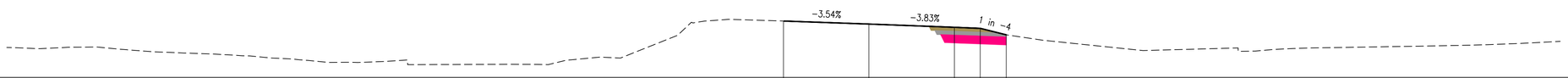


DESIGN HEIGHT	2.162	2.130	2.004	1.876	1.837	0.917	
EXISTING SURFACE	2.163	2.130	2.004	1.688	0.306	0.917	
OFFSETS	1.065	0.000	3.300	6.600	7.600	13.596	

CHAINAGE 160

CONTROL LINE MC01
X = 328254.209
Y = 8201260.293
Z = 2.171

Datum 0.00



DESIGN HEIGHT	2.171	2.054	1.928	1.890	1.639	
EXISTING SURFACE	2.171	2.054	1.893	1.786	1.639	
OFFSETS	0.000	3.300	6.600	7.600	8.602	

CHAINAGE 150

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 6 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-06

Revision: A

CONTROL LINE MC01
X = 328277.152
Y = 8201304.714
Z = 2.064

Datum 0.00



DESIGN HEIGHT	2.179	2.064	1.941	1.837	1.806	0.901	
EXISTING SURFACE	2.179	2.064	1.942	1.270	1.007	0.901	
OFFSETS	3.300	0.000	3.565	6.865	7.865	11.486	

CHAINAGE 200

CONTROL LINE MC01
X = 328272.362
Y = 8201295.936
Z = 2.077

Datum 0.00

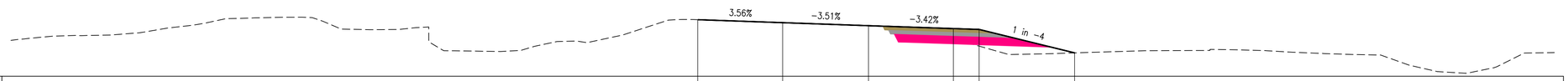


DESIGN HEIGHT	2.195	2.077	1.966	1.851	1.817	0.927	
EXISTING SURFACE	2.195	2.077	1.965	1.293	1.010	0.927	
OFFSETS	3.300	0.000	3.565	6.865	7.865	11.425	

CHAINAGE 190

CONTROL LINE MC01
X = 328267.801
Y = 8201287.037
Z = 2.093

Datum 0.00



DESIGN HEIGHT	2.211	2.093	1.976	1.864	1.829	0.913	
EXISTING SURFACE	2.211	2.093	1.977	1.445	1.177	0.913	
OFFSETS	3.300	0.000	3.338	6.638	7.638	11.348	

CHAINAGE 180

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 7 / 75

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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-07

Revision: A

CONTROL LINE MC01
X = 328293.085
Y = 8201330.121
Z = 2.129

Datum 0.00



DESIGN HEIGHT	2.239	2.129	1.971	1.826	1.781	1.055	
EXISTING SURFACE	2.239	2.129	1.971	1.448	1.225	1.055	
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.769	

CHAINAGE 230

CONTROL LINE MC01
X = 328287.518
Y = 8201321.814
Z = 2.109

Datum 0.00

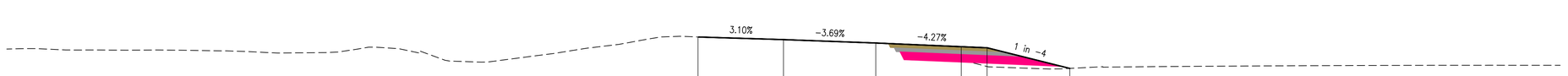


DESIGN HEIGHT	2.209	2.109	1.950	1.782	1.731	1.001	
EXISTING SURFACE	2.209	2.109	1.949	1.364	1.123	1.001	
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.782	

CHAINAGE 220

CONTROL LINE MC01
X = 328282.205
Y = 8201313.343
Z = 2.069

Datum 0.00



DESIGN HEIGHT	2.171	2.069	1.938	1.797	1.754	0.956	
EXISTING SURFACE	2.171	2.069	1.937	1.289	1.029	0.956	
OFFSETS	3.300	0.000	3.565	6.865	7.865	11.058	

CHAINAGE 210

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 8 / 75

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Approved	ES
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-08
Revision: A

CONTROL LINE MC01
X = 328311.260
Y = 8201353.976
Z = 2.107

Datum 0.00

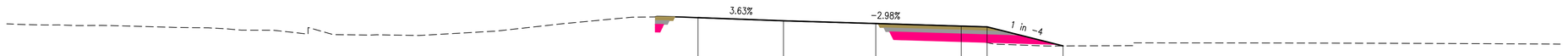


DESIGN HEIGHT	2.235	2.107	1.986	1.873	1.839	1.207	
EXISTING SURFACE	2.235	2.107	1.992	1.493	1.314	1.207	
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.396	

CHAINAGE 260

CONTROL LINE MC01
X = 328304.961
Y = 8201346.209
Z = 2.108

Datum 0.00



DESIGN HEIGHT	2.228	2.108	2.002	1.903	1.873	1.140	
EXISTING SURFACE	2.228	2.108	2.003	1.500	1.266	1.140	
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.798	

CHAINAGE 250

CONTROL LINE MC01
X = 328298.901
Y = 8201338.255
Z = 2.135

Datum 0.00



DESIGN HEIGHT	2.252	2.135	1.981	1.838	1.795	1.122	
EXISTING SURFACE	2.252	2.135	1.984	1.467	1.264	1.122	
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.558	

CHAINAGE 240

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 9 / 75

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Date	18/12/2025
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Approved	ES
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-09
Revision: A

CONTROL LINE MC01
X = 328331.525
Y = 8201376.083
Z = 2.160

Datum 0.00



DESIGN HEIGHT	2.268	2.160	2.068	1.976	1.948	1.364
EXISTING SURFACE	2.268	2.160	2.068	1.650	1.509	1.364
OFFSETS	3.300	0.000	3.300	6.600	7.600	9.939

CHAINAGE 290

CONTROL LINE MC01
X = 328324.547
Y = 8201368.920
Z = 2.126

Datum 0.00



DESIGN HEIGHT	2.234	2.126	2.036	1.948	1.921	1.402
EXISTING SURFACE	2.234	2.126	2.036	1.667	1.558	1.402
OFFSETS	3.300	0.000	3.319	6.619	7.619	9.694

CHAINAGE 280

CONTROL LINE MC01
X = 328317.790
Y = 8201361.549
Z = 2.100

Datum 0.00



DESIGN HEIGHT	2.240	2.100	2.002	1.911	1.883	1.259
EXISTING SURFACE	2.240	2.100	2.004	1.624	1.452	1.259
OFFSETS	3.300	0.000	3.565	6.865	7.865	10.363

CHAINAGE 270

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 10 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

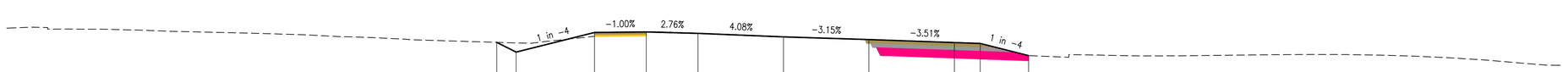
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-10
Revision: A

CONTROL LINE MC01
X = 328353.713
Y = 8201396.259
Z = 2.225

Datum 0.00

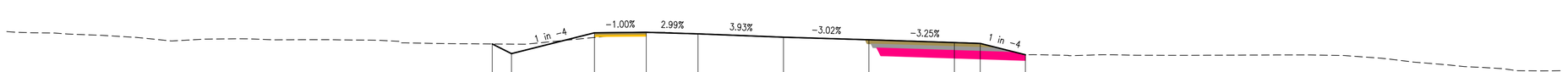


DESIGN HEIGHT	2.013	1.638	2.394	2.414	2.359	2.225	2.121	2.005	1.970	1.503	
EXISTING SURFACE	2.013	1.990	2.247	2.414	2.359	2.225	2.121	1.684	1.607	1.503	
OFFSETS	11.075	10.324	7.300	5.300	3.300	0.000	3.300	6.600	7.600	9.467	

CHAINAGE 320

CONTROL LINE MC01
X = 328346.114
Y = 8201389.759
Z = 2.204

Datum 0.00

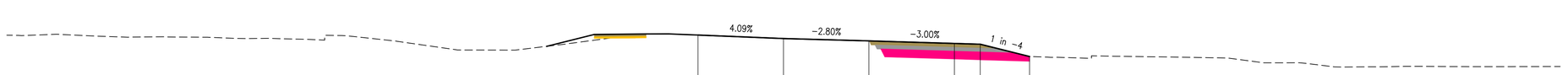


DESIGN HEIGHT	1.943	1.572	2.373	2.393	2.334	2.204	2.104	1.997	1.964	1.528	
EXISTING SURFACE	1.943	1.937	2.193	2.393	2.334	2.204	2.104	1.682	1.573	1.528	
OFFSETS	11.248	10.506	7.300	5.300	3.300	0.000	3.300	6.600	7.600	9.344	

CHAINAGE 310

CONTROL LINE MC01
X = 328338.716
Y = 8201383.031
Z = 2.173

Datum 0.00



DESIGN HEIGHT	2.308	2.173	2.081	1.982	1.952	1.476
EXISTING SURFACE	2.308	2.173	2.081	1.653	1.539	1.476
OFFSETS	3.300	0.000	3.300	6.600	7.600	9.505

CHAINAGE 300

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 11 / 75

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Design	ES
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Date	18/12/2025
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Approved	ES
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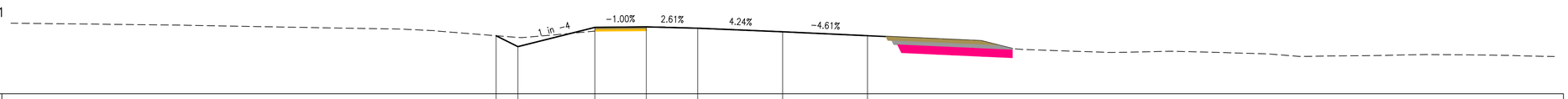
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DETAILED DESIGN

Job Number 25019
Drawing Number 25019-HEG-C09-XS-11
Revision A

CONTROL LINE MC01
X = 328377.457
Y = 8201414.589
Z = 2.411

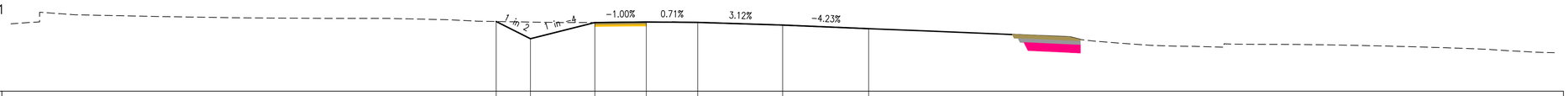
Datum 0.00



| | | |

CONTROL LINE MC01
X = 328402.238
Y = 8201431.476
Z = 2.563

Datum 0.00

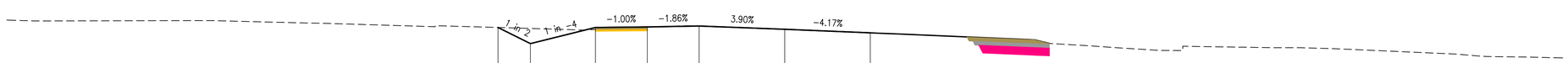


DESIGN HEIGHT	2.700	2.034	2.661	2.681	2.666	2.563	2.422	
EXISTING SURFACE	2.700	2.679	2.662	2.681	2.666	2.563	2.422	
OFFSETS	11.136	9.805	7.300	5.300	3.300	0.000	3.343	

CHAINAGE 380

CONTROL LINE MC01
X = 328393.792
Y = 8201426.123
Z = 2.523

Datum 0.00



DESIGN HEIGHT	2.594	1.968	2.594	2.614	2.651	2.523	2.385	
EXISTING SURFACE	2.594	2.556	2.513	2.614	2.651	2.523	2.385	
OFFSETS	11.058	9.806	7.300	5.300	3.300	0.000	3.300	

CHAINAGE 370

CONTROL LINE MC01
X = 328385.529
Y = 8201420.491
Z = 2.482

Datum 0.00



DESIGN HEIGHT	2.433	1.901	2.583	2.603	2.608	2.482	2.341	
EXISTING SURFACE	2.433	2.376	2.453	2.603	2.608	2.482	2.341	
OFFSETS	11.091	10.027	7.300	5.300	3.300	0.000	3.300	

CHAINAGE 360

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 13 / 75

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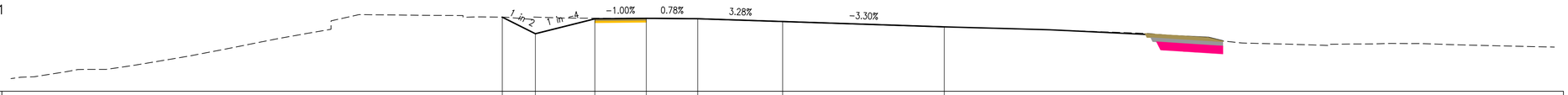
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-13
Revision: A

CONTROL LINE MC01
X = 328428.580
Y = 8201445.806
Z = 2.708

Datum 0.00

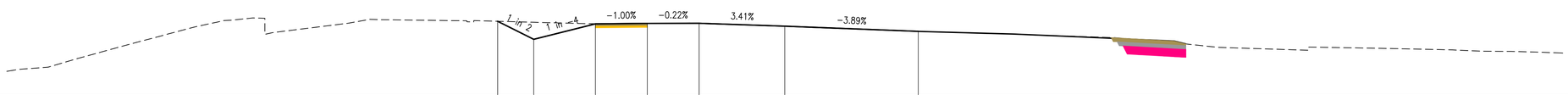


DESIGN HEIGHT	2.878	2.234	2.812	2.832	2.816	2.708	2.501	
EXISTING SURFACE	2.878	2.879	2.837	2.832	2.816	2.708	2.497	
OFFSETS	10.899	9.611	7.300	5.300	3.300	0.000	6.281	

CHAINAGE 410

CONTROL LINE MC01
X = 328419.641
Y = 8201441.323
Z = 2.674

Datum 0.00

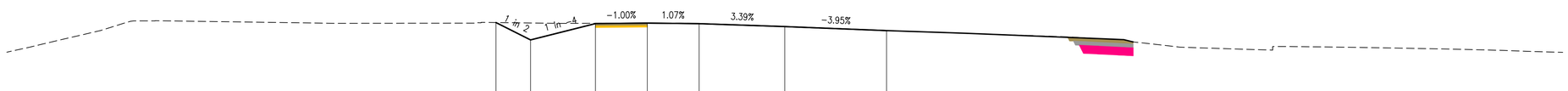


DESIGN HEIGHT	2.863	2.168	2.762	2.782	2.787	2.674	2.474	
EXISTING SURFACE	2.863	2.825	2.771	2.782	2.787	2.674	2.478	
OFFSETS	11.069	9.679	7.300	5.300	3.300	0.000	5.147	

CHAINAGE 400

CONTROL LINE MC01
X = 328410.858
Y = 8201436.545
Z = 2.613

Datum 0.00



DESIGN HEIGHT	2.768	2.101	2.726	2.746	2.725	2.613	2.458	
EXISTING SURFACE	2.768	2.750	2.740	2.746	2.725	2.613	2.461	
OFFSETS	11.136	9.802	7.300	5.300	3.300	0.000	3.925	

CHAINAGE 390

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 14 / 75

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Design	ES
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Date	18/12/2025
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RPEQ No.	

JAS-ANZ
ISO 9001 ISO 14001 ISO 45001

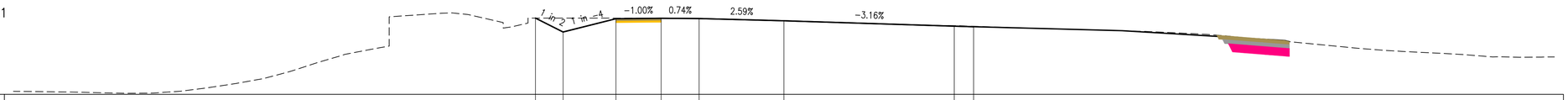
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-14
Revision: A

CONTROL LINE MC01
X = 328456.220
Y = 8201457.435
Z = 2.859

Datum 0.00

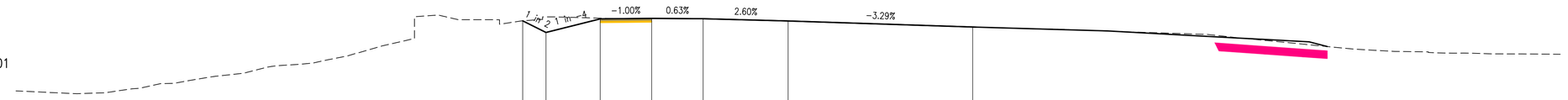


DESIGN HEIGHT	2.961	2.423	2.938	2.956	2.945	2.859	2.650	2.626	
EXISTING SURFACE	2.961	2.961	2.960	2.956	2.945	2.859	2.670	2.645	
OFFSETS	9.674	8.599	6.540	4.780	3.300	0.000	6.634	7.386	

CHAINAGE 440

CONTROL LINE MC01
X = 328446.879
Y = 8201453.867
Z = 2.815

Datum -2.00

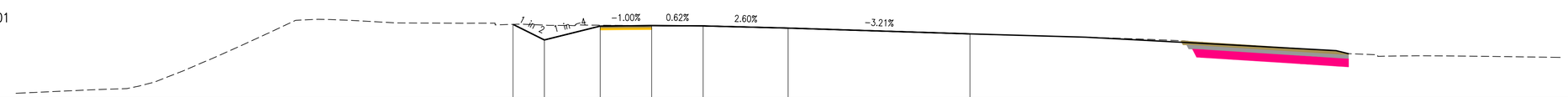


DESIGN HEIGHT	2.819	2.367	2.894	2.914	2.901	2.815	2.580	
EXISTING SURFACE	2.819	2.973	2.923	2.914	2.901	2.815	2.582	
OFFSETS	10.311	9.407	7.300	5.300	3.300	0.000	7.171	

CHAINAGE 430

CONTROL LINE MC01
X = 328437.662
Y = 8201449.989
Z = 2.765

Datum 0.00



DESIGN HEIGHT	2.911	2.301	2.843	2.863	2.851	2.765	2.538	
EXISTING SURFACE	2.911	2.879	2.876	2.863	2.851	2.765	2.533	
OFFSETS	10.690	9.470	7.300	5.300	3.300	0.000	7.064	

CHAINAGE 420

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 15 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

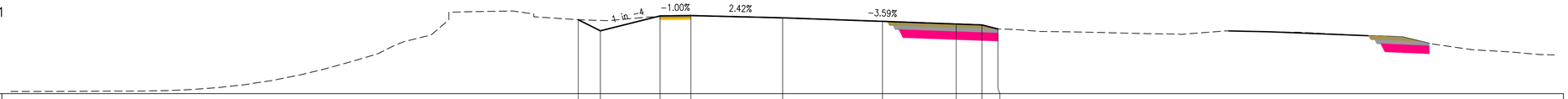
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-15
Revision: A

CONTROL LINE MC01
X = 328484.884
Y = 8201466.247
Z = 2.948

Datum 0.00

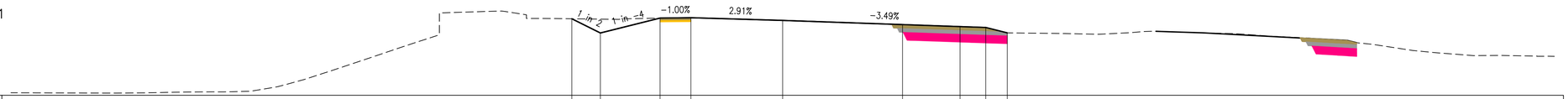


DESIGN HEIGHT	2.873	2.442	3.022	3.034	2.948	2.809	2.706	2.670	2.514	
EXISTING SURFACE	2.873	2.846	2.989	3.034	2.948	2.810	2.574	2.527	2.514	
OFFSETS	7.946	7.084	4.765	3.565	0.000	3.880	6.745	7.745	8.367	

CHAINAGE 470

CONTROL LINE MC01
X = 328475.233
Y = 8201463.629
Z = 2.914

Datum 0.00

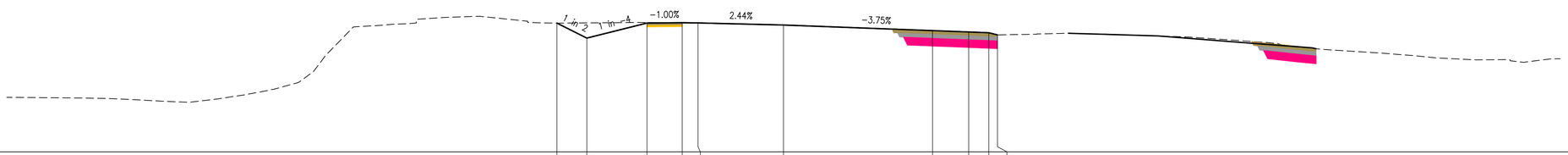


DESIGN HEIGHT	2.978	2.424	3.004	3.016	2.914	2.751	2.673	2.638	2.429	
EXISTING SURFACE	2.978	2.963	3.002	3.016	2.914	2.743	2.534	2.452	2.429	
OFFSETS	8.193	7.086	4.765	3.565	0.000	4.660	6.895	7.895	8.731	

CHAINAGE 460

CONTROL LINE MC01
X = 328465.675
Y = 8201460.690
Z = 2.888

Datum −2.00



DESIGN HEIGHT	2.961	2.384	2.964	2.978	2.968	2.888	2.672	2.620	2.591	2.507
EXISTING SURFACE	2.961	2.969	2.986	2.978	2.968	2.888	2.645	2.559	2.511	2.507
OFFSETS	8.750	7.595	5.272	3.912	3.300	0.000	5.757	7.153	7.930	8.265

CHAINAGE 450

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 16 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

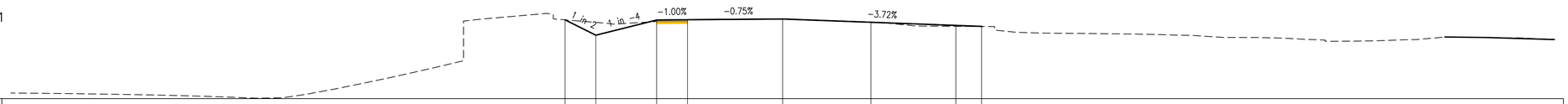
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-16
Revision: A

CONTROL LINE MC01
X = 328514.239
Y = 8201472.406
Z = 3.100

Datum 0.00

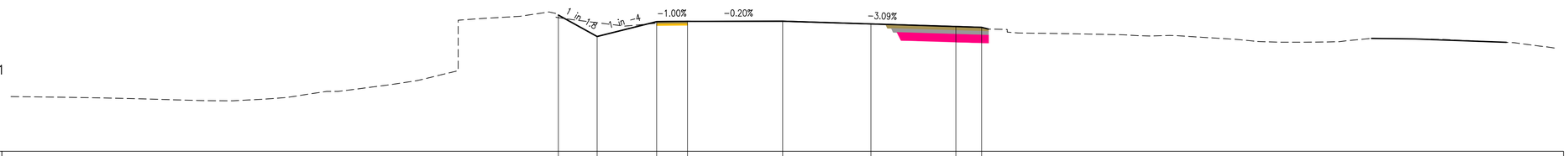


DESIGN HEIGHT	3.066	2.468	3.059	3.071	3.100	2.972	2.849	2.812	
EXISTING SURFACE	3.066	2.968	3.003	3.071	3.100	2.970	2.814	2.807	
OFFSETS	8.457	7.262	4.898	3.698	0.000	3.433	6.733	7.733	

CHAINAGE 500

CONTROL LINE MC01
X = 328504.419
Y = 8201470.521
Z = 3.062

Datum -2.00

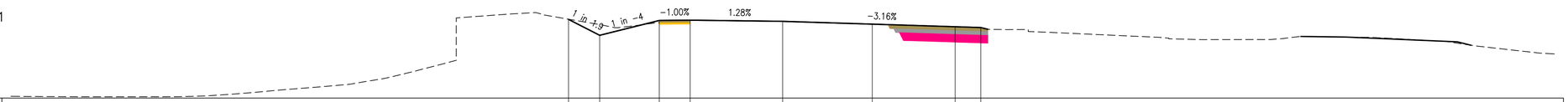


DESIGN HEIGHT	3.301	2.467	3.046	3.058	3.062	2.956	2.854	2.823	
EXISTING SURFACE	3.200	3.004	2.984	3.058	3.062	2.958	2.783	2.762	
OFFSETS	8.718	7.213	4.898	3.698	0.000	3.433	6.733	7.733	

CHAINAGE 490

CONTROL LINE MC01
X = 328494.617
Y = 8201468.542
Z = 2.996

Datum 0.00



DESIGN HEIGHT	3.073	2.450	3.029	3.041	2.996	2.886	2.784	2.752	
EXISTING SURFACE	3.079	2.868	2.952	3.041	2.996	2.887	2.697	2.689	
OFFSETS	8.322	7.111	4.794	3.594	0.000	3.486	6.704	7.704	

CHAINAGE 480

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 17 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

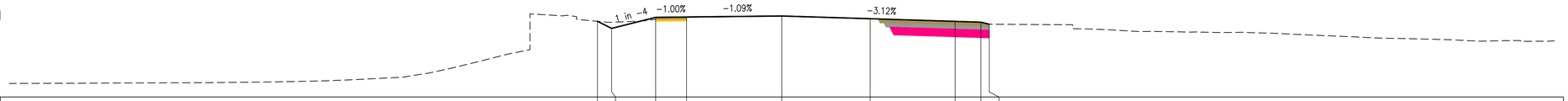
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-17
Revision: A

CONTROL LINE MC01
X = 328543.701
Y = 8201478.063
Z = 3.142

Datum 0.00

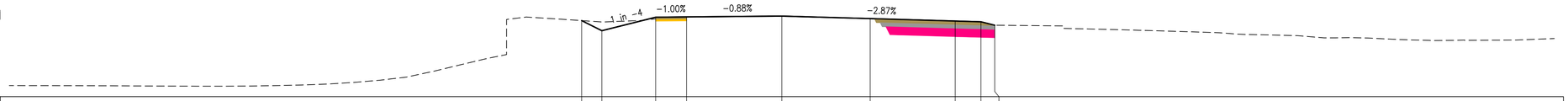


DESIGN HEIGHT	2.936	2.661	3.089	3.101	3.142	3.035	2.932	2.901	2.821
EXISTING SURFACE	2.936	2.898	3.012	3.101	3.142	3.035	2.887	2.823	2.821
OFFSETS	7.159	6.610	4.898	3.698	0.000	3.433	6.733	7.733	8.052

CHAINAGE 530

CONTROL LINE MC01
X = 328533.880
Y = 8201476.178
Z = 3.125

Datum 0.00

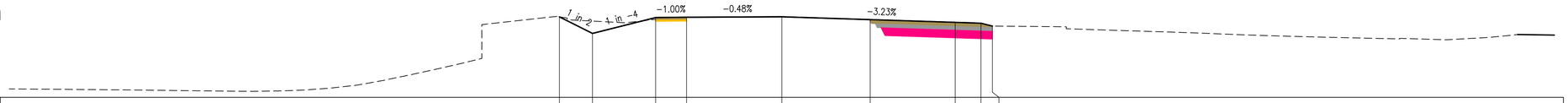


DESIGN HEIGHT	2.949	2.558	3.080	3.092	3.125	3.027	2.932	2.903	2.770
EXISTING SURFACE	2.949	2.897	3.017	3.092	3.125	3.027	2.785	2.775	2.770
OFFSETS	7.772	6.988	4.898	3.698	0.000	3.433	6.733	7.733	8.266

CHAINAGE 520

CONTROL LINE MC01
X = 328524.060
Y = 8201474.292
Z = 3.115

Datum 0.00



DESIGN HEIGHT	3.113	2.471	3.085	3.097	3.115	3.004	2.897	2.865	2.755
EXISTING SURFACE	3.113	2.948	3.016	3.097	3.115	3.004	2.899	2.759	2.755
OFFSETS	8.635	7.352	4.898	3.698	0.000	3.433	6.733	7.733	8.175

CHAINAGE 510

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 18 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

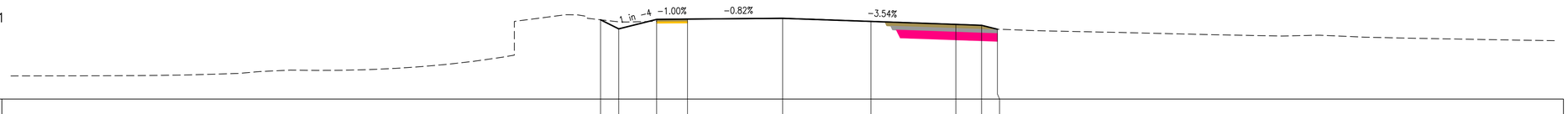
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-18
Revision: A

CONTROL LINE MC01
X = 328573.163
Y = 8201483.720
Z = 3.145

Datum 0.00

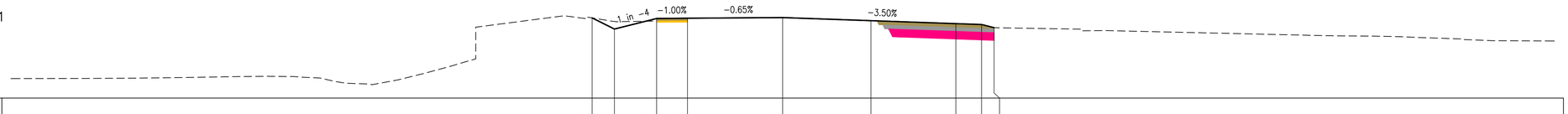


DESIGN HEIGHT	3.087	2.734	3.103	3.115	3.145	3.024	2.907	2.872	2.718	
EXISTING SURFACE	3.087	3.007	3.031	3.115	3.145	3.026	2.767	2.732	2.718	
OFFSETS	7.079	6.373	4.898	3.698	0.000	3.433	6.733	7.733	8.347	

CHAINAGE 560

CONTROL LINE MC01
X = 328563.342
Y = 8201481.835
Z = 3.135

Datum 0.00

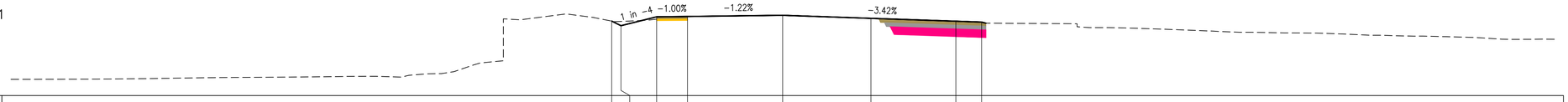


DESIGN HEIGHT	3.123	2.688	3.098	3.110	3.135	3.014	2.899	2.664	2.742	
EXISTING SURFACE	3.123	2.983	3.013	3.110	3.135	3.015	2.787	2.752	2.742	
OFFSETS	7.407	6.538	4.898	3.698	0.000	3.433	6.733	7.733	8.220	

CHAINAGE 550

CONTROL LINE MC01
X = 328553.522
Y = 8201479.949
Z = 3.133

Datum 0.00



DESIGN HEIGHT	2.908	2.728	3.075	3.087	3.133	3.015	2.902	2.868
EXISTING SURFACE	2.908	2.895	2.984	3.087	3.133	3.015	2.856	2.826
OFFSETS	6.645	6.285	4.898	3.698	0.000	3.433	6.733	7.733

CHAINAGE 540

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 19 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

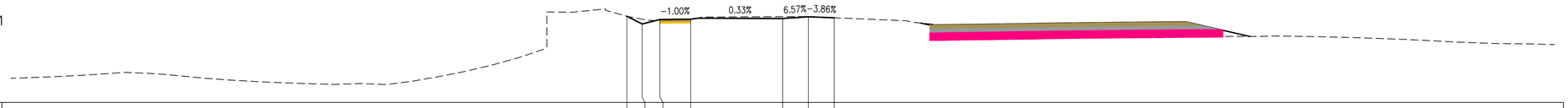
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-19
Revision: A

CONTROL LINE MC01
X = 328602.625
Y = 8201489.377
Z = 3.249

Datum 0.00

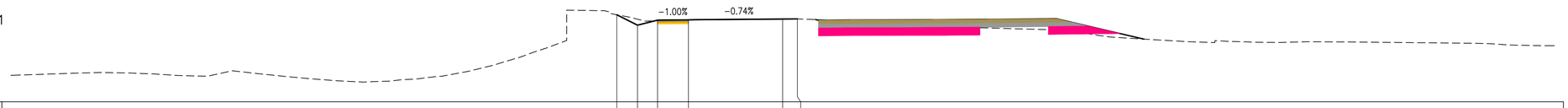


DESIGN HEIGHT	3.334	3.037	3.209	3.221	3.249	3.314	3.276		
EXISTING SURFACE	3.334	3.222	3.165	3.221	3.319	3.314	3.276		
OFFSETS	6.054	5.460	4.774	3.574	0.000	1.001	2.002		

CHAINAGE 590

CONTROL LINE MC01
X = 328592.804
Y = 8201487.492
Z = 3.201

Datum 0.00

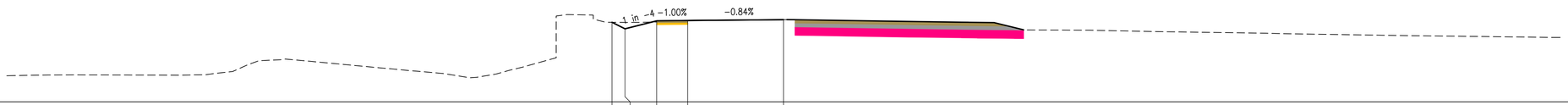


DESIGN HEIGHT	3.365	2.963	3.158	3.170	3.201	3.204
EXISTING SURFACE	3.365	3.193	3.136	3.170	3.201	3.204
OFFSETS	6.446	5.641	4.862	3.662	0.000	0.572

CHAINAGE 580

CONTROL LINE MC01
X = 328582.983
Y = 8201485.606
Z = 3.168

Datum 0.00



DESIGN HEIGHT	3.067	2.816	3.123	3.135	3.168
EXISTING SURFACE	3.067	3.063	3.081	3.135	3.168
OFFSETS	6.624	6.122	4.898	3.698	0.000

CHAINAGE 570

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 20 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

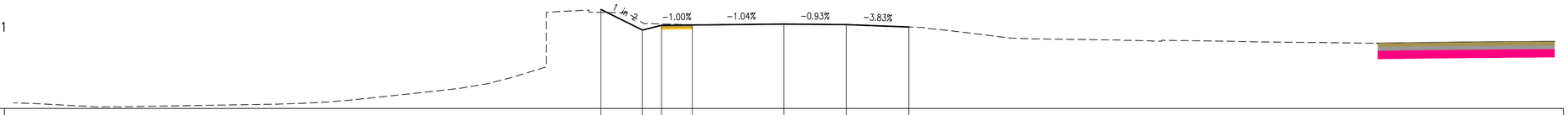
Job Number 25019

Drawing Number 25019-HEG-C09-XS-20

Revision. A

CONTROL LINE MC01
X = 328622.266
Y = 8201493.149
Z = 3.282

Datum 0.00

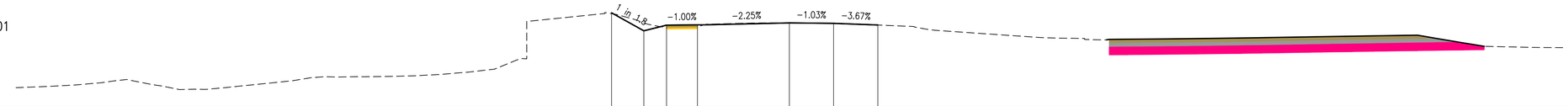


DESIGN HEIGHT	3.849	3.048	3.234	3.246	3.282	3.260	3.167	
EXISTING SURFACE	3.737	3.337	3.287	3.255	3.282	3.260	3.167	
OFFSETS	7.122	5.509	4.765	3.565	0.000	2.431	4.863	

CHAINAGE 610

CONTROL LINE MC01
X = 328612.445
Y = 8201491.263
Z = 3.299

Datum 0.00



DESIGN HEIGHT	3.689	2.991	3.211	3.223	3.299	3.282	3.219
EXISTING SURFACE	3.658	3.302	3.106	3.146	3.299	3.282	3.219
OFFSETS	6.896	5.646	4.765	3.565	0.000	1.716	3.433

CHAINAGE 600

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 21 / 75

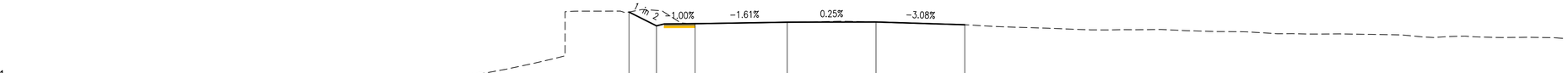
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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-21
Revision: A

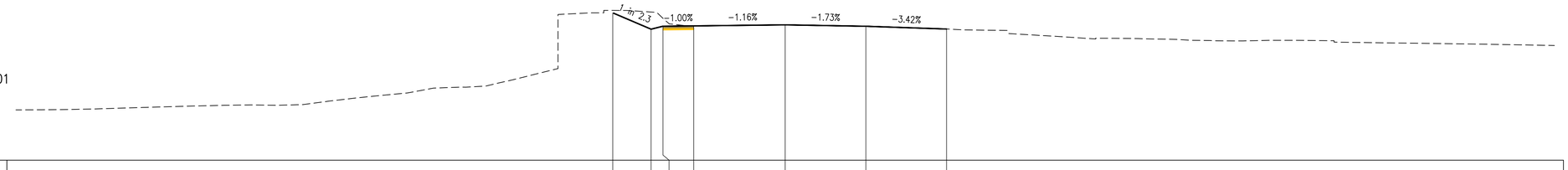


CONTROL LINE MC01
X = 328641.932
Y = 8201496.785
Z = 3.210

Datum −2.00

DESIGN HEIGHT	3.602	3.069	3.155	3.210	3.219	3.113	
EXISTING SURFACE	3.602	3.664	3.153	3.210	3.219	3.113	
OFFSETS	6.125	5.059	3.565	0.000	3.432	6.865	

CHAINAGE 630



CONTROL LINE MC01
X = 328632.087
Y = 8201495.034
Z = 3.275

Datum −2.00

DESIGN HEIGHT	3.744	3.107	3.223	3.235	3.275	3.221	3.113
EXISTING SURFACE	3.838	3.776	3.530	3.233	3.275	3.221	3.113
OFFSETS	6.723	5.228	4.765	3.565	0.000	3.146	6.293

CHAINAGE 620

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 22 / 75

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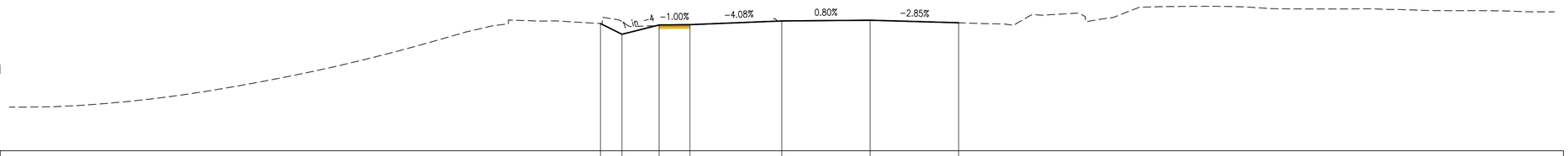
Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-22
Revision: A



CONTROL LINE MC01
X = 328661.768
Y = 8201499.314
Z = 3.051

Datum −2.00

DESIGN HEIGHT	2.949	2.532	2.893	2.905	3.051	3.078	2.980	
EXISTING SURFACE	2.949	3.020	2.866	2.905	3.051	3.078	2.980	
OFFSETS	7.040	6.208	4.765	3.565	0.000	3.433	6.865	

CHAINAGE 650



CONTROL LINE MC01
X = 328651.829
Y = 8201498.208
Z = 3.142

Datum −2.00

DESIGN HEIGHT	3.048	3.012	3.024	3.142	3.190	3.106
EXISTING SURFACE	3.048	3.025	3.016	3.142	3.190	3.106
OFFSETS	5.438	4.765	3.565	0.000	3.432	6.865

CHAINAGE 640

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 23 / 75

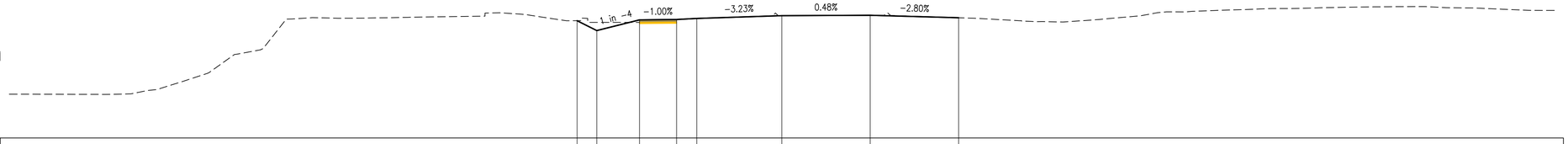
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Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-23
Revision: A

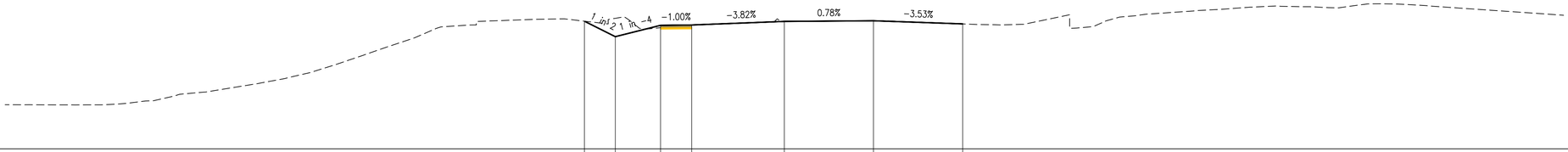


CONTROL LINE MC01
X = 328681.663
Y = 8201501.360
Z = 2.740

Datum −2.00

DESIGN HEIGHT	2.547	2.164	2.579	2.593	2.633	2.740	2.757	2.661
EXISTING SURFACE	2.547	2.481	2.480	2.593	2.633	2.740	2.757	2.661
OFFSETS	7.950	7.184	5.525	4.086	3.300	0.000	3.433	6.865

CHAINAGE 670



CONTROL LINE MC01
X = 328671.715
Y = 8201500.337
Z = 2.898

Datum −2.00

DESIGN HEIGHT	2.908	2.313	2.749	2.761	2.898	2.925	2.803
EXISTING SURFACE	2.908	3.018	2.658	2.761	2.898	2.925	2.803
OFFSETS	7.697	6.508	4.765	3.565	0.000	3.433	6.865

CHAINAGE 660

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 24 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

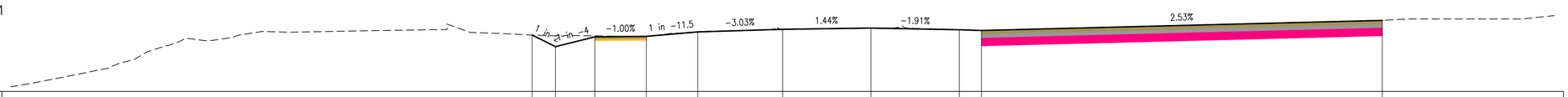
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-24
Revision: A

CONTROL LINE MC01
X = 328711.505
Y = 8201504.429
Z = 2.423

Datum 0.00

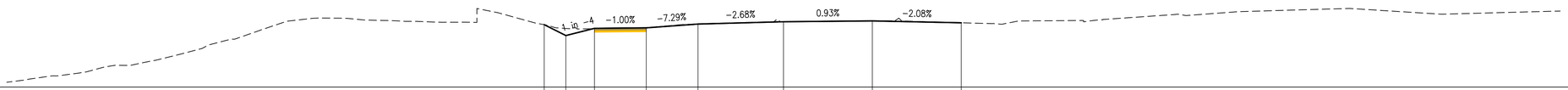


DESIGN HEIGHT	2.199	1.747	2.130	2.150	2.324	2.423	2.473	2.407	2.378	2.772			
EXISTING SURFACE	2.199	2.167	2.168	2.150	2.324	2.423	2.473	2.407	2.378	2.772			
OFFSETS	9.737	8.632	7.300	5.300	3.300	0.000	3.433	6.865	7.729	23.309			

CHAINAGE 700

CONTROL LINE MC01
X = 328701.558
Y = 8201503.406
Z = 2.509

Datum 0.00

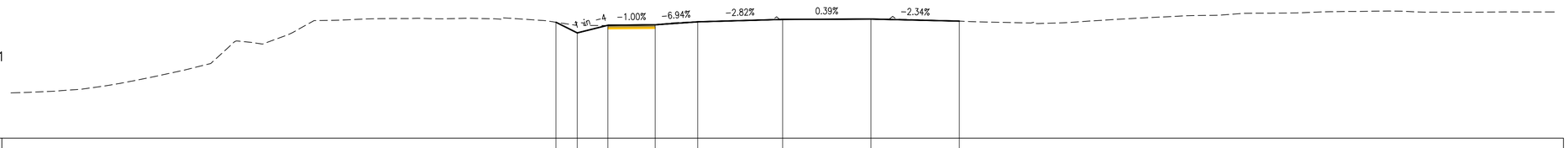


DESIGN HEIGHT	2.397	1.978	2.255	2.275	2.421	2.509	2.541	2.470
EXISTING SURFACE	2.397	2.252	2.240	2.275	2.421	2.509	2.541	2.470
OFFSETS	9.242	8.406	7.300	5.300	3.300	0.000	3.433	6.865

CHAINAGE 690

CONTROL LINE MC01
X = 328691.610
Y = 8201502.383
Z = 2.610

Datum -2.00



DESIGN HEIGHT	2.500	2.086	2.383	2.402	2.516	2.610	2.623	2.543
EXISTING SURFACE	2.500	2.487	2.371	2.402	2.516	2.610	2.623	2.543
OFFSETS	8.812	7.983	6.793	4.953	3.300	0.000	3.433	6.865

CHAINAGE 680

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 25 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

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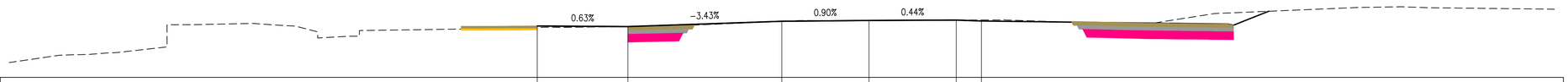
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-25

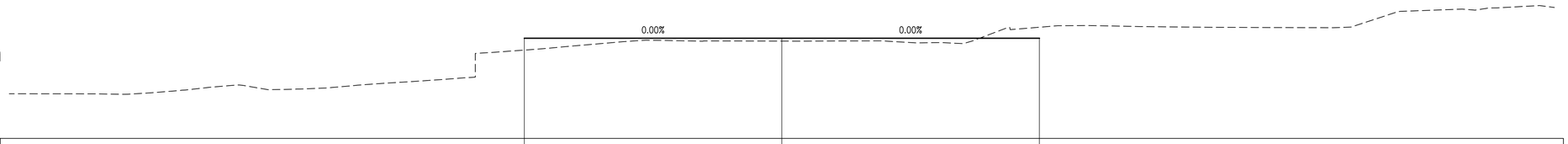
Revision: A

CONTROL LINE MC01
X = 328740.951
Y = 8201509.284
Z = 2.166

Datum 0.00



| | | |

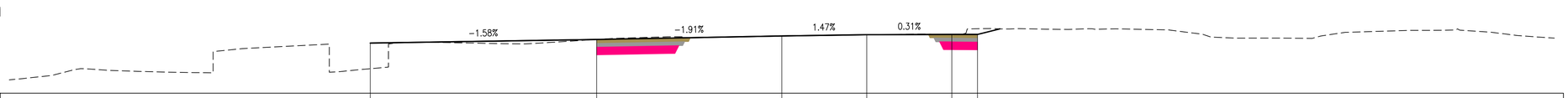


CONTROL LINE MC01
X = 328759.320
Y = 8201532.104
Z = 1.883

Datum −2.00

DESIGN HEIGHT	1.883	1.883	1.883
EXISTING SURFACE	1.424	1.772	2.310
OFFSETS	10.000	0.000	10.000

CHAINAGE 760

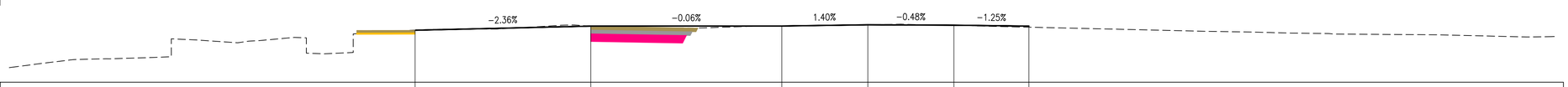


CONTROL LINE MC01
X = 328754.831
Y = 8201523.168
Z = 2.230

Datum 0.00

DESIGN HEIGHT	1.954	2.092	2.230	2.278	2.288	2.289
EXISTING SURFACE	0.953	2.092	2.230	2.278	2.288	2.511
OFFSETS	15.981	7.188	0.000	3.300	6.600	7.599

CHAINAGE 750



CONTROL LINE MC01
X = 328749.058
Y = 8201515.059
Z = 2.194

Datum 0.00

DESIGN HEIGHT	2.029	2.189	2.194	2.241	2.225	2.188
EXISTING SURFACE	2.035	2.189	2.194	2.241	2.225	2.148
OFFSETS	14.238	7.418	0.000	3.342	6.684	9.597

CHAINAGE 740

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC01
SHEET 27 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-27
Revision: A

CONTROL LINE MC02
X = 328901.984
Y = 8201800.065
Z = 1.859

Datum 0.00

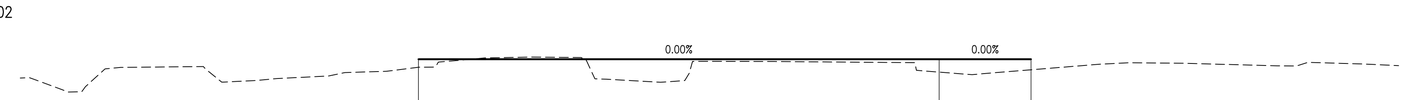


DESIGN HEIGHT	1.790	1.814	1.854	1.891	1.859	1.838	1.802	
EXISTING SURFACE	2.004	1.783	1.821	1.882	1.859	1.831	1.784	
OFFSETS	25.698	23.463	13.130	6.417	0.000	3.131	5.105	

CHAINAGE 20

CONTROL LINE MC02
X = 328897.495
Y = 8201791.129
Z = 1.632

Datum 0.00

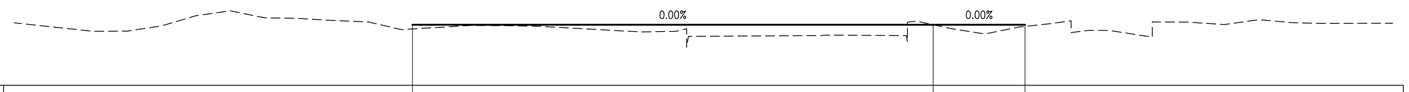


DESIGN HEIGHT	1.632	1.632	1.632	
EXISTING SURFACE	1.370	1.212	1.288	
OFFSETS	17.000	0.000	3.000	

CHAINAGE 10

CONTROL LINE MC02
X = 328893.007
Y = 8201782.193
Z = -0.024

Datum -2.00



DESIGN HEIGHT	-0.024	-0.024	-0.024	
EXISTING SURFACE	-0.161	-0.024	-0.077	
OFFSETS	17.000	0.000	3.000	

CHAINAGE 0

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 28 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

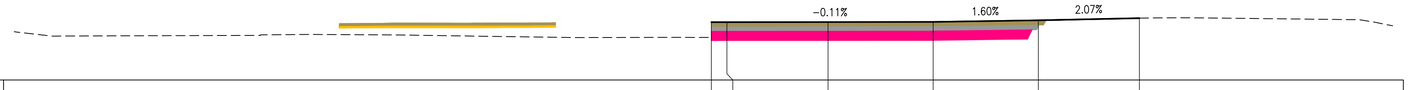
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DETAILED DESIGN

Job Number 25019
Drawing Number 25019-HEG-C09-XS-28
Revision A

CONTROL LINE MC02
X = 328921.521
Y = 8201822.294
Z = 1.893

Datum 0.00

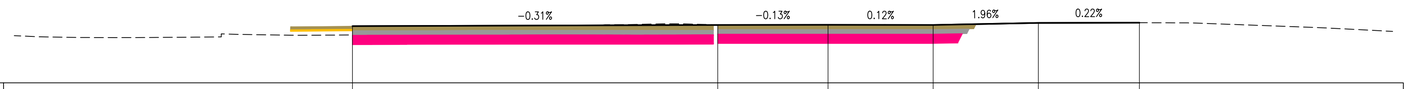


DESIGN HEIGHT	1.885	1.886	1.890	1.893	1.948	2.016	
EXISTING SURFACE	1.389	1.399	1.460	1.668	1.931	2.016	
OFFSETS	7.242	6.732	3.432	0.000	3.432	6.732	

CHAINAGE 50

CONTROL LINE MC02
X = 328913.800
Y = 8201815.939
Z = 1.887

Datum 0.00

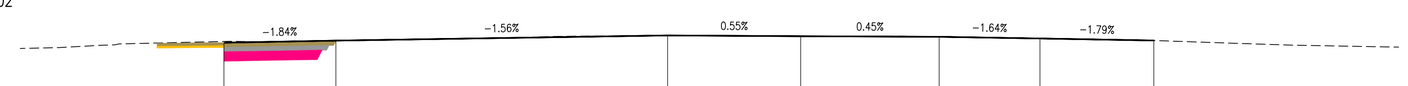


DESIGN HEIGHT	1.850	1.887	1.892	1.887	1.955	1.962	
EXISTING SURFACE	1.562	1.895	1.889	1.874	1.954	1.962	
OFFSETS	18.958	7.033	3.433	0.000	3.432	6.732	

CHAINAGE 40

CONTROL LINE MC02
X = 328906.871
Y = 8201808.773
Z = 2.007

Datum 0.00



DESIGN HEIGHT	1.815	1.882	2.051	2.027	2.007	1.953	1.886
EXISTING SURFACE	1.855	1.879	2.051	2.027	2.007	1.953	1.886
OFFSETS	23.350	19.695	8.865	4.521	0.000	3.290	7.007

CHAINAGE 30

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 29 / 75

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Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-29
Revision: A

CONTROL LINE MC02
X = 328945.204
Y = 8201840.650
Z = 2.001

Datum 0.00

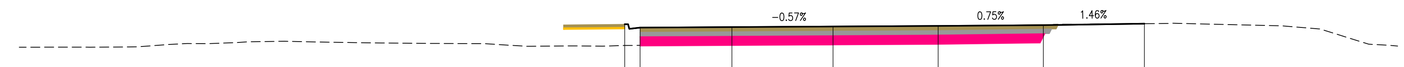


DESIGN HEIGHT	2.033	1.923	1.947	1.974	2.001	2.056	2.089	
EXISTING SURFACE	1.400	1.397	1.377	1.364	1.406	2.056	2.089	
OFFSETS	10.232	9.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 80

CONTROL LINE MC02
X = 328936.963
Y = 8201835.004
Z = 1.991

Datum 0.00

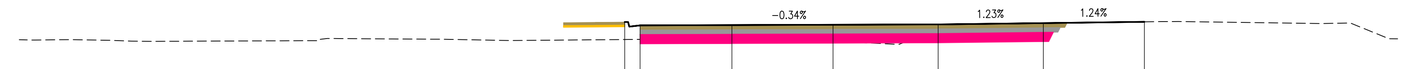


DESIGN HEIGHT	2.045	1.935	1.952	1.971	1.991	2.016	2.065	
EXISTING SURFACE	1.352	1.355	1.380	1.388	1.441	1.996	2.065	
OFFSETS	10.233	9.732	6.732	3.432	0.000	3.432	6.732	

CHAINAGE 70

CONTROL LINE MC02
X = 328929.242
Y = 8201828.650
Z = 1.955

Datum 0.00



DESIGN HEIGHT	2.032	1.922	1.932	1.944	1.955	1.998	2.038	
EXISTING SURFACE	1.461	1.466	1.484	1.410	1.671	1.946	2.038	
OFFSETS	10.232	9.732	6.732	3.432	0.000	3.432	6.732	

CHAINAGE 60

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 30 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

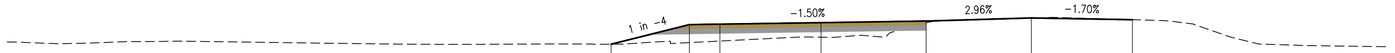
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-30
Revision: A

CONTROL LINE MC02
X = 328970.985
Y = 8201855.990
Z = 2.038

Datum 0.00

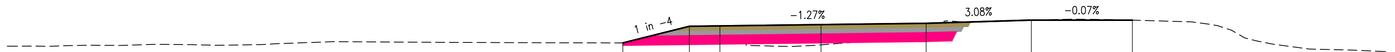


DESIGN HEIGHT	1.284	1.922	1.937	1.987	2.038	2.140	2.084	
EXISTING SURFACE	1.284	1.336	1.387	1.513	1.980	2.140	2.084	
OFFSETS	10.286	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 110

CONTROL LINE MC02
X = 328962.392
Y = 8201850.877
Z = 2.016

Datum 0.00

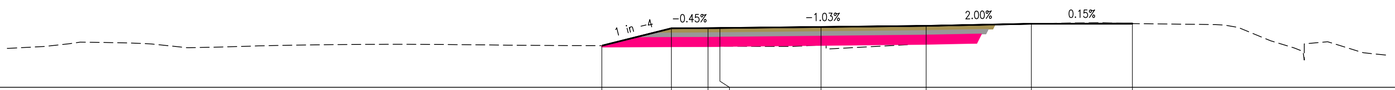


DESIGN HEIGHT	1.375	1.918	1.931	1.972	2.016	2.122	2.119	
EXISTING SURFACE	1.375	1.368	1.358	1.312	1.832	2.122	2.119	
OFFSETS	9.904	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 100

CONTROL LINE MC02
X = 328953.798
Y = 8201845.763
Z = 2.005

Datum 0.00



DESIGN HEIGHT	1.358	1.926	1.931	1.935	1.969	2.005	2.073	2.078
EXISTING SURFACE	1.358	1.348	1.344	1.342	1.379	1.557	2.073	2.078
OFFSETS	10.589	8.318	7.123	6.733	3.433	0.000	3.433	6.733

CHAINAGE 90

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 31 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

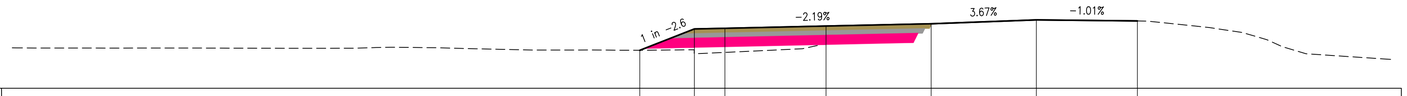
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-31
Revision: A

CONTROL LINE MC02
X = 328996.766
Y = 8201871.331
Z = 2.104

Datum 0.00

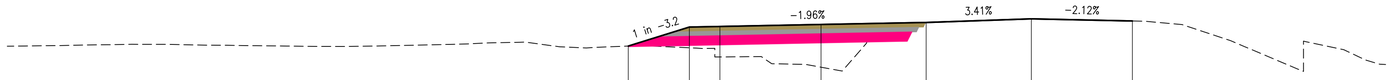


DESIGN HEIGHT	1.239	1.934	1.956	2.029	2.104	2.230	2.197	
EXISTING SURFACE	1.239	1.123	1.170	1.455	2.104	2.230	2.197	
OFFSETS	9.512	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 140

CONTROL LINE MC02
X = 328988.173
Y = 8201866.217
Z = 2.115

Datum 0.00

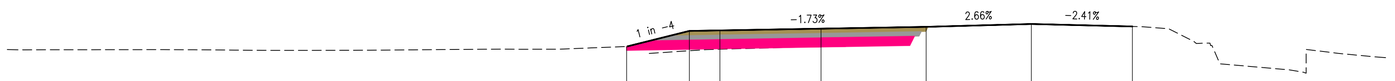


DESIGN HEIGHT	1.344	1.963	1.983	2.048	2.115	2.232	2.162	
EXISTING SURFACE	1.344	1.289	0.989	0.654	2.115	2.232	2.162	
OFFSETS	9.725	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 130

CONTROL LINE MC02
X = 328979.579
Y = 8201861.104
Z = 2.072

Datum 0.00



DESIGN HEIGHT	1.426	1.938	1.955	2.012	2.072	2.163	2.083	
EXISTING SURFACE	1.426	1.291	1.340	1.440	2.070	2.163	2.083	
OFFSETS	9.779	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 120

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 32 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

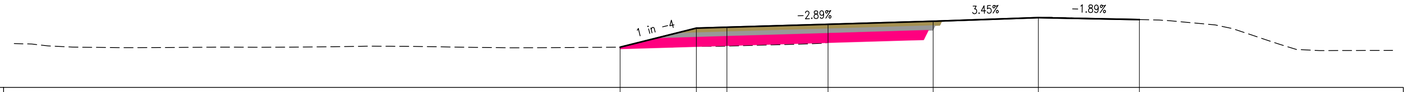
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-32
Revision: A

CONTROL LINE MC02
X = 329022.548
Y = 8201886.671
Z = 2.159

Datum 0.00

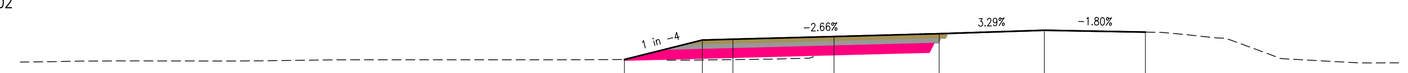


DESIGN HEIGHT	1.314	1.936	1.965	2.060	2.159	2.278	2.216	
EXISTING SURFACE	1.314	1.343	1.349	1.476	2.159	2.278	2.216	
OFFSETS	10.222	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 170

CONTROL LINE MC02
X = 329013.954
Y = 8201881.558
Z = 2.151

Datum 0.00

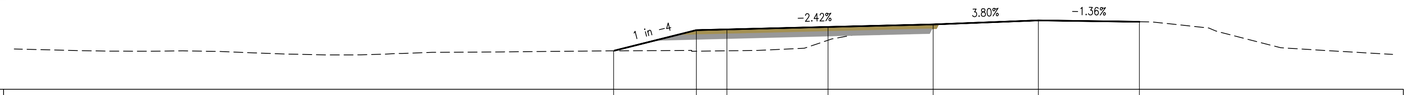


DESIGN HEIGHT	1.309	1.945	1.972	2.059	2.151	2.264	2.204	
EXISTING SURFACE	1.309	1.294	1.307	1.650	2.151	2.264	2.204	
OFFSETS	10.276	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 160

CONTROL LINE MC02
X = 329005.360
Y = 8201876.444
Z = 2.118

Datum 0.00



DESIGN HEIGHT	1.255	1.930	1.955	2.035	2.118	2.248	2.204	
EXISTING SURFACE	1.255	1.244	1.256	1.602	2.118	2.248	2.204	
OFFSETS	10.433	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 150

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 33 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

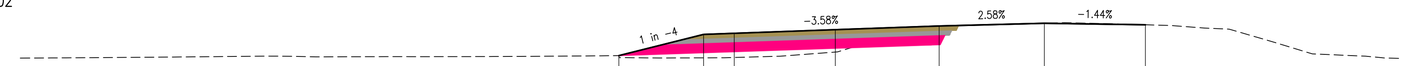
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-33
Revision: A

CONTROL LINE MC02
X = 329048.329
Y = 8201902.012
Z = 2.359

Datum 0.00

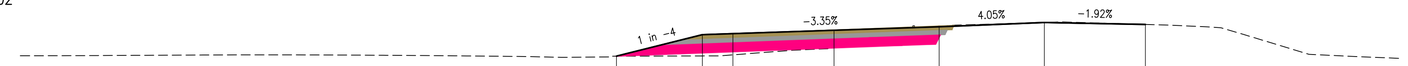


DESIGN HEIGHT	1.392	2.083	2.119	2.237	2.359	2.447	2.400	
EXISTING SURFACE	1.392	1.320	1.331	1.508	2.359	2.447	2.400	
OFFSETS	10.458	7.691	6.691	3.391	0.000	3.433	6.733	

CHAINAGE 200

CONTROL LINE MC02
X = 329039.735
Y = 8201896.898
Z = 2.269

Datum 0.00



DESIGN HEIGHT	1.309	2.010	2.043	2.154	2.269	2.408	2.345	
EXISTING SURFACE	1.309	1.317	1.352	1.631	2.269	2.408	2.345	
OFFSETS	10.536	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 190

CONTROL LINE MC02
X = 329031.141
Y = 8201891.785
Z = 2.203

Datum 0.00



DESIGN HEIGHT	1.293	1.962	1.993	2.096	2.203	2.346	2.281	
EXISTING SURFACE	1.293	1.292	1.324	1.557	2.203	2.346	2.281	
OFFSETS	10.406	7.733	6.733	3.433	0.000	3.433	6.733	

CHAINAGE 180

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 34 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

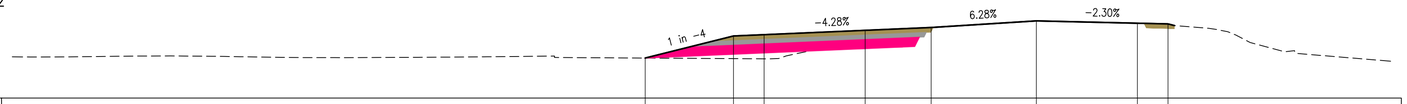
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-34
Revision: A

CONTROL LINE MC02
X = 329074.497
Y = 8201916.674
Z = 2.302

Datum 0.00

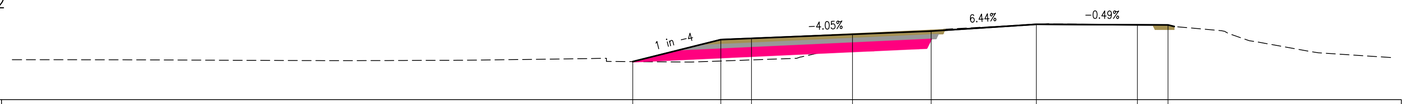


DESIGN HEIGHT	1.306	2.026	2.069	2.210	2.302	2.518	2.442	2.419	
EXISTING SURFACE	1.306	1.288	1.281	1.926	2.302	2.518	2.442	2.384	
OFFSETS	9.336	6.454	5.454	2.154	0.000	3.432	6.732	7.732	

CHAINAGE 230

CONTROL LINE MC02
X = 329065.707
Y = 8201911.906
Z = 2.239

Datum 0.00

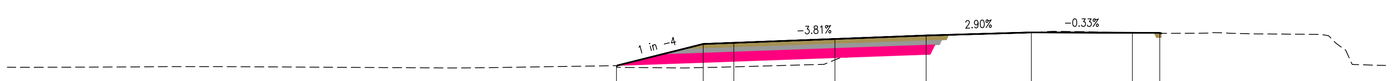


DESIGN HEIGHT	1.242	1.961	2.002	2.135	2.239	2.460	2.444	2.439	
EXISTING SURFACE	1.242	1.262	1.298	1.782	2.239	2.460	2.444	2.406	
OFFSETS	9.742	6.866	5.866	2.566	0.000	3.432	6.732	7.732	

CHAINAGE 220

CONTROL LINE MC02
X = 329056.945
Y = 8201907.087
Z = 2.344

Datum 0.00



DESIGN HEIGHT	1.358	2.066	2.104	2.230	2.344	2.443	2.432	2.429	
EXISTING SURFACE	1.358	1.298	1.320	1.547	2.344	2.443	2.432	2.413	
OFFSETS	10.111	7.279	6.279	2.979	0.000	3.433	6.733	7.627	

CHAINAGE 210

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 35 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

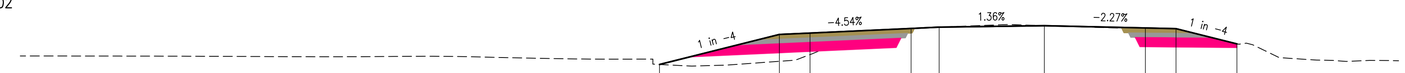
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-35
Revision: A

CONTROL LINE MC02
X = 329100.866
Y = 8201930.980
Z = 2.369

Datum 0.00

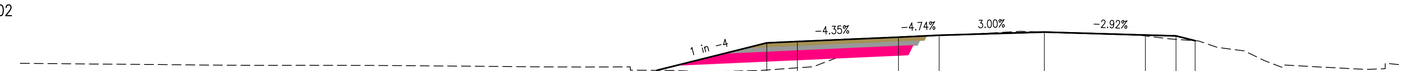


DESIGN HEIGHT	1.150	2.129	2.174	2.324	2.369	2.416	2.341	2.318	1.821		
EXISTING SURFACE	1.150	1.253	1.472	2.324	2.369	2.416	2.263	2.142	1.821		
OFFSETS	9.132	5.216	4.216	0.916	0.000	3.432	6.732	7.732	9.722		

CHAINAGE 260

CONTROL LINE MC02
X = 329092.076
Y = 8201926.212
Z = 2.360

Datum 0.00

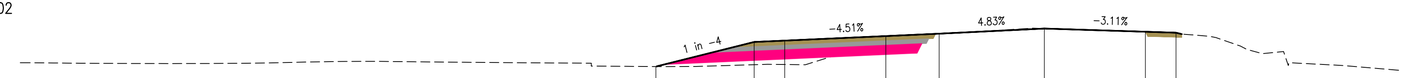


DESIGN HEIGHT	1.214	2.110	2.154	2.297	2.360	2.463	2.367	2.338	2.182		
EXISTING SURFACE	1.214	1.225	1.296	2.222	2.360	2.463	2.338	2.227	2.182		
OFFSETS	9.216	5.629	4.629	1.329	0.000	3.432	6.732	7.732	8.356		

CHAINAGE 250

CONTROL LINE MC02
X = 329083.287
Y = 8201921.443
Z = 2.338

Datum 0.00



DESIGN HEIGHT	1.264	2.066	2.111	2.260	2.338	2.504	2.401	2.370
EXISTING SURFACE	1.264	1.325	1.332	2.135	2.338	2.504	2.401	2.337
OFFSETS	9.247	6.041	5.041	1.741	0.000	3.432	6.732	7.732

CHAINAGE 240

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 36 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

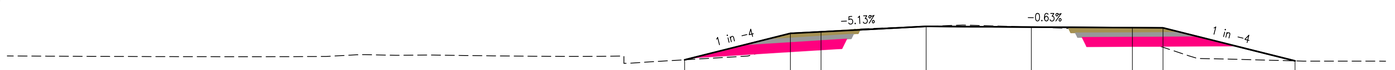
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-36
Revision: A

CONTROL LINE MC02
X = 329127.236
Y = 8201945.286
Z = 2.398

Datum 0.00

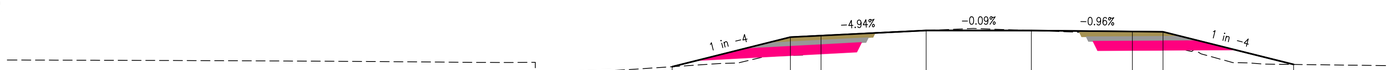


DESIGN HEIGHT	1.307	2.170	2.222	2.398	2.376	2.356	2.349	1.272		
EXISTING SURFACE	1.307	1.920	2.186	2.398	2.376	2.038	1.717	1.272		
OFFSETS	7.885	4.432	3.432	0.000	3.432	6.732	7.732	12.042		

CHAINAGE 290

CONTROL LINE MC02
X = 329118.446
Y = 8201940.517
Z = 2.372

Datum 0.00

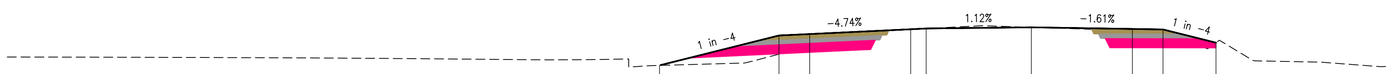


DESIGN HEIGHT	1.189	2.154	2.203	2.372	2.369	2.338	2.328	1.262		
EXISTING SURFACE	1.189	1.556	1.983	2.372	2.369	2.085	1.881	1.262		
OFFSETS	8.292	4.432	3.432	0.000	3.432	6.732	7.732	11.997		

CHAINAGE 280

CONTROL LINE MC02
X = 329109.656
Y = 8201935.749
Z = 2.343

Datum 0.00



DESIGN HEIGHT	1.139	2.115	2.162	2.319	2.343	2.382	2.329	2.312	1.880	
EXISTING SURFACE	1.139	1.506	1.770	2.319	2.343	2.382	2.184	2.069	1.880	
OFFSETS	8.706	4.804	3.804	0.504	0.000	3.432	6.732	7.732	9.461	

CHAINAGE 270

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 37 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

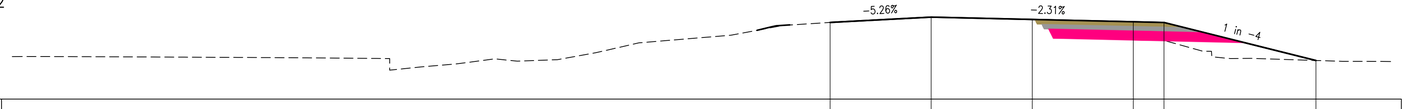
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-37
Revision: A

CONTROL LINE MC02
X = 329153.605
Y = 8201959.591
Z = 2.676

Datum 0.00

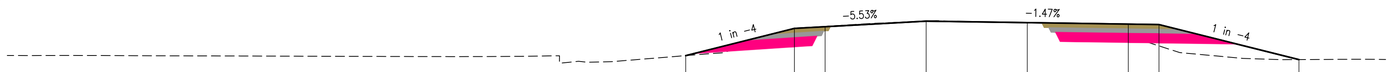


DESIGN HEIGHT	2.503	2.676	2.600	2.524	2.501	1.260		
EXISTING SURFACE	2.503	2.676	2.600	2.193	1.915	1.260		
OFFSETS	3.300	0.000	3.300	6.600	7.600	12.562		

CHAINAGE 320

CONTROL LINE MC02
X = 329144.815
Y = 8201954.823
Z = 2.519

Datum 0.00

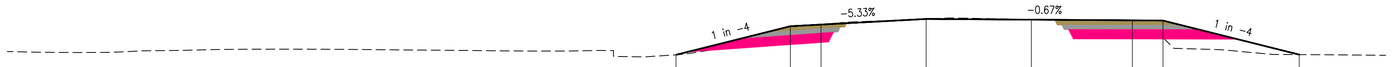


DESIGN HEIGHT	1.394	2.282	2.337	2.519	2.471	2.422	2.408	1.265
EXISTING SURFACE	1.394	2.175	2.344	2.519	2.471	2.084	1.711	1.265
OFFSETS	7.850	4.300	3.300	0.000	3.300	6.600	7.600	12.171

CHAINAGE 310

CONTROL LINE MC02
X = 329136.026
Y = 8201950.054
Z = 2.426

Datum 0.00



DESIGN HEIGHT	1.256	2.190	2.243	2.426	2.403	2.381	2.375	1.263
EXISTING SURFACE	1.256	2.075	2.219	2.426	2.403	2.041	1.795	1.263
OFFSETS	8.167	4.432	3.432	0.000	3.432	6.732	7.732	12.178

CHAINAGE 300

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 38 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-38
Revision: A

CONTROL LINE MC02
X = 329179.975
Y = 8201973.897
Z = 3.651

Datum 0.00



DESIGN HEIGHT	3.541	3.651	3.598	3.544	3.528		
EXISTING SURFACE	3.541	3.651	3.598	3.378	2.957		
OFFSETS	3.300	0.000	3.300	6.600	7.600		

CHAINAGE 350

CONTROL LINE MC02
X = 329171.185
Y = 8201969.128
Z = 3.226

Datum 0.00

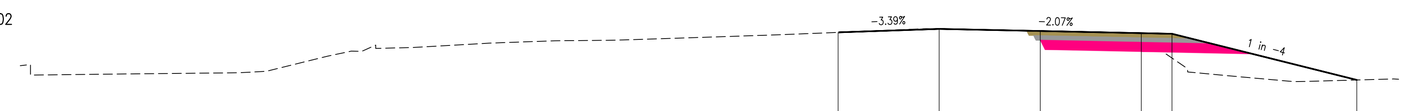


DESIGN HEIGHT	3.147	3.226	3.179	3.133	3.119	1.278	
EXISTING SURFACE	3.147	3.226	3.100	2.266	1.645	1.278	
OFFSETS	3.300	0.000	3.300	6.600	7.600	14.962	

CHAINAGE 340

CONTROL LINE MC02
X = 329162.395
Y = 8201964.360
Z = 2.852

Datum 0.00



DESIGN HEIGHT	2.740	2.852	2.783	2.715	2.694	1.185	
EXISTING SURFACE	2.740	2.852	2.765	2.489	1.902	1.185	
OFFSETS	3.300	0.000	3.300	6.600	7.600	13.636	

CHAINAGE 330

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 39 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
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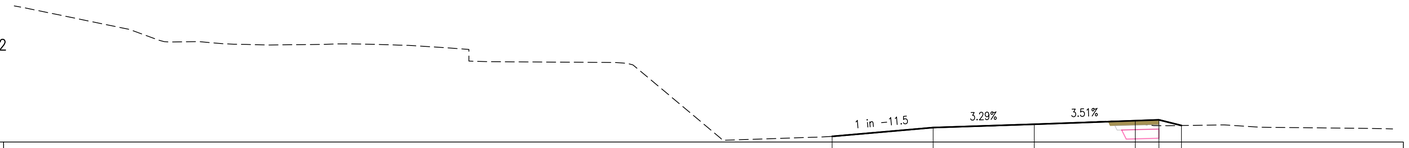
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-39
Revision: A

CONTROL LINE MC02
X = 329197.555
Y = 8201983.434
Z = 4.470

Datum 4.00

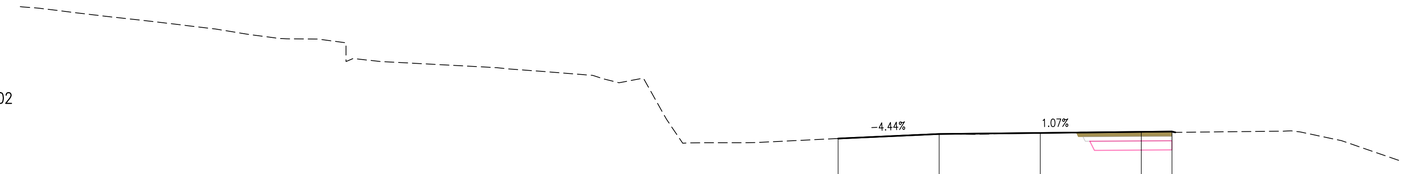


DESIGN HEIGHT	4.184	4.470	4.579	4.695	4.722	4.538	
EXISTING SURFACE	4.184	4.470	4.579	4.603	4.534	4.538	
OFFSETS	3.300	0.000	3.300	6.600	7.370	8.106	

CHAINAGE 370

CONTROL LINE MC02
X = 329188.765
Y = 8201978.665
Z = 4.000

Datum 2.00



DESIGN HEIGHT	3.854	4.000	4.036	4.071	4.082	
EXISTING SURFACE	3.854	4.000	4.036	4.042	4.053	
OFFSETS	3.300	0.000	3.300	6.600	7.600	

CHAINAGE 360

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 40 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

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ISO 9001 ISO 14001 ISO 45001

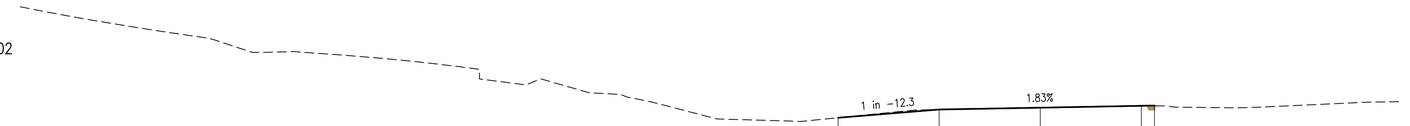
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-40
Revision: A

CONTROL LINE MC02
X = 329213.260
Y = 8201995.632
Z = 5.179

Datum 4.00

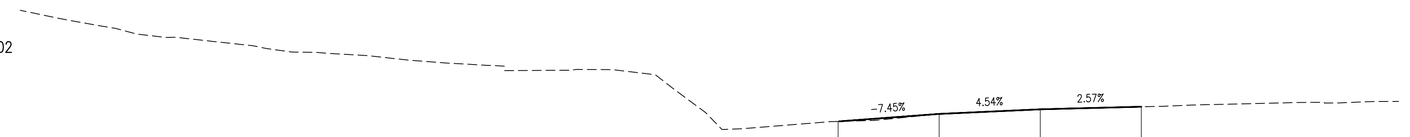


DESIGN HEIGHT	4.911	5.179	5.240	5.300	5.308	
EXISTING SURFACE	4.911	5.179	5.240	5.300	5.300	
OFFSETS	3.300	0.000	3.300	6.600	7.027	

CHAINAGE 390

CONTROL LINE MC02
X = 329205.975
Y = 8201988.804
Z = 4.992

Datum 4.00



DESIGN HEIGHT	4.746	4.992	5.142	5.226	
EXISTING SURFACE	4.746	4.992	5.142	5.226	
OFFSETS	3.300	0.000	3.300	6.600	

CHAINAGE 380

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 41 / 75

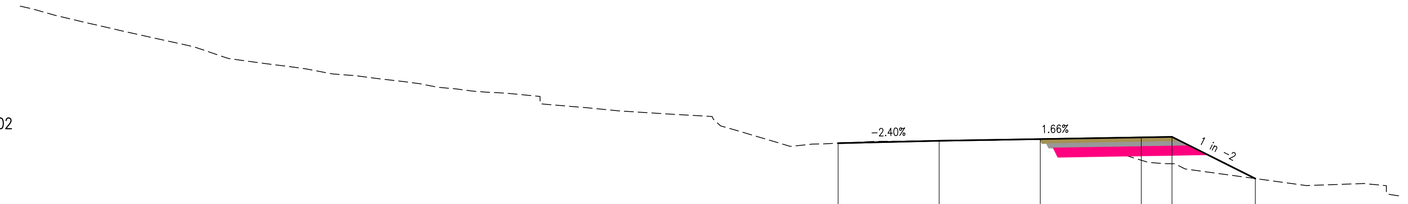
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Drawn	PS
Date	18/12/2025
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-41
Revision: A

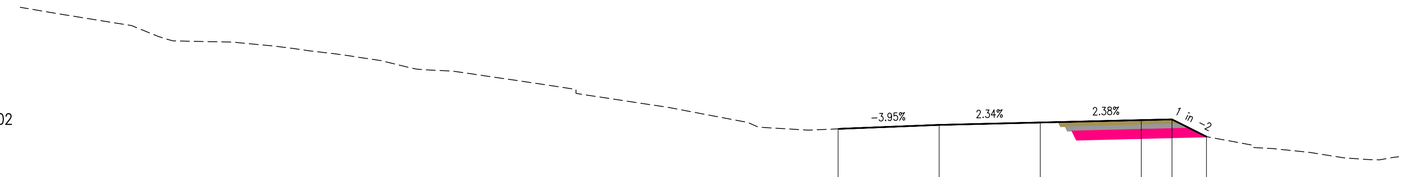


CONTROL LINE MC02
X = 329223.931
Y = 8202012.478
Z = 4.608

Datum 2.00

DESIGN HEIGHT	4.529	4.608	4.663	4.717	4.734	3.374	
EXISTING SURFACE	4.529	4.608	4.663	3.973	3.858	3.374	
OFFSETS	3.300	0.000	3.300	6.600	7.600	10.320	

CHAINAGE 410



CONTROL LINE MC02
X = 329219.150
Y = 8202003.695
Z = 4.984

Datum 2.00

DESIGN HEIGHT	4.854	4.984	5.061	5.140	5.163	4.600	
EXISTING SURFACE	4.854	4.984	5.061	4.742	4.733	4.600	
OFFSETS	3.300	0.000	3.300	6.600	7.600	8.728	

CHAINAGE 400

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 42 / 75

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Drawn	PS
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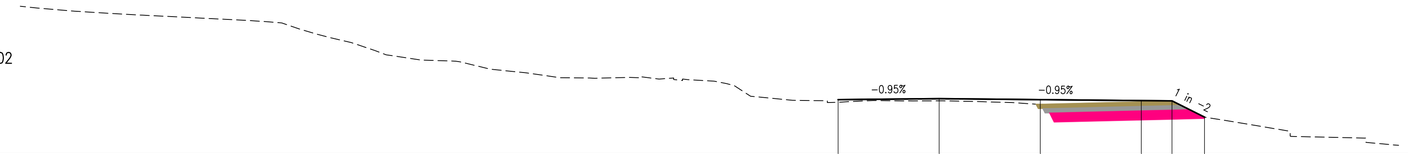
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-42

Revision: A

CONTROL LINE MC02
X = 329233.402
Y = 8202030.093
Z = 3.844

Datum 2.00

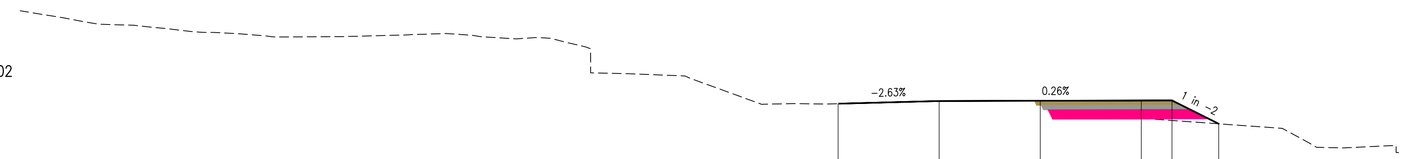


DESIGN HEIGHT	3.813	3.844	3.813	3.781	3.772	3.240	
EXISTING SURFACE	3.725	3.773	3.655	3.532	3.404	3.240	
OFFSETS	3.300	0.000	3.300	6.600	7.600	8.664	

CHAINAGE 430

CONTROL LINE MC02
X = 329228.667
Y = 8202021.285
Z = 4.195

Datum 2.00



DESIGN HEIGHT	4.109	4.195	4.204	4.213	4.215	3.452	
EXISTING SURFACE	4.109	4.195	4.204	3.617	3.561	3.452	
OFFSETS	3.300	0.000	3.300	6.600	7.600	9.127	

CHAINAGE 420

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 43 / 75

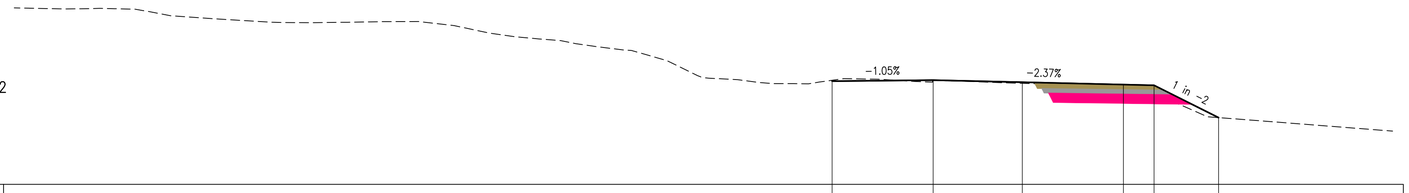
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Date	18/12/2025
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-43
Revision: A

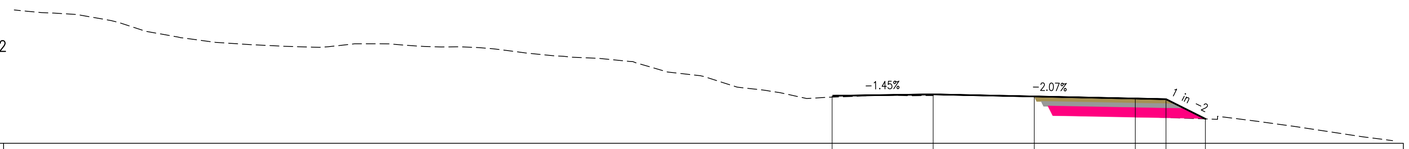


CONTROL LINE MC02
X = 329243.015
Y = 8202047.630
Z = 3.402

Datum 0.00

DESIGN HEIGHT		3.367	3.402	3.333	3.255	3.231	2.178	
EXISTING SURFACE		3.396	3.388	3.297	3.056	2.856	2.178	
OFFSETS		3.300	0.000	2.910	6.210	7.210	9.317	

CHAINAGE 450



CONTROL LINE MC02
X = 329238.138
Y = 8202038.901
Z = 3.597

Datum 2.00

DESIGN HEIGHT		3.549	3.597	3.529	3.461	3.440	2.796	
EXISTING SURFACE		3.508	3.556	3.522	2.957	2.842	2.796	
OFFSETS		3.300	0.000	3.300	6.600	7.600	8.888	

CHAINAGE 440

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 44 / 75

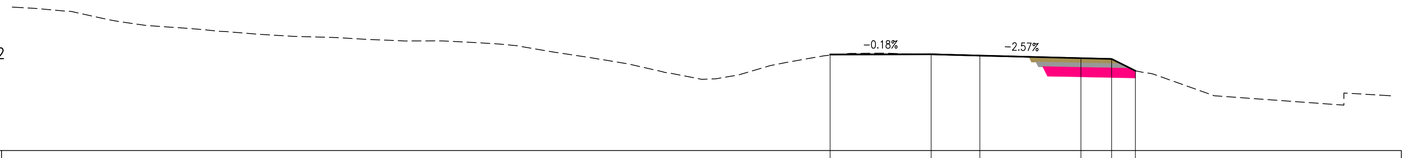
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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-44
Revision: A

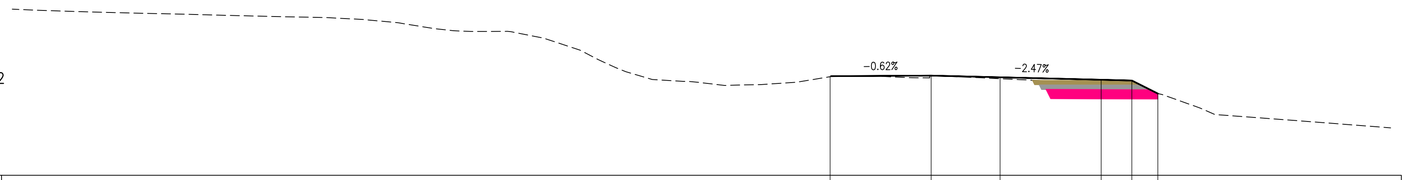


CONTROL LINE MC02
X = 329253.688
Y = 8202064.539
Z = 3.141

Datum 0.00

DESIGN HEIGHT	3.135	3.141	3.100	3.015	2.989	2.601		
EXISTING SURFACE	3.111	3.156	3.107	2.818	2.750	2.601		
OFFSETS	3.300	0.000	1.590	4.890	5.890	6.667		

CHAINAGE 470



CONTROL LINE MC02
X = 329248.201
Y = 8202056.180
Z = 3.255

Datum 0.00

DESIGN HEIGHT	3.234	3.255	3.199	3.118	3.093	2.669		
EXISTING SURFACE	3.219	3.253	3.153	2.933	2.814	2.669		
OFFSETS	3.300	0.000	2.250	5.550	6.550	7.399		

CHAINAGE 460

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 45 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
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Approved	ES
RPEQ No.	

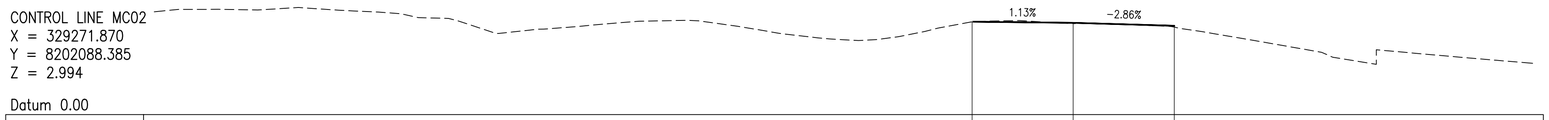
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DETAILED DESIGN

Job Number 25019

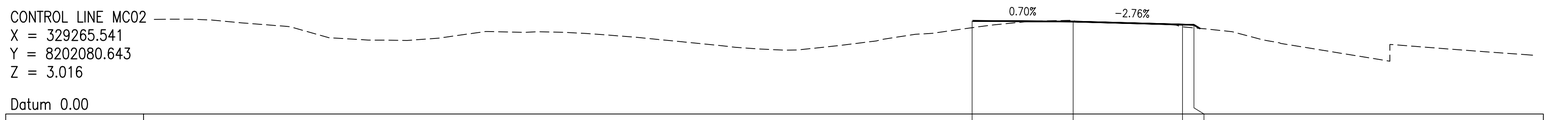
Drawing Number 25019-HEG-C09-XS-45

Revision A



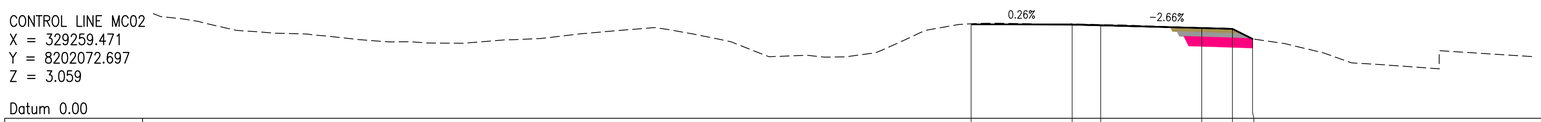
DESIGN HEIGHT	3.031	2.994	2.900	
EXISTING SURFACE	3.030	2.971	2.857	
OFFSETS	3.300	0.000	3.300	

CHAINAGE 500



DESIGN HEIGHT	3.039	3.016	2.917	2.907	
EXISTING SURFACE	2.817	3.054	2.844	2.811	
OFFSETS	3.300	0.000	3.570	3.944	

CHAINAGE 490



DESIGN HEIGHT	3.068	3.059	3.035	2.947	2.920	2.591
EXISTING SURFACE	3.085	3.082	3.058	2.822	2.716	2.591
OFFSETS	3.300	0.000	0.930	4.230	5.230	5.888

CHAINAGE 480

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 46 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
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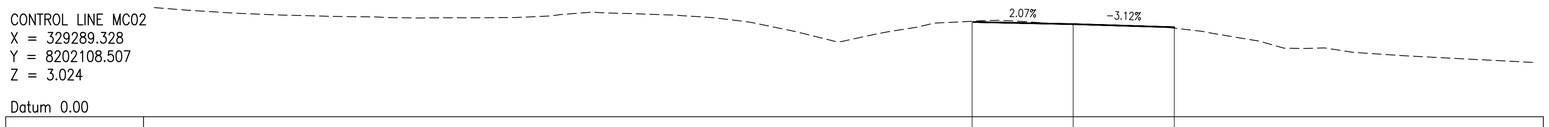
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DETAILED DESIGN

Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-46

Revision: A

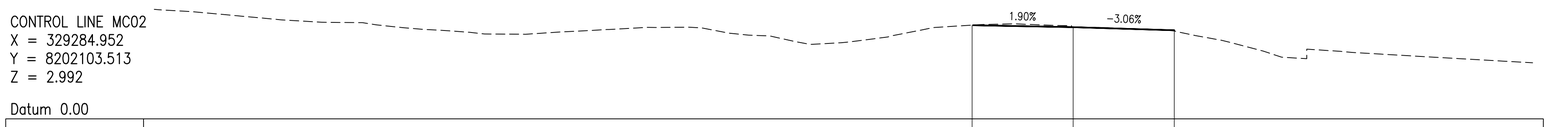


CONTROL LINE MC02
X = 329289.328
Y = 8202108.507
Z = 3.024

Datum 0.00

DESIGN HEIGHT	3.092	3.024	2.921	
EXISTING SURFACE	3.117	2.996	2.890	
OFFSETS	3.300	0.000	3.300	

CHAINAGE 526.64

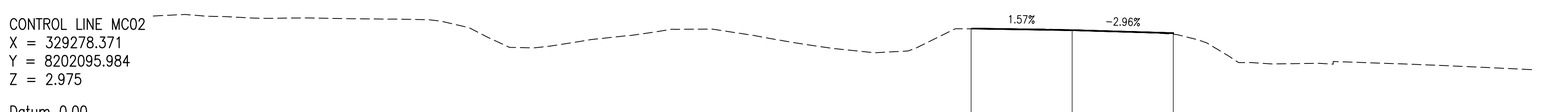


CONTROL LINE MC02
X = 329284.952
Y = 8202103.513
Z = 2.992

Datum 0.00

DESIGN HEIGHT	3.055	2.992	2.891	
EXISTING SURFACE	3.059	2.996	2.866	
OFFSETS	3.300	0.000	3.300	

CHAINAGE 520



CONTROL LINE MC02
X = 329278.371
Y = 8202095.984
Z = 2.975

Datum 0.00

DESIGN HEIGHT	3.027	2.975	2.878	
EXISTING SURFACE	3.020	2.974	2.840	
OFFSETS	3.300	0.000	3.300	

CHAINAGE 510

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC02
SHEET 47 / 75

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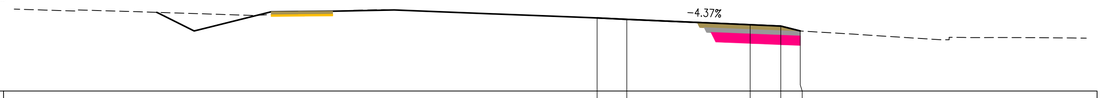
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-47
Revision: A

CONTROL LINE MC03
X = 328394.202
Y = 8201421.273
Z = 2.339

Datum 0.00

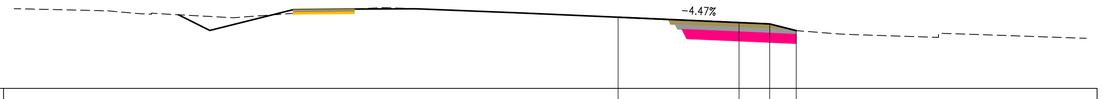


DESIGN HEIGHT				2.387	2.339		2.163	2.119	1.961	
EXISTING SURFACE				2.389	2.339		2.083	1.998	1.961	
OFFSETS				0.973	0.000		4.026	5.026	5.660	

CHAINAGE 20

CONTROL LINE MC03
X = 328385.616
Y = 8201416.151
Z = 2.309

Datum 0.00



DESIGN HEIGHT				2.322			2.145	2.100	1.884	
EXISTING SURFACE				2.322			2.027	1.951	1.884	
OFFSETS				0.286			3.663	4.663	5.529	

CHAINAGE 10

CONTROL LINE MC03
X = 328377.418
Y = 8201410.429
Z = 2.237

Datum 0.00



DESIGN HEIGHT				2.237			2.086	2.040	1.704	
EXISTING SURFACE				2.237			1.889	1.809	1.704	
OFFSETS				0.000			3.300	4.300	5.644	

CHAINAGE 0

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 48 / 75

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Drawn	PS
Date	18/12/2025
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DETAILED DESIGN

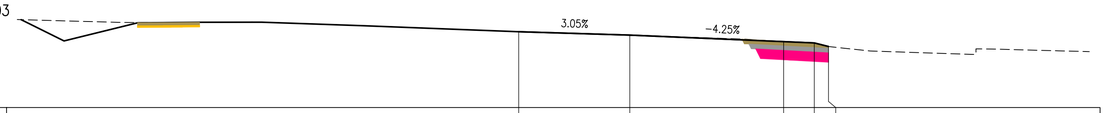
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-48

Revision: A

CONTROL LINE MC03
X = 328421.828
Y = 8201432.830
Z = 2.365

Datum 0.00

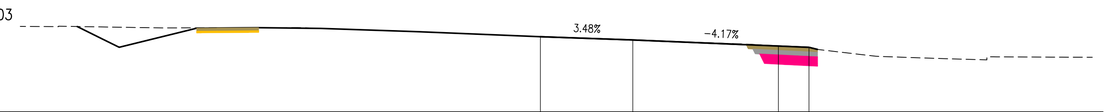


DESIGN HEIGHT	2.475	2.365	2.151	2.109	1.993	
EXISTING SURFACE	2.478	2.365	2.151	2.043	1.993	
OFFSETS	3.629	0.000	5.021	6.021	6.485	

CHAINAGE 50

CONTROL LINE MC03
X = 328412.360
Y = 8201429.617
Z = 2.344

Datum 0.00

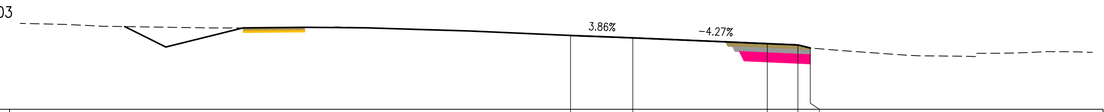


DESIGN HEIGHT	2.449	2.344	2.146	2.104	
EXISTING SURFACE	2.452	2.344	2.145	2.065	
OFFSETS	3.019	0.000	4.751	5.751	

CHAINAGE 40

CONTROL LINE MC03
X = 328403.132
Y = 8201425.769
Z = 2.331

Datum 0.00



DESIGN HEIGHT	2.410	2.331	2.144	2.101	2.000	
EXISTING SURFACE	2.410	2.331	2.122	2.033	2.000	
OFFSETS	2.036	0.000	4.388	5.388	5.792	

CHAINAGE 30

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 49 / 75

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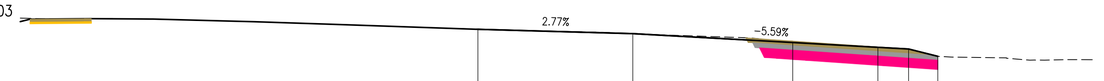
Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-49
Revision: A

CONTROL LINE MC03
X = 328450.395
Y = 8201441.990
Z = 2.426

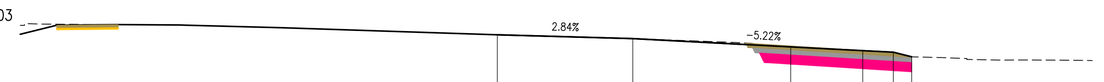


Datum 0.00

DESIGN HEIGHT	2.566	2.426	2.135	1.979	1.923	1.684	
EXISTING SURFACE	2.576	2.426	2.135	1.858	1.760	1.684	
OFFSETS	5.060	0.000	5.219	8.001	9.001	9.957	

CHAINAGE 80

CONTROL LINE MC03
X = 328440.873
Y = 8201438.937
Z = 2.406

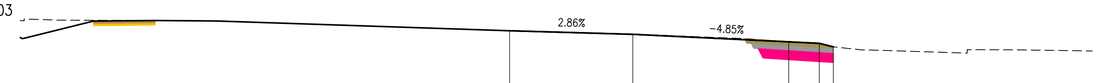


Datum 0.00

DESIGN HEIGHT	2.532	2.406	2.137	2.014	1.962	1.812
EXISTING SURFACE	2.526	2.406	2.137	1.855	1.827	1.812
OFFSETS	4.427	0.000	5.153	7.504	8.504	9.102

CHAINAGE 70

CONTROL LINE MC03
X = 328431.351
Y = 8201435.883
Z = 2.383



Datum 0.00

DESIGN HEIGHT	2.498	2.383	2.136	2.087	1.973	
EXISTING SURFACE	2.489	2.383	2.136	2.022	1.973	
OFFSETS	4.024	0.000	5.087	6.087	6.543	

CHAINAGE 60

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 50 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

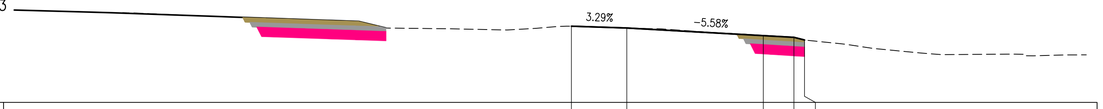
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-50
Revision: A

CONTROL LINE MC03
X = 328479.709
Y = 8201447.870
Z = 2.428

Datum 0.00

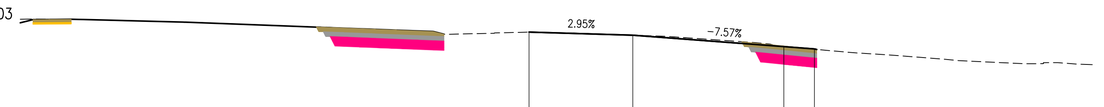


DESIGN HEIGHT	2.487	2.428	2.179	2.123	2.037	
EXISTING SURFACE	2.487	2.428	2.179	2.073	2.037	
OFFSETS	1.810	0.000	4.454	5.454	5.798	

CHAINAGE 110

CONTROL LINE MC03
X = 328469.764
Y = 8201446.866
Z = 2.469

Datum 0.00

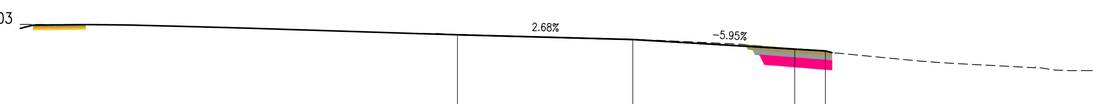


DESIGN HEIGHT	2.569	2.469	2.096	2.020	
EXISTING SURFACE	2.569	2.469	2.096	2.008	
OFFSETS	3.389	0.000	4.928	5.928	

CHAINAGE 100

CONTROL LINE MC03
X = 328459.969
Y = 8201444.873
Z = 2.473

Datum 0.00



DESIGN HEIGHT	2.627	2.473	2.159	2.099	
EXISTING SURFACE	2.642	2.473	2.159	2.067	
OFFSETS	5.726	0.000	5.285	6.285	

CHAINAGE 90

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 51 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

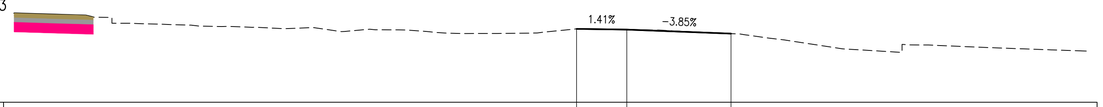
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-51
Revision: A

CONTROL LINE MC03
X = 328509.644
Y = 8201446.315
Z = 2.371

Datum 0.00

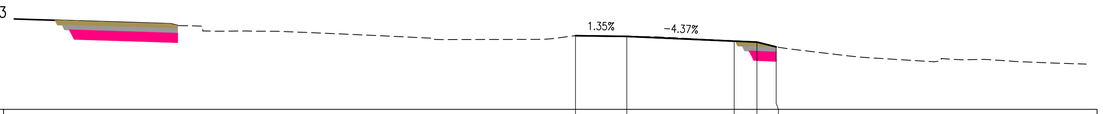


DESIGN HEIGHT	2.394	2.371	2.240
EXISTING SURFACE	2.394	2.371	2.240
OFFSETS	1.641	0.000	3.400

CHAINAGE 140

CONTROL LINE MC03
X = 328499.676
Y = 8201447.121
Z = 2.381

Datum 0.00

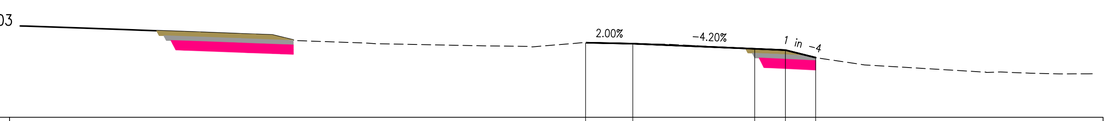


DESIGN HEIGHT	2.404	2.381	2.228	2.195	2.038
EXISTING SURFACE	2.404	2.381	2.228	2.132	2.038
OFFSETS	1.678	0.000	3.504	4.247	4.874

CHAINAGE 130

CONTROL LINE MC03
X = 328489.705
Y = 8201447.877
Z = 2.404

Datum 0.00



DESIGN HEIGHT	2.435	2.404	2.237	2.195	1.948
EXISTING SURFACE	2.435	2.404	2.237	2.099	1.948
OFFSETS	1.544	0.000	3.979	4.979	5.967

CHAINAGE 120

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 52 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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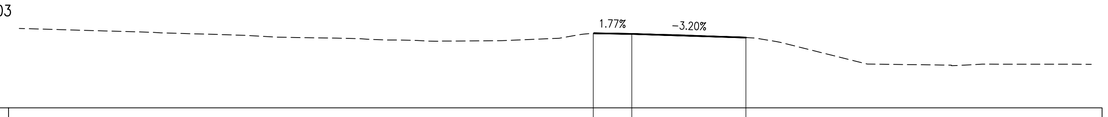
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-52

Revision: A

CONTROL LINE MC03
X = 328539.546
Y = 8201443.899
Z = 2.413

Datum 0.00

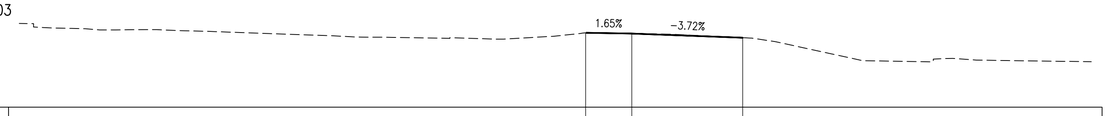


DESIGN HEIGHT	2.435	2.413	2.294		
EXISTING SURFACE	2.435	2.413	2.294		
OFFSETS	1.259	0.000	3.722		

CHAINAGE 170

CONTROL LINE MC03
X = 328529.579
Y = 8201444.705
Z = 2.403

Datum 0.00

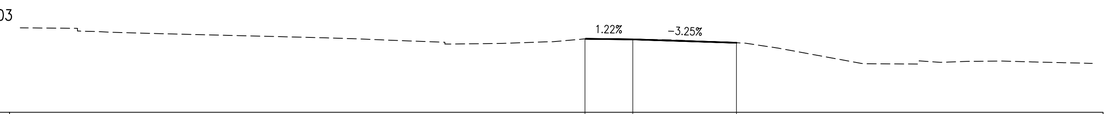


DESIGN HEIGHT	2.428	2.403	2.269		
EXISTING SURFACE	2.428	2.403	2.269		
OFFSETS	1.507	0.000	3.619		

CHAINAGE 160

CONTROL LINE MC03
X = 328519.611
Y = 8201445.510
Z = 2.380

Datum 0.00



DESIGN HEIGHT	2.399	2.380	2.270		
EXISTING SURFACE	2.399	2.380	2.270		
OFFSETS	1.563	0.000	3.381		

CHAINAGE 150

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 53 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

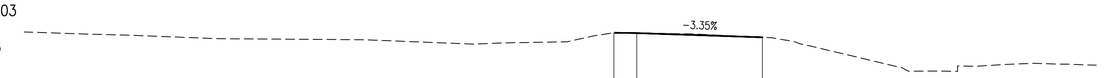
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-53
Revision: A

CONTROL LINE MC03
X = 328569.449
Y = 8201441.483
Z = 2.435

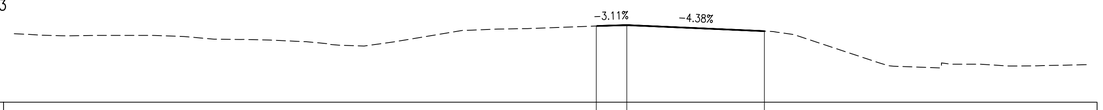
Datum 0.00



| | | |

CONTROL LINE MC03
X = 328599.351
Y = 8201439.068
Z = 2.518

Datum 0.00

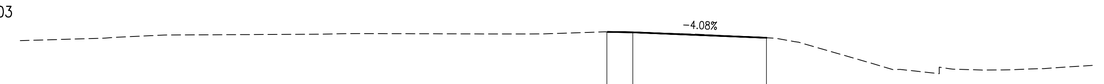


DESIGN HEIGHT				2.487	2.518		2.321		
EXISTING SURFACE				2.487	2.497		2.321		
OFFSETS				1.000	0.000		4.488		

CHAINAGE 230

CONTROL LINE MC03
X = 328589.384
Y = 8201439.873
Z = 2.500

Datum 0.00



DESIGN HEIGHT				2.515	2.500		2.323		
EXISTING SURFACE				2.515	2.490		2.323		
OFFSETS				0.847	0.000		4.362		

CHAINAGE 220

CONTROL LINE MC03
X = 328579.416
Y = 8201440.678
Z = 2.468

Datum 0.00



DESIGN HEIGHT				2.487	2.468		2.323		
EXISTING SURFACE				2.487	2.471		2.323		
OFFSETS				0.552	0.000		4.312		

CHAINAGE 210

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 55 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

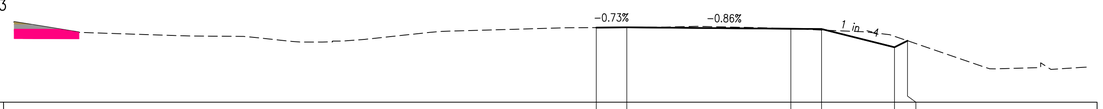
Job Number 25019

Drawing Number 25019-HEG-C09-XS-55

Revision A

CONTROL LINE MC03
X = 328629.247
Y = 8201439.147
Z = 2.443

Datum 0.00

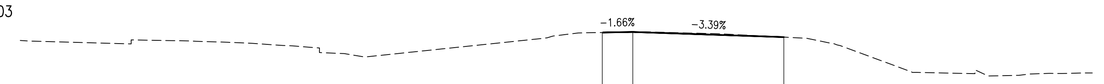


DESIGN HEIGHT	2.435	2.443	2.397	2.388	1.793	2.006			
EXISTING SURFACE	2.435	2.443	2.397	2.355	2.150	2.006			
OFFSETS	1.000	0.000	5.355	6.355	8.736	9.162			

CHAINAGE 260

CONTROL LINE MC03
X = 328619.311
Y = 8201438.081
Z = 2.497

Datum 0.00

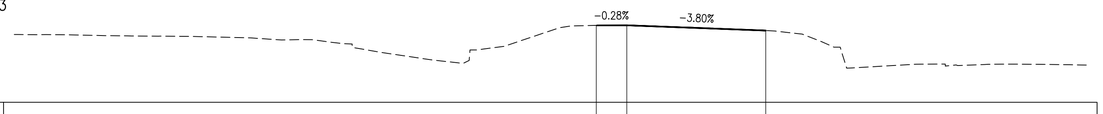


DESIGN HEIGHT	2.481	2.497	2.330						
EXISTING SURFACE	2.481	2.497	2.330						
OFFSETS	1.000	0.000	4.928						

CHAINAGE 250

CONTROL LINE MC03
X = 328609.319
Y = 8201438.262
Z = 2.513

Datum 0.00



DESIGN HEIGHT	2.511	2.513	2.341						
EXISTING SURFACE	2.511	2.502	2.341						
OFFSETS	1.000	0.000	4.536						

CHAINAGE 240

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 56 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

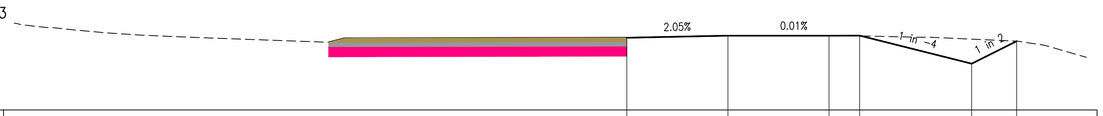
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-56
Revision: A

CONTROL LINE MC03
X = 328659.001
Y = 8201441.636
Z = 2.360

Datum 0.00



DESIGN HEIGHT	2.360	2.428	2.428	2.428	1.513	2.247		
EXISTING SURFACE	2.357	2.428	2.428	2.420	2.314	2.247		
OFFSETS	0.000	3.300	6.600	7.600	11.258	12.726		

CHAINAGE 290

CONTROL LINE MC03
X = 328649.013
Y = 8201441.969
Z = 2.376

Datum 0.00

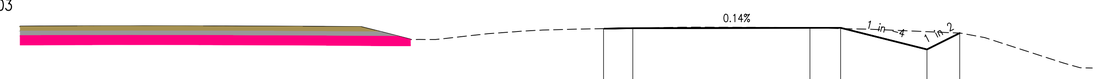


DESIGN HEIGHT	2.363	2.376	2.433	2.443	1.664	2.287		
EXISTING SURFACE	2.363	2.376	2.433	2.425	2.334	2.287		
OFFSETS	0.458	0.000	6.209	7.209	10.322	11.568		

CHAINAGE 280

CONTROL LINE MC03
X = 328639.061
Y = 8201441.058
Z = 2.421

Datum 0.00



DESIGN HEIGHT	2.404	2.421	2.429	2.431	1.726	2.260		
EXISTING SURFACE	2.404	2.421	2.429	2.406	2.305	2.260		
OFFSETS	0.958	0.000	5.782	6.782	9.602	10.672		

CHAINAGE 270

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 57 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-57
Revision: A

CONTROL LINE MC03
X = 328688.891
Y = 8201439.068
Z = 2.575

Datum 0.00



DESIGN HEIGHT	2.575	2.610	2.644	2.655	1.441	2.157	
EXISTING SURFACE	2.019	2.002	2.309	2.397	2.288	2.157	
OFFSETS	0.000	3.300	6.600	7.600	12.456	13.888	

CHAINAGE 320

CONTROL LINE MC03
X = 328678.928
Y = 8201439.924
Z = 2.461

Datum 0.00



DESIGN HEIGHT	2.461	2.502	2.543	2.556	1.382	2.149	
EXISTING SURFACE	1.788	1.807	2.390	2.389	2.274	2.149	
OFFSETS	0.000	3.300	6.600	7.600	12.294	13.827	

CHAINAGE 310

CONTROL LINE MC03
X = 328668.964
Y = 8201440.780
Z = 2.389

Datum 0.00



DESIGN HEIGHT	2.389	2.437	2.475	2.486	1.417	2.177	
EXISTING SURFACE	1.756	2.187	2.418	2.433	2.303	2.177	
OFFSETS	0.000	3.300	6.600	7.600	11.876	13.396	

CHAINAGE 300

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 58 / 75

HANSEN
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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number 25019
Drawing Number 25019-HEG-C09-XS-58
Revision A

CONTROL LINE MC03
X = 328717.286
Y = 8201446.563
Z = 2.986



Datum 0.00

DESIGN HEIGHT	2.986	2.999	3.012	3.016	1.652	2.274		
EXISTING SURFACE	3.096	3.089	2.911	2.850	2.436	2.274		
OFFSETS	0.000	3.300	6.600	7.600	13.057	14.302		

CHAINAGE 350

CONTROL LINE MC03
X = 328708.512
Y = 8201441.815
Z = 2.931



Datum 0.00

DESIGN HEIGHT	2.931	2.952	2.973	2.979	1.581	2.451		
EXISTING SURFACE	2.745	2.633	2.481	2.427	2.415	2.451		
OFFSETS	0.000	3.300	6.600	7.600	13.191	14.931		

CHAINAGE 340

CONTROL LINE MC03
X = 328698.866
Y = 8201439.270
Z = 2.733



Datum 0.00

DESIGN HEIGHT	2.733	2.761	2.788	2.797	1.511	2.341		
EXISTING SURFACE	2.246	2.228	2.234	2.304	2.380	2.341		
OFFSETS	0.000	3.300	6.600	7.600	12.744	14.404		

CHAINAGE 330

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 59 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-59
Revision: A

CONTROL LINE MC03
X = 328733.833
Y = 8201470.824
Z = 2.688



Datum 0.00

DESIGN HEIGHT	2.688	2.677	2.667	2.664	1.864	2.693	
EXISTING SURFACE	2.728	2.733	2.725	2.721	2.706	2.693	
OFFSETS	0.000	3.300	6.600	7.600	10.799	12.457	

CHAINAGE 380

CONTROL LINE MC03
X = 328730.314
Y = 8201461.488
Z = 2.788



Datum 0.00

DESIGN HEIGHT	2.788	2.778	2.768	2.765	1.793	2.619	
EXISTING SURFACE	2.721	2.690	2.662	2.657	2.640	2.619	
OFFSETS	0.000	3.300	6.600	7.600	11.486	13.137	

CHAINAGE 370

CONTROL LINE MC03
X = 328724.693
Y = 8201453.246
Z = 2.888



Datum 0.00

DESIGN HEIGHT	2.888	2.888	2.888	2.888	1.723	2.580	
EXISTING SURFACE	2.866	2.845	2.750	2.727	2.643	2.580	
OFFSETS	0.000	3.300	6.600	7.600	12.263	13.977	

CHAINAGE 360

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 60 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-60
Revision: A

CONTROL LINE MC03
X = 328742.793
Y = 8201499.244
Z = 2.141

Datum 0.00

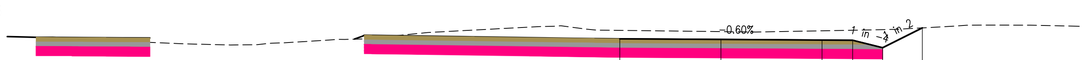


DESIGN HEIGHT	2.141	2.115	2.088	2.080	2.209		
EXISTING SURFACE	2.151	2.071	2.098	2.160	2.209		
OFFSETS	0.000	3.300	6.600	7.600	8.330		

CHAINAGE 410

CONTROL LINE MC03
X = 328738.454
Y = 8201490.238
Z = 2.264

Datum 0.00

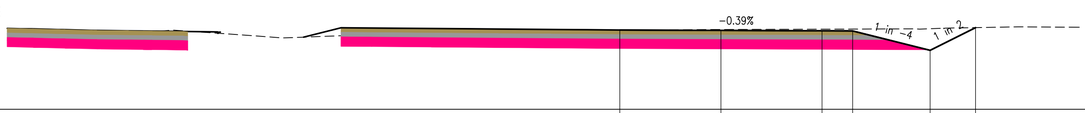


DESIGN HEIGHT	2.264	2.244	2.224	2.218	1.974	2.622	
EXISTING SURFACE	2.541	2.501	2.527	2.545	2.566	2.622	
OFFSETS	0.000	3.300	6.600	7.600	8.578	9.873	

CHAINAGE 400

CONTROL LINE MC03
X = 328735.664
Y = 8201480.653
Z = 2.588

Datum 0.00



DESIGN HEIGHT	2.588	2.575	2.562	2.558	1.925	2.667	
EXISTING SURFACE	2.584	2.605	2.615	2.618	2.630	2.667	
OFFSETS	0.000	3.300	6.600	7.600	10.130	11.612	

CHAINAGE 390

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 61 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

JAS-ANZ

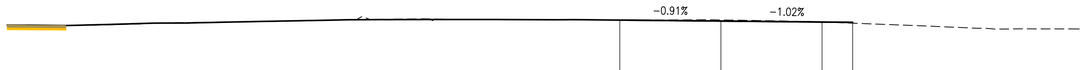
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-61
Revision: A

CONTROL LINE MC03
X = 328745.067
Y = 8201503.763
Z = 2.193

Datum 0.00



DESIGN HEIGHT	2.193	2.163	2.129	2.119	
EXISTING SURFACE	2.194	2.198	2.130	2.093	
OFFSETS	0.000	3.300	6.600	7.600	

CHAINAGE 415.058

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC03
SHEET 62 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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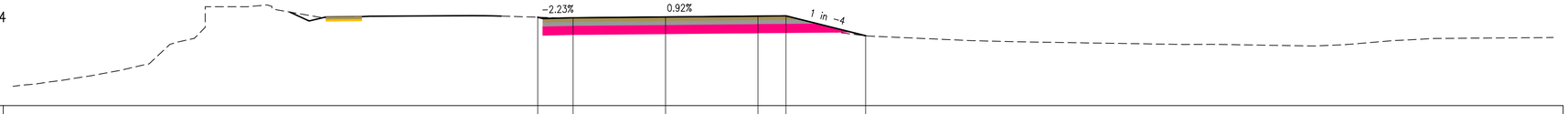
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-62

Revision: A

CONTROL LINE MC04
X = 328595.924
Y = 8201484.555
Z = 3.141

Datum 0.00

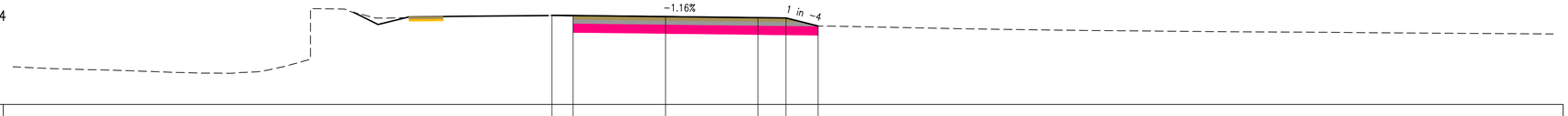


DESIGN HEIGHT	3.164	3.141	3.171	3.202	3.211	2.500	
EXISTING SURFACE	3.164	3.125	2.943	2.810	2.777	2.500	
OFFSETS	1.264	0.000	3.300	6.600	7.600	10.444	

CHAINAGE 20

CONTROL LINE MC04
X = 328585.964
Y = 8201485.287
Z = 3.177

Datum 0.00

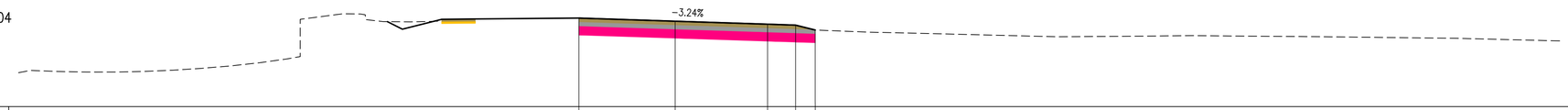


DESIGN HEIGHT	3.182	3.177	3.139	3.101	3.089	2.802	
EXISTING SURFACE	3.182	3.156	3.048	2.820	2.812	2.802	
OFFSETS	0.754	0.000	3.300	6.600	7.600	8.747	

CHAINAGE 10

CONTROL LINE MC04
X = 328576.029
Y = 8201484.271
Z = 3.152

Datum 0.00



DESIGN HEIGHT	3.152	3.041	2.934	2.901	2.727
EXISTING SURFACE	3.149	3.045	2.789	2.750	2.727
OFFSETS	0.000	3.432	6.732	7.732	8.429

CHAINAGE 0

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 63 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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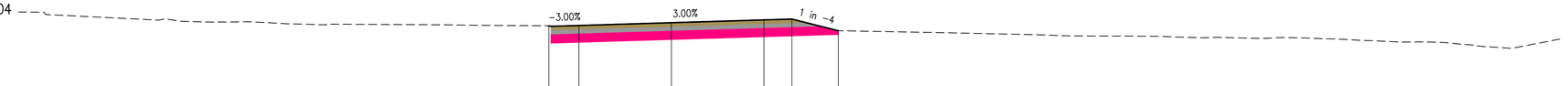
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-63

Revision: A

CONTROL LINE MC04
X = 328622.949
Y = 8201472.345
Z = 2.584

Datum 0.00

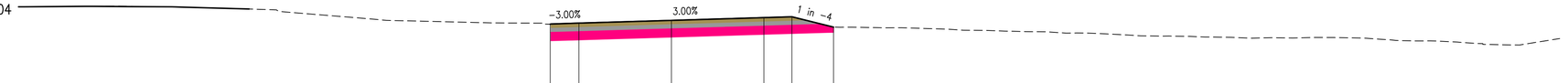


DESIGN HEIGHT	2.574	2.584	2.683	2.782	2.812	2.398	
EXISTING SURFACE	2.574	2.566	2.517	2.446	2.427	2.398	
OFFSETS	1.079	0.000	3.300	6.600	7.600	9.256	

CHAINAGE 50

CONTROL LINE MC04
X = 328614.705
Y = 8201477.982
Z = 2.678

Datum 0.00

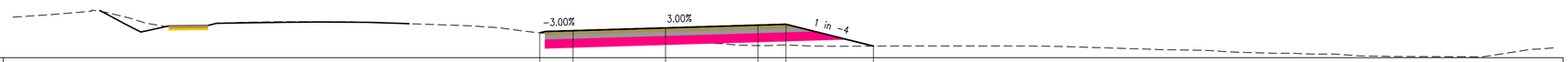


DESIGN HEIGHT	2.642	2.678	2.777	2.876	2.906	2.535	
EXISTING SURFACE	2.642	2.641	2.668	2.589	2.555	2.535	
OFFSETS	1.027	0.000	3.300	6.600	7.600	9.085	

CHAINAGE 40

CONTROL LINE MC04
X = 328605.604
Y = 8201482.094
Z = 2.968

Datum 2.00



DESIGN HEIGHT	2.890	2.968	3.067	3.166	3.196	2.415	
EXISTING SURFACE	2.890	2.841	2.608	2.434	2.459	2.415	
OFFSETS	1.192	0.000	3.300	6.600	7.600	10.722	

CHAINAGE 30

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 64 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

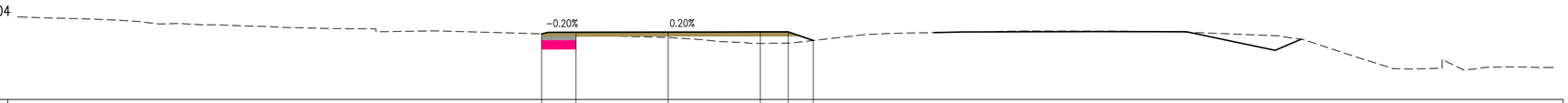
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-64
Revision: A

CONTROL LINE MC04
X = 328646.343
Y = 8201453.841
Z = 2.404

Datum 0.00

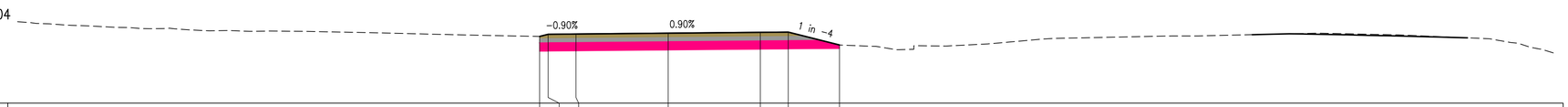


DESIGN HEIGHT	2.345	2.404	2.411	2.417	2.419	2.111	
EXISTING SURFACE	2.345	2.295	2.218	2.007	2.018	2.111	
OFFSETS	1.230	0.000	3.300	6.600	7.600	8.496	

CHAINAGE 80

CONTROL LINE MC04
X = 328637.741
Y = 8201458.909
Z = 2.464

Datum 0.00

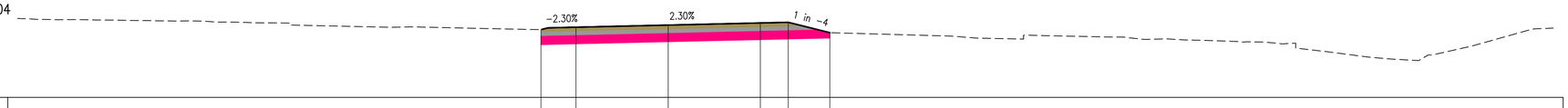


DESIGN HEIGHT	2.379	2.455	2.464	2.494	2.524	2.533	2.074
EXISTING SURFACE	2.379	2.373	2.367	2.284	2.197	2.148	2.074
OFFSETS	1.304	1.000	0.000	3.300	6.600	7.600	9.435

CHAINAGE 70

CONTROL LINE MC04
X = 328630.253
Y = 8201465.520
Z = 2.524

Datum 0.00



DESIGN HEIGHT	2.438	2.524	2.600	2.676	2.699	2.327	
EXISTING SURFACE	2.438	2.425	2.390	2.361	2.347	2.327	
OFFSETS	1.253	0.000	3.300	6.600	7.600	9.089	

CHAINAGE 60

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 65 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

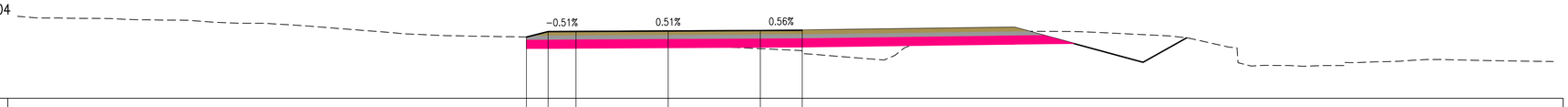
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-65
Revision: A

CONTROL LINE MC04
X = 328675.634
Y = 8201448.337
Z = 2.385

Datum 0.00

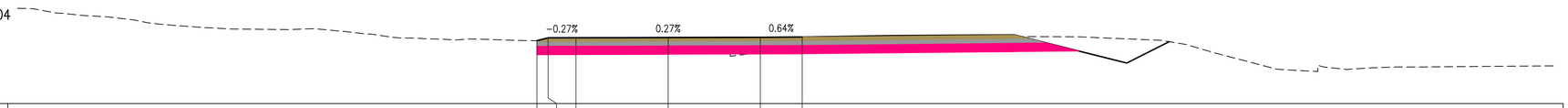


DESIGN HEIGHT	2.186	2.379	2.385	2.401	2.418	2.427	
EXISTING SURFACE	2.186	2.155	2.139	1.923	1.771	1.594	
OFFSETS	1.775	1.000	0.000	3.300	6.600	8.100	

CHAINAGE 110

CONTROL LINE MC04
X = 328665.670
Y = 8201449.193
Z = 2.345

Datum 0.00

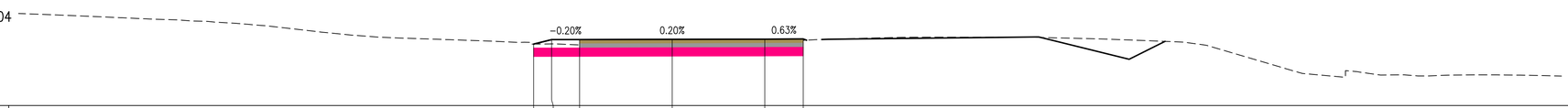


DESIGN HEIGHT	2.242	2.342	2.345	2.354	2.363	2.372	
EXISTING SURFACE	2.242	2.204	2.087	1.931	1.822	2.014	
OFFSETS	1.400	1.000	0.000	3.300	6.600	8.100	

CHAINAGE 100

CONTROL LINE MC04
X = 328655.779
Y = 8201450.582
Z = 2.353

Datum 0.00



DESIGN HEIGHT	2.191	2.351	2.353	2.359	2.366	2.374	
EXISTING SURFACE	2.191	2.197	2.160	1.994	2.139	2.322	
OFFSETS	1.640	1.000	0.000	3.300	6.600	7.970	

CHAINAGE 90

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL

Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 66 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

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DETAILED DESIGN

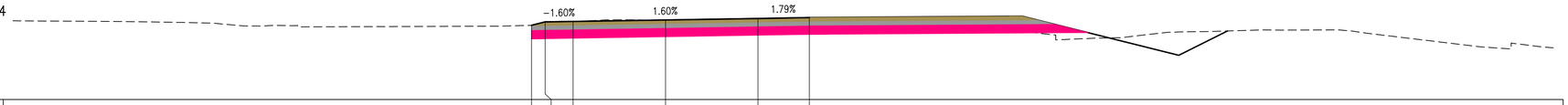
Job Number: 25019

Drawing Number: 25019-HEG-C09-XS-66

Revision: A

CONTROL LINE MC04
X = 328705.253
Y = 8201449.596
Z = 2.791

Datum 0.00

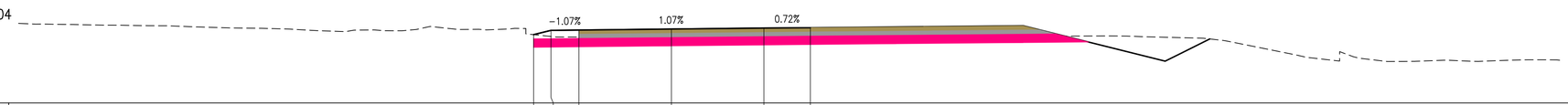


DESIGN HEIGHT	2.653	2.775	2.791	2.843	2.896	2.929	
EXISTING SURFACE	2.653	2.667	2.785	2.832	2.782	2.739	
OFFSETS	1.486	1.000	0.000	3.300	6.600	8.434	

CHAINAGE 140

CONTROL LINE MC04
X = 328695.575
Y = 8201447.216
Z = 2.607

Datum 0.00

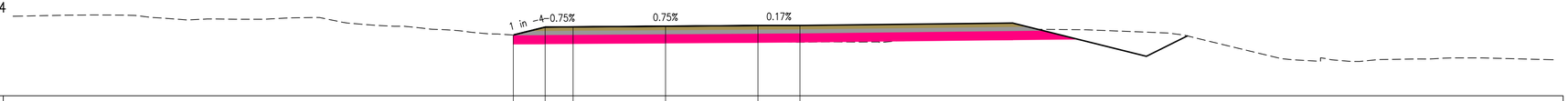


DESIGN HEIGHT	2.442	2.597	2.607	2.643	2.678	2.690
EXISTING SURFACE	2.442	2.379	2.359	2.264	2.251	2.206
OFFSETS	1.617	1.000	0.000	3.300	6.600	8.258

CHAINAGE 130

CONTROL LINE MC04
X = 328685.597
Y = 8201447.481
Z = 2.472

Datum 0.00



DESIGN HEIGHT	2.181	2.465	2.472	2.497	2.522	2.524
EXISTING SURFACE	2.181	2.165	2.142	2.021	1.939	1.922
OFFSETS	2.136	1.000	0.000	3.300	6.600	8.100

CHAINAGE 120

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 67 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

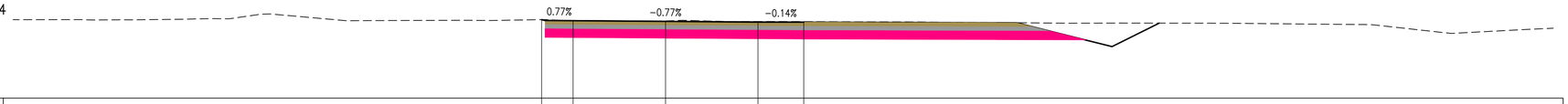
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-67
Revision: A

CONTROL LINE MC04
X = 328725.258
Y = 8201470.715
Z = 2.770

Datum 0.00

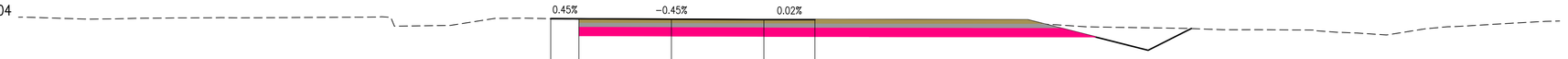


DESIGN HEIGHT	2.809	2.770	2.744	2.719	2.717	
EXISTING SURFACE	2.809	2.760	2.760	2.741	2.737	
OFFSETS	1.125	0.000	3.300	6.600	8.234	

CHAINAGE 170

CONTROL LINE MC04
X = 328720.721
Y = 8201461.841
Z = 2.870

Datum 0.00

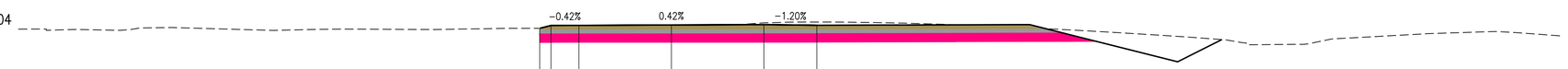


DESIGN HEIGHT	2.872	2.870	2.855	2.840	2.841	
EXISTING SURFACE	2.872	2.851	2.846	2.762	2.754	
OFFSETS	1.007	0.000	3.300	6.600	8.422	

CHAINAGE 160

CONTROL LINE MC04
X = 328713.868
Y = 8201454.606
Z = 2.960

Datum 0.00



DESIGN HEIGHT	2.856	2.956	2.960	2.974	2.987	2.965
EXISTING SURFACE	2.856	2.856	2.856	2.897	3.048	3.079
OFFSETS	1.400	1.000	0.000	3.300	6.600	8.491

CHAINAGE 150

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 68 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

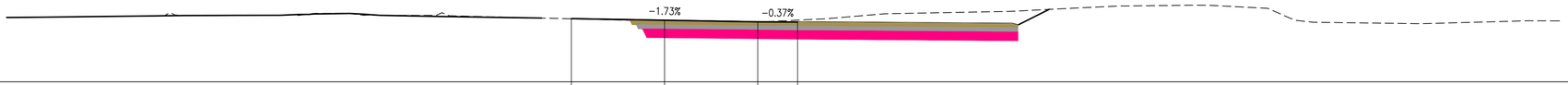
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-68
Revision: A

CONTROL LINE MC04
X = 328733.848
Y = 8201499.288
Z = 2.230

Datum 0.00

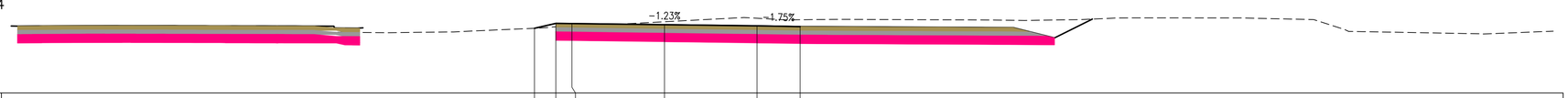


DESIGN HEIGHT	2.230	2.173	2.116	2.111	
EXISTING SURFACE	2.224	2.143	2.108	2.177	
OFFSETS	0.000	3.300	6.600	8.010	

CHAINAGE 200

CONTROL LINE MC04
X = 328729.755
Y = 8201490.175
Z = 2.472

Datum 0.00

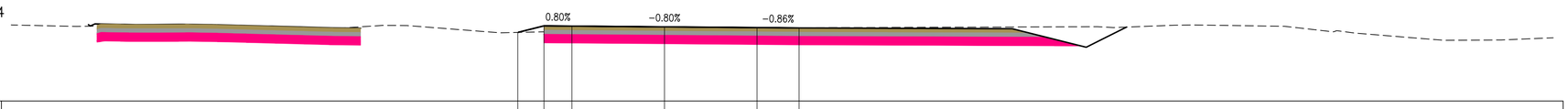


DESIGN HEIGHT	2.305	2.479	2.472	2.431	2.391	2.364
EXISTING SURFACE	2.305	2.361	2.378	2.538	2.662	2.609
OFFSETS	1.335	0.577	0.000	3.300	6.600	8.138

CHAINAGE 190

CONTROL LINE MC04
X = 328727.404
Y = 8201480.469
Z = 2.670

Datum 0.00



DESIGN HEIGHT	2.445	2.678	2.670	2.643	2.617	2.604
EXISTING SURFACE	2.445	2.466	2.504	2.594	2.608	2.614
OFFSETS	1.931	1.000	0.000	3.300	6.600	8.100

CHAINAGE 180

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 69 / 75

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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

JAS-ANZ
QMS 9001 EMS 14001 OHS 45001

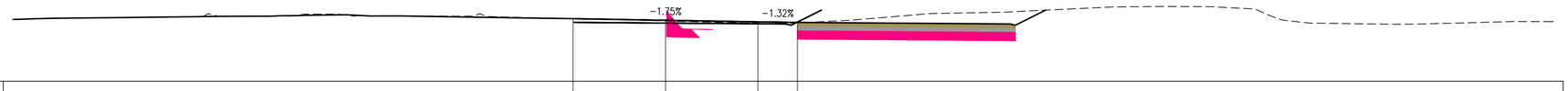
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DETAILED DESIGN

Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-69
Revision: A

CONTROL LINE MC04
X = 328734.193
Y = 8201499.972
Z = 2.245

Datum 0.00



DESIGN HEIGHT	2.245	2.187	2.129	2.111
EXISTING SURFACE	2.245	2.162	2.079	2.095
OFFSETS	0.000	3.300	6.600	8.010

CHAINAGE 200.766

Rev	Description	By	Appd	Date
A	100% Submission	PS	ES	18/12/2025

AMENDMENTS

DURACK

Scales
0 1 2 3 4m

Client: DURACK CIVIL
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE
Drawing Title: ANNOTATIVE CROSS SECTION - MC04
SHEET 70 / 75

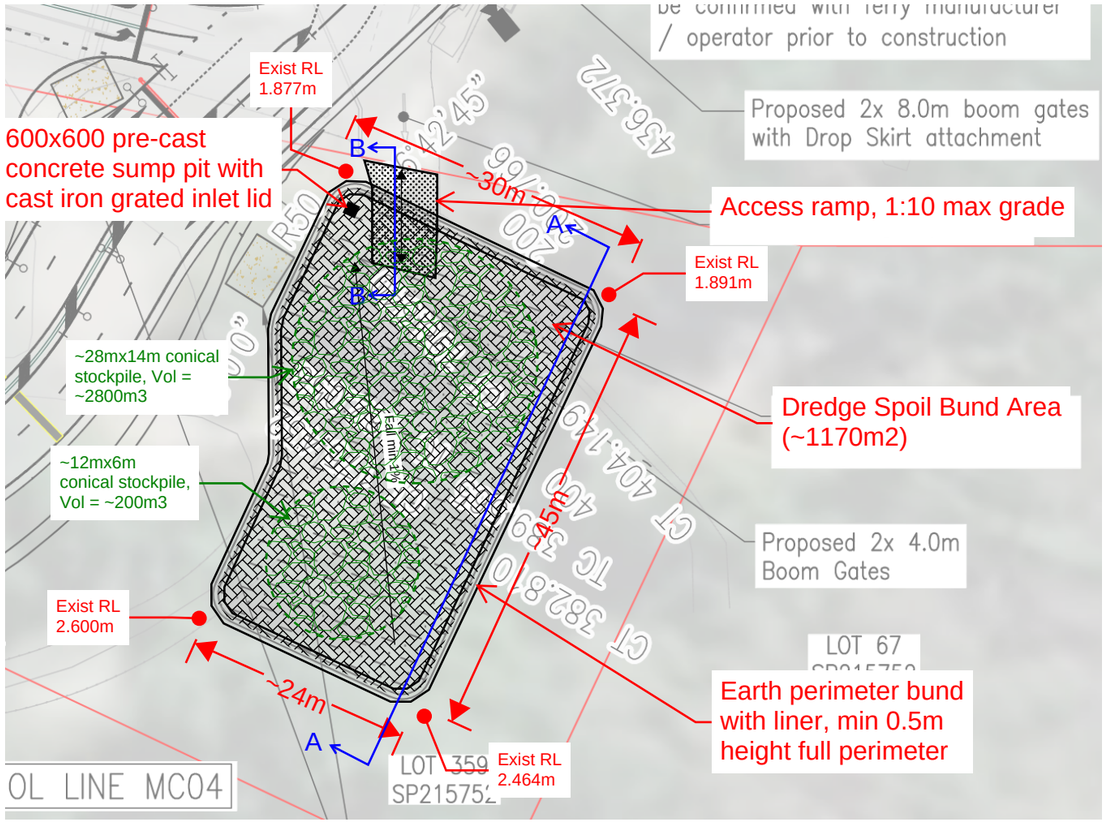
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Design	ES
Drawn	PS
Date	18/12/2025
Checked	NH
Approved	ES
RPEQ No.	

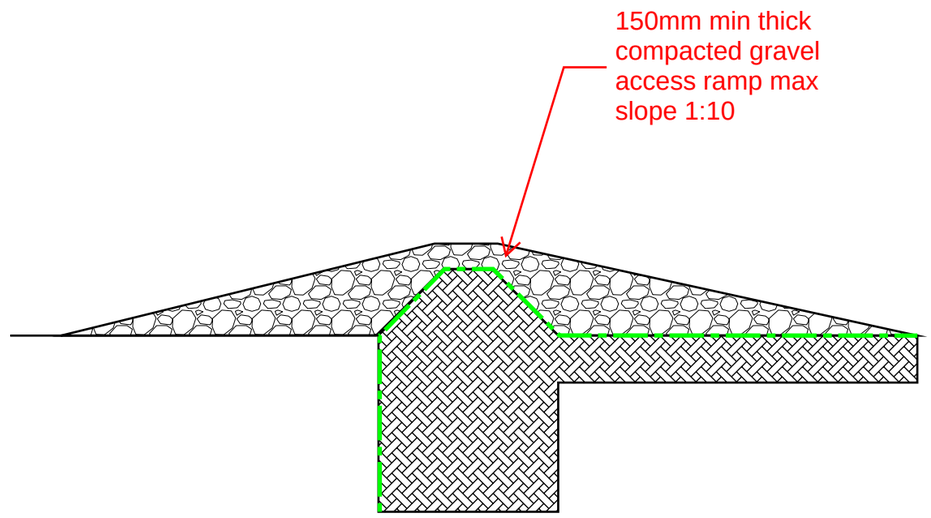
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DETAILED DESIGN

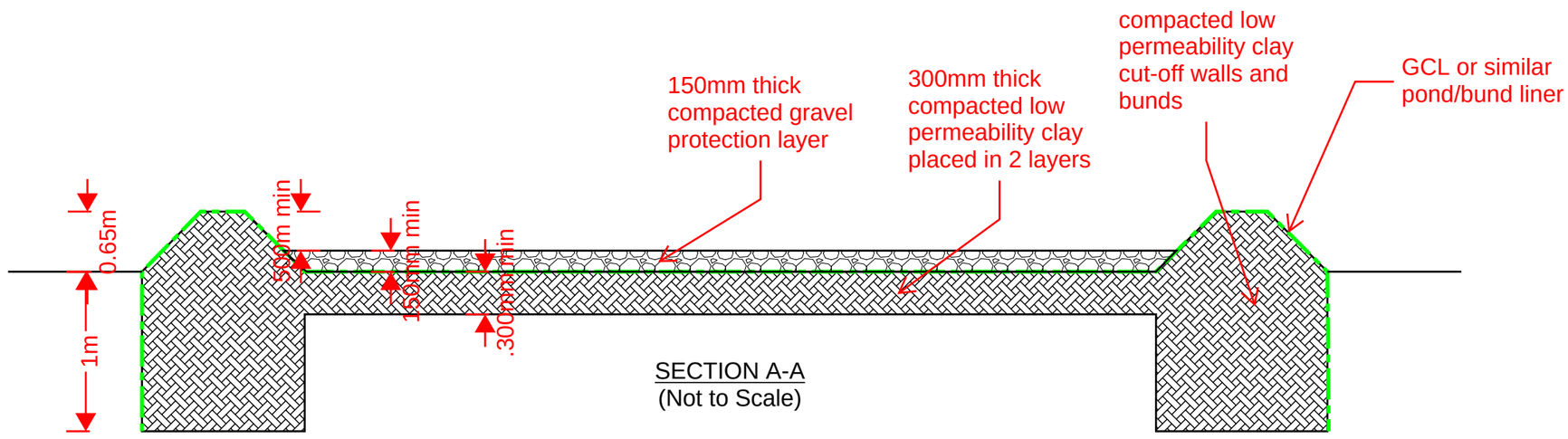
Job Number: 25019
Drawing Number: 25019-HEG-C09-XS-70
Revision: A



Extract from dwg 25019-HEG-C04-GA-02 rev C
(Not to Scale)



SECTION B-B
(Not to Scale)



SECTION A-A
(Not to Scale)

Not For Construction

Notes:

1. Subject to Detailed Design and confirmation of flood impacts.
2. Stockpile diameter and heights depend on dredge material properties and are estimates only.
3. Suitable for short term storage only.

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Client: DURACK CIVIL	Date 10/02/2026
Project: DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE	Job Number. # 25019
Drawing Title: DREDGE SPOIL BUND CONCEPT DESIGN	Drawing No. SK-001

Appendix D

Construction Methodology

Issue	Clause No.	Description of Issue	Authorised By	Date
0	All	Initial Issue	Rhianna Roberts	05/02/2026
1	5, 6	Programme reference and site office location added	Rhianna Roberts	05/02/2026

CONSTRUCTION METHODOLOGY



Client: Douglas Shire Council

Contract Name: Daintree Ferry Landside Infrastructure

Contract No: 5014/10

Contract Location: Daintree River Ferry

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1 INTRODUCTION

The following document aims to outline the general construction procedure, from planning to completion, that Durack Civil and any relevant subcontractors shall follow when undertaking earthworks on the Daintree Ferry Landside Infrastructure.

1.1 The project

The Daintree Ferry Landside Infrastructure Project includes the design and construction of the landside infrastructure to support the new Daintree River Ferry that is expected to arrive late 2027.

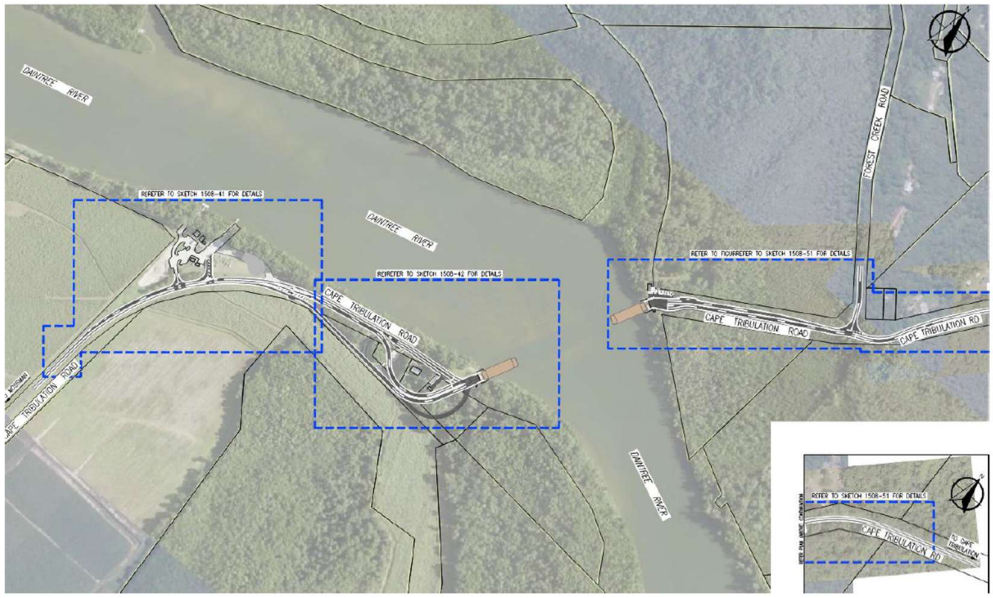


Figure 1: Overview of Works

The project is broken up into 3 x portions as follows:

- SP1 Design – completed
- SP2 Civils on northern and southern approaches – vegetation removal, pedestrian path, bus parking and boom gates
- SP3 Marine works – new boat ramps, cable connection pylons and tie in civil works

2 PLANNING

2.1 Subcontractors

Durack Civil has engaged several subcontractors to undertake various components of the work scope, including:

- Clearing and grubbing
- Concreting
- Electrical
- Bitumen seal

Durack will have regular communication with all subcontractors to ensure any changes, issues or deviations from the plan are well understood and addressed promptly.

Durack Civil's self-performing crews will include a combination of wet hired plant and operators and Durack staff. All workers, both subcontractor crews and self-perform crews, will be working under the direct supervision of the Durack supervisor, under Durack's management systems.

2.2 Specifications

The project will be constructed in accordance with the relevant FNQROC specifications:

- S1 Earthworks
- S2 Road Pavements
- S4 Stormwater Drainage
- S7 Concrete Works

2.3 Testing

Durack Civil will engage a specified NATA Accredited laboratory to undertake the required material conformance testing and construction testing. Testing types and frequencies shall be in accordance with FNQROC specifications.

2.4 Operating Times

Working hours for the project are Monday through Sunday, 06:30 to 18:30.

If Durack is required to execute works outside of these hours prior approval will be sought from the administrator.

2.5 Wet weather planning

A procedure will be established for checking weather forecasts daily, allowing the team to plan our works accordingly including closing off works as necessary during the storm season. We will closely monitor heavy rainfall events upstream of the works and prepare for the possibility of dry floods. We will also engage with property openers and seek their local knowledge regarding weather events to assist our planning. Further Risk Controls/Mitigations are outlined below:

- Short- and long-range forecast to be monitored daily.
- Works to be programmed around forecast weather conditions – i.e. ensure there is enough time to complete an activity if rainfall is imminent. No excavations to be left open in rainfall events
- Evacuation routes for work crews to be included in Emergency Response Plan
- Severe Weather Management Plan to be included in the Environmental Management Plan.

To develop the most effective approach for these works, Durack Civil has conducted a thorough review of the local weather conditions for the year to date in the Cairns Region, as detailed below. This analysis ensures we are fully prepared to tackle the challenges presented by the environment and optimize project execution.

2.5.1 Cairns Rainfall & Temperature Observations:

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years		Plot	Map
Temperature																	
Mean maximum temperature (°C)	32.2	32.1	31.3	30.1	28.0	26.5	26.1	27.0	28.7	30.3	31.8	32.1	29.7	12	2013 2025		
Mean minimum temperature (°C)	24.0	23.9	23.4	22.0	19.9	18.2	16.7	16.5	18.2	20.1	21.8	23.2	20.7	12	2013 2025		
Rainfall																	
Mean rainfall (mm)	459.3	328.6	410.9	263.7	105.1	59.5	70.0	31.5	43.6	51.7	68.2	296.5	2137.9	11	2013 2025		
Decile 5 (median) rainfall (mm)	483.2	346.6	365.2	251.8	73.4	43.0	63.0	28.1	46.1	43.9	84.4	118.4		12	n/a n/a		
Mean number of days of rain ≥ 1 mm	16.3	15.9	15.5	12.8	10.9	9.0	6.8	6.3	5.8	6.2	7.1	10.8	123.4	11	2013 2025		

Figure 2: Cairns Rainfall & Temperature Data

Managing wet weather for this project will require careful planning to mitigate delays and ensure site safety. Given the region's high rainfall and potential for cyclones, erosion and sediment control measures, such as silt fences, drainage channels, and sediment basins, are essential to prevent water runoff and environmental damage.

Scheduling flexibility is also key, with contingency plans that adjust work activities based on weather forecasts.

From the above, we can see that Cairns experiences temperatures in the mid to high 30s during the early and later parts of the year. Durack recognizes that hot weather can significantly impact civil construction by affecting workers' health, equipment performance, and material quality. By thoroughly understanding these impacts, we can implement effective health and safety measures, as well as tailored methods, to ensure worker protection, maintain equipment efficiency, and preserve material integrity.



Figure 3: Rain

Lastly, Durack Civil will proactively demobilize from the site during the North Queensland wet season to ensure safety, protect equipment, and prevent unnecessary delays. This strategic approach minimizes the risk of weather-related damage and costly disruptions. The team will closely monitor weather patterns and return once conditions stabilize, allowing for efficient project recommencement in dry weather. This planned demobilization and remobilization process ensures that work resumes smoothly, maintaining project timelines while prioritizing safety and environmental responsibility.

2.6 Tidal Considerations / Management

For SP2 Civil, Durack anticipates minimal to no impact due to tides. SP3 Marine will be significantly impacted by tides and works will need to be scheduled around lower tide periods to maximize work efficiency and minimise water related risks. As SP3 is not commencing until late 2027, the detailed construction planning will be conducted closer to the execution date.

2.7 Service Location

All services and road assets are to be surveyed prior to commencement of construction. The survey shall include the location and depth of services, utilities, buildings and drainage components.

Survey shall also set out the limits of the works for each lot prior to commencement.

2.8 Service Care

Where assets are located and confirmed within the work area, Durack shall protect the asset as per the Contract schedule. Where depths and locations of any assets are found to conflict with the earthworks activity, the asset is to be relocated. Any relocations are outside of the contract schedule of work and is to be agreed with the administrator prior.

Where relocation is not deemed to be viable, approval shall be sought from the principal for a proposed alteration in concern (i.e. reduced depth or minor area alterations), to mitigate risks of damage to the asset and plant as well as harm on operators and workers.

3 TRAFFIC CONTROL

Traffic control shall be as per the site-specific approved Traffic Management Plan and operation specific Traffic Guidance Scheme.

Durack will work closely with the traffic control company to maintain the same resources on the project wherever possible. Durack will have regular communication with the Traffic Controllers to ensure they are aware of any changes to the Traffic Guidance Schemes.

4 PLANT AND EQUIPMENT

4.1 Plant Required

The following plant will be required to construct the project

- Excavators
- Tippers
- Graders
- Pozitrack
- Padfoot roller
- Smooth drum roller
- Crane

4.2 Storage of Plant

Plant shall be stored on-site within the construction site boundaries, at locations so that they are not disrupting the work areas of other work activities. Additional storage areas shall be located near the site compound, without disruption to live public traffic. Larger plant and equipment shall be positioned so that they do not become a physical or visible obstruction to the public road users travelling past the work site.

If inclement weather is expected Durack will refer to the approved Sever Weather Management Plan.

5 MANAGEMENT OF MATERIALS

5.1 Material Supply

All materials shall comply with the requirements in the design drawings and the specifications. Test reports verifying compliance shall be submitted to the designer for approval prior to placement.

5.2 Stockpiles

Any excess material will be removed from site to a spoil location, or stockpiled in a location approved by Douglas Shire Council.



Figure 4: Site Office Location and Stockpile Area

Temporary stockpiles may be required for material deliveries. Material stockpiles will be placed in construction areas that do not cause any nuisance to the public.

6 CONSTRUCTION STAGING

6.1 Construction Programme

Please refer to the Construction Programme for details of the expected construction timeframes.

6.2 Staging overview

Currently intend to construct the Southern approach, followed by the northern approach. This approach provides an opportunity to accelerate by adding an additional crew and working on both sides of the river at the same time.

6.2.1 Southern Side

The below construction staging is proposed for the civil works on the southern side of the river.

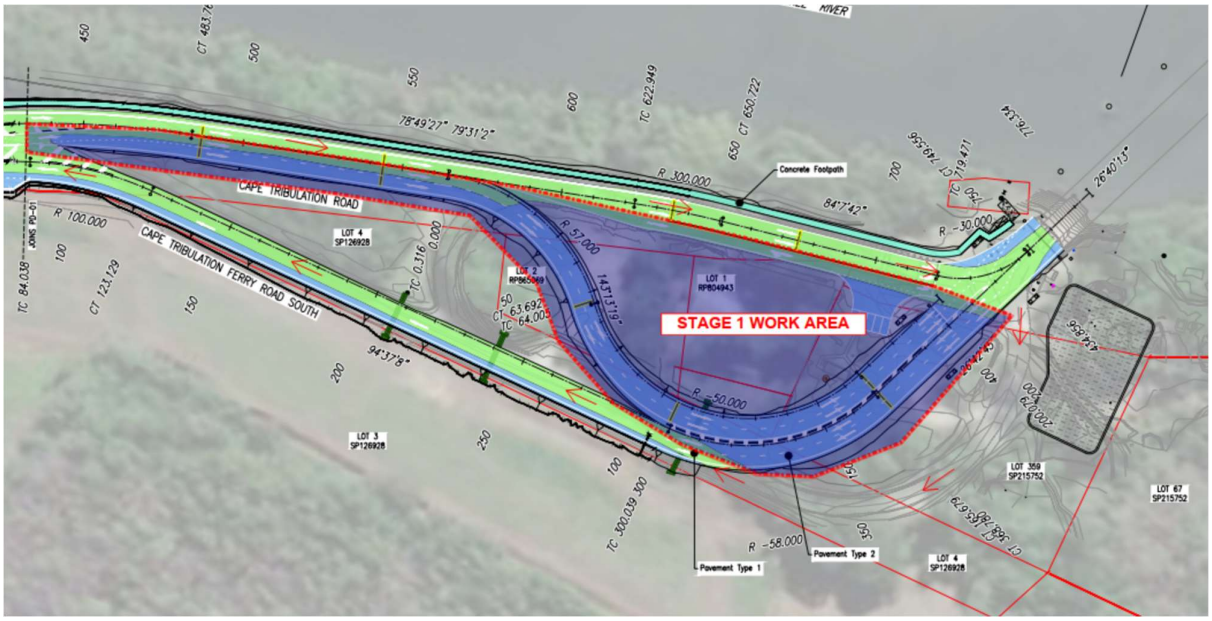


Figure 5: South Stage 1

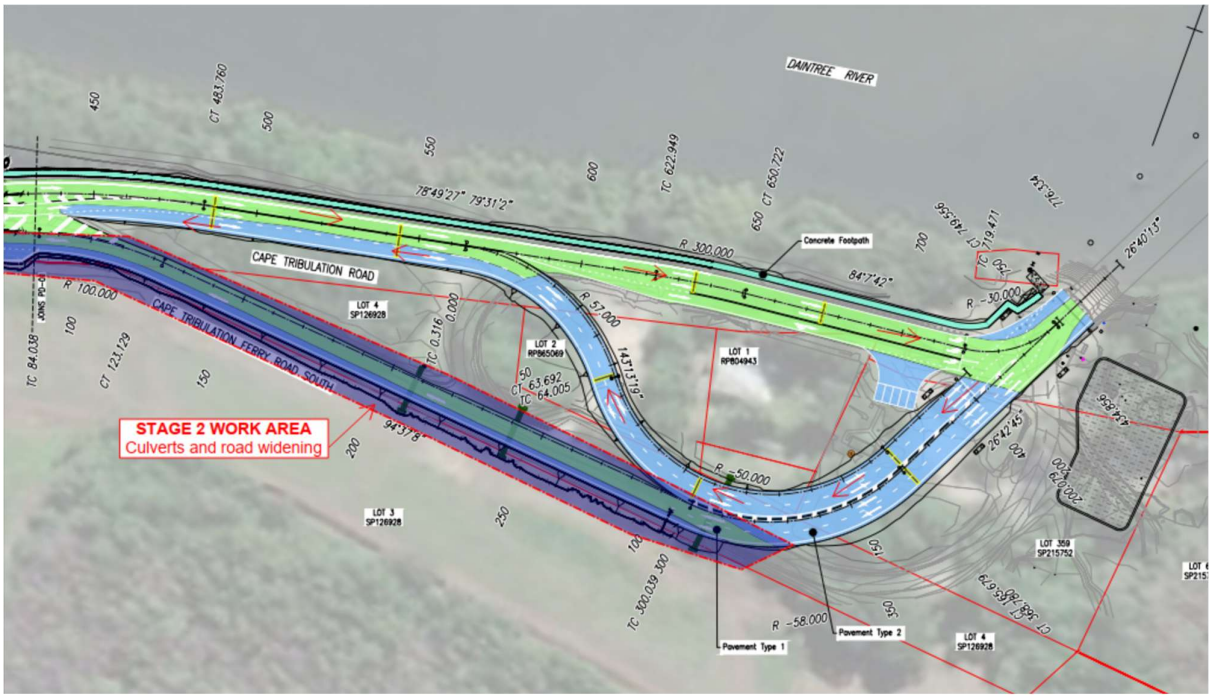


Figure 6: South Stage 2

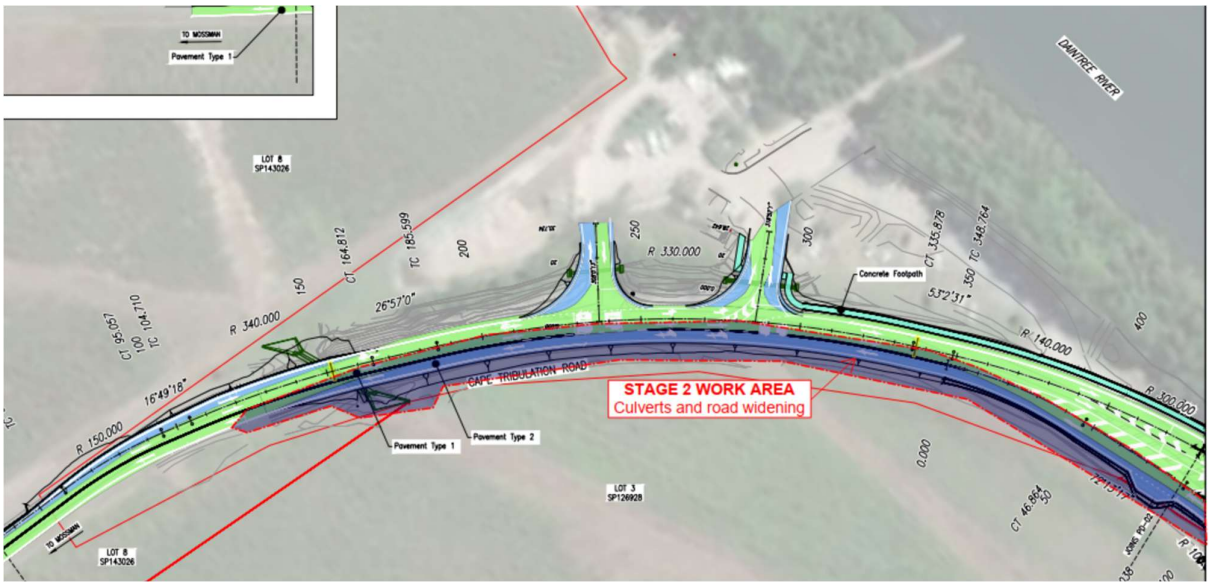


Figure 7: South Stage 2 Continued

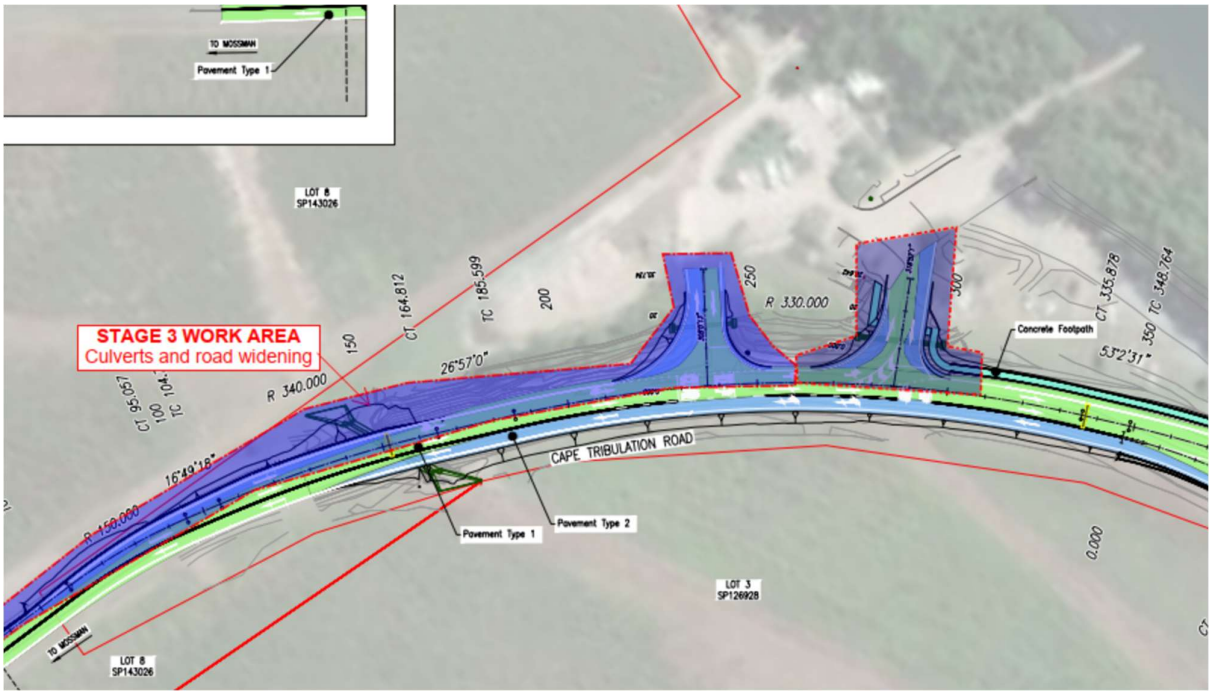


Figure 8: South Stage 3

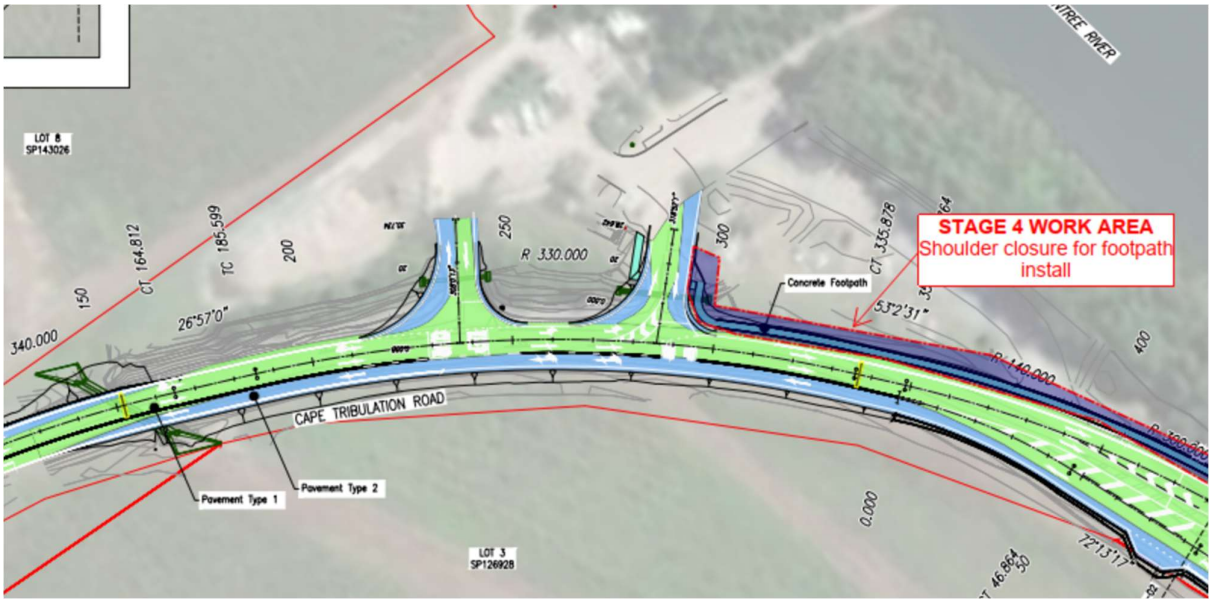


Figure 9: South Stage 4

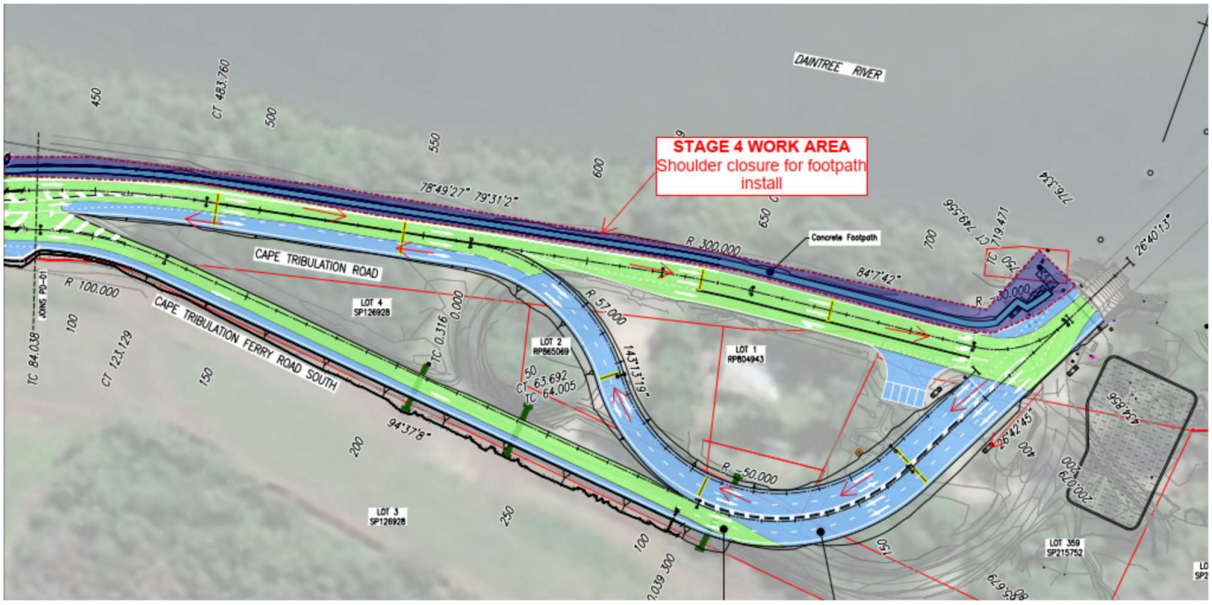


Figure 10: South Stage 4 continued

6.2.2 Northern Side

The below construction staging is proposed for the civil works on the northern side of the river.

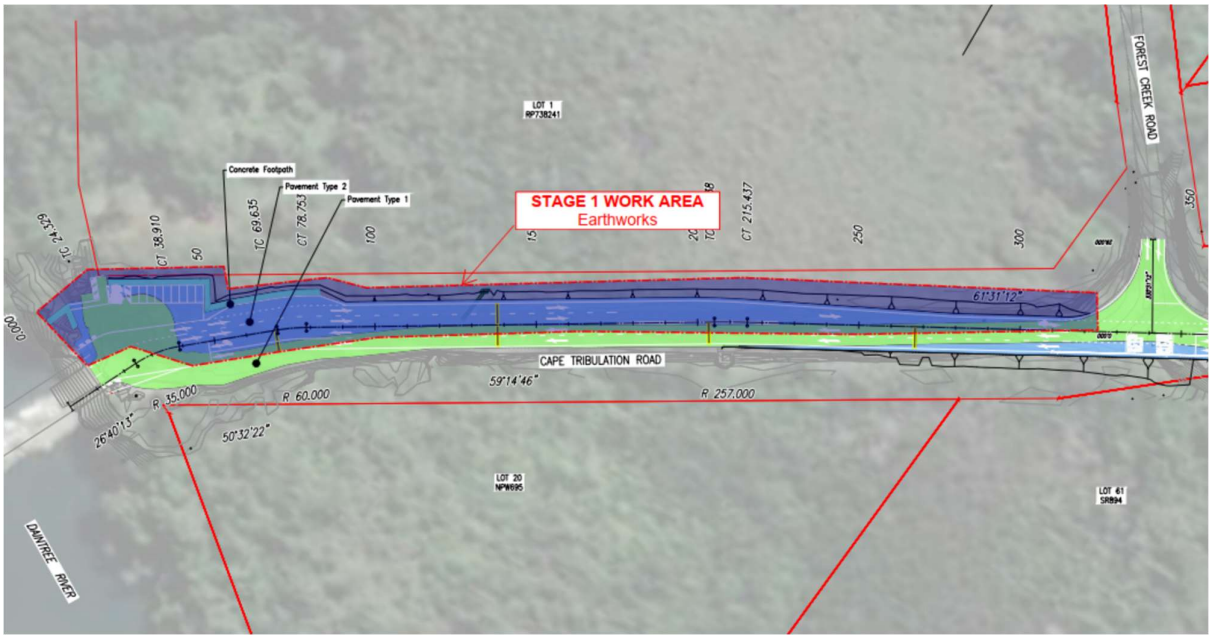


Figure 11: North Stage 1

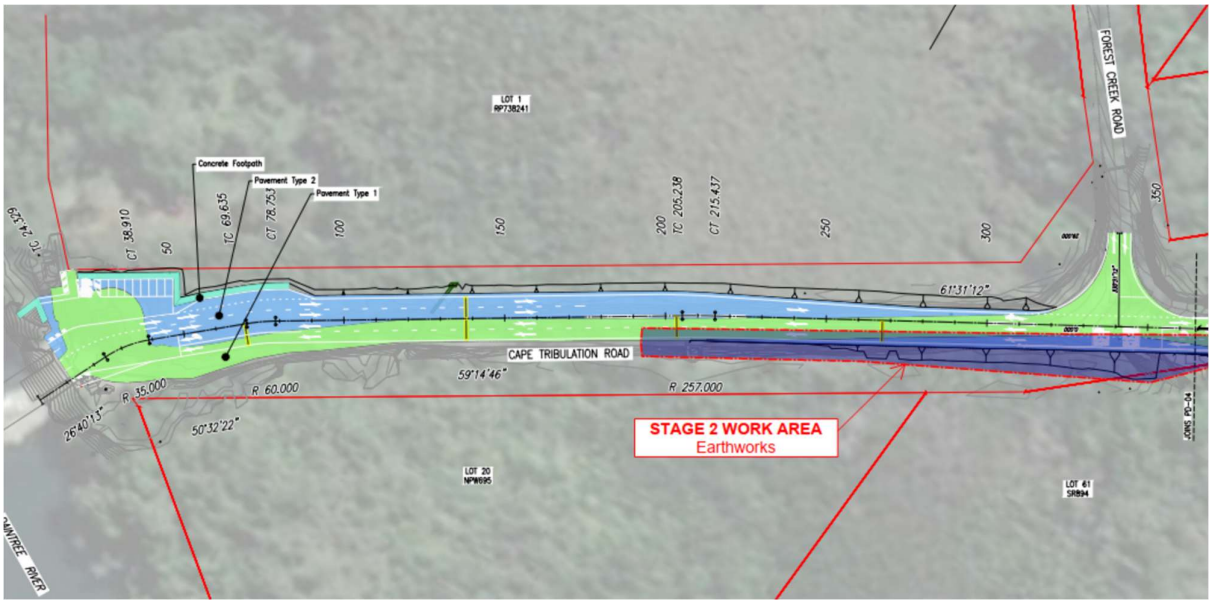


Figure 12: North Stage 2

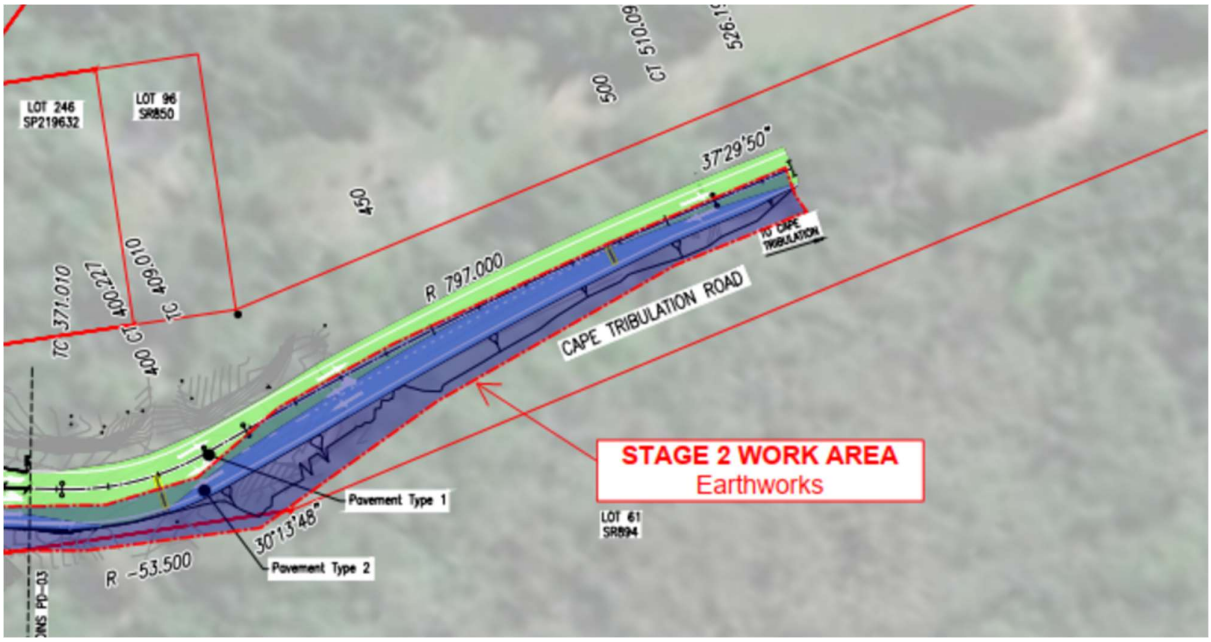


Figure 13: North Stage 3

6.2.3 Boat Ramps

The boat ramps will be installed in late 2027, to align with the deliver of the new Daintree Ferry. The construction will occur concurrently on both sides of the river to ensure completion within the 14 day construction window.

7 CONSTRUCTION PROCESS

7.1 Prestart Machinery

All plant and machinery to be used in the day's works shall undergo a prestart check to ensure safe and environmentally friendly operation. Pre-start checks shall only be completed by personnel licensed to operate the particular plant/machinery.

Prestart records from all plant and machinery on the project are to be kept as part of the safety assurance process.

7.2 Protection of Works

The contractor will provide protection of earthworks by (including but not limited to the following):

a) Installing and maintaining effective erosion and sedimentation control measures. This includes placement of soil binder or geofabric on exposed faces when rainfall is forecasted, or if a face is to be left exposed for a long period of time.

b) Always maintaining drainage of all working areas to ensure run-off of water without scour, except where ponding is off the formation and forms part of a planned erosion and sedimentation control system. Do not allow water to pond in the working areas resulting in wetting up of the existing pavement or formation or foundation material.

c) When rain is likely or when work is not proposed to continue in a working area on the following day, take precautions to minimize ingress of water into earthworks material. Seal off ripped material remaining in cuttings and material placed on embankments with a smooth drum roller.

d) Do not allow the earthworks material to dry out to the point where excessive shrinkage occurs in the embankment, and/or the surface is pulverized by traffic generating excessive loose material.

7.3 Cultural Heritage

During the design phase, Douglas Shire Council engaged with the Jabalbina Aboriginal Corporation and Yalanji Elders. This engagement included multiple site visits, one of which Durack Civil attended.

Prior to Durack's involvement, a Cultural Heritage Assessment report was developed that identified two areas of cultural significance. These are labelled as areas "A" and "B: in Figure 14 and Figure 15 below.

5.2. Avoid high risk areas

Two areas that should be avoided because of high cultural values were identified through the cultural heritage assessment (shown in Figure 14).

- **A** marks the tributary that holds yulba, the 'boss' mud mussel that was collected in the past and is still collected today by Yalanji people. This tributary should be avoided in construction and steps taken to control any adverse impacts to the yulba in the tributary.
- **B** is the location of the walking track that Yalanji use to access black palm for weaving. This walking track should not be disturbed in construction of the Daintree Ferry upgrade and people should be able to continue access the walking track after the upgrade is completed.

Figure 14: Excerpt from Daintree Ferry Upgrade Cultural Heritage Assessment Report – text describing areas with cultural significance



Figure 15: Excerpt from Daintree Ferry Upgrade Cultural Heritage Assessment Report – map showing areas with cultural significance

Durack Civil attended a subsequent site visit with Douglas Shire Council, a Cultural Heritage Consultant named Alice Burhich, and Yalanji man Richard Burchill. The meeting intention was to review the areas of significance and confirm the impact on the design, and specifically if any design changes were required.

The meeting began at the Area A. Richard confirmed that the mud mussels were typically found within the creek bed, which was a considerable distance from the edge of works. Therefore, it was confirmed that it was unlikely that mud mussels would be found during the construction of the northern boat ramp works. As such, no design changes were required in this area.

The meeting then followed the road north and stopped at culvert 3A outlet (according to Figure 15 this is located within area A). It was noted that the scope of works included removal and replacement of the existing culvert and headwall. As there was an existing headwall present, it was considered unlikely that any mud mussels would be found during these works, because they would have been found during the construction of the original headwall. As such, no design changes were required in this area.

The meeting then followed the road north and stopped across from the Forest Creek Road intersection near Area B. Richard confirmed that there was no defined walking track in this area, and therefore no design changes were required.

The meeting then followed the road north and continued to the end of the work extents. During this walk Richard identified multiple black palm trees that hold cultural significance to the Yalanji People, and that the Yalanji People would like to harvest them prior to Durack's clearing works. These black palms were surveyed and are shown on the IFC design plans. Douglas Shire Council is currently coordinating the removal of these palms prior to Durack Civil's arrival on site.

In summary, no design changes were identified as necessary, and black palm trees were identified to be removed prior to Durack's arrival on site.

Council is also negotiating directly with the Jabalbina Aboriginal Corporation to determine the nature and extent of their involvement in the project. As these negotiations are ongoing, the associated requirements and potential impacts on the project remain unknown at this stage.

Durack Civil will continue to work collaboratively with Douglas Shire Council until the agreement is finalised and will seek opportunities to mitigate costs through early coordination where possible.

7.4 Clearing and Grubbing

Before any clearing commences, a Fauna Spotter will be engaged to investigate the presence of any fauna if required. During clearing, spotters will be onsite to avoid any harm to wildlife and if any wildlife is found, it will be relocated in accordance with the CEMP.

The clearing limits will be clearly identified by flagging/marking the trees to be removed.

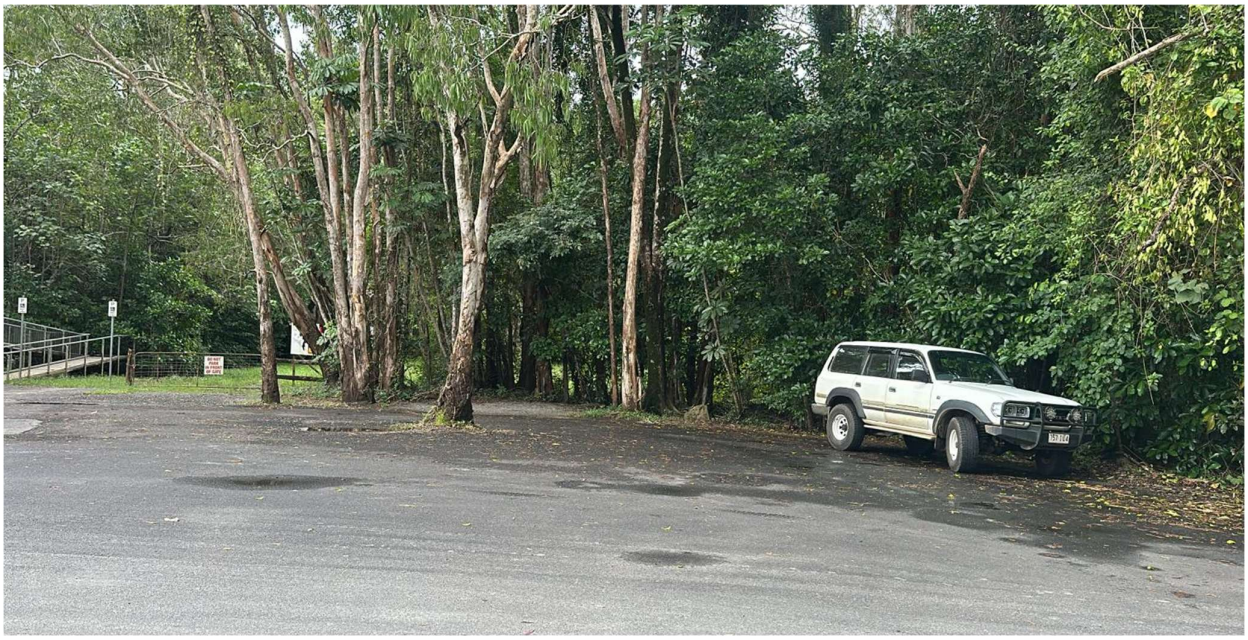


Figure 16: Carpark near toilet block on northern side of river

Clear and Grub operation has been priced generally with the provision of an excavator, on the basis that the cleared material will be used for erosion and sediment control.

Stumps to usually be ground off at ground level or where required to be removed are pushed to the side in neat piles for fauna habitat.

7.5 Stripping of Topsoil

Topsoil strip will be completed using a grader or excavator. The GPS equipped machines are preferred machine to push the topsoil into piles to be loaded out with an excavator as required.

Topsoil that is intended to be respread onto the project will be riled to the side of the road corridor for respread at the end of the project. Any surplus topsoil will be carted to the nominated topsoil stockpile locations.

No testing, processing or amelioration of the topsoil has been allowed for.



Figure 17: Example of topsoil pushed into rill for reuse

7.6 Removal, Demolition and Relocation

Any existing concrete, kerbs, footpaths, driveways will be removed as required to facilitate the construction of the new works. Where existing concrete ties into the new construction works the concrete cut to form neat lines. Waste concrete will be broken up with an excavator and removed off site by tandem tippers to a spoil or recycling facility.



Figure 18: Southern boat ramp

Asphalt/seal will be either profiled or removed by excavator and transported off site to a spoil or waste facility. Removal/demolition of any existing road furniture and services required to complete the works will be carried out in accordance with the drawings and design referenced specifications.

All items not nominated for salvage to be removed/ demolished will be disposed of offsite. All items being relocated will be stored within the site compound if not transported immediately.

7.7 Stormwater drainage

Stormwater drainage installation will be completed as required in the detailed design. All culverts are replacements and extensions of existing. This allows for minimal impacts to the drainage network during construction.

7.7.1 Excavation, Foundation & Bedding

Excavation of trenches to be carried out using an Excavator and will be excavated to the dimensions shown on the drawings and safely benched if required.

Where public utilities exist in the vicinity of stormwater drainage excavation, approvals will be obtained from the relevant authority/corporation as to the method of excavation prior to commencing excavation.

A Posi track will be used to push the sand in the trench from the stockpile so that the pipes can be laid on the sand bedding with appropriate drainage aggregate placed around it, followed by the backfilling using the suitable material available on-site.

Where the trench base is of a boggy or springy nature, Durack will seek direction from the Superintendent as to the extent of unsuitable treatment required to ensure a solid foundation for the culvert.

The stormwater drainage will be set out from the drawings to nominated cut depths to ensure that trench excavation is accurate. Trenches will be backfilled at the completion of each day to ensure that trenches are not left open overnight. The use of road plates installed over the trench may also be used if backfill cannot be completed at the current pipe laying point, and to maintain traffic movements for road crossings. Following inspection and surveying, the trench will be backfilled with excavated material, compacted and tested.



Figure 19: Trenching, bedding, and laying of culverts

7.7.2 Laying & Jointing

Our pipe laying crew will lay and joint the pipes to the manufacturer's specifications. Any trench water will be removed so that the pipes can be joined and inspected.

The invert levels of and the horizontal alignment of pipework will not vary from the location and details specified in the drawings by more than the relevant construction tolerance.

7.7.3 Backfilling

Backfilling of trenches will be completed progressively in uniform layers using Posi Track or equivalent to push the material in the trench and later compacted using a Trench rollers and Wacker packers. Backfill material used for backfilling to a point 300mm above the crown of the pipe/culvert will consist of approved aggregate material. The remaining depth to be filled with the on-site material to achieve the desired level.



Figure 20: Backfilling of culverts, placement of precast headwall

7.8 Excavation

Excavation will be carried out using an excavator sized to suit the required depth and width. The operator will cut and shape the excavation to the lines and levels shown on the drawings, progressively removing material in controlled passes. Spoil will be loaded directly into tipper trucks for either reuse (where suitable) or disposal at an approved location. Any loose or soft material will be removed to ensure a clean, firm base.

When the excavation reaches the nominal subgrade allowance, works will pause. The trimmed base will be presented to the Administrator for inspection.

7.9 Unsuitable Material

The findings of the geotechnical investigations indicate that unsuitable materials will be found at subgrade level after excavation. The design drawings specify a 300mm thick geofabric wrapped rock mattress under the pavement areas is required. In these areas, geofabric will be placed at the base of the unsuitable excavation and up the side of the trench, and rock will be placed up to 300m thick. This will be either track rolled in with the excavator or pushed down using the excavator bucket to achieve interlock of the rock. The geofabric will then be folded over the top of the rock to create a wrapped rock mattress.

In any unsuitable areas that have not already been identified during the design phase, the excavation will pause and the area will be presented to the Administrator for inspection. Once confirmed, the unsuitable material will be treated as directed (such as removal and replacement with suitable material or construction of a rock mattress).

7.10 Subgrade

Once embankment placement reaches subgrade level, the surface will be checked to confirm it is firm and stable, with no visible movement under proof rolling. The subgrade will then be compacted using a padfoot roller to achieve the required density, followed by a smooth-drum roller to produce a clean, even finish.

All inspections, density testing, and hold/witness points will be completed and recorded in accordance with the project ITP for subgrade works.

7.11 Embankment fill

Embankment fill will be placed in uniform layers over the prepared subgrade or underlying material. Approved fill will be spread using suitable earthmoving equipment and moisture-conditioned as required to achieve the specified compaction. Each layer will be compacted using appropriate rollers to meet the required density and produce a stable, well-bound surface. The fill will be trimmed to the required lines, levels, and batter slopes, leaving a clean, even finish free of soft spots or segregation.

All inspections, density testing, and hold/witness points will be undertaken and recorded in accordance with the project ITP for embankment construction.

7.12 Finishing batters

Batters will be trimmed using an excavator or grader to achieve the required lines and a clean, even surface. All loose material will be removed, leaving a stable, tidy batter face. Where hydromulch is required, the surface will be prepared and hydromulch applied using a hose-based or cannon application system.

7.13 Unbound pavement

Unbound pavement layers will be placed over the prepared subgrade or subbase using suitable granular material. Material will be spread in uniform layers using graders or other appropriate equipment and then moisture-conditioned as required. Compaction will be completed with rollers to achieve a stable, well-bound surface suitable for subsequent layers. The final trimmed surface will be even and free of loose or segregated material.

7.14 Subsoil drains

Where indicated on the design drawings subsoil drains will be installed. Subsoil drains will be installed by excavating a narrow trench along the required alignment using either a small excavator or trencher. Filter material, pipe, and geotextile will be placed and installed in accordance with design drawings. The trench will then be backfilled with suitable drainage aggregate. Flush points or outlets will be installed where shown on the design.



Figure 21: Subsoil drain installation

7.15 Bitumen seal

Durack will engage a specialist subcontractor to complete the bitumen sealing works. Bitumen sealing will be carried out by preparing the pavement surface, ensuring it is clean, dry, and ready for spraying. A uniform application of binder will be applied using a calibrated sprayer, followed immediately by spreading the nominated aggregate with a chip spreader or similar equipment. Rolling will embed the aggregate, and any loose material will be broomed off once the seal has set.

7.16 Acid Sulfate Soils

Any acid sulfate soils fond during construction shall be managed in accordance with the approved Construction Environmental Management Plan.

7.17 Road Furniture and Signage

Durack Civil will supply and erect street nameplates, standards and traffic control signage in the positions shown on the drawings or as directed by the Superintendent during construction. All materials and construction methods, including locations of signs will be in accordance with the current version of Manual of Uniform Traffic Control Devices (MUTCD).The nameplates and standards will conform to the details shown on the drawings and to the requirements of the relevant Local Authority.

Work to be done will comprise the setting out, supply and application of pavement marking paint, thermoplastic pavement marking material and raised pavement markers all as located on the project drawings. Durack Civil will set out the works to ensure compliance with the drawings. Locations of pavement markings will not vary by more than 20mm from their

nominated positions. Pavement markings will only be applied to clean dry surfaces to ensure a satisfactory bond between the markings and the wearing surface.

7.18 Electrical

A specialist electrical subcontractor will be engaged for all electrical works.

Road lighting conduits and pits will be installed as per the drawings and in accordance with the project specifications and current industry standards. Cables, terminates, power supply connections will all commence once the conduit and pit works have been completed. All works will be commissioned upon completed to ensure compliance with the project specifications.

7.19 Boat ramps

Durack Civil will aim to complete both boat ramps simultaneously to maximize efficiency and ensure the timely delivery of this critical project component within the stipulated 14-day closure period.

The boat ramp works will begin with the removal of the existing ferry and its cables (by others) and the installation of crocodile protection and erosion and sediment controls. The specific details of the crocodile protection will be confirmed closer to the construction dates, but is likely to include a fenced perimeter in the water around the work area.

Once the site is setup the demolition of the existing boat ramp will occur (refer demolition section). The existing ramp and concrete pile caps will be removed and disposed of.

The boat ramp construction will begin by excavating to the levels shown on the drawings. The geofabric, rock and geogrid will be layered as per the design details to the levels of the precast planks. Precast planks will be delivered to site and lifted into place using an appropriately sized crane, and connected using the connections cast into the planks.

Once all planks are in place, the edges of the ramp will be backfilled with rock protection or granular shoulder material to secure the sides and reduce erosion. Any gaps or transitions between planks and the adjoining pavement or embankment will be filled or concreted as required to create a smooth, safe interface.

8 CONFORMANCE

Durack will maintain detailed records of all activities, tests and inspections as required by project specifications. After completion of each lot, evidence of conformance shall be provided by means of lot records and the associated conformance report. Conformance records shall be submitted to the administrator on completion of the relevant lot and prior to substantial progress on subsequent lots.

For every Nonconformance which occurs, Durack shall promptly initiate the Nonconformance and corrective action procedures defined in the approved Quality Management Plan

9 ENVIRONMENTAL CONTROLS

Environmental protection measures for the earthworks shall be in accordance with the approved Construction Environmental Management Plan.

Appendix E

Dredge Management Plan

KBR

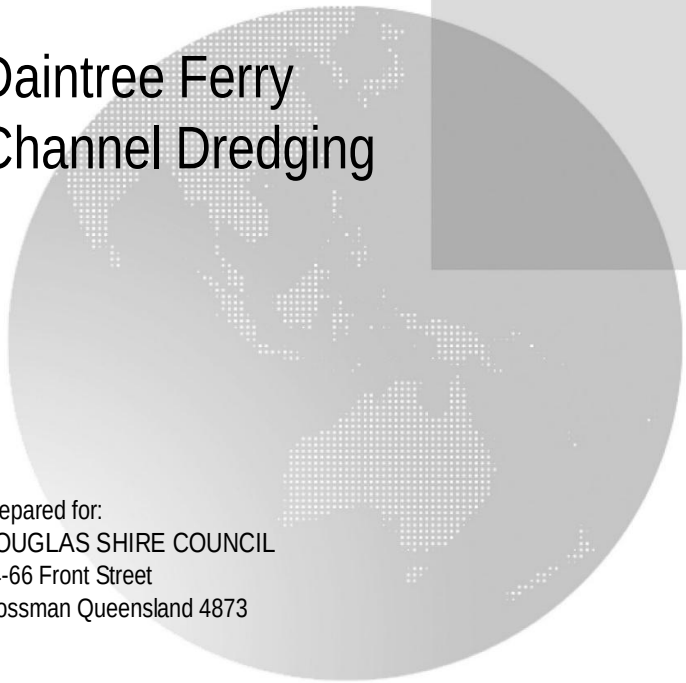
Daintree Ferry Channel Dredging

We Deliver

Dredge Management Plan

Dredge Management Plan

Daintree Ferry Channel Dredging



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07 December 2018

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Limitations Statement

The sole purpose of this report and the associated services performed by Kellogg Brown & Root Pty Ltd (KBR) is to present a Dredge Management Plan (DMP) for the Daintree River Ferry Crossing Dredging project in accordance with the scope of services set out in the contract between KBR and Douglas Shire Council (DSC) ('the Client'). That scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

KBR derived the data in this report primarily from visual inspections, examination of records in the public domain, interviews with individuals with information about the site and desktop investigations. The passage of time, manifestation of latent conditions or impacts of future events may require further exploration at the site and subsequent data analysis, and re-evaluation of the findings, observations and conclusions expressed in this report.

In preparing this report, KBR has relied upon and presumed accurate certain information (or absence thereof) relative to the site and operation of the proposed works provided by government officials and authorities, the Client and others identified herein. Except as otherwise stated in the report, KBR has not attempted to verify the accuracy or completeness of any such information.

The findings, observations and conclusions expressed by KBR in this report are not, and should not be considered, an opinion concerning the approval or permitting of proposed maintenance activities. No warranty or guarantee, whether express or implied, is made with respect to the data reported or to the findings, observations and conclusions expressed in this report. Further, such data, findings, observations and conclusions are based solely upon site conditions, information, drawings supplied by the Client in existence at the time of the investigation.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between KBR and the Client. KBR accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Revision History

Revision	Date	Comment	Signatures			
			Originated by	Checked by	Technical Approval	Project Approval
A	06/07/18	Issued for Client Review	Kyra Stemm			Kyra Stemm
0	07/12/18	Issued for Use	Kyra Stemm	Stephen Victory	Peter Cummings	Kyra Stemm

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APPENDICES

A Environmental Management Plan (EMP)

B Design Drawings

1 Introduction

1.1 PURPOSE

This Dredge Management Plan (DMP) has been developed on behalf of Douglas Shire Council (DSC) for submission to and approval by the Queensland Department of Environment Science (DES).

The purpose of this DMP is to describe the intended construction and operational method for the dredging, material management and placement of dredged material for beach nourishment purposes associated with maintenance dredging of the Daintree River Ferry Crossing. This DMP and the attached Environmental Management Plan (EMP) (Appendix A) also identifies the preferred means of addressing environmental issues associated with dredging operations for the Daintree River Ferry Crossing.

1.2 SCOPE AND OBJECTIVES

The scope of this DMP covers dredging-related work associated with:

1. General operation and intended work methods of maintenance dredging activities within the Daintree River
2. Placement and retention of dredged material at a stockpile site
3. Management of stockpiled material
4. Ultimate disposal including dredged material placement for beach nourishment

The key objectives of this DMP are to:

- Describe the environmental framework and intended working method for dredging and material disposal operations
- Identify potential adverse impacts attributed to the dredging activities and the dredge material disposal operations and;
- Address potential adverse impacts by identifying preferred management and monitoring strategies to:
  - Minimise, manage and monitor environmental impacts by addressing key environmental aspects including air quality, water quality and noise attributed to dredging and material placement activities
  - Avoid or minimise impacts on environmental receptors including sensitive habitats, and flora and fauna within the Daintree River catchment and Great Barrier Reef Coast Marine Park (GBR Coast MP).
  - Uphold best practices for the execution and management of dredging, material handling and dredged material disposal operations.

1.3 IMPLEMENTATION

Prior to the commencement of works, this DMP will be submitted to DES for review and approval prior to implementation.

Where there is conflict between this document, the Environmental Management Plan (EMP) in Appendix A and documents prepared by an engaged contractor, the conditions imposed in the Statutory Approvals will prevail.

It is the responsibility of DSC and Contractors to be familiar with the provisions of this DMP and attached EMP to ensure that the procedures and processes required to achieve the objectives within this plan are correctly implemented.

Following the commencement of works, amendments to this document, the EMP and associated documents must be communicated to and approved by DES prior to implementation.

2 Project

2.1 OVERVIEW

The Daintree River Ferry is a cable ferry which provides pedestrian and vehicular access across a 250 m wide section of the Daintree River in region. Figure 2.1 shows the location of the Daintree River Ferry Crossing.

The Daintree Ferry is a critical piece of infrastructure which links the northern Daintree communities and the Cape Tribulation section of the Daintree National Park within the greater Cairns region (in the south). The section where the ferry operates provides connectivity to the only paved road access in the region.

The site is relatively remote. Land use is predominantly characterised by agricultural farmlands to the south, and largely undisturbed tropical forest to the north with some remote residential communities.

The area is also a key drawcard for tourism in the Daintree region, with some local tourism operators and the Daintree Gateway Tourist precinct adjacent to the ferry site.

Between 80,000 and 110,000 trips are made annually across the river by the ferry carrying residents, tourists, tour companies and service vehicles including local bus and school bus trips. The communities and visitors of the region heavily rely on the continued daily operation of the Daintree River Ferry as no other viable access options exist.

The Daintree Ferry is managed and run by a contracted operator, however maintenance of the ferry crossing itself falls under the responsibility of DSC. DSC therefore carry out periodic maintenance dredging at the site to enable the continued operation of the ferry service all year round.

2.2 DREDGING REQUIREMENT

The purpose of dredging the Daintree River Crossing is to maintain a safe level of service to ensure ferry operations can continue to support surrounding communities and the tourism industry in the region. It is necessary that all-tide access is available for the ferry to avoid any disruptions to the ferry operations. It is also not acceptable for the dredge to ground as it would:

- damage the hull of the ferry
- provide potentially unsafe conditions for the ferry operator and the public
- impede navigation for other recreational or commercial vessels within the river
- disrupt the general daily operations of the ferry and consequently disrupt community access between the northern and southern sections of the Daintree and Cairns regions
- potentially restrict vital services (i.e. emergency services) access to northern Daintree communities

The section of the Daintree River where the ferry operates is generally shallow, particularly on the southern river bank. A shoal naturally forms at this southern bank as a result of tidal processes. During periods of high rainfall (particularly November to April each year) the sediments stored in the shoal are transported and deposited via riverine flooding into the deeper section of the river crossing. Particularly following the wet season, the ferry crossing requires removal of accumulated sediment back to the design levels with the sole intention of maintaining the required level of service for the ferry.

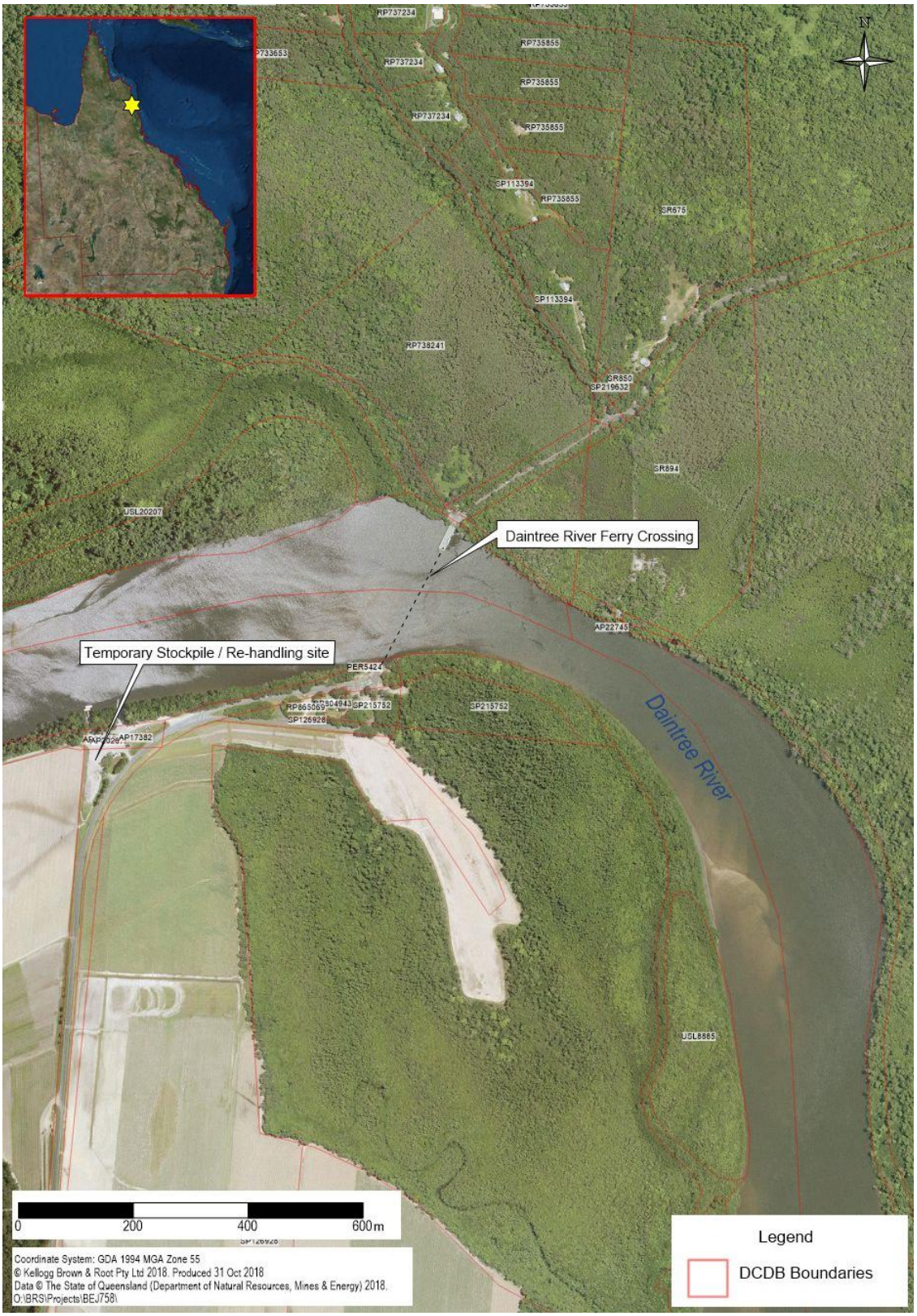


Figure 2.1 Site Locality

2.3 LEGISLATIVE CONTEXT

All dredging activities in Queensland are managed under both State and Commonwealth legislation, where relevant. The following sections outline the governing permits, approvals and legislation relevant to the works being carried out for the dredging of the Daintree River Ferry Crossing and associated material disposal and beach nourishment operations.

2.3.1 Existing Permits and Approvals

The proposed works are partially covered under the following permit and approvals (Table 2.1) until 23 February 2024.

Table 2.1 Permit and Approvals

Permit Reference	Permit Description
MPW2013/GBRC0016	Great Barrier Reef Coast Marine Park Permit
EPPR01803613	Environmental Authority (EA)

The permits and approvals cover the following activities related to the scope of dredging and material placement works outlined in this DMP (Table 2.2).

Table 2.2 Locations to which Marine Parks Permission Applies (ref. MPW2013/GBRC0016)

Location	Marine Park Zone	Permit Description
Tidal waters in the vicinity of the Daintree Ferry Crossing, Adjacent to Lot 359 on Plan SP215752, Daintree River	Conservation Park Zone CP-16-12, Daintree River	Carrying out works - maintenance dredging involving the removal of up to 10,000m^3 of sand
Tidal lands and tidal waters adjacent to the Rocky Point Boat Ramp (16.38704°S, 145.41847°E), Wonga Beach	Habitat Protection Zone HP-16-5124, Cape Kimberley/Trinity Bay coastal area	Carrying out beach replenishment works, specifically the placement of up to 5,000m^3 of sand from the Daintree Ferry dredging, adjacent to the Rocky Point Boat Ramp
Tidal lands and tidal waters located adjacent to Lot 46 on Plan C22513, Helmet Creek, Port Douglas	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area	Carrying out works - excavation of drainage features, sand skimming to reduce scarp erosion and placement of 3,000m^3 of sand from the Daintree Ferry dredging
Tidal lands adjacent to Lot 17 on Plan 09511, Oak Beach	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area	Carrying out works - sand scraping for a distance of 300m along Oak Beach and placement of 2,000m^3 of sand from the Daintree Ferry Dredging, along erosion scarps

Environment Authority Permit EPPR0180361, permits maintenance dredging works within a 15m wide section of channel 144 m length, between chainages 0 and 144 following the alignment of the ferry cables. Dredging of a 15m wide side channel section of 157 m length, between chainages CH20 and CH177 adjacent to Zone A to the West is also permitted under EPPR01803613.

The Environment Authority Permit EPPR0180361 (the approved area for dredging activities) also includes a stockpile site in the Douglas Shire Council road reserve, adjacent to lot 8/SP143026 (Refer Section 3).

2.3.2 Relevant legislation, policies and plans

The following section describes key legislation, policies and plans relating to the project sites, or areas adjacent to the project sites.

Wet Tropics World Heritage Protection and Management Act 1993

The *Wet Tropics World Heritage Protection and Management Act 1993* is the Queensland legislation which sets out the role of the Wet Tropics Management Authority in managing the World Heritage Area.

The Plan regulates land use activities in the World Heritage Area through a zoning and permit system.

The Daintree Ferry Precinct and temporary stockpile facilities are adjacent to the Wet Tropics World Heritage Area but are not located within the designated area.

Environmental Protection Act 1994 (Qld) / Environmental Protection Regulations 2008

The *Environmental Protection Act* 1994 is a key legislative framework for Environmentally Relevant Activities (ERA) such as the activities associated with maintenance dredging and disposal of dredged material. DSC currently hold an EA approval, effective from 1 January 2014, pursuant to the *Environmental Protection Act 1994*.

The current EA permit covers the following ERA's:

- ERA 16 (1)(a) for the dredging of between 1,000 and 10,000 t annually
- ERA 57 (2)(a) for Regulated Waste Transport

Great Barrier Reef Marine Park Act 1975

The *Great Barrier Reef Marine Park Act (GBRMP Act) 1975* is the key piece of federal legislation for the long-term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region. For the Great Barrier Reef Marine Park Authority (GBRMPA), the Framework covers its permission system, traditional use of marine resources agreements, plans of management and compliance activities under the GBRMP Act 1975; and its administration, as delegate, under the Environment Protection (Sea Dumping) Act 1981.

The Daintree River Ferry Crossing is not located within the Great Barrier Reef Marine Park (GBRMP), however sections of the approved nourishment sites are within the Habitat Protection Zone of the GBRMP. No sea dumping will be required in executing the works covered in this DMP, with only the placement of clean suitable material for beach nourishment purposes placed within identified sections of the Marine Parks coastal foreshore.

Marine Parks Act 2004 / Marine Parks Regulation 2017

The Marine Parks Act 2004 (Marine Parks Act) and the Marine Parks Regulation 2017 (Marine Parks Reg) provide for the conservation of the marine environment through a comprehensive and integrated strategy involving the declaration of marine parks, the establishment of zones within marine parks and the development of zoning and management plans. The Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004 is the legislative instrument under which the GBR Coast MP is established and by which the Marine Parks Act and Regulation are implemented within the GBR Coast MP (Figure 2.2).

Dredging of the Daintree River Ferry Crossing is within the declared Conservation Park Zone of the Great Barrier Reef Coast Marine Park. A permit (MPW2013/GBRC0016) for the maintenance dredging activity associated placement of dredged material for beach nourishment purposes has been issued, pursuant to the *Marine Parks Act 2004* and the *Marine Parks Regulation 2006* and is valid to 23 February 2024.

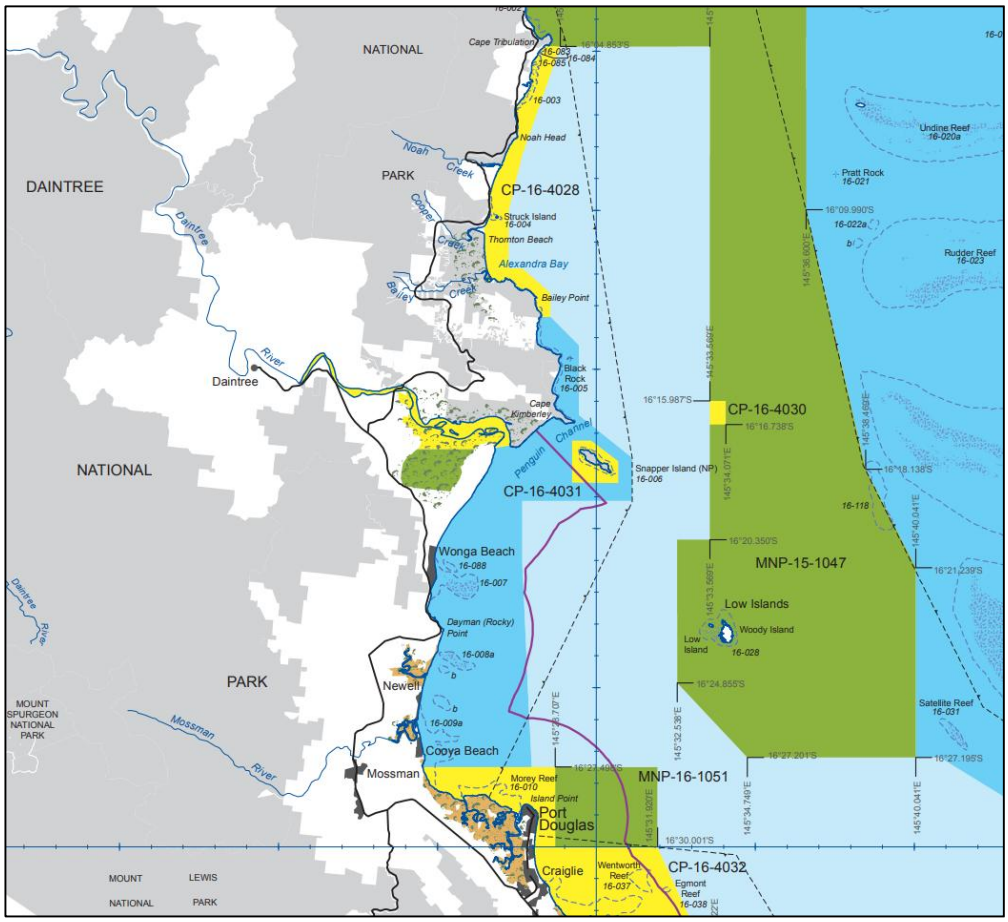


Figure 2.2 GBR and GBR Coast Marine Park Zones (Extract from Great Barrier Reef Marine Park Zoning, Map 5 - Cairns)

Queensland Coastal Protection and Management Act 1995 / Coastal Protection and Management Regulation 2017

The *Coastal Protection and Management Act 1995* (Coastal Act) and Coastal Management Regulation 2017 (Coastal Reg) is administered by DES and provides for the protection, conservation, rehabilitation and management of the Queensland coastal zone. The Coastal Act provides the legislative framework for the making of coastal management plans which can state principles and policies for coastal management and coastal management districts which declare areas requiring special development controls and management practices.

All works including dredging, transportation and placement of dredged material are considered to be works within the coastal zone and are all located within a designated Coastal Management District as administered under the Coastal Act and Coastal Reg.

Fisheries Act 1994 / Fisheries Regulation 2008

The *Fisheries Act 1994* (Fisheries Act) and Fisheries Regulation 2008 (Fisheries Reg) are administered by the Department of Agriculture and Fisheries (DAF). The Act has provisions for the protection, conservation and management of the fisheries resources of the State. Under Section 123 of the Fisheries Act, it is an offence to unlawfully remove, damage or destroy a 'marine plant'. A 'marine plant' is defined in the Act as a plant that usually grows on, or adjacent to, tidal land, whether it is living, dead, standing or fallen.

The proposed works will not result in the direct disturbance of any marine plants. The routine maintenance works will be carried out within the bounds of an existing maintained channel with the sole purpose of removing sediment within an already disturbed footprint.

Vegetation Management Act 1999

The purpose of the *Vegetation Management Act 1999* (VM Act) is to regulate the clearing of vegetation and preserve ecological processes and habitats. The VM Act applies to the clearing of all vegetation within protected areas including National Parks (i.e. Wet Tropics).

No removal of riparian or aquatic vegetation within Daintree National Park will be undertaken as the proposed works will be carried out within the bounds of an existing maintained channel with the sole purpose of removing sediment within an already disturbed footprint.

Planning Act 2016 / Planning Regulation 2017

The *Planning Act 2016* (Planning Act) is administered by the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP). The legislation provides the framework for the provision of ecological sustainability for the State through the use of an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning development assessment and related matters.

The Planning Act is the statutory instrument and relevant legislation for undertaking the operational works associated with the dredging and dredge material placement activities for the Daintree River Ferry Crossing.

Aboriginal Cultural Heritage Act 2003

The *Aboriginal Cultural Heritage Act 2003* (ACH Act) provides effective recognition, protection and conservation of Aboriginal cultural heritage. Under Section 23 of the ACH Act, a person has a 'duty of care' when carrying out works, rather than having a licensing arrangement or permit. The duty of care is imposed on anyone carrying out an activity in Queensland and requires a person to take reasonable and practicable measures to ensure their activity does not harm Aboriginal cultural heritage.

The most appropriate way to demonstrate compliance with the Act is to comply with the Duty of Care Guidelines, which establishes a framework for discharging the duty of care required by the Act. In addition to assessing the nature of the activity, the presence of cultural heritage items and the likelihood of causing harm to such items, the Guidelines emphasise the need to consult and reach agreement with relevant Aboriginal parties.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) relates particularly to Matters of National Environmental Significance (MNES). It streamlines national environmental assessment and approvals processes, protects Australian biodiversity and integrates management of important natural and cultural places.

Dredging and dredge material placement sites are not within any identified Ramsar Wetland, however it is acknowledged that the lower Daintree wetland area, adjacent to the project site, is identified on the Important Wetlands of Australia register for its important ecological value.

Native Title Act 1993

The *Native Title Act 1993* provides a national system for the recognition and protection of native title and to establish ways in which future dealings affecting native title may proceed and to set standards for those dealings. Native title recognises the traditional rights and interests to land and waters of Aboriginal and

Torres Strait Islander people. Under the *Native Title Act 1993*, native title claimants can make an application to the Federal Court to have their native title recognised by Australian law.

The Eastern Kuku Yalanji people native title determination (QC94/13) was recognised on 9 December 2007. Under the determination, Jabalbina Yalanji Aboriginal Corporation holds Native Title, on behalf of the Eastern Kuku Yalanji people, over 126,900 hectares of land between Mossman and Cooktown in Far North Queensland.

The lots adjacent to the Ferry Precinct (Lots 67/SP215752, 359/SP215752, 20/NPW695, 102/USL20207) are covered by the Eastern Kuku Yalanji Indigenous Land Use Agreement (ILUA) - Native Title Act.

2.4 PREVIOUS DREDGING

Since 2007 the Daintree River Ferry Channel has been dredged annually, with campaigns typically coinciding with the end of the wet season (typically during April-May). Historic dredging records which were reviewed and used to inform this plan are outlined in Table 2.3.

Table 2.3 Historic Dredge History

Campaign	Details
2016 Ferry Channel Dredging	Timeframe: 22 May - 31 May 2016 Dredge Quantities: 3,600 m^3
2017 Ferry Channel Dredging	Timeframe: 18 May – 29 May 2017 Dredge Quantities: 2,280 m^3
2018 Ferry Channel Dredging	Timeframe: TBC Dredge Quantities: 2,500 m^3

Dredging has historically been undertaken using a barge-mounted excavator or an excavator mounted on the Daintree River Ferry itself. The preferred method of disposal has been to place the material at the Temporary Stockpile and Rehandling Site located near to the dredge site. Ultimate disposal is either via beneficial re-use of material as nourishment (Currently DSC has a permit for material disposal at Oak Beach, Rocky Point and Helmet Creek foreshore) or ultimate disposal at Council landfill.

3 Dredging and Disposal Methodology

3.1 EXTENT OF DREDGING

3.1.1 Plan Areas

The extent of dredging is as described in Figure 3.1 and in the drawings attached in Appendix B. The dredging extents cover an area of 6,400 m^2 and are partially covered by the existing EA approval for the works (Refer Section 2.3.1).

Dredging will be carried out in either one, or both of the following dredge zones as required to maintain safe navigation of the Daintree River Ferry (Table 3.1).

Table 3.1 Description of dredge zones

Designation	Description
Dredge Area A	15m wide section of channel, 220 m length, between chainages 0 and 220 following the alignment of the ferry cables
Dredge Area B	15m wide section of 160 m length, between chainages CH20 and CH180 adjacent to (to the west of) Zone A

Primarily, annual dredging operations will be required in 'Zone A' as this zone follows the alignment of the ferry; thus sedimentation within this zone has an immediate impact on the Daintree River Ferry operations.

Budgets permitting, there may also be a requirement to extend the dredging campaign to incorporate dredging of the side channel (Zone B).

The primary intent of this side channel is to intercept the progression of the shoal on the southern bank of the Daintree River by effectively trapping sediments within this deepened area with the aim of extending the time between dredging of Zone A in the main channel.

3.1.2 Channel Profile

Dredge Zones A and B are to be dredged to a design depth of -2.6m Australian Height Datum (AHD) or -1.02 m Lowest Astronomical Tide (LAT) with 1 in 3 batter slopes, intersecting the existing surface.

The normal tide ranges between +2.49m LAT (or +0.9m AHD) (i.e. Mean High Water Spring) and -0.7m LAT (or -0.881m AHD) (i.e. Mean Low Water Spring) as the occurrence of Lowest Astronomical Tide (LAT) and Highest Astronomical Tide (HAT) are typically rarer events.

The Daintree River Ferry draws 0.6 m, therefore the design level provides an estimated 1.2 m of under-keel clearance (UKC) at a normal low tide.

A constructional tolerance of approximately ± 0.3 m vertical would be expected given the nature of the works and the accuracy of dredge equipment. The dredge shall be fitted with continuously updating positioning equipment that is able to control the dredge to remain within this specified tolerance.

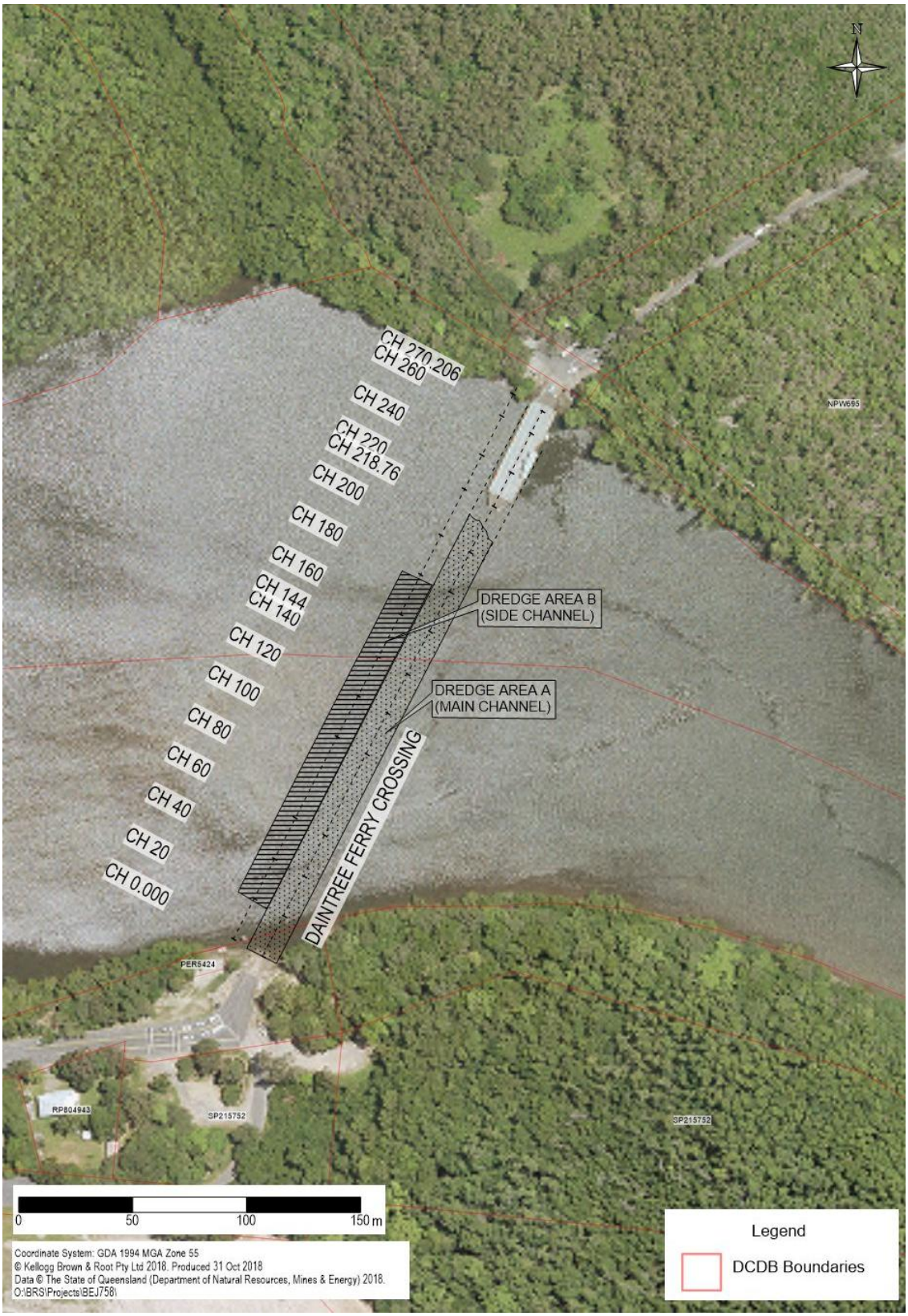


Figure 3.1 Plan of dredge zones

3.1.3 Existing Bathymetry

DSC provided a 'General Investigative Survey' that was undertaken by AquaMap in June 2017. This bathymetric data has informed the levels on the design drawings in Appendix B.

The survey information provided is to a 95% level of confidence. Details of the survey and level of accuracy is summarised in Table 3.2.

Table 3.2 Hydrographic survey metadata

Date	Title and Plan No(s)	Grid	Class	Tolerances	Data format
02 Jun 17	Post Dredge Hydrographic Survey of Ferry Crossing	0.5 m x 0.5 m	B	Vert. = ±0.15 Horiz. = ±1.5	XYZ points (.pts) and PDF plans

Bathymetry at the site is highly dynamic due to a combination of tidal and riverine flow regimes. It is therefore acknowledged that the bathymetry at the site will constantly vary from that presented in this document.

Bathymetric contours from the 2017 survey are provided in Figure 3.2 and show the presence of a very shallow shoal formation on the southern Daintree River Bank (in red), which extends roughly halfway across the Daintree River.

While the daily flow direction will typically shift with the tides, the net movement of sediments in the river are from West to East, with the riverine (downstream) flow direction. Therefore it is expected that the shoal formation to the West of the channel provides the greatest available source of sedimentation being deposited into the channel, caused by wet season event flows.

3.1.4 Dredge Volumes

The historic maintenance dredging volumes outlined in Section 2.3 provide an indication of future maintenance dredging requirements. The volume of sediment which triggers the annual dredge campaign is predominantly caused by the movement of natural sediments during the annual monsoonal river flows.

The bathymetric survey described in Section 3.1.3 was carried out immediately following the 2017 dredge campaign and indicates that approximately 800 m^3 of dredge material existed above the design bed levels following the removal of 2,300 m^3. An average in-situ volume of 3,000 m^3 of material is therefore anticipated to represent the typical quantity to be dredged from the main access channel and side channel annually which falls within the 10,000 m^3 maximum allowable volume (although noting that additional material dredging may be required in some years). This in-situ volume represents the average volume of material removed from the bed by the dredge (i.e. not bulk placed at stockpile) and will ultimately be calculated based on pre- and post- dredge hydrographic surveys from year to year.

Any amount required to be dredged to maintain ferry operations in excess of the maximum allowable volume would require additional permission beyond the allowable limits of the EA permit, pursuant to the *Environmental Protection Act 1994*.

It is anticipated that dredged material will be beneficially reused for beach nourishment purposes subject to the volume and suitability of the dredged material.

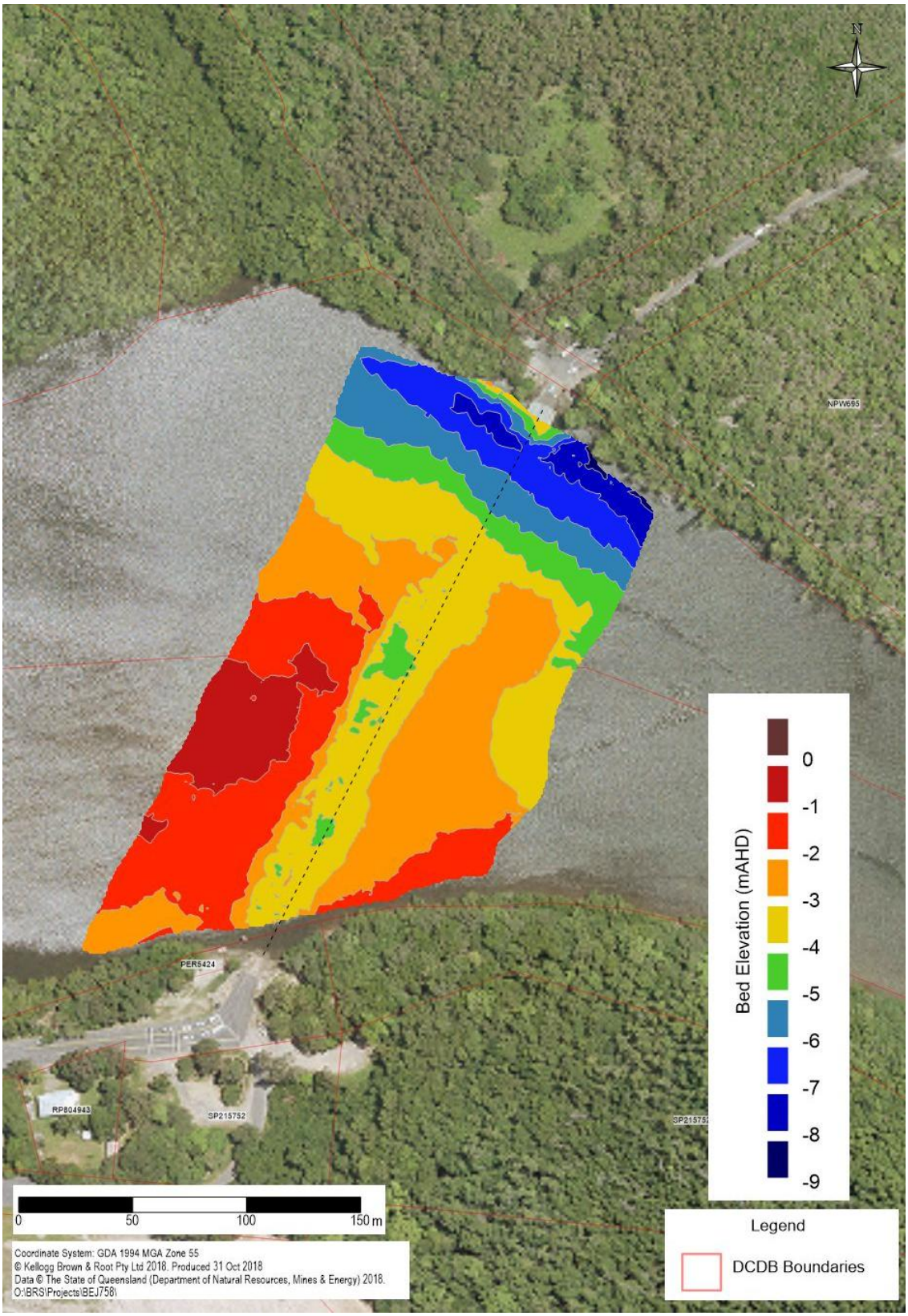


Figure 3.2 Hydrographic Survey (Aquamap, 2017)

3.2 DREDGING METHODOLOGY

It is envisaged that future maintenance dredging campaigns will be carried out using a small grab dredge, backhoe dredge or barge-mounted excavator to remove material to the target depths. Material will then be transferred either by small barge and pumped ashore, or via trucks which will transport material by road. This methodology is typical for minor dredging work where small volumes need to be removed in areas with constrained access or manoeuvrability.

A maximum volume of 10,000 m^3 of dredged material will be removed from the channel per year. The annual volume will be adjusted based on the dredging requirement each year using dredge surveys of the channel prior to dredging (pre-dredge survey) as well as during dredging (progress surveys) if required.

Dredge productivity rates are expected to be approximately 200 m^3 to 400 m^3 per day which is in line with historical dredging rates at the site. Operations will be carried out at night, between Midnight and 5:00 am to limit the impacts on normal ferry operations (Standard operating hours for the Daintree Ferry are between 6:00 am and midnight Local Time, seven days a week).

The predicted time period for dredging is between 10 days and 2 weeks, depending on weather conditions and which zones require dredging (i.e. a reduced timeframe may be expected in instances where dredging of only one of the two designated zones is required). Where it is deemed necessary to dredge the full 10,000 m^3 in a single campaign, it is estimated that the dredging would take up to 8 weeks, based on the typical production rates and excluding any additional time for servicing/maintenance or inclement weather.

Material will be extracted and disposed of at the Temporary Material Handling Facility (or 'Temporary Stockpile Site') located on a section of DSC land, approximately 600 m west of the dredge site. This site will be utilised to minimise transport operations during the night works. This material will then be removed to either a longer-term stockpile site, waste disposal site (such as approved landfill) or transported to approved beach nourishment placement site(s) dependent on the suitability of material, requirements for spoil treatment and the Contractor's proposed disposal strategy.

3.3 DREDGE MATERIAL DISPOSAL

The disposal options available are a combination of beneficial re-use and on-land disposal options. These options are highly dependent on the availability of suitable on-land disposal sites and the quality of material dredged.

It is proposed that the existing approved stockpile location will be used as a short-term storage and material handling site to facilitate cost effective extraction and safe disposal activities as there are operational constraints (such as time constraints and work hours) that preclude the immediate transport of dredged material to a location further away from the ferry site.

It is therefore expected that the dredging and material disposal process will generally conform to the sequencing in Figure 3.3. The disposal options which currently exist for the ultimate disposal of dredged material from the Daintree River site include:

1. Beneficial re-use of material through the placement of dredged material as nourishment at approved locations
2. Management and disposal of material at an on-land facility approved by Council
3. Management and disposal of material at an alternate on-land facility, nominated by the Contractor and approved by Council

Where possible, dredged material re-use is to be encouraged, however the ultimate disposal methodology will be dependent on the Contractor's proposed methodology, as well as the feasibility and suitability of material for re-use at the approved beach nourishment sites.

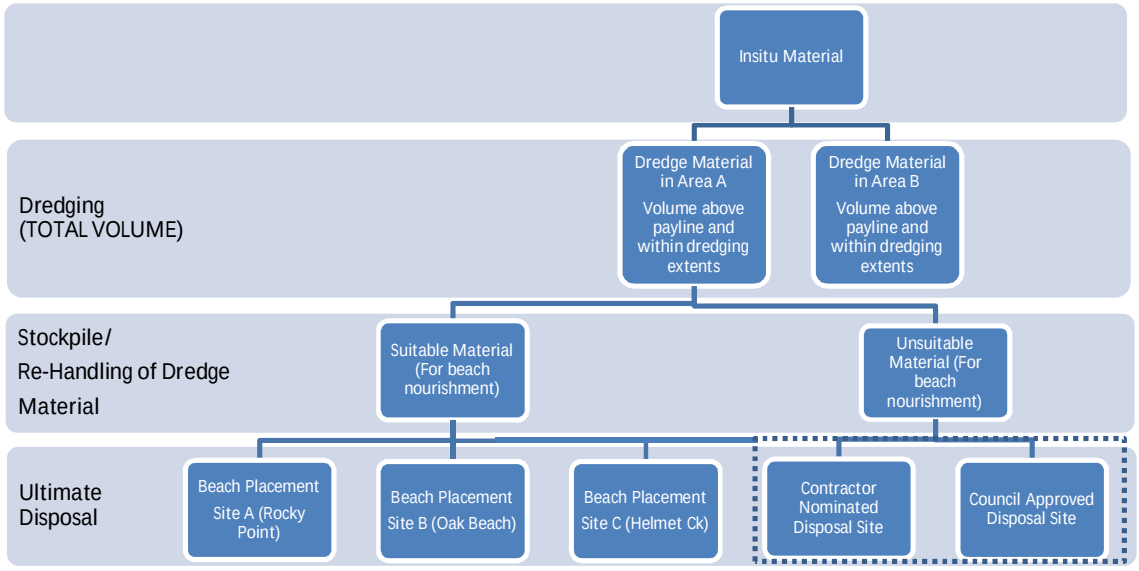


Figure 3.3 General decision framework for ultimate disposal selection

Prior to the execution of maintenance dredging programs, characterisation of the proposed dredge material is required to be analysed in accordance with the National Assessment Guidelines for Dredging 2009 (NAGD). Sediment sampling and analysis of the dredged material is to be undertaken as outlined in Section 4.3.

3.4 STOCKPILE / RE-HANDLING

The location of the existing dredge spoil stockpile site that is currently utilised for temporary storage of the material is situated on land within the DSC road reserve on Cape Tribulation Road.

Future dredging operations will continue to rely on the use of the temporary stockpile / re-handling site. This site is essential to the timely completion of dredging as it provides a solution to a number of key operational constraints experienced at the site, including:

- No suitable nearby disposal sites identified. Haulage routes to ultimate disposal sites are long (> 20 km) which would result in extensive turn-around times and greater disruptions to normal operations
- Dredging is typically constrained to night works in order to preserve the daily operations of the site. Transport directly to ultimate disposal is therefore problematic as it would:
  - Cause disruptions to residential areas located near to the ultimate disposal or nourishment sites or along the haul routes
  - Presents increased safety issues associated with the testing, re-handling and loading material of at night

Dredge material from the river will be taken to the nearby site for spreading, stockpiling, treatment and dewatering.

Figure 3.4 demonstrates the general operation of the Temporary Disposal / Rehandling site whereby:

- Clean dredged sand is separated on site and stockpiled for beach nourishment
- Where Acid Sulfate Soil contaminated dredged material is present, the materials would be treated with lime in accordance with the EMP, Queensland Acid Sulfate Soils Technical Manual Soil Management Guidelines (2014) and approvals requirements, particularly to neutralise any potential acid / oxidized sulphides (i.e. Acid Sulphate soils).
- Following treatment with lime, testing and dewatering, materials will then be relocated to an ultimate disposal or beneficial use site.

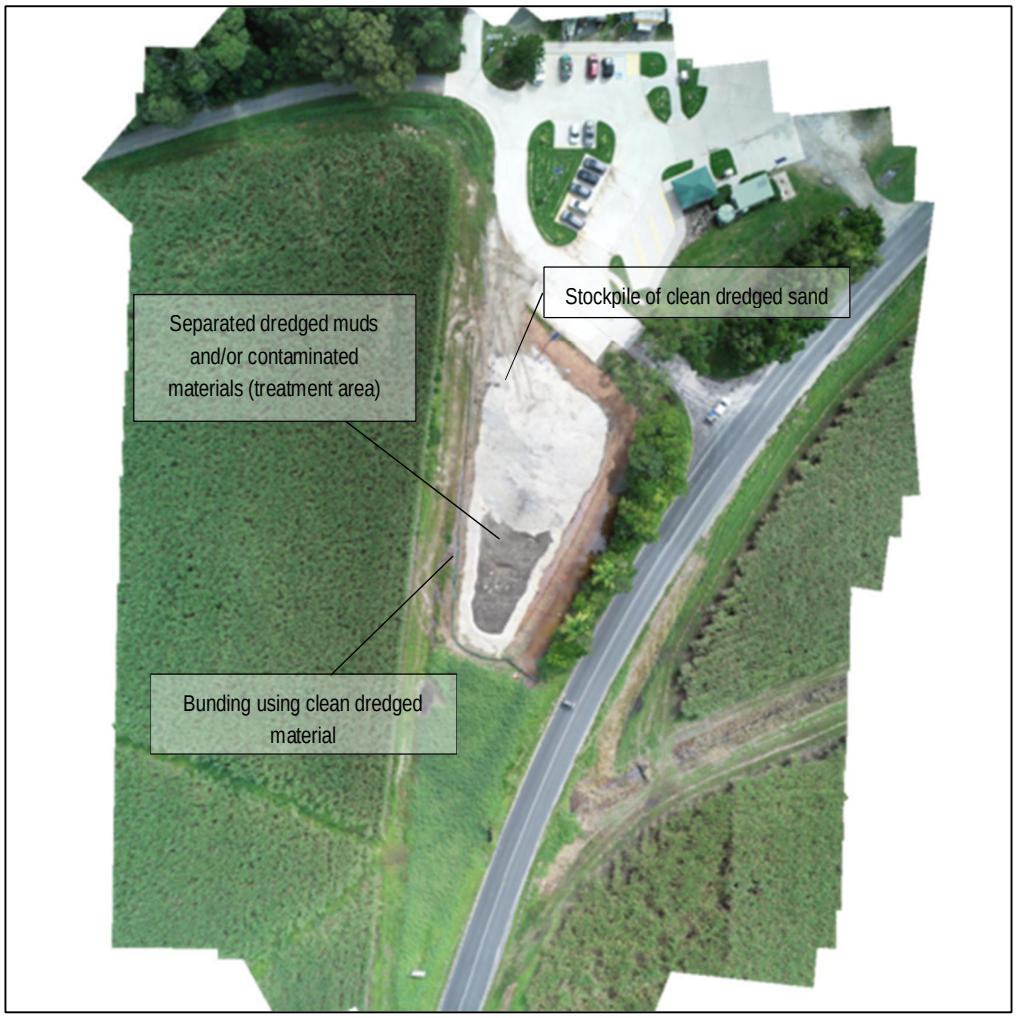


Figure 3.4 General operation of Temporary Disposal / Re-handling site (Source: Drone Deploy, 2018)

In accordance with the approvals, all reasonable and practicable measures must be taken to prevent or minimise environmental impacts from handling, placement, or rehandling of the dredged material.

Storage facilities for stockpiling dredged material must be suitably bunded and guard layers placed on the treatment pad to ensure that there is no potential for, or actual, contamination of waters (including groundwater). The bunds will serve to divert any clean water from being contaminated by the dredge spoil and to control any runoff generated by the stockpile itself during rainfall events.

The Contractor must implement any necessary treatment measures to control stormwater runoff and prevent release of contaminants to any waters or groundwater, in accordance with the requirements set out in the EMP or any Statutory Requirements.

3.5 BENEFICIAL RE-USE OF MATERIAL

The re-use of the dredged material is to be encouraged as it would preserve airspace in the existing landfills in the area while also providing additional amenity and natural coastal defence for infrastructure (such as the boat ramp, rock wall and roads at Rocky Point), or to private properties. In order to avoid disposal of dredged materials as a waste product at landfill, the material is required to meet a certain standard according to its proposed use.

The proposed nourishment sites are identified under existing EA approval EPPR01803613. In accordance with the EA approval, the following beach nourishment activities are to be carried out at three potential sites:

- Carrying out beach replenishment works, specifically the placement of up to 5,000m3 of material to the north to the Rocky Point Boat Ramp;
- Carrying out beach replenishment works located adjacent to Lot 17 on Plan 09511, Oak Beach including sand scraping for a distance of 300m along Oak Beach and placement of 2,000m3 of material
- Carrying out beach replenishment works located adjacent to Lot 46 on Plan C22513, Helmet Creek, Port Douglas including the placement of up to 3,000m3 of material

A locality map showing the nourishment sites with reference to the Daintree Ferry Crossing dredge area is provided as Figure 3.5.

Design drawings for the proposed beach nourishment compartments are included as Appendix B. An overview of each of the sites, the preference for beneficial-reuse and the placement methodology is provided in the following sections.

Rocky Point Boat Ramp (replenishment of 5,000 m^3 of material)

The proposed nourishment area identified at Rocky Point is a section of coastline to the north of the Rocky Point Boat Ramp (Figure 3.6). This section of coastline is approximately 28 km from the dredge site by road and is the closest of the three nourishment sites to the Daintree River Ferry. This site is the preferred site for beneficial re-use of the dredged material. As per the EA approval, a maximum quantity of 5,000 m^3 of dredged material from the Daintree River Ferry Crossing dredging campaign can be utilised at this site.

This section of coastline is a modified and disturbed system and is subject to ongoing erosion and sediment transport processes. The nourishment site is at the southern compartment of the stretch of coastline which is susceptible to impacts from currents, winds, waves and vessel wash which provide a mechanism for northward sediment transport from the site.

The site is also susceptible to bypassing of sand from the Rocky Boat Ramp groyne to the northern beach compartments as the net movement of material from the beach compartment to the south is transported around the breakwater and toward the north offshore of the site. This process reduces the replenishment of the beach as shown in Figure 3.7 and is therefore an ideal site for sand nourishment.

This section of beach is exposed open coastline area. The works proposed include the reformation of a beach dune. The proposed dune will have a flat berm (less than 1% grade) with an approximately 10 m width at the top of the compartment. The berm will follow the existing seawall and beach alignment. The berm will serve two purposes: firstly, it will provide a natural buffer for coastal erosion in storm events and; secondly, it will also provide a flatter surface for the transport of small machinery as required for profiling the beach.



Figure 3.5 Locality Map of Nourishment Sites



Figure 3.6 Rocky Point Boat Ramp Nourishment Site



Figure 3.7 Rock Point Nourishment Site – North-facing (Photo at 17/11/2017 by KBR)

The nourishment profile will then extend from the berm at an approximately 1 in 15 slope down to the natural bathymetry. This profile provides a stable beach slope given the coarse-grained nature of the proposed nourishment material (based on observations from previous dredge campaigns). Steeper slopes would result in an 'unstable' beach slope for the material used, whereby material will be placed beyond its angle of repose and hence will have a higher erosion potential.

It is anticipated that a 120m section of the beach compartment would be nourished with Daintree River dredged sand assuming the full 5,000m^3 of suitable nourishment material is available. The length of the nourishment section will be adjusted depended on the cost feasibility and the likely availability of a suitable sand material.

Oak Beach Foreshore (replenishment of 2,000 m^3 of material)

The proposed nourishment area identified at Oak Beach is a 300 m long section of coastline to the north of Lot 17O951 to roughly Lot 3O9511 as shown in Figure 3.8. This section of coastline is approximately 55km from the dredge site by road. The approved nourishment site is adjacent to approximately 17 private residential properties which front the foreshore. As per the EA permitting, a maximum quantity of 2,000 m^3 of dredged material from the Daintree River Ferry Crossing dredging campaign can be utilised at this site.

This section of coastline is subject to ongoing erosion and sediment transport processes and the private properties on the foreshore are susceptible to erosion and subsequent coastal inundation, particularly during storm events. Figures 3.9 and 3.10 show the profile of the beach toward the north and south at the site.

The nourishment site is at the southern compartment of the stretch of exposed open coastline which is susceptible to impacts from currents, winds, and waves which provide a mechanism for northward sediment transport from the site.

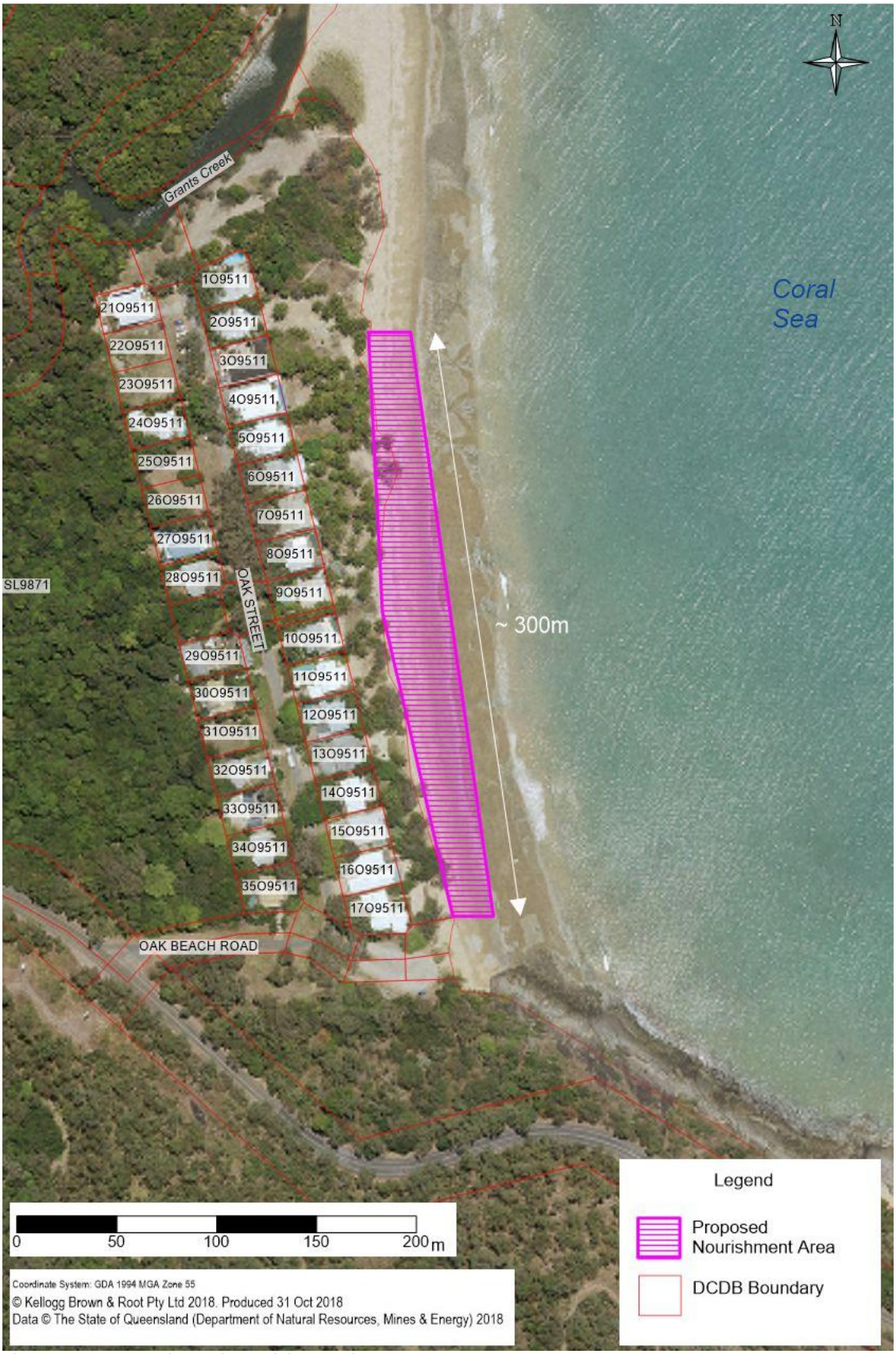


Figure 3.8 Oak Beach Nourishment Site



Figure 3.9 Oak Beach Nourishment Site – South-facing (Photo at 17/11/2017 by KBR)



Figure 3.10 Oak Beach Nourishment Site – North-facing (Photo at 17/11/2017 by KBR)

Consistent with the Rocky point works, the works proposed at Oak Beach include the reformation of a beach dune with a flat berm (less than 1% grade) of approximately 10 m width at the top of the compartment and a 1 in 15 sloped profile down to the natural bathymetry. The dune berm will provide added protection from coastal erosion events and provide a more stable, flat section for small machinery to carry out the works. In addition, the recreational uses of this section of beach mean that a wider beach will provide enhanced amenity and uses.

Given the close proximity to private properties, consultation with landholders and relevant parties (including beach users / members of the public) must be carried out by DSC to ensure relevant parties are aware of the proposed works.

Helmet Creek Foreshore (replenishment of 3,000 m^3 of material)

The proposed nourishment area identified at Helmet Creek is a section of coastline adjacent to Lot 46 on Plan C22513 (Figure 3.11). This section of coastline is approximately 46 km from the dredge site by road. This site is adjacent to private residential properties which front the foreshore. As per the EA permitting, a maximum quantity of 3,000 m^3 of dredged material from the Daintree River Ferry Crossing dredging campaign can be utilised at the site.

This section of coastline is subject to ongoing erosion and sediment transport processes and the private properties on the foreshore are susceptible to erosion and subsequent coastal inundation, particularly during storm events. Historically material has been placed at this site, however due to the close proximity to a larger number of residents compared with the other sites and considering the potential disruptions to these residents, the use of the Helmet Creek foreshore area for beneficial re-use of dredged material is the least preferred site.

The nourishment site is proposed at the southern compartment of the stretch of exposed open coastline which is susceptible to impacts from currents, winds and waves which provide a mechanism for northward sediment transport from the site. As with the other two nourishment sites, works include the reformation of a beach dune with a flat berm (less than 1% grade) of approximately 10m width at the top of the compartment and a 1 in 15 sloped profile down to the natural bathymetry. Based on the volume of dredged sand allowed for placement of the site, it is anticipated that an approximately 200m section would be nourished. This would be adjusted based on the land levels and

If the Helmet Creek site is to be utilised, consultation with landholders and relevant parties (including beach users / members of the public) must be carried out by DSC to ensure relevant parties are aware of the proposed works.

3.6 PLACEMENT METHODOLOGY

The beach nourishment material will be deposited as high up on the beach profile as possible. The batters will be formed in the sub-tidal area through a combination of either allowing the material to naturally flow from the top of the beach profile to form the desired slope or by using small machinery such as a small dozer or front-end loader to redistribute and shape the sand to ensure the nourishment profile meets the required design. Management measures will focus on controlling turbidity and suspended sediment levels through various mechanisms, including depositing material higher up on the beach, moving the discharge location, varying the discharge rate, and monitoring the quality of the material being delivered from the dredge area.

Typically all works would be conducted during daylight hours from Monday to Saturday, with no works to occur on Sundays or Public Holidays.



Figure 3.11 Helmet Creek Nourishment Site

3.6.1 Ultimate Disposal

The Cape Tribulation Road stockpile site will therefore be utilised as a temporary handling facility, with the following alternate ultimate (long-term) stockpile location being considered:

- Wonga Beach Stockpile Site
- Dumsara Sand Pit Stockpile Site
- Newell Beach Stockpile Site

A plan of these sites, as well as their locality relative to the dredging site is provided in Figures 3.12 to 3.15 for reference.

These sites provide a potentially suitable, cost-effective alternative disposal where beach nourishment is unsuitable. The sites are a significantly shorter haul distance from the dredge site, compared with the beach nourishment sites with the Wonga Beach, Dumsara Sand Pit and Newell Beach stockpile sites being 8 km, 33 km and 28 km by road respectively.

In addition to the identified alternative disposal sites, the Contractor may propose an alternative site. It is therefore the responsibility of the Contractor to obtain all permits for the use of the alternative site, confirm potential contaminant levels of the dredge spoil are within suitable limits required for ultimate disposal, and to manage the site in accordance with any approvals requirements, this DMP and the attached EMP.

3.6.2 Summary of Current Disposal Sites

The beneficial reuse of dredged material at Rocky Point Boat Ramp and Oak Beach sites are preferred. Undertaking the proposed beach nourishment works as outlined above, utilising all three sites would require approximately 10,000 m^3 of material which matches the approved maximum annual volume of 10,000 m^3. It is acknowledged that, typically up to 6,000 m3 of material has been removed previously, a percentage of which is unsuitable for beneficial reuse. This volume is therefore considered appropriate for volume of material to be placed at the Rocky Point Boat Ramp and Oak Beach foreshore sites (combined maximum quantity of 8,000 m^3 permitted).

It is noted that the opportunity for beneficial reuse of maintenance dredge material is highly dependent on the sediment properties of the materials dredged. This includes the chemical and physical properties of the sediment including the presence of any contaminants/toxins or acid sulfate soils (ASS). Where a reduced volume is deemed suitable for beneficial re-ruse, the volumes and hence the profiles of placed material at each compartment will be adjusted based on the quantity of suitable material.

Where it is determined that dredged material is unsuitable or unfeasible to be utilised as beach nourishment at any of the approved sites, ultimate disposal at an alternate stockpile site would be required. Final determination of which if any of the proposed locations will be used as long—term stockpile locations for the dredge material will require further investigation and discussion between Douglas Shire Council and the Contractor.



Figure 3.12 Locality Map of Identified Ultimate Disposal Sites

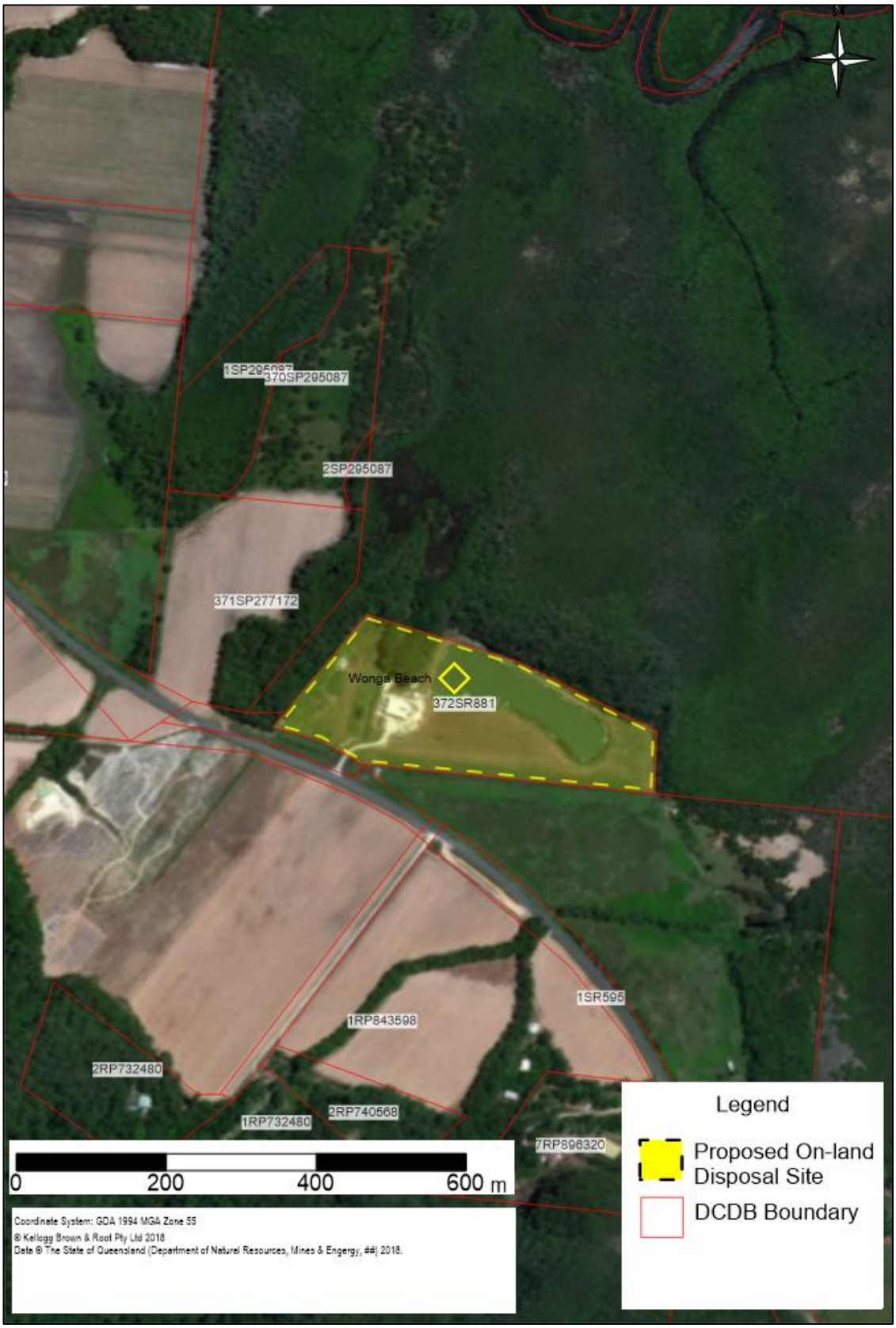


Figure 3.13 Potential Ultimate Disposal Site at Wonga Beach



Figure 3.14 Potential Ultimate Disposal Site at Dumsara



Figure 3.15 Potential Ultimate Disposal Site at Newell Beach

4 Receiving Environment

4.1 NATURAL PROCESSES

Tides

The Daintree River, where the ferry crossing is located, is subject to tidal and coastal processes and influences. The Daintree River is tidal for up to 30 km from the river mouth.

The tidal regime in the lower Daintree River is generally related to the Port Douglas Standard (Tidal) Port. Tidal planes published by the Department of Transport and Main Roads (Maritime Safety Queensland) for Port Douglas 2018 are provided in Table 5.1.

Table 4.1 Port Douglas Standard Port (MSQ, 2018) (Lat. 16 29S, Lon. 145 28E)

Tidal Planes	Level (mLAT)	Level (mAHD)
Highest Astronomical Tide (HAT)	3.360	1.779
Mean High Water Spring (MHWS)	2.490	0.909
Mean High Water Neap (MHWN)	1.830	0.249
Mean Sea Level (MSL)	1.600	0.019
Australian Height Datum (AHD)	1.581	0.000
Mean Low Water Neap (MLWN)	1.370	-0.211
Mean Low Water Spring (MLWS)	0.700	-0.881
Lowest Astronomical Tide (LAT)	0.000	-1.581

Climate

The lower Daintree region is within a tropical monsoonal climate which has a distinct wet and dry season. The wet season typically occurs between December and March when a significant proportion of the annual rainfall occurs. The occurrence of cyclones in the Coral Sea also contributes to higher average rainfalls during this period.

During the wet season, high rainfall and resultant riverine flooding in the Daintree result in the transport and deposition of natural sediment (e.g. sand, silts and clays). This natural process prompts the need for maintenance dredging activities as they result in sediment being deposited in the artificially deepened channel at the Daintree Ferry Crossing site. These events deliver the majority of the annual sediment load within a short period of time (usually in days or weeks).

4.2 WATER QUALITY

Base flow water quality of the lower Daintree River is classified as “Good” and typically the concentrations of total nutrient and turbidity are within EPA guideline ranges based on recent Healthy Waterways (QLD) assessments.

A 2003-04 water quality monitoring program, jointly undertaken by CSIRO and DSC investigated the hydrology and water quality characteristics of the Daintree River. While base flow water quality is generally good, the study observed highly variable baseline water quality conditions in the lower Daintree catchment due to tidal movements which periodically increased the baseline turbidity of the lower Daintree River.

Base flow concentrations of total nutrient and turbidity were also found to commonly exceed QLD EPA guideline ranges due to flushing of the Daintree catchment at the start of high flow events, such as high rainfall and wet season events throughout the year (this was characterised as the "first flush" effect). Agricultural clearing and run-off during these events may also contribute to higher baseline nutrient concentrations.

Given the short timeframes of dredging, the highly variable base flow conditions and with the implementation of appropriate management measures, it is not anticipated that dredging operations within the lower section of the Daintree River will result in any adverse impacts on the overall water quality of the system.

4.3 SEDIMENT CHARACTERISTICS

Sediment sampling and analysis is required to identify the physical and chemical properties of the dredge material to appropriately assess the materials suitability for on land placement and beneficial re-use as a beach nourishment source.

The NAGD state that "*Existing chemical or toxicity data for the sediments of the area to be dredged will have a maximum currency of five years, where there is no reason to believe that the contamination status has changed significantly, after which new data would need to be gathered*."

Therefore an appropriate sediment sampling and analysis program commensurate with the likely level of risk for encountering contaminants must be carried out by DSC at a maximum of five-year intervals.

The sediment sampling and analysis program shall be carried out in accordance with NAGD, taking into consideration historic investigations, dredge campaigns and land use risk factors.

4.3.1 Previous Investigations

A sediment sampling and analysis program was undertaken by GHD (2007) to gain a greater understanding of the dredge materials physical and chemical characteristics. Samples taken within the dredge footprint were analysed for the following parameters:

- Moisture content
- Tributyl Tin (TBT)
- 8 metals (As, Cd, Cu, Ni, Pb, Hg, Cr, Zn)
- Acid Sulphate Soils (field pH)
- Total Petroleum Hydrocarbons, including BTEX
- Particle size distribution
- Total organic carbon.

Concentrations of potential contaminants were compared to both land-based criteria and ocean disposal guidelines, including:

- Draft Guidelines for the Assessment and Management of Contaminated Sites in Queensland;

- Screening Levels outlined in the National Ocean Disposal Guidelines for Dredged Material (Environment Australia, 2002) (Guidelines in place at the time, which have since been replaced by the NAGD).

Based on the results of the sediment sampling and analysis program, river sediments are typically characterised as medium sand, with small proportions of coarse sand and gravel. A very low proportion of fine-grained materials, characteristic of marine or coastal wetland silts, are also present (i.e. between one and six percent).

Sediment analysis in accordance with the above guidelines indicated that chemical constituents within the sediment to be dredged are below the levels outlined in both guidelines.

Overall the results from the sediment sampling investigation show that the material is chemically suitable for unconfined offshore disposal and disposal at approved land based facilities. The results also show that with respect to sediment re-suspension during dredging, chemical constituents and potential pollutants are all below levels which would be of any concern.

The site is also located in a low lying area which has the potential for Acid Sulfate Soils to be present (i.e. site elevation < 5m AHD). An overlay map of ASS covering the lower Daintree region is provided in Figure 4.1, with the area near the Daintree River Ferry dredging site identified in red.

Samples collected as part of the sampling event were also analysed for field pH (pH_F) and field oxidised pH (pH_{FOX}). Rapid pH and pH after oxidation methods showed that sediment pH_F values were all alkaline as is typical of marine sediments dominated by seawater processes. However all oxidised pH (pH_{FOX}) results were acidic and ranged between pH 2.2 and pH 4.0.

The results indicate that material within the dredge area has acid generating potential. Therefore there is an acid sulfate soils risk associated with the transport and placement of material, given that the dredged material is to be placed on land and will have the opportunity to oxidise. Consequently appropriate management measures and monitoring will need to be implemented during the placement of material at the approved land disposal sites.

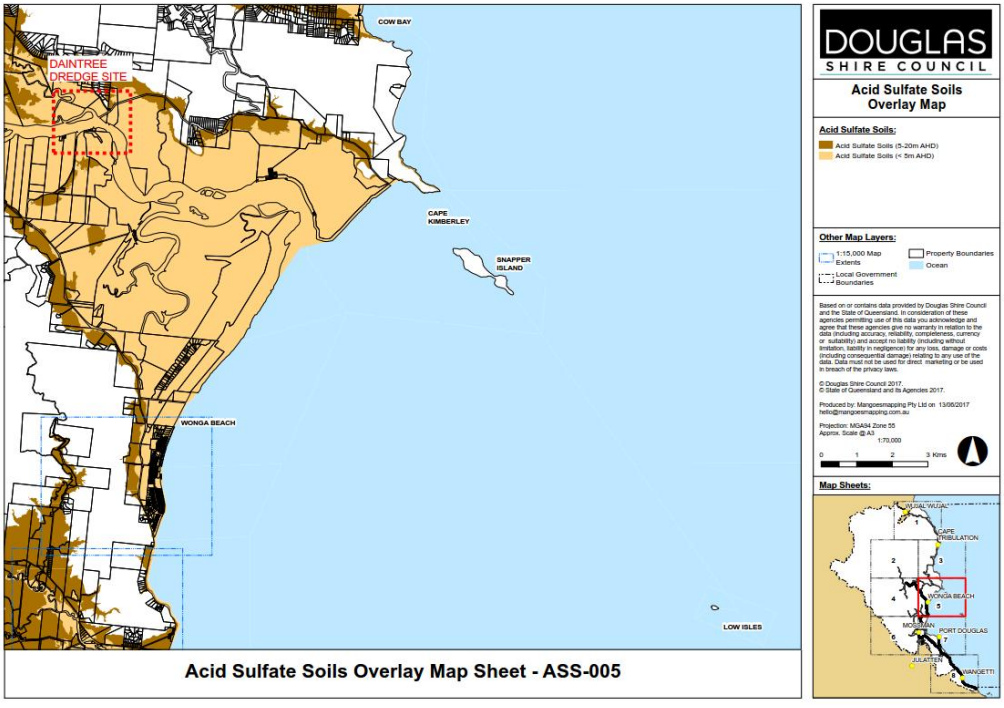


Figure 4.1 Acid Sulphate Soils (ASS) Overlay Map (Source: DSC, 2017)

4.3.2 Sediment Sampling and Analysis

Prior to the execution of maintenance dredging programs, characterisation of the proposed dredge material is required to be analysed in accordance with the NAGD. Phase I of the NAGD involves reviewing existing information on the dredge material to determine which contaminants need investigation and to assess whether the existing information sufficiently characterises the sediments without further testing.

DSC is responsible for carrying out sediment sampling and analysis in accordance with the NAGD at a minimum of 5-year intervals. Where information is greater than 5 years old or is evaluated as not being sufficient to adequately characterise the sediments, a Sediment Sampling and Analysis Plan (SAP) is to be prepared which covers the list of contaminants to be tested and the number of sampling locations (Minimum sampling locations is 6 based on the proposed dredge volume).

A flow diagram which covers the process for assessing the suitability of dredge material for disposal is provided in Figure 4.2 (NAGD, 2009).

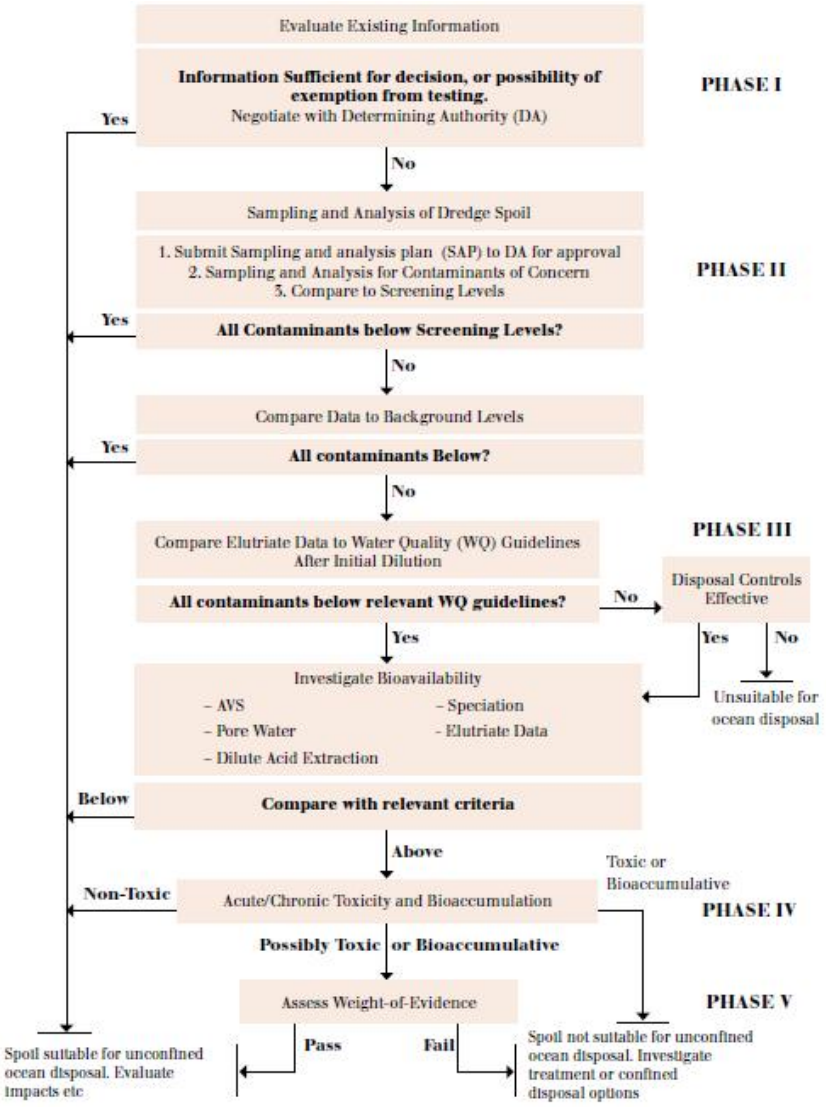


Figure 4.2 Methodology for assessing the suitability of dredged material disposal (NAGD, 2009)

Potential Contaminants

A list of contaminants for analysis shall be prepared on the basis of those parameters known to occur from previous campaigns, plus any other potential substances of concern which could impact on the suitability of the material for ultimate disposal or which may arise over time as a result of land use changes or other significant events (i.e. spills). Based on available sediment analysis results and the current surrounding land-uses within the region, the following list of parameters are, as a minimum, to be analysed during any sediment sampling campaign undertaken:

- Tributyl Tin (TBT)
- Metals including As, Cd, Cu, Ni, Pb, Hg, Cr, Zn
- Acid Sulphate Soils –Field pH (pH_F) and field oxidised pH (pH_{FOX}) as well as SPOCAS
- Total Petroleum Hydrocarbons
- BTEX
- Total organic carbon

Note that this is not intended to be an exhaustive list and would need to be reviewed and assessed on a campaign-by-campaign basis, considering previous material placement analyses and ultimate material disposal requirements.

4.3.3 Material Suitability

Physical and chemical properties

In addition to the potential contaminants identified in Section 4.3.1, the following parameters are to be analysed to determine the physical suitability of the dredged material for beach nourishment purposes:

- Particle Size Distribution (PSD)
- Moisture Content (%)
- Acid Sulphate Soils (ASS) and Potential Acid Sulphate Soils (PASS)

In accordance with the GBR Coast MP Permit, dredged material is considered suitable to be placed at the approved nourishment sites if it is:

- clean and fee of silt
- suitable for the purpose having regard to the location of the land and to the proposed use of the land; and
- free from pests, chemicals and other contaminants

The Contractor shall undertake a sediment analysis (Particle Size Distribution PSD) of dredged spoil material at the approved stockpile site or handling site to verify the compatibility of the sand at the proposed beach replenishment site to the dredge spoil material.

All dredge spoil must also be assessed in accordance with the “Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils (ASS) in Queensland", 1998.

Where chemicals and contaminants are below NAGD screening levels, and where dredged material particle sizing has a sufficiently low proportion of silt and are classified as a sand or coarser (that is <12% silt content in accordance with AS1726 *Geotechnical Site Investigations*), material is considered suitable for beneficial re-use at the approved nourishment sites.

Aesthetics

There are no specific numeric guidelines for aesthetic properties, however physical characteristics such as colour and particle size can influence the disposal options available for dredged sediment. Where public accessibility to the dredged material is likely (such as for the purposes of beach nourishment), the aesthetic characteristics of the sediment need to be considered. The initial colour of the nourishment material will vary in colour to that of the native sand currently present along the coastal foreshore. Initially there will be some discolouration from the dredged material deposited on the beach profile, however over time the material is expected to lighten after exposure to the sun and atmosphere.

The sediment will be deposited as high up on the beach profile as possible in order to form the buffer at the dune crest. The batters will be formed in the sub-tidal area through a combination of either allowing the material to naturally flow from the top of the beach profile to form the desired slope or by using small machinery such as a small dozer or front-end loader to redistribute and shape the sand to ensure the nourishment profile meets the required design. Management measures will focus on controlling turbidity and suspended sediment levels through various mechanisms, including depositing material higher up on the beach and monitoring the quality of the dredged material being delivered from the temporary stockpile site.

4.4 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

A search of the EPBC Act Protected Matters Search Tool (PMST) was performed to identify relevant Matters of National Environmental Significance (MNES) protected under the EPBC Act which are predicted to occur / known to occur within a 1 km radius of the dredge area.

The EPBC PMST Report identified the potential presence of one listed threatened ecological community (TEC) which may occur within the vicinity of the proposed works, being Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coast north Queensland. However, the dredge operations and material placement activities will not impact on this TEC, particularly given the locality and existing use of the sites and that no terrestrial or riparian vegetation is to be removed as part of the works.

The EPBC PMST Report also identified a number of listed threatened species including 9 bird species, 3 amphibian species, 11 mammals, 7 listed reptiles and 2 shark species. The search also identified 17 listed flora species as potentially occurring within the vicinity of the dredge area.

The search tool revealed a total of 37 migratory species listed under the EPBC Act as possibly occurring within 1 km of the site. These include 4 birds, 14 mammals, 9 terrestrial species and 10 wetland species.

The site itself is recognised as having both World Heritage and National Heritage values associated with the Great Barrier Reef and Wet Tropics of Queensland. These zones are considered to be of high ecological significance and as such, dredging within this region must consider the sensitivity to flora and fauna habitats.

For all dredging campaigns, the EMP included as Appendix A is to be appropriately implemented to ensure that routine maintenance dredging does not adversely impact on the environmental values of the site and any nearby sensitive receptors.

4.5 FLORA

The dredge area is located within an estuarine wetland habitat and supports a range of intertidal mangrove and vine forests. A mix of marine, estuarine and terrestrial plants line the banks of the Daintree River including mapped regional ecosystems 7.1.1 (No Concern) and 7.1.4a (Endangered) which are characterised by "*Mangrove closed scrub to open forest of areas subject to regular tidal inundation*" and "*Mangrove and vine forest closed forest of the brackish zone*", respectively (Figure 4.3).

The natural wetlands and estuarine areas within the vicinity of the dredging and temporary stockpile location are considered to be areas of High Ecological Value (HEV) waters and High Ecological

Significance (HES) wetlands under the State Environmental Protection (water) Policy. These estuarine wetlands support habitats for marine life and are a food source for birds and terrestrial animals.

Dredging of the Daintree River Ferry Crossing will take place completely within tidal waters within the extents specified. No coastal vegetation or wetland areas will be directly affected by the dredge activity. Given that the works do not involve the removal of any terrestrial or riparian vegetation, and with the appropriate implementation of management measures as outlined in the EMP (Appendix A), no adverse impacts on flora species are likely to occur.

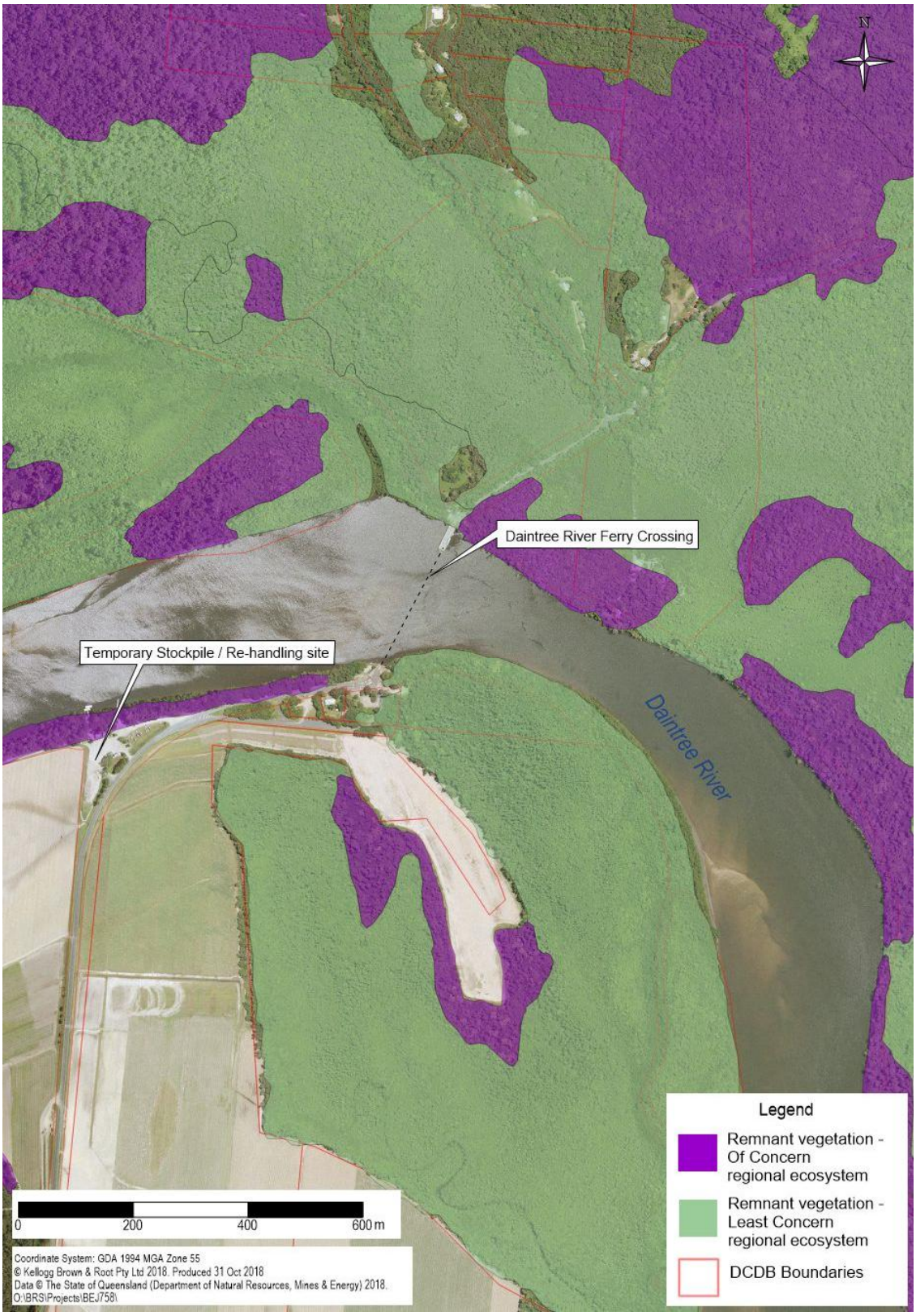


Figure 4.3 Remnant vegetation mapping surrounding the dredge area

4.6 FAUNA

The EPBC Protected Matters Database listed a number of marine and terrestrial fauna species as occurring or potentially occurring in the region. Species which are most likely to occur within or within the vicinity of the ferry crossing include a number of bird species, as well as turtles, crocodiles and fish which would be transient visitors as they move through the area in search for more suitable habitat.

Many of the species identified in the EPBC search are predominantly oceanic dwelling species and given the site's locality over six kilometres upstream of the coastline, it is expected that the site provides either no suitable habitat in the region or no suitable habitat that would be impacted by the proposed works which these species would rely on. Examples of such species include the Indo-Pacific Humpback Dolphin (*Sousa chinensis*), Giant Manta Ray (*Manta birostris*), Irrawaddy Dolphin (*Orcaella brevirostris*) which, would be unlikely to be present in the waters surrounding the Daintree River Ferry Crossing.

Birds

The estuarine wetlands and intertidal areas along the Daintree River support important mangrove and wetland habitat which are frequented by a number of bird species.

Species often encountered within the riparian and mangrove forests along the Daintree River include Great-billed Heron, Striated Heron, Black Bittern (in season), Forest and Sacred Kingfishers, Shining Flycatcher, Mangrove Robin, Yellow-bellied (Olive-backed) Sunbird, White-breasted Sea-eagle, Osprey, Brahminy Kite and Pacific Baza (2018, Wild Watch Australia).

Turtles

The EPBC Database identified the likely presence of the following turtle species within 1km of the site:

- Loggerhead Turtle (*Caretta caretta*)
- Leatherback Turtle (also Leathery Turtle) (*Dermochelys coriacea*)
- Green Turtle (*Chelonia mydas*)
- Hawksbill Turtle (*Eretmochelys imbricate*)
- Olive Ridley Turtle (also Pacific Ridley Turtle) (*Lepidochelys olivacea*)
- Flatback Turtle (*Natator depressus*)

Of these listed species, only the Green Turtle and Flatback Turtle have been sighted or are known to occur within the area as the site provides little opportunity for foraging and feeding. It is noted that the species listed above are predominantly ocean-dwelling species and no known turtle breeding sites are located within the vicinity of the site.

Crocodiles

The Estuarine Crocodile (*Crocodylus porosus*) is identified as being likely to occur within a one kilometre radius of the proposed works. The Queensland 'Biodiversity and Conservation Values Report' also lists some limited sightings of the species within the area of interest, most recently through a 'CrocWise' report in 2017. Further surveys of the area by DEHP indicate that there is a healthy crocodile population present in the Daintree River.

It is noted that this species is not listed as a threatened or vulnerable species under the *EPBC Act* and it is unlikely that the works would have any long-term impacts to the local population.

Fish Habitat Area

While the estuarine wetlands provide important habitats for juvenile fish, migratory birds and other marine life, the project site is not within a designated Fish Habitat Area (FHA) under the *Fisheries Act 1994*. All

dredging works will be limited to approved dredge areas only in accordance with MPW2013/GBRC0016, EPPR01803613 or any other approvals and are excluded from any declared FHA.

4.6.1 Cultural Heritage

The traditional owners of the Daintree area, including the Daintree Gateway Precinct, are the Eastern Kuku Yalanji. There is a documented understanding of the Kuku Yalanji cultural association with the region in the Indigenous Land Use Agreement that is registered over part of the site and adjacent to the Daintree Gateway Precinct. The Daintree Ferry is also recognised as a local heritage place under the Douglas Shire *Planning Scheme Policy 4 – Cultural Heritage and Valuable sites.*

5 Environmental Management

5.1 PROPOSED MITIGATION AND MONITORING MEASURES

Mitigation measures and monitoring will be required to ensure that potential impacts are identified and minimised during dredging and beach nourishment works. The objective of these mitigation and monitoring measures will be to ensure that the dredging works and beach nourishment activities can be carried out with minimal adverse impacts on the environment. Key mitigation and monitoring activities are addressed in the EMP, included as Appendix A.

6 References

GHD, 2007, Report for Daintree River Ferry Dredging Permit Application, Dredge Management Plan, report prepared for Douglas Shire Council, December 2007.

Maritime Safety Queensland (MSQ), 2018, Queensland Tide Tables 2018.

NAGD, 2009, Department of Sustainability, Environment, Water, Population and Communities (SEWPAC), National Assessment Guidelines for Dredging (NAGD), Commonwealth of Australia, Canberra

State of Queensland (Department of Environment and Science), 2018. Biodiversity and Conservation Values, Biodiversity Planning Assessments and Aquatic Conservation Assessments - Environmental Reports – For the selected area of interest Longitude: 145.3993 Latitude -16.2609 with 2 kilometre radius (Last accessed: 13/06/2018)

State of Queensland (Department of Environment and Science), 2018. Matters of State Environmental Significance (MSES) - Environmental Reports - For the selected area of interest Longitude: 145.3993 Latitude -16.2609 with 2 kilometre radius (Last accessed: 13/06/2018)

Wild Watch Australia, 2018, Daintree Birding, http://www.wildwatch.com.au/DaintreeBirding, accessed 6/7/18

Appendix A

Environmental Management Plan (EMP)



We Deliver

KBR

Daintree River Ferry Crossing: Channel Dredging and Material Placement

We Deliver

Environmental Management Plan

Environmental Management Plan

Daintree River Ferry Crossing: Channel Dredging and Material Placement

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06 December 2018

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Limitations Statement

The sole purpose of this report and the associated services performed by Kellogg Brown & Root Pty Ltd (KBR) is to present an Environmental Management Plan for the Daintree River Ferry Crossing Project in accordance with the scope of services set out in the contract between KBR and Douglas Shire Council ('the Client'). That scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

KBR derived the data in this report primarily from visual inspections and examination of records in the public domain. The passage of time, manifestation of latent conditions or impacts of future events may require further exploration at the site and subsequent data analysis, and re-evaluation of the findings, observations and conclusions expressed in this report.

In preparing this report, KBR has relied upon and presumed accurate certain information (or absence thereof) relative to the site provided by government officials and authorities, the Client and others identified herein. Except as otherwise stated in the report, KBR has not attempted to verify the accuracy or completeness of any such information.

The findings, observations and conclusions expressed by KBR in this report are not, and should not be considered, an opinion concerning the approval or permitting of proposed maintenance dredging activities. No warranty or guarantee, whether express or implied, is made with respect to the data reported or to the findings, observations and conclusions expressed in this report. Further, such data, findings, observations and conclusions are based solely upon site conditions, information and drawings supplied by the Client in existence at the time of the investigation.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between KBR and the Client. KBR accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Revision History

Revision	Date	Comment	Signatures			
			Originated by	Checked by	Technical Approval	Project Approval
0	06/12/2018	Issued for Use	K. Stemm	J. McLean	D. Shooter	K. Stemm

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APPENDICES

A Approvals and Permits

B Corrective Action Request (CAR) Form

1 Introduction

Douglas Shire Council (DSC) is responsible for maintaining the channel associated with the Daintree River Ferry Crossing located on Cape Tribulation Road, approximately 50 km north of Port Douglas in the lower Daintree region. The Daintree River Ferry is a cable ferry which provides pedestrian and vehicular access across a 250 m wide section of the Daintree River in Queensland. Figure 1.1 shows the location of the Daintree River Ferry Crossing.

Periodic maintenance dredging is intended to maintain safe navigable access of the approved channel and to provide for safe and continuous operation of the Daintree River Ferry, which is an essential community service.

1.1 BACKGROUND

Routine maintenance dredging typically involves the removal of recently accumulated material within the channel and the placement of sediment at the temporary material handling facility and approved on-land sites for beach nourishment purposes.

It is intended that ongoing maintenance dredging campaigns will be carried out using a small grab dredge, backhoe dredge or barge-mounted excavator to remove material to the channel design depths. Material will then be transferred either by small barge and pumped ashore, or via trucks which will transport material by road. This methodology is typical for minor dredging work where small volumes need to be removed in areas with constrained access or manoeuvrability.

A full description of the works including typical maintenance dredge volumes, dredge method and disposal is provided in Section 3 of the Dredge Management Plan (BEJ758-TD-MN-REP-0001 Rev. 0).

The river crossing itself is located within the Conservation Zone of the Great Barrier Reef Coast Marine Park and is also located within the Great Barrier Reef World Heritage Area.

1.2 PURPOSE

Management measures and site monitoring to ensure potential impacts are identified and minimised are presented in this Environmental Management Plan (EMP). The objective of this management plan is to ensure that maintenance dredging works are carried out without significant adverse impacts on the environment within the vicinity of the Daintree River Ferry Crossing.

The purpose of this EMP is to:

- identify the potential environmental impacts associated with undertaking routine maintenance dredging at the site
- identify the measures to be implemented to mitigate potential environmental impacts
- ensure that commitments to environmental management are maintained during dredging
- indicate the corrective actions to be undertaken if an undesirable impact or unforseen level of impact occurs
- ensure that activities are conducted in accordance with the requirements of the *Environmental Protection Act 1994* and other licence/approval conditions.



Figure 1.1 Daintree River Ferry Crossing Location

This document will be included as part of the tender specification for the dredging works. There is also a requirement that a construction specific EMP (implementation plan) be prepared by the Contractor which adheres to this document and any environmental conditions placed on the operation by relevant agencies.

2 Legislative requirements

2.1 APPLICABLE LEGISLATION

There are a number of items of legislation which are directly relevant to the routine maintenance dredging works, either because approvals have been obtained under that legislation or because there is a general duty of care associated with the legislation which must be taken into account.

Legislative and planning documents that are applicable to the works include:

- *Planning Act 2016*
- Planning Regulation 2017
- *Coastal Protection and Management Act 1995*
- Coastal Protection and Management Regulation 2003
- Coastal Management Plan 2013
- *Environmental Protection Act 1994*
- Environmental Protection Regulation 2008
- *Fisheries Act 1994*
- Fisheries Regulation 2008
- *Queensland Heritage Act 1992*
- *Aboriginal Cultural Heritage Act 2003*
- *Marine Parks Act 2004*
- Marine Parks Regulation 2017
- Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004.

2.2 ENVIRONMENTAL DUTY

Section 319 of the *Environmental Protection Act 1994* requires that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.

Section 320A of the Act states that any person who becomes aware that harm to the environment is caused or threatened by their or someone else's actions during an activity, must advise their employer of the event and the employer must then advise the Department of Environment and Science (DES) in writing.

2.3 APPROVALS & PERMITS

DSC hold the following approvals/permits relevant to the maintenance dredging of the Daintree River Ferry Crossing, which are provided in Appendix A:

- Environmental Authority to undertake ERA 16(1)(a) (extractive and screening activities) and ERA 57(2)(a) (regulated waste transport) – Permit number EPPR01803613
- Great Barrier Reef Coast Marine Park Permit to carry out works within a Marine Park – permit number MPW2014/GBRC0016.

3 Environmental responsibilities

3.1 RESPONSIBILITY FOR EMP COMPLIANCE

3.1.1 DSC (acting as Superintendent)

DSC is responsible for ensuring a navigable depth is maintained in the approved channel for the Daintree River Ferry. Unless otherwise indicated, DSC will hold all relevant environmental permits and approvals for dredging and will be responsible for ensuring compliance with the permits and other relevant environmental legislation. This will include reviewing this EMP prior to implementation and during the works, and ensuring that all works are done in compliance with this EMP.

3.1.2 Superintendent's Representative

The Superintendent's Representative has responsibility for administering the dredging and material placement contract, and ensuring that the Contractor complies with the requirements of the EMP. The Superintendent's Representative is the point of communication between the Superintendent (DSC) and the Contractor.

The Superintendent's Representative shall report any non-compliance or other environmental issues to the Superintendent and relevant agencies where appropriate.

3.1.3 Contractor

The Contractor will be required to adhere to the contract documents, relevant legislation and this EMP when conducting the work. The Contractor shall be responsible for the implementation of the EMP.

The Contractor shall report any non-compliance or other environmental issues to the Superintendent's Representative. Where specified, monitoring will be performed by the Contractor and all results will be kept by the Contractor and provided to the Superintendent's Representative or another relevant authority upon request at any time during the works and in a consolidated form at the completion of the works. The Contractor is to keep a copy of this EMP and all approval documentation on-site at all times.

4 Environmental management issues

The following sections outline the environmental issues associated with routine maintenance dredging works for the Daintree River Ferry Crossing, the disposal of dredged material at the Temporary Material Handling Facility and approved on-land sites for beach nourishment purposes, and the approach that is to be adopted to manage potential adverse impacts.

4.1 SEDIMENT CHARACTERISTICS

4.1.1 Physical sediment characteristics

Based on sediment sampling and analysis conducted in 2007 (GHD, 2007), the river sediments are typically characterised as medium sand, with small proportions of coarse sand and gravel. A very low proportion of fine-grained materials, characteristic of marine or coastal wetland silts, are also present (i.e. between one and six percent).

4.1.2 Chemical characteristics

The sediment sampling investigation carried out in 2007 focussed on characterising the sediments within the area to be dredged. Key physical and chemical properties were compared against two guidelines:

- Draft Guidelines for the Assessment and Management of Contaminated Sites in Queensland
- Screening Levels outlined in the National Ocean Disposal Guidelines for Dredged Material (Environment Australia, 2002) (Guidelines in place at the time, which have since been replaced by the National Assessment Guidelines for Dredging 2009 (NAGD)).

Sediment analysis in accordance with the above guidelines indicated that chemical constituents within the sediment to be dredged are below the levels outlined in both guidelines.

Overall the results from the sediment sampling investigation show that the material is chemically suitable for unconfined offshore disposal and disposal at approved land based facilities. The results also show that with respect to sediment re-suspension during dredging, chemical constituents and potential pollutants are all below levels which would be of any concern.

4.1.3 Sediment management

While there is no evidence to suggest that sediments to be dredged could be considered as ‘contaminated’, characterisation of the proposed dredge material has not been undertaken since 2007 and therefore should be carried out in accordance with guidance provided in the NAGD. As a minimum, sediment characterisation should occur every 5 years to ensure physical and chemical characteristics of the sediment have not substantially changed overtime.

4.2 ACID SULFATE SOILS

Acid sulfate soils (ASS) have the potential to oxidise and release acidic leachates which can adversely impact the marine environment. A sediment sampling and analysis campaign was completed for the dredge area in 2007.

Samples collected as part of the sampling event were analysed for field pH (pH_F) and field oxidised pH (pH_{FOX}). Rapid pH and pH after oxidation methods showed that sediment pH_F values were all alkaline as is typical of marine sediments dominated by seawater processes. However, all oxidised pH (pH_{FOX}) results were acidic and ranged between pH 2.2 and pH 4.0.

The results indicate that material within the dredge area has acid generating potential. Therefore there is an acid sulfate soils risk associated with the transport and placement of material, given that the dredged material is to be placed on land and will have the opportunity to oxidise. Consequently appropriate management measures and monitoring will need to be implemented during stockpiling and placement of material at the approved land disposal sites.

4.2.1 Acid sulfate soils management

Management of acid sulfate soils is to be undertaken in accordance with the following guidelines:

- Queensland Acid Sulfate Soils Technical Manual – Soil Management Guidelines Version 4.0 (Department of Science, Information Technology, Innovation and the Arts 2014).
- Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) Queensland (Ahern *et al*. 1998).

Measures for the management of ASS involve appropriate containment of material on a designated treatment pad, monitoring pH levels in stockpiled sediment and in discharge waters in accordance with the guidelines and, if required, the application of agricultural lime.

4.3 RIVER HYDROLOGY

The Daintree River Ferry Crossing is an existing navigational channel which silts up over time due to the gradual deposition of sediments. Dredging of the channel is not expected to have any discernable impact on the hydrology of the river and is not expected to change sediment transport regimes or flooding mechanics of the river. As the channel has previously been dredged to the approved design depth with no impact on hydrology, it is not anticipated that there would be any future hydrology impacts from routine maintenance dredging campaigns.

4.3.1 River hydrology management

No specific management measures are proposed in relation to potential impacts on river hydrology.

4.4 WATER QUALITY

Local deterioration in water quality will be limited to short term increases in turbidity from the dredging and disposal activities. This has the potential to adversely impact marine flora and fauna species. The area to be dredged is an existing disturbed area which is not known to contain any important habitat for marine fauna or flora species.

To ensure local reductions in water quality do not adversely affect surrounding marine habitats, a water quality monitoring program will be implemented during all routine maintenance dredging activities.

4.4.1 Water quality management

The management approach for water quality is focussed on limiting the area of disturbance, ensuring dredging is undertaken as efficiently as possible, and management of sediment loss during dredging and manoeuvring both over water and on land.

Water quality monitoring will be undertaken in accordance with the conditions of approval as outlined in the EA. Monitoring will be conducted at the dredge site in accordance with the latest version of the DES Water Quality Sampling Manual. Monitoring will be conducted on a daily basis for the duration of the

dredging works and reported to the Superintendent's Representative on a weekly basis, with exceedances reported within 24 hours of its occurrence. Visual monitoring will be undertaken on a daily basis by the Contractor.

4.5 FLORA AND FAUNA

The proposed dredging activities have the potential to temporarily impact marine and terrestrial flora and fauna as a result of direct impacts associated with the dredge, associated vessel movements, local deterioration of water quality and material placement activities.

Birds are known to frequent the wetland areas in the vicinity of the dredging activity. However, dredging of the ferry crossing channel will be limited to the approved dredge area and will not directly impact any important foraging areas for birds.

Given that multiple ferry crossings occur every day and the channel has undergone maintenance dredging on an annual basis for some time now, the impacts on marine and terrestrial flora and fauna are anticipated to be minor.

While the crossing is located within the Great Barrier Reef Coast Marine Park and World Heritage area, there are no ecologically sensitive receptors in the immediate or surrounding project area.

4.5.1 Flora and fauna management

During all dredging and placement activities, the Contractor shall visually monitor for any marine and terrestrial fauna, with any observations logged. All works are to remain within the defined footprint of the dredge area and approved material stockpile and placement areas.

The Contractor will be required to work within the prescribed times and shall take adequate precautions to effectively minimise all noise related conditions which may occur during the works.

All reasonable measures will be taken to avoid adversely impacting fauna. If a collision occurs, the Contractor shall immediately call the RSPCA on 1300 ANIMAL (1300 264 625) or DES for directions on how to deal with the injured animal. A record should be taken of the incident and entered in the dredging/project log book. All incidents or collisions will be reported within 24 hours to the Superintendent and the Superintendent's Representative for further action.

4.6 ACCESS/TRAFFIC

The dredging works will be undertaken outside of the operating hours of the car ferry and as such there will be limited disruption to public access of the river crossing.

The public currently has access to the beach front at placement sites, however during the placement of material at these sites, public access would be temporarily limited.

4.6.1 Access management

The Contractor will prepare a traffic management plan in accordance with the Technical Specification for the dredging campaign. The plan will be approved by DSC with details included in the Contractors 'Implementation Plan'.

Where applicable, any vehicles and plant operating along foreshore areas, for the purposes of beach nourishment, would be signed and demarcated. Public access would be excluded from the placement area via the use of temporary fencing.

4.7 NOISE

The area in the vicinity of the river crossing currently experiences a range of noises, including the operation of the ferry which is similar to that associated with the operation of the dredge machinery.

However dredging is not expected to result in any significant noise nuisance given the lack of sensitive receptors within the vicinity of the dredge area.

The noise and activity associated with dredging and material stockpiling/placement may temporarily disturb birds and other marine fauna within the vicinity of the works. However this disturbance is not expected to be significantly different to that of existing commercial and recreational boat traffic in the area, but would be persistent throughout the duration of the dredging contract.

Dredging is to be completed at night while the ferry is not operating between the hours of 12:00 am and 5:00 am, Monday to Saturday. The placement activities at approved on-land sites will be limited to 7:00 am to 6:00 pm, Monday to Saturday. No dredging or placement work will be undertaken on Sundays or Public Holidays unless otherwise approved by the Superintendent.

4.7.1 Noise management

While noise is not expected to be a significant issue, the Contractor will be required to work within the prescribed times and make preparations for the receipt and action of public complaints. The Contractor shall take adequate precautions to effectively minimise all noise related conditions which may occur during the works.

To minimise potential noise impacts, the Contractor shall ensure all machinery is well maintained and effectively muffled. The Contractor shall also minimise noise generated from normal machinery operations by adopting the following measures as a minimum requirement as per approval conditions outlined in the EA (permit number EPPR01803613):

- the use of four stroke outboard motors only to control barge movements
- limit scraping of equipment on the concrete barge ramp
- use of trailer brakes only when trucks are operated on the ferry
- use of rubber matting on the operational area of the deck of the ferry during dredging operations.

Any public complaints are to be promptly responded to and resolved with the complainant.

4.8 AIR QUALITY

There is no significant potential for the dredge operation to cause odour impacts and other air quality issues given the location and nature of the dredge process to be employed.

The placement activities may result in a temporary increase in dust generation, however if properly managed this is expected to have a negligible impact on the surrounding environment.

4.8.1 Air quality management

All loads of dredged material that are transported to placement sites are to be covered to limit the loss of material. Furthermore all vehicles used for material transportation and placement activities are to be appropriate for holding dredged material with no loss of material to public roads.

4.9 WASTE/SPILLAGE

Two types of waste are likely to be generated during the works:

- General Waste (refuse generated from the crew)
- Hazardous Wastes (oil and greases, paints and chemicals).

It is important that these waste materials are collected in lidded containers and transported to approved designated disposal facilities on land, and that they are not allowed to enter the marine environment.

4.9.1 Waste/spillage management

Contractors will be required to ensure that all wastes generated are transported back to shore for appropriate disposal. Contractors will be required to demonstrate their ability to manage waste disposal and take remedial action in case of the loss of waste to the marine environment. Refuelling will take place at designated locations and is to be undertaken in accordance with industry standards and suitable for marine environments.

An incident report is to be prepared immediately as is practical, of an incident occurring for action by the Superintendent and Superintendent's Representative.

4.10 COMMUNITY CONSULTATION

Providing information to the communities in the vicinity of the dredging and material placement works will be an important tool in managing issues such as access, noise, air quality and safety. The Superintendent is to work with the Contractor to inform locals prior to the commencement of any dredging or placement works with regard to the type and duration of works, work hours, and safety issues. Contact details will be made clear when issuing this advice to the public.

4.10.1 Community management

The Contractor is to implement mechanisms to allow residents to make complaints or raise issues which need to be addressed during the works. The mechanisms available should be compatible with DSC's existing procedures. They should also allow for action to be taken where required. This will be in consultation with the Superintendent and the Superintendent's Representative.

The Contractor should maintain a written record of any complaints or issues raised by the community, when they were received, and how and when they were addressed.

4.11 PLACEMENT AREA

Issues associated with the placement of material at approved sites for beach nourishment purposes relate to the aesthetic nature of the material and the safe and correct placement of the material to ensure that it does not cause community nuisance and will integrate with the existing environment.

Other environmental issues associated with the on-land placement of material is the potential for acid generation, either in the temporary stockpile location or the approved beach nourishment sites.

4.11.1 Placement area management

Appropriate management measures and monitoring will need to be undertaken during the placement of material at the approved sites. The material will be transferred to a temporary stockpiling site in the first instance, where pH levels of the material will be monitored and adjusted as needed before transfer to approved beach nourishment sites. Visual checks and periodic sampling and analysis of placed material will occur at the temporary stockpiling site.

Prior to utilising the material for beach nourishment purposes the Contractor shall undertake Particle Size Distribution (PSD) testing to verify the compatibility of the material for use at the sites. All material suitable for beach nourishment purposes will be placed in accordance with approved drawings, within approved placement areas to ensure conformity with the existing landscape.

5 Management requirements

The following sections provide details of specific measures to mitigate the environmental issues that have been identified and discussed in Section 4 of this document.

5.1 PRE-DREDGING MANAGEMENT MEASURES

There are a number of specific measures that should be implemented prior to any dredge campaign undertaken at the Daintree River Ferry Crossing for both DSC and the Contractor.

5.1.1 DSC responsibilities

Prior to the commencement of any dredging works, DSC will ensure that all necessary permits and approvals are held, and any additional requirements stipulated in licence conditions are incorporated into the EMP and contract documentation.

DSC will be responsible for providing the community with information about the dredging project leading up to the commencement of dredging, and any subsequent beach nourishment placement activities. DSC will also ensure that the EMP documents are included as part of the tender documents issued to potential Contractors. DSC is required to inform the Great Barrier Reef Coast Marine Park Chief Executive in writing at least 15 days, and all other administering authorities at least 7 days, prior to the commencement of works.

All information and records required by the approval conditions must be provided to the administering authorities upon request.

5.1.2 Contractor responsibilities

After contract award and prior to being granted access to the site, the Contractor shall:

- ensure they understand the requirements of this EMP and the environmental management specifications, and demonstrate their understanding of these requirements
- request any advice or clarification on these issues through DSC
- ensure that all personnel and any sub-contractors engaged in the works are aware of and understand the environmental management measures they are to implement (through environmental awareness training)
- ensure that all personnel and any subcontractors engaged on the works are aware of and understand the environmental significance of working within the Great Barrier Reef Coast Marine Park
- have in place a process (and notify DSC of this process) for informing the community of the works, highlighting safety issues, and explaining the ways that the community can raise issues or make complaints
- define access and safety measures with DSC.

5.2 SPECIFIC MANAGEMENT MEASURES

Management measures to address the following during dredging operations are provided below:

- sediment
- acid sulfate soils
- water quality
- flora and fauna
- access arrangements
- noise management
- air quality management
- waste and spillage management and pollution control
- community information and awareness
- placement areas.

5.2.1 Sediment

To characterise the physical and chemical properties of the sediment to be dredged in order to guide management actions, and to avoid any adverse impact on the receiving environment of the Daintree River.

Performance criteria

- To ensure any potentially contaminated material is identified and managed appropriately.
- To ensure clean material suitable for beach nourishment purposes is appropriately handled for beneficial reuse at the approved locations.

Table 5.1 Sediment management measures

Management requirement/action	Timing	Responsibility
Conduct sediment sampling and analysis prior to the commencement of dredging	Every five years prior to the commencement of the dredging campaign	Superintendent
Results of pre-dredge sediment testing are to be reviewed to identify any potential contaminants or ASS material.	Every five years as part of the sediment sampling and analysis program	Superintendent/ Contractor
Conduct Particle Size Distribution (PSD) analysis on material within the temporary stockpile location to determine whether dredged material is suitable for beach nourishment purposes	During each dredge campaign once material has been placed within the temporary stockpile location	Contractor

5.2.2 Acid sulfate soils

Performance objective

- To ensure any potential ASS or actual ASS identified is treated appropriately at the temporary stockpile locations.
- To prevent impacts on the receiving environment as a result of releasing low pH material.

Performance criteria

- Acid sulfate soils must be managed such that contaminants are not directly or indirectly released to any waters.
- No net acid generating capacity of sediment accumulated within the approved temporary stockpile area and approved beach nourishment sites.
- pH of water discharged from the temporary stockpile area is to remain within the range of 6.5 and 9.0 as per EA conditions (permit number EPPR01803613).

Table 5.2 Acid sulfate soil management measures

Management requirement/action	Timing	Responsibility
Acid sulfate soil sampling and analysis must be undertaken as outlined in Section 4.2.1 and in accordance with the EA conditions. All acid sulfate soils are to be treated and managed in accordance with the latest edition of the Queensland Acid Sulfate Soils Technical Manual - Soil Management Guidelines v4 (2014)	During dredging and placement	Contractor
All areas used for the storage or treatment of acid sulfate soils or other contaminants must be constructed, installed and maintained to: • prevent any release of contaminants through the bed or banks of the containment area to any waters (including ground water), including the use of guard layers • have a freeboard of not less than 0.5 m at all times • ensure the stability of the bunded area's construction.	During dredging and placement	Contractor
Inspect the temporary stockpile area, stockpiled dredged material and any beach nourishment placement areas for signs of acid sulfate soils such as: • sulphurous smell (rotten egg gas) following any soil disturbance • soils with blue-grey, blue-green appearance when wet • pale yellow appearance on surface of material • when dry (oxidised soil) dark to pale brown appearance often with yellow and orange mottling • very clear runoff water with blue-green colouration • 'rust' coloured staining or streaking on exposed material surfaces and similar staining/colour from water in contact with such material	During dredging and placement	Contractor

Management requirement/action	Timing	Responsibility
If any material is showing signs of ASS indicators, undertake periodic 'test as you go' sampling and field testing (field 'pH' and 'pH on rapid oxidation') within the affected material.	During dredging and placement	Contractor
Where rapid testing indicates possible ASS, undertake confirmatory laboratory testing for actual and/or potential acidity using the appropriate method from the Queensland Acid Sulfate Soil Technical Manual Soil Management Guidelines v4 (2014).	During dredging and placement	Contractor
If any acid generating potential above the action criteria is detected, this material should be fully neutralised by the addition of agricultural lime ($CaCO_3$) at a rate calculated in accordance with the Queensland Acid Sulfate Soil Technical Manual Soil Management Guidelines v4 (2014).	During dredging and placement	Contractor
Monitor the effectiveness of the treatment of ASS to confirm whether enough neutralising agent has been incorporated and adjust lime application as necessary.	During dredging and placement	Contractor
Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any bunded area or other structures used for the storage or treatment of contaminants including acid sulfate soils or wastes.	During dredging and placement	Contractor
Stormwater runoff and leachates within any bunded storage or treatment area must be appropriately contained and collected in a suitably sized retention pond.	During dredging and placement	Contractor
Any temporary or permanent dewatering or retention ponds used to contain or treat acid sulphate soils must not be constructed on a watercourse.	During dredging and placement	Contractor
Monitor pH of water discharged from the temporary stockpile area as per EA conditions.	Daily when releasing water from the stockpile area	Contractor
If pH of the overflow water from the temporary stockpile area falls outside the performance criteria, identify possible reasons for the pH change, and correct the source of the problem in consultation with the Superintendent.	During dredging and placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.3 Water quality

Performance objective

To minimise the impact of dredging on water quality within the vicinity of the dredging works.

Performance criteria

- No exceedances of water quality criteria as set out within the EA conditions (permit number EPPR01803613).

Table 5.3 Water quality management measures

Management requirement/action	Timing	Responsibility
Ensure dredging and material placement is undertaken within the approved areas only.	During dredging and placement	Contractor
Within the practicalities of the vessel, minimise the generation of plumes. Observe all site-specific requirements, which may influence plumes generated during dredging such as tides and winds.	During dredging	Contractor
Suitability and condition of the dredge equipment for site and sediment conditions are to be confirmed prior to site mobilisation.	During dredging	Contractor
Perform a pre-mobilisation check of all seals and performance checks of all equipment during dredging.	During dredging	Contractor
Store potentially hazardous chemicals in accordance with the manufacturer's specifications.	During dredging and placement	Contractor
Ensure that any refuelling of machinery occurs without any spills into the receiving environment and is undertaken in accordance with industry standards.	During dredging and placement	Contractor
Contain any fuel, oil or chemical spills and clean up immediately. Spill control, containment and clean-up materials and equipment to be held on site at all times.	During dredging and placement	Contractor
Settled/treated stormwater runoff waters from those areas of the site that drain to the sediment control system must only be released in compliance with the release limits listed in Table 1 - Water quality release limits of the EA.	During dredging and placement	Contractor
Contaminants other than settled/treated stormwater runoff waters must not be released from the site to adjacent waters/waterways.	During dredging and placement	Contractor
Wash down waters and other potentially contaminated waters will be directed towards a Wastewater Collection Pond located at any stockpile location.	During dredging	Contractor
Erosion protection measures and sediment control measures must be implemented and maintained to prevent erosion and the release of sediment.	During dredging and placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.4 Flora and fauna

Performance objective

To minimise the impacts on flora and fauna during dredging, material transportation and placement.

Performance criteria

- No deaths or injuries of fauna attributable to dredging works through contact with dredging equipment or transportation vehicles.

Table 5.4 Flora and fauna management measures

Management requirement/action	Timing	Responsibility
Carry out pre-start checks to ensure there are no fauna species within the vicinity of the dredge area. Visually monitor and record the sightings of fauna species during all dredge activities.	During dredging	Contractor
All support vessels are to keep watch for fauna species, and carefully navigate within and surrounding the dredge area.	During dredging	Contractor
Stop work if any marine mammals or turtles appear within the dredge area. Work to recommence 10 minutes after the animal is out of the dredge area.	During dredging	Contractor
If fauna are injured, contact should be made with the RSPCA to discuss care arrangements. The contractor shall identify the cause of such injury and consult with the Superintendent and Superintendent's Representative to identify any management measures necessary to reduce the potential for further impacts.	During dredging	Contractor/ Superintendent/ Superintendent's Representative
All vehicles are to be free of any accumulations of dirt and organic matter prior to commencing dredging and dredge material placement activities.	During dredging	Contractor
Implement water quality management measures detailed in Table 6.1 to minimise potential impacts on aquatic ecology.	During dredging	Contractor

5.2.5 Access arrangements

Performance objective

To ensure that dredging works minimise the disruption to vessel movements and operation within the vicinity of the works, and limits impacts to pedestrian access at the on-land placement areas.

Performance criteria

- Maintain safe access within and surrounding the Daintree River Ferry Crossing throughout the duration of dredging.
- Maintain safe access within and surrounding the on-land placement areas throughout the duration of beach nourishment works.

Table 5.5 Access management measures

Management requirement/action	Timing	Responsibility
Prepare a Traffic Management Plan detailing how the works will be conducted. The plan will be to the satisfaction of DSC.	Prior to dredging	Contractor
No restriction to public/vehicle access along foreshore areas where beach approved nourishment works are to be undertaken.	During placement	Contractor
Should it be necessary to disrupt access to sections of the ferry crossing or foreshore areas for a brief period, prior notification of access restrictions should be provided to DSC who will inform the public.	During dredging and placement	Contractor

Management requirement/action	Timing	Responsibility
Restrict access to any necessary compound area that may be required on-land and ensure it is appropriately signed and fenced for public safety.	During dredging and placement	Contractor
Inform the public of the type, date and duration of works, and any anticipated changes to access arrangements (forewarning), including any limitations to public access of the ferry crossing.	During dredging and placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.6 Noise management

Performance objective

To minimise the impact of dredging works on noise sensitive receptors.

Performance criteria

- No noise nuisance.

Table 5.6 Noise management measures

Management requirement/action	Timing	Responsibility
Conduct all dredging works during the following hours: • 12 am to 5 am (Monday to Saturday) Conduct all placement works during the following hours: • 7 am to 6 pm (Monday to Saturday) If for some unforeseen reason works are required to extend beyond the specified times, the necessary approvals are to be sought from DSC and if approved, DSC is to inform the community prior to the commencement of works.	During dredging and placement	Contractor
All works are to be conducted within the approved areas.	During dredging and placement	Contractor
Ensure all machinery is well maintained and effectively muffled as per the manufacturer's specification.	During dredging and placement	Contractor
Any equipment found to be non-compliant with noise standards should be fitted with improved noise attenuation (or other appropriate maintenance works) and should not be used on site until compliance is achieved	During dredging and placement	Contractor
Equipment is to be operated to prevent unnecessary noise generation. This includes, as a minimum: • the use of four stroke outboard motors only to control barge movements • limit scraping of equipment on the concrete barge ramp • use of trailer brakes only when trucks are operated on the ferry • use of rubber matting on the operational area of the deck of the ferry during dredging operations.	During dredging and placement	Contractor
Provide a register to record any noise complaints received. Details to be recorded shall include date, time and duration of noise nuisance.	During dredging and placement	Contractor

Management requirement/action	Timing	Responsibility
Investigate any complaint received and if necessary when requested by the administering authority undertake noise monitoring, as outlined in Condition P1-N2 (permit number EPPR01803613).	When requested	Superintendent
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.7 Air quality

Performance objective

To minimise the impact of maintenance dredging and placement works on air quality.

Performance criteria

- No odour or air quality complaints.

Table 5.7 Air quality management measures

Management requirement/action	Timing	Responsibility
Ensure all machinery is well maintained and within regulated emission standards.	During dredging and placement	Contractor
The Contractor will advise the Superintendent of any complaint. DSC will in turn will advise DES, where necessary.	During dredging and placement	Contractor
Air quality complaints should immediately be reported to the Superintendent. The Contractor and Superintendent will liaise with the complainer and attempt to resolve the nuisance. Air quality improvement measures will be performed by the Contractor to their best practicable extent.	During dredging and placement	Contractor
Provide a register to record any complaints regarding air quality (e.g. odour, nuisance, emissions). Investigate options to minimise impacts on affected areas if complaints are received.	During dredging and placement	Contractor
Investigate any complaint received and if necessary when requested by the administering authority undertake air quality monitoring, as outlined in Condition P1-A1 to P1-A4 (permit number EPPR01803613).	When requested	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.8 Waste/spillage management

Performance objective

To minimise impacts of waste and spillage from the dredging and placement works on the waterways and its environs.

Performance criteria

- No litter associated with the dredge and placement operations present within the vicinity of the dredging and placement works.
- No loss of waste or stored chemicals/fuels or similar products to the marine environment.

Table 5.8 Waste/spillage management measures

Management requirement/action	Timing	Responsibility
Prepare a Contingency and Emergency response plan detailing how the works will be conducted to manage incidents and emergencies that may occur during operations. The plan will be to the satisfaction of, and approved by DSC.	Prior to dredging	Contractor
Place all domestic garbage and construction waste in lidded bins.	During dredging and placement	Contractor
Collect garbage regularly and transport it from the site for disposal at an approved location.	During dredging and placement	Contractor
Appropriate spill kits and personal protective equipment will be kept on site at all times.	During dredging and placement	Contractor
Ensure measures are taken to prevent spillage to the marine environment, and if spillage does occur, that measures are also in place to manage the spillage to minimise adverse impacts. Spill kits and treatment kits should be maintained with appropriate crew trained on their use.	During dredging and placement	Contractor
All procedures to minimise spills during transfer of fuel including spill response equipment are to be easily identifiable and conveniently located, including on the dredge and within any on-land compound area.	During dredging and placement	Contractor
All hazardous waste is to be stored in an appropriate manner on any vessel or compound area that may be used and clearly marked in accordance with legislative requirements.	During dredging and placement	Contractor
Ensure that refuelling is performed in accordance to with industry standards and is appropriate for the marine environment.	During dredging and placement	Contractor
Ensure fuel-dispensing equipment is in a satisfactory condition, fit for purpose with automatic cut off.	During dredging and placement	Contractor
All vehicles and machinery used during the placement works must be well maintained, generally clean and free of silt and be fit for purpose. The equipment should be maintained and generally free of potential contaminants.	During placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.9 Community information and awareness

Performance objective

To keep the community informed of project progress, and receive feedback so that disturbance to the community can be minimised.

Performance criteria

- low number of complaints from the community and prompt response (within 24 hours) to any that are received.
- No complaints to be left unresolved

Table 5.9 Community information/awareness management measures

Management requirement/action	Timing	Responsibility
Establish and maintain a complaints management system.	During dredging and placement	Contractor
Inform the community of principal contacts for complaints and erect clear signage of contact names and numbers at the site.	During dredging and placement	Contractor
Maintain a complaints register providing a written record of all issues, complaints and responses on-site. Include the time and location of both the complaint and the incident concerned as well as any actions taken.	During dredging and placement	Contractor
Should a complaint arise, the primary factor creating the issue is to be identified and an appropriate management measure implemented. For example, if a complaint regarding noise is made, the actions for the Noise Management element are to be implemented.	During dredging and placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

5.2.10 Placement areas

Performance objective

To minimise impacts of the receiving environment from the placement of dredged material at approved placement areas.

Performance criteria

- All materials to be placed in accordance with approved design drawings.
- No adverse environmental impacts as a consequence of placing the dredged material.

Table 5.10 Placement areas management measures

Management requirement/action	Timing	Responsibility
Conduct ASS testing of the dredged material while in the temporary stockpile location prior to movement to nourishment areas. If required, ASS are to be managed such that contaminants are not directly or indirectly released to any waters.	Prior to placement	Contractor
Conduct Particle Size Distribution analysis of the dredged material to ensure it is compatible with existing material at the approved beach nourishment areas.	Prior to placement	Contractor
Limit disturbance to within the defined footprint of the placement areas.	During placement	Contractor

Management requirement/action	Timing	Responsibility
Undertake visual monitoring of the material when placed at approved disposal sites to ensure it is free of fines and signs of ASS during placement activities.	During placement	Contractor
Ensure that all material transported and placed at the approved placement area is deposited at appropriate points and is redistributed and shaped to ensure it meets the requirements of approved design drawings.	During placement	Contractor
Limit vehicle movement during placement activities to within designated site compounds (if relevant) and beach nourishment areas.	During placement	Contractor
Undertake monitoring as detailed in Table 6.1.	During dredging and placement	Contractor

6 Monitoring program

6.1 ENVIRONMENTAL MONITORING REQUIREMENTS OF THIS EMP

An environmental monitoring program is to be established for the duration of the dredging works and subsequent placement activities. Implementation of this monitoring program is to ensure that the requirements of the EMP are being met. Details of the monitoring requirements, including responsibility and compliance criteria, are provided in Table 6.1.

All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any compliance criteria must be calibrated, and appropriately operated and maintained.

Throughout the works DSC will be responsible for overseeing the monitoring being undertaken by the Contractor, as well as any sub-contractors to ensure compliance with the performance criteria outlined in Table 6.1.

Table 6.1 Monitoring Requirements and Compliance Criteria

Issue	Monitoring	Frequency/timing	Performance criteria	Responsibility
Acid Sulfate Soils	Visual monitoring of temporary stockpile location and dredged material on-site to ensure it is free of signs of Acid Sulfate Soil (ASS) and other contaminants.	Daily during stockpiling period and placement activities.	No evidence of ASS or oxidisation in material within the temporary stockpile area or within the material being placed at approved on-land beach nourishment locations.	Contractor
Water quality	Visual monitoring	Daily	No plumes of turbid waters shall be visible further then 500 m down current of the dredge vessel.	Contractor
		Daily when releasing water from stockpile area.	No plume of turbid waters shall be visible from the stockpile site.	Contractor
	Turbidity (NTU)	Daily for duration of the dredge works.	Turbidity must not be more than the 80th percentile of background (1) levels or more than 10 NTU (whichever is greater) when monitored 500 m downstream of the dredge area.	Contractor
	pH	Daily	pH to remain at background (1) levels when monitored 500 m downstream of the dredging site.	Contractor
		Daily when releasing water	pH of discharge waters from the temporary stockpiling area to remain between 6.5 and 9.0.	Contractor

Issue	Monitoring	Frequency/timing	Performance criteria	Responsibility
		from the stockpile area.		
	Dissolved Oxygen	Daily	Dissolved oxygen must not be less than 10% of background (1) levels when monitoring 500 m downstream of the dredge area.	Contractor
	Visual checks for evidence of fuel, oil, chemical spills, waste or litter.	Daily	No evidence of spills.	Contractor
	Review vessel dredging and material placement against approved area boundaries.	Daily	Dredging to be undertaken within approved boundaries.	Contractor
Fauna	Visual checks by all crew members.	Daily	No work conducted while marine mammals and/or turtles are visible within the dredge area.	Contractor
	Monitor any deaths or injuries to fauna as a result of the works.	Weekly (with incidents reported within 24hrs of occurrence).	No deaths or injuries of fauna at the site attributable to maintenance dredging works.	Contractor
Access	Ensure dredging occurs at night while the ferry is not operating between the hours of 12:00 am and 5:00 am, Monday to Saturday.	Daily during dredging.	No public access complaints.	Contractor
	Maintain and monitor public/pedestrian access at placement areas during placement works.	Daily during placement activities.	No public access complaints.	Contractor
Noise management	Monitor number of complaints. If determined to be necessary, noise shall be monitored to determine the level of impact.	Weekly	No noise complaints.	Contractor
Waste management	Visual inspection of work location for litter, debris or wastes not properly handled.	Weekly	No litter and no wastes uncontained.	Contractor
Refuelling	Visual inspections of fuel-dispensing equipment and surrounding waters (where applicable).	During and after fuel transfer.	No spills or leaks during fuel transfer.	Contractor
Hazardous wastes	Visual checks by all crew members to ensure all hazardous waste is stored correctly and no spills have occurred.	Daily	No inappropriate storage or disposal of hazardous wastes.	Contractor

Issue	Monitoring	Frequency/timing	Performance criteria	Responsibility
Community information and awareness	Monitor total number of complaints.	Review numbers weekly.	No unresolved complaints and no increase in the number of complaints.	Contractor

Note (1): A background value for a quality characteristic is the value of the quality characteristic measured at a background sampling point in the receiving waters situated 500 m up current from the dredging site.

6.2 MONITORING COMPLIANCE WITH THIS EMP

Throughout the works the Contractor will be responsible for monitoring its compliance with the EMP, as well as any sub-contractor's compliance with the EMP.

This will be achieved by inspecting the site and associated works and comparing actual conditions against the EMP measures. This should be undertaken on completion of site establishment, and then in accordance with the timings outlined in Table 6.1. The results of these checks will be documented in a brief report and forwarded to the Superintendent within one week of each inspection.

The report will note any non-compliances and the actions which have been taken to correct them, and will include the results of environmental monitoring.

The Superintendent will inspect the dredge area, temporary stockpiling site, approved beach nourishment locations, and any associated activity and complete an audit against this EMP at the following times:

- immediately after site establishment
- once per week after that
- on completion of the dredging works, while the Contractor is still present on-site and prior to demobilisation.

7 Reporting and communication

7.1 REPORTING

A regular program of monitoring and reporting shall be implemented to ensure that the requirements of the EMP are being met. This should involve auditing activities and regular inspections of works accompanied by regular reports to DSC.

Should a non-compliance be identified, actions should be agreed upon to ensure compliance and minimise the potential for non-compliance in the future. An incident reporting system should be devised prior to commencement of works to allow for tracking and identification of problems within construction and operational activities. All personnel should be trained in the use of incident reports and should be encouraged to use these reports when an incident is identified on the project site. The incident report should include the time the incident was noticed, an estimate of the time it occurred, any actions required and whether or not the incident has been rectified and the incident report can be closed off.

There is potential for complaints to arise during construction and dredging activities. As such, a complaint management register will need to be developed to monitor complaints and identify and track any follow up actions required.

7.2 NON-CONFORMANCE REQUIREMENTS AND REPORTING

This EMP has outlined areas of environmental management for the dredging and dredge material placement works and compliance levels for each of the various components. It is possible that ongoing monitoring and auditing of the works could identify areas of non-conformance with the requirements of the EMP.

The Contractor shall report any non-conformance and perceived breaches of licenses, permits or approvals to the Superintendent's Representative who may then report to relevant regulatory agencies. Should non-compliance with performance criteria be identified during any routine monitoring, monitoring data should be analysed and work practices reviewed to identify the cause of the non-conformance. Should continued non-conformance be identified, an instruction may be issued by the Superintendent's Representative to cease until the problem is resolved and any necessary changes to procedures or design implemented.

Any breach of the EMP and approval conditions must be reported by the Contractor to the Superintendent's Representative as soon as practicable, or at most, within 24 hours of becoming aware of the breach. The Superintendent's Representative is to report any breaches to DSC who will, if deemed necessary, liaise with the relevant authority to discuss the breach and actions implemented. Records detailing the breach and any mitigation measures implemented are to be kept throughout the duration of the contract and provided to the relevant authority where required.

7.3 COMPLAINTS REPORTING

In the event that DSC receive a complaint, they are obligated to inform the Superintendent's Representative and Contractor and resolve the issue. In the event that a complaint is received by the Contractor, information shall be forwarded within 24 hours of the complaint being received to the

Superintendent's Representative. The Superintendent's Representative will then notify DSC and liaise with the Contractor to resolve the issue.

7.4 CORRECTIVE ACTION

A Corrective Action Request (CAR) shall be completed by the Contractor and supplied to the Superintendent's Representative within 24 hours should any of the following occur:

- a complaint regarding any environmental impact caused by the dredging or material placement works is received
- any departure from any agreed/approved procedure is observed
- non-compliance with performance criteria
- major non-conformance with EMP.

A CAR form is provided in Appendix B. Part A (Notification) of the CAR form is to provide details of the non-conformance or complaint of environmental effect and is to be completed by the person who identified the problem. The CAR may be raised by site personnel, the Contractor, the Superintendent or the Superintendent's Representative. Part B (Corrective Action) of the CAR form is to be completed by the Contractor in consultation with the Superintendent's Representative, and is to provide details of the action taken to correct the problem, proposed management measures to prevent the occurrence of a similar incident, and the person responsible for implementing the corrective action. In the event of a major non-conformance with the EMP, or the reoccurrence of an issue, the Superintendent's Representative may direct works to cease in the area where the CAR has been recorded. Once corrective action has been undertaken, clearance can be given for works to recommence. Part C (Verification) of the CAR form is to be completed by the Superintendent's Representative once corrective action has been undertaken. A summary of all CARs issued is to be recorded on the form provided in Appendix B.

7.5 ENVIRONMENTAL INCIDENT REPORTING

In addition to the routine reports which the Contractor must submit, they shall also promptly report any environmental incidents which occur. An incident report must be submitted to the Superintendent's Representative and the Superintendent immediately as is practical of any environmental incident occurring. The incident report can be provided in the form of a direct notification or as a CAR (Refer Section 7.4) and should include the time the incident was noticed, an estimate of the time it occurred, any actions required and whether or not the incident has been rectified.

7.6 ENVIRONMENTAL TRAINING

It is essential that all staff involved on the site are aware of environmental responsibilities and requirements of the project, including meeting the requirements of the EMP. Training in environmental requirements and responsibilities shall be provided as part of the induction process. Training must also include incident responses, such as spill containment and clean-up techniques and use of kits. An information sheet on environmental management should be produced and made available at the project site office. Other measures that may be implemented include informative posters at the site office, and a list of people or organisations to contact should an environmental incident occur.

7.7 REVIEW AND UPDATE

Regular review of the EMP should be carried out to ensure that any changes are accounted for. This may include changes to reflect new knowledge or compliance standards.

7.8 ENVIRONMENTAL RECORDS

It is required that all monitoring results be recorded, compiled and presented to the administering authority when requested. Furthermore, all records must be kept for a minimum of 5 years.

8 References

Dear S.E., Ahern C.R., O'Brien L.E., Dobos S.K., McElnea, A.E., Moore, N.G. and Watling, K.M., 2014. *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines version 4.0., Brisbane*: Department of Science, Information Technology, Innovation and the Arts, Queensland Government.

DEWHA, 2009. *National Assessment Guidelines for Dredging* (NAGD), Department of Environment, Water, Heritage and the Arts, Canberra.

QASSIT, Ahern C.R., Ahern M.R. and Powell B., 1998, *Queensland Acid Sulfate Soils Investigation Team, Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland*, 1998, October 1998, Revision 4.0, Department of Natural Resources, RSC, Indooroopilly.

Appendix A

Approvals and permits



We Deliver

Department of Environment and Heritage Protection

DOUGLAS SHIRE COUNCIL
Received
File Name EH/APP/ ERA
Document No
16 JAN 2014
Attention EP
Information

Permit[1]

Environmental Protection Act 1994

Environmental authority EPPR01803613

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Permit[1] number: EPPR01803613

Environmental authority EPPR01803613 takes effect on 1 January 2014.

The first annual fee is payable within 20 business days of the anniversary date. The anniversary date of this environmental authority is the 12 November each year. An annual return and the payment of the annual fee which is currently $2,428.80 will be due each year on this day.

Environmental authority holder(s)

Name	Registered address
Douglas Shire Council	64-66 Front Street Mossman QLD 4870

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
ERA 16(1a) Dredging >1000t but <10000t per year	Lot 3 on Plan SP126928 Cape Tribulation Road, Daintree QLD 4873
ERA 57(2a) Regulated Waste Transport (other than tyres) in 1 – 5 vehicles	This activity is a mobile and temporary activity under the *Environmental Protection Act 1994.*

Additional information for applicants

Environmentally relevant activities:

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land:

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.

Signature	Date
	29/2/13

Mark Cavicchiolo
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Carrie Goldsmith
ES - Reg Serv - Northern – Cairns
PO Box 7230
Cairns QLD 4870
Phone: (07) 4222 5395
Fax: (07) 4222 5070
Email: carrie.goldsmith@ehp.qld.gov.au

Obligations under the *Environmental Protection Act 1994:*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority:

This environmental authority consists of the following parts

Applicable Part	ERA	Location
Part 1 – Daintree River Dredging	ERA 16(1a) Dredging >1000t but <10000t per year	Lot 3 on Plan SP126928 Cape Tribulation Road, Daintree QLD 4873
Part 2 – Regulated Waste Transport	ERA 57(2a) Regulated Waste Transport (other than tyres) in 1 – 5 vehicles	This activity is a mobile and temporary activity under the *Environmental Protection Act 1994.*

Part 1: Daintree River Dredging	
Agency interest: General	
Condition number	**Condition**
P1-G1	The maximum volume of sediment permitted to be removed at the Daintree River Ferry Crossing under the terms of this approval is 10,000m^3 in any twelve (12) month period commencing from the date of this approval.
P1-G2	In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.
P1-G3	Dredging of the Daintree River Ferry Crossing will only be conducted to facilitate safe navigation of the crossing by the Daintree River Ferry.

P1-G4	The operator of an ERA to which this approval relates must: • Install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; • Maintain such measures, plant and equipment in a proper and efficient condition; and • Operate such measures, plant and equipment in a proper and efficient manner.
P1-G5	From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out. The SBMP must address the following matters: • Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals; • Identification of environmental issues and potential impacts; • Control measures for routine operations to minimise likelihood of environmental harm; • Contingency plans and emergency procedures for non-routine situations; • Organisational structure and responsibility; • Effective communication; • Monitoring of contaminant releases; • Conducting environmental impact assessments; • Staff training; • Record keeping; and • Periodic review of environmental performance and continual improvement.
P1-G6	The site based management plan must not be implemented or amended in a way that contravenes any condition of this environmental authority.
P1-G7	Record, compile and keep all monitoring results required by this environmental authority and present this information to the administering authority when requested.
P1-G8	All records required by this environmental authority must be kept for 5 years.
P1-G9	Acid sulfate soils must be managed such that contaminants are not directly or indirectly released to any waters.

P1-G10	All areas used for the storage or treatment of acid sulfate soils or other contaminants must be constructed, installed and maintained: • So as to prevent any release of contaminants through the bed or banks of the pond to any waters (including ground water); • So that a freeboard of not less than 0.5 metres is maintained at all times; and • So as to ensure the stability of the bunded area's construction.
P1-G11	Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any bunded areas or other structures used for the storage or treatment of contaminants including acid sulfate soils or wastes.
P1-G12	All acid sulphate soils must be disposed of or managed within the authorised place.
P1-G13	Any temporary or permanent dewatering ponds or water bodies used to contain or treat acid sulphate soils must not be constructed on a watercourse.
P1-G14	Telephone the administering authorities Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.
P1-G15	A written notice detailing the following information must be provided to the administering authority within 14 days of any advice provided in accordance with this condition: • The name of the operator, including their approval / registration number; • The name and telephone number of a designated contact person; • Quantity and substance released; • Vehicle and registration details; • Person/s involved (driver and any others); • The location and time of the release; • The suspected cause of the release; • A description of the effects of the release; • The results of any sampling performed in relation to the release; • Actions taken to mitigate any environmental harm caused by the release; and • Proposed actions to prevent a recurrence of the release.
P1-G16	A competent person(s) must conduct any monitoring required by this approval.
P1-G17	All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated, and appropriately operated and maintained
P1-G18	The daily operation of the dredging activity and pollution control equipment must be carried out by a person(s) with appropriate experience and/or qualifications to ensure the effective operation of that control equipment.

P1-G19	An appropriate spill kit, personal protective equipment and relevant operator instructions / emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site.
P1-G20	Anyone operating under this approval must be trained in the use of the spill kit.
P1-G21	A record of all material dredged from the approved location must be kept detailing the following information: • Date of dredging; • Quantity of dredge material, including method of determination; • Description of dredge material; • Analysis of material in accordance with the latest edition of the administering authorities instructions for the treatment and management of acid sulfate soils; and • Destination of the dredge material including date and time of placement, quantity placed and method of volumetric determination.

Agency interest: Air

Condition number	Condition
P1-A1	When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include: • For a complaint alleging dust nuisance, dust deposition; and • For a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (pm) (PM10) suspended in the atmosphere over a 24hr averaging time.
P1-A2	The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.
P1-A3	The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

P1-A4	Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:
	• Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); OR
	• A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with:
	  • Australian Standard AS 3580.9.6 of 2003 (or more recent editions) 'Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method'; or
	  • Any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

Agency interest: Water

Condition number	Condition
P1-W1	Contaminants may only be released to waters from the release points and in compliance with the release limits listed in Table 1 – Water quality release limits. Monitoring shall be conducted and records kept of contaminant releases to waters from the release points at the frequency and for the parameters specified in Table 1 – Water quality release limits. All determinations of the quality of contaminants released will be: • Performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; and • Made in accordance with methods prescribed in the administering authorities Water Quality Sampling Manual, 3rd Edition, December 1999, or more recent additions or supplements to that document as such become available.

Table 1 – Water quality release limits

Release / monitoring point	Quality characteristic	Minimum	50th Percentile	Maximum	Monitoring frequency
Background site (B) 500 meters up-current of dredging site in Daintree River	Turbidity[3] pH[3] Dissolved Oxygen[3]	-	-	-	Daily when undertaking dredging
Impacted Site (1) 500 meters down-current of dredging site in Daintree River	Turbidity[3] pH[3] Dissolved Oxygen[3]	 Background Background – 10%	80th Percentile of Background or 10NTU whichever is greater[2]	No visible plume Background	Daily when undertaking dredging
Discharge point from bunded stockpile area	Turbidity[3] pH[3]	 6.5		No visible plume 9.0	Daily when releasing water from stockpile area

1. Levels based on the 80th percentile are derived using ANZECC (2000) methodology and are based on the reference site defined in Table 1.
2. The 50th and 80th percentile must be determined based on no more than five (5) consecutive samples.
3. Background and Impacted monitoring site turbidity values are to be determined with a nephelometer, pH values with a pH meter and Dissolved Oxygen values with a polarographic oxygen probe within a 60 minute time frame while activity is occurring.

P1-W2	Settled/treated stormwater runoff waters from those areas of the site that drain to the sediment control system must only be released in compliance with the release limits listed in Table 1 – Water quality release limits.
P1-W3	Erosion protection measures and sediment control measures must be implemented and maintained to prevent erosion and the release of sediment.
P1-W4	Contaminants other than settled/treated stormwater runoff waters must not be released from the site to waters.

Agency interest: Noise	
Condition number	**Condition**
P1-N1	The operator of the ERA must implement all reasonable and practical measures to prevent or minimise noise emissions from the undertaking of the activity. Such measures must include but not be limited to: • The use of four stroke outboard motors only to control movement of the sand barge; • Training and monitoring of equipment operators to ensure that there is no scraping of equipment parts on the concrete barge ramp; • The use of trailer brakes only when trucks are operated on the ferry; • The lining of the excavator engine bay with an appropriate noise retardant material; • Fitment of acoustic silencing / critical residential type mufflers to exhausts of plant equipment; and • The laying of rubber matting on the operational area of the deck of the ferry during dredging operations.
P1-N2	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include: • L_A 10, adj, 10 mins • L_A 1, adj, 10 mins • The level and frequency of occurrence of impulsive or tonal noise; • Atmospheric conditions including wind speed and direction; • Effects due to extraneous factors such as traffic noise; and • Location, date and time of recording.

Agency interest: Land	
Condition number	**Condition**
Nil conditions	

Agency interest: Waste	
Condition number	**Condition**
Nil conditions	
Agency interest: Social	
Condition number	**Condition**
P1-S1	The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request: • Time, date, name and contact details of the complainant; • Reasons for the complaint; • Any investigations undertaken; • Conclusions formed; and • Any actions taken.

Definitions

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Term / Phrase	Definition
administering authority	Means the Department of Environment and Heritage Protection or its successor.
annual return	Means the return required by the annual notice under the *Environmental Protection Act 1994*
approved plans	Means the plans and documents listed in Schedule 1 of this document.
artificial waterway	Means an artificial channel, lake or other body of water. Artificial waterway includes: • An artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land; • Other artificial channels subject to the ebb and flow of the tide; and • Any additions or alterations to an artificial waterway.
authorised place	Means the place authorised under this environmental authority for the carrying out of the specified environmentally relevant activity(ies).
canal	Means an artificial waterway surrendered to the State. A canal is an artificial waterway connected, or intended to be connected, to tidal water; and from which boating access to the tidal water is not hindered by a lock, weir or similar structure.
clinical waste	means waste that has the potential to cause disease including, for example, the following: • Animal waste; or • Discarded sharps; or • Human tissue waste; or • Laboratory waste.
coastal dune	Means a ridge or hillock of sand or other material on the coast and built up by the wind.
commercial place	Means a place used as an office or for business or commercial purposes.

dredge spoil	Means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.
dwelling	means any of the following structures or vehicles that is principally used as a residence and includes: • A house, unit, motel, nursing home or other building or part of a building; or • A caravan, mobile home or other vehicle or structure on land; or • A water craft in a marina.
erosion prone area	Means an area declared to be an erosion prone area under the *Coastal Protection and Management Act 1995.*
high water mark	Means the ordinary high water mark at spring tides.
infectious waste	Means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.
intrusive noise	means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration that: • Is clearly audible to, or can be felt by, an individual; and • Annoys the individual In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 — 1997 Acoustics — Description and Measurement of Environmental Noise Part 2 Application to Specific Situations.
L_A 10, adj, 10 mins	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.
L_A 1, adj, 10 mins	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.
LA, max adj, T	Means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.
land	Means land excluding waters and the atmosphere.
mg/L	Means milligrams per litre.
noxious	Means harmful or injurious to health or physical wellbeing.
NTU	Means nephelometric turbidity units.

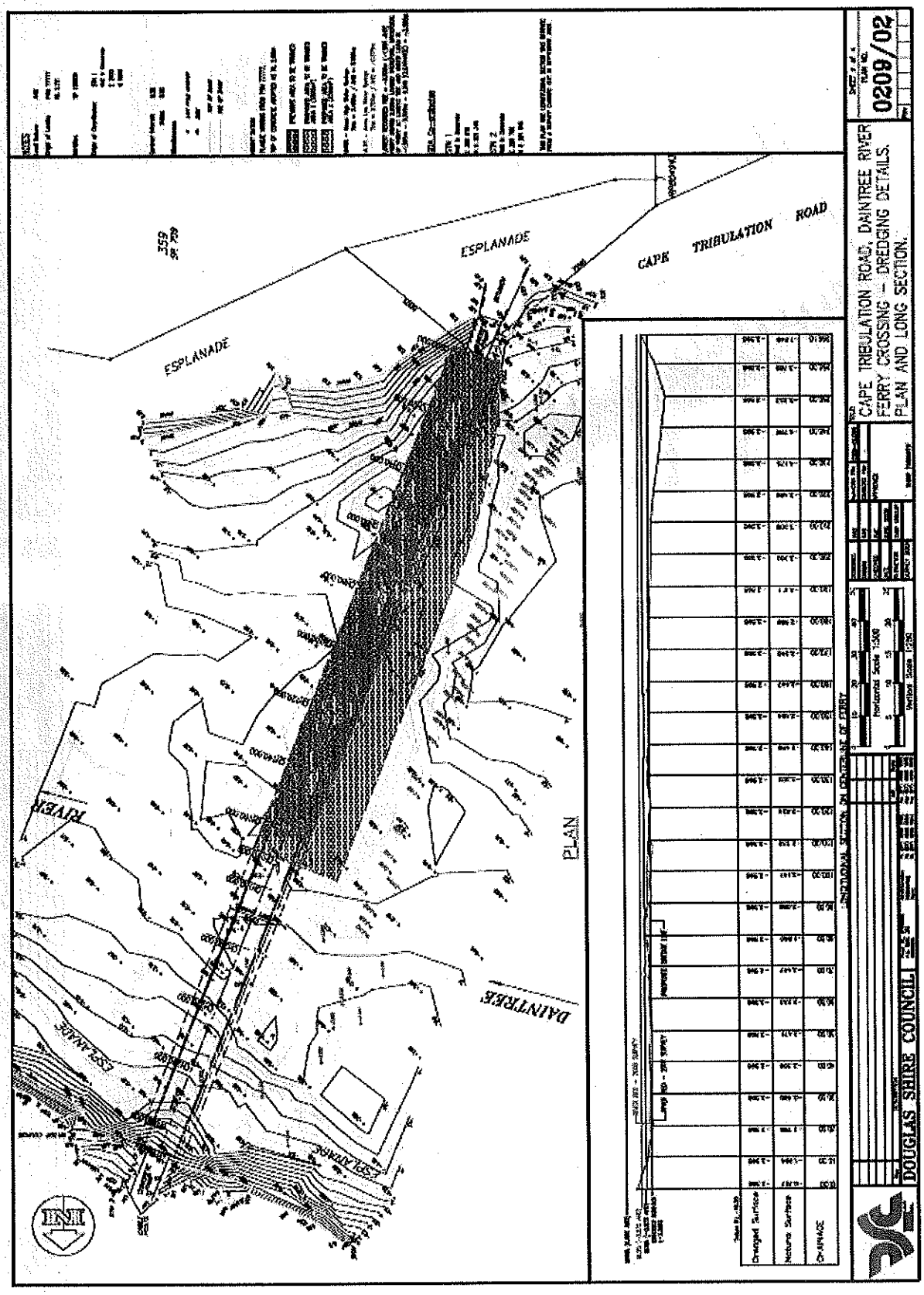
nuisance sensitive place	Includes: • A dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or • A motel, hotel or hostel; or • A kindergarten, school, university or other educational institution; or • A medical centre or hospital; or • A protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area, or • A public thoroughfare, park or gardens; or • A place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.
offensive	Means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.
ponded pasture	Means a permanent or periodic pondage of water in which the dominant plant species are pasture species used for grazing or harvesting.
protected area	Means: • A protected area under the Nature Conservation Act 1992; or • A marine park under the Marine Parks Act 1992; or • A World Heritage Area.
quarry material	Means material on State coastal land, other than a mineral within the meaning of any Act relating to mining. Material includes for example stone, gravel, sand, rock, clay, mud, silt and soil, unless it is removed from a culvert, stormwater drain or other drainage infrastructure as waste material.
regulated waste	means non-domestic waste mentioned in the Environmental Protection Regulation 2008 (whether or not it has been treated or immobilised), and includes: • For an element - any chemical compound containing the element; and • Anything that has contained the waste.
safety equipment	Means equipment available to lend protection to the driver of the vehicle covered by this environmental authority for the regulated waste being transported e.g. safety goggles, chemical resistant gloves, chemical resistant overalls, eye wash, touch, fire extinguisher(s).
site	Means land or tidal waters on or in which it is proposed to carry out the approved activity.

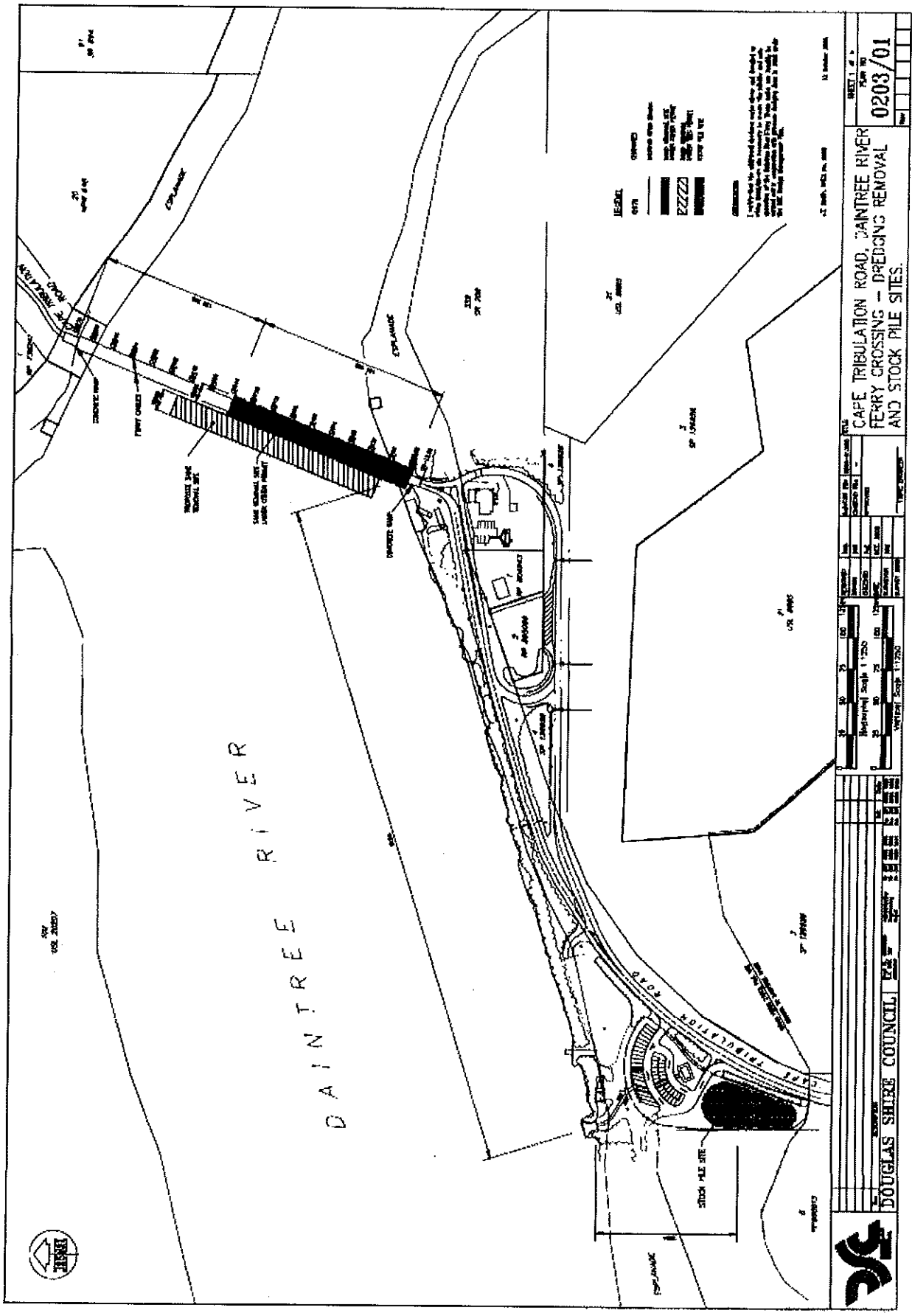
spill kit	Means container or stock of material which would enable a small spill, leak or escape of the regulated waste being transported to be safely and effectively cleaned up e.g broom, shovel, sealable bucket, absorbent material.
the holder of this environmental authority	Means Douglas Shire Council
tidal water	Means the sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides.
watercourse	Means a river, creek or stream in which water flows permanently or intermittently: • In a natural channel, whether artificially improved or not; or • In an artificial channel that has changed the course of the watercourse.
waters	Includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part- thereof.
You	Means the holder of this environmental authority or owner / occupier of the land which is the subject of this environmental authority.
50th percentile	Means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.
80th percentile	means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

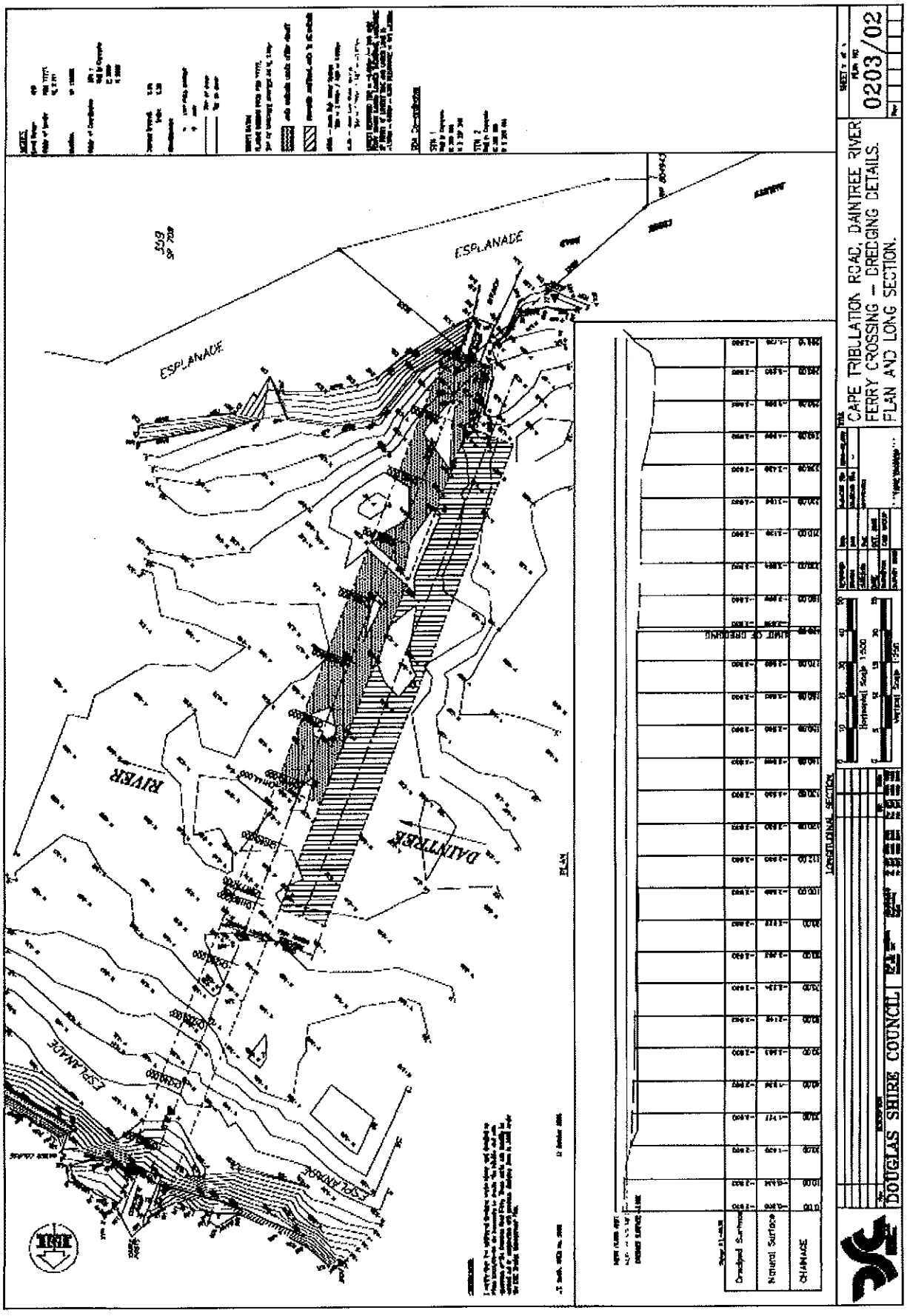
Schedules:

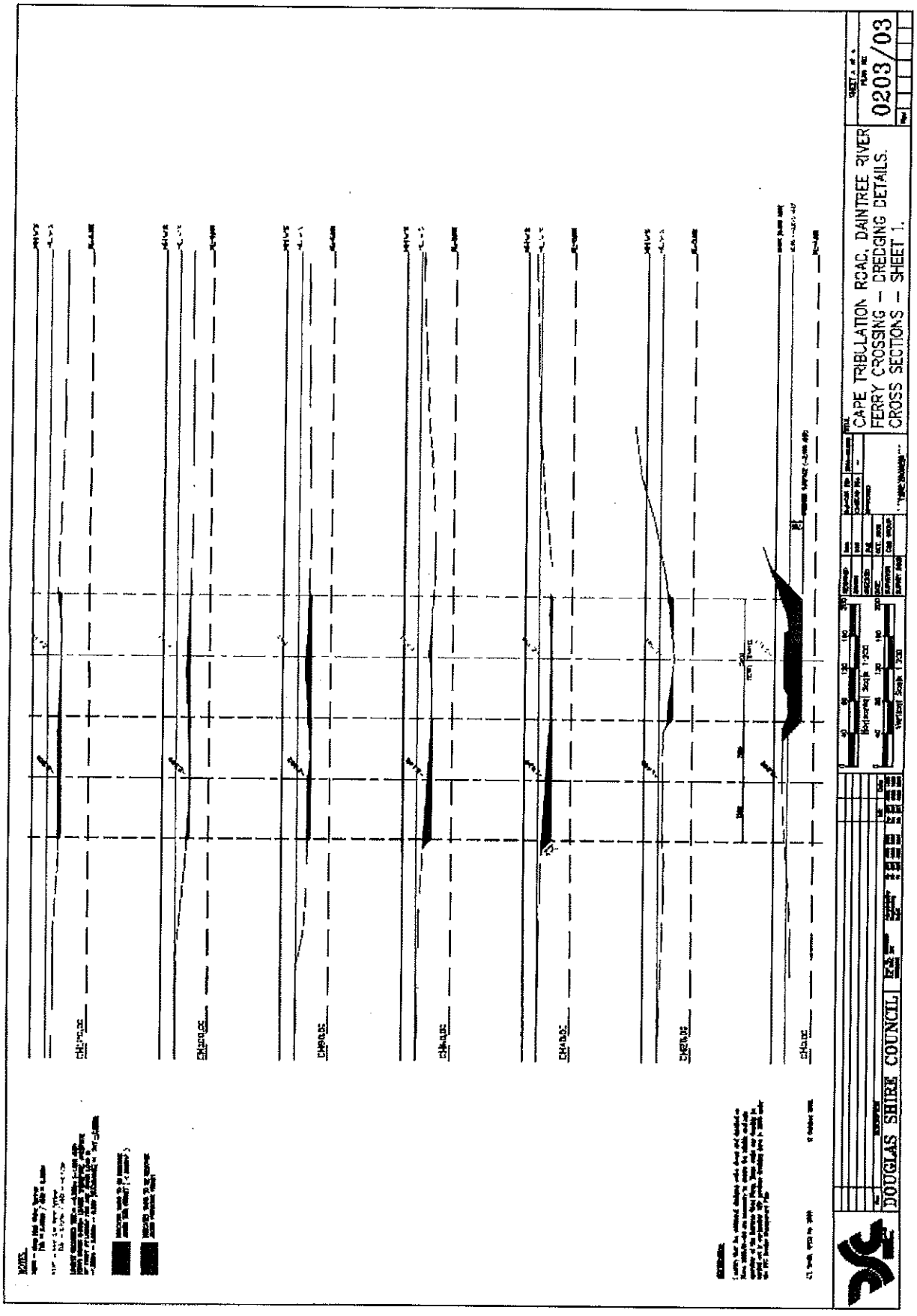
Schedule 1: Approved plans

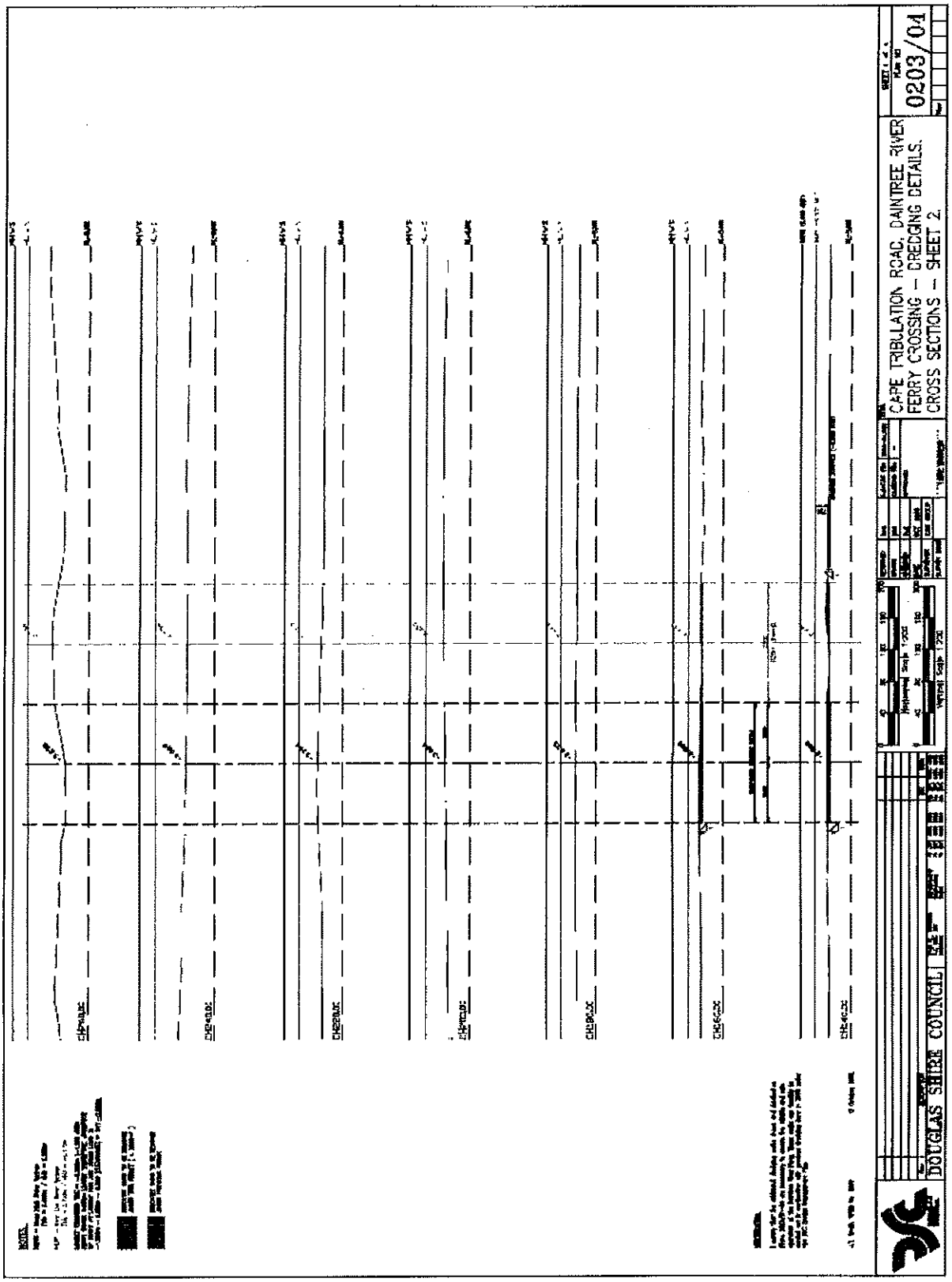
Plan No	Title	Applicable Part
0209/02	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Plan and Long Section Sheet 2 of 4	Cape Tribulation Road – Daintree (Part 1of this environmental authority)
0203/01	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Removal and Stock Pile Sites Sheet 1 of 4.	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/02	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Removal and Stock Pile Sites Sheet 2 of 4.	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/03	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Cross Sections Sheet 1	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)
0203/04	Cape Tribulation Road, Daintree River Ferry Crossing Dredging Details Cross Sections Sheet 2	Cape Tribulation Road – Daintree (Part 1 of this environmental authority)


ESPLANADE
CAPE TRIBULATION ROAD
ESPLANADE
PLAN
DAINTREE
RIVER
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING – DREDGING DETAILS.
PLAN AND LONG SECTION.
0209/02
DOUGLAS SHIRE COUNCIL


CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING – DREDGING REMOVAL
AND STOCK PILE SITES.
0203/01
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER
STOCK PILE SITE


ESPLANADE
ESPLANADE
RIVER
DAINTREE
PLAN
LONGITUDINAL SECTION
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING — DREDGING DETAILS.
PLAN AND LONG SECTION.
0203/02
DOUGLAS SHIRE COUNCIL


DOUGLAS SHIRE COUNCIL
CAPE TRIBULATION ROAD, DAINTREE RIVER
FERRY CROSSING – DREDGING DETAILS.
CROSS SECTIONS – SHEET 1.
0203/03



END OF PERMIT

QUEENSLAND GOVERNMENT

Department of National Parks, Recreation, Sport and Racing

Enquires Sarah Winny
Telephone (07) 3330 5250
Our reference 073/0000572

DOUGLAS SHIRE COUNCIL 5088
Received
File Name Roads/Rev/Envir Perm
Document No
- 3 MAR 2014
Attention MHa
Information

25 February 2014

Douglas Shire Council
PO Box 723
MOSSMAN QLD 4873

Attention: Alisia Bean

Re: Transfer and reissue of relevant marine parks permits to the Douglas Shire Council.

I refer to your request dated 18 October 2013, for the transfer of eight marine parks permits from the Cairns Regional Council to the Douglas Shire Council following the deamalgamation on 01 January 2014.

Your request has been assessed and I wish to advise you that it has been approved. Enclosed is permit **MPW2013/GBRC0016** to cover the eight proposed activities. This permit grants the necessary authorities for your operation under the State Marine Parks legislation. You will notice that a number of conditions have been imposed upon your permit. These conditions are imposed to provide for the conservation of the marine park while allowing opportunities for reasonable use of the area. Please ensure that all staff and contractors involved with the works are familiar with the conditions contained within this permission.

The *Marine Parks Regulation 2006* has review and appeal provisions available to you should you be dissatisfied with any condition imposed on your permit. In summary these include:

- An application for an internal review of the decision must be made in writing within 28 days after being given this notice.
- The application must be supported by sufficient information to decide the application.
- The application for internal review does not stay the decision made.

400 George Street Brisbane
PO Box 15187, City East
Queensland 4002 Australia
Telephone + 61 7 3330 5016
Email gpws@nprsr.qld.gov.au
Website www.nprsr.qld.gov.au
ABN 11 322 391 452

- The department must review the decision within 28 days of receiving the application and provide you with a decision within 14 days of making the review decision.
- If you are dissatisfied with the review decision then under section 151 of the *Marine Parks Regulation 2006* you may appeal to the Queensland Civil and Administrative Tribunal (QCAT) against the internal review decision.

Should a native title claim over any area covered by this permit be accepted by the National Native Title Tribunal, the Agency will advise them of your interest in the area. The Tribunal will then notify you of the claim to enable you to become a party to the claim if you believe that your interests may be adversely affected. If you do join as a party to the claim, you will be able to participate in the mediation process to ensure recognition of your interest in any agreed outcome.

Please do not hesitate to contact Sarah Winny on (07) 3330 5250 should you have any queries regarding this permit.

Yours sincerely



Gay Deacon, Principal Conservation Officer
Assets and Assessment
Queensland Parks and Wildlife Service
Department of National Parks, Recreation, Sport and Racing

QUEENSLAND GOVERNMENT

Department of National Parks, Recreation, Sport and Racing

Permit

Marine Parks Regulation 2006 PERMIT NO **MPW2014/GBRC0016**

This permission remains in force, unless sooner surrendered or cancelled for the period:

24 February 2014 to 23 February 2024

Permission is granted to

Name **Douglas Shire Council**

Address **64-66 Front Street,**
Mossman QLD 4873

for entry and use of **Great Barrier Reef Coast Marine Park**

In accordance with the details as stated in Part A, and subject to the conditions stated in Part B.

..... Date: 24/2/14

Gay Deacon
Delegate of the Chief Executive
Department of National Parks, Recreation, Sport and Racing

Part A:

Location to which the permission applies:

See Attachment 1 – Location and purpose of entry.

Purposes of entry and use authorised by permission:

See Attachment 1 – Location and purpose of entry.

Part B:

Conditions of permission:

WARNING - The following conditions apply to this Permit to enter or use Great Barrier Reef Coast Marine Park. Under the *Marine Parks Act 2004* (Section 49) the maximum penalty for contravening, or failing to comply with the conditions of the authority is 3000 penalty units.

The conditions herein apply to all employees of the Permittee or other persons, who are acting on behalf, or at the direction of the Permittee for the purposes specified in this Permit.

This Permit must not be assigned in whole or in part or otherwise encumbered or disposed of to any third party.

DEFINITIONS

Authority
'Authority' means the instrument (eg: permit, license or agreement).

Chief Executive
'Chief Executive' means the Chief Executive of the Department of National Parks, Recreation, Sport and Racing and their delegate.

Managing Agency
'Managing Agency' means the Director General of the Department of National Parks, Recreation, Sport and Racing, their Delegate, an officer of the Queensland Parks and Wildlife Service, or a person referred to in Section 52 of the *Marine Parks Act 2004*, appointed by the Chief Executive as an inspector.

Marine Park
'Marine Park' means the Great Barrier Reef Coast Marine Park established pursuant to the *Marine Parks (Declaration) Regulation 2006.*

Permit
'Permit' in this document means the permission the subject of permit number MPW2014/GBRC0016 granted to the Permittee pursuant to the Regulation.

Permit Area
'Permit Area' means areas described in **Attachment 1 – Location and purpose of entry.**

Permitted Use
'Permitted Use' means use as described in **Attachment 1 – Location and purpose of entry.**

Permittee
'Permittee' means Douglas Shire Council, 64-66 Front Street, Mossman QLD 4873.

Person
'Person' includes a corporation or a company (words importing the singular number or plural number also include the plural number and singular number respectively).

Regulation
'Regulation' means the *Marine Parks Regulation 2006* made pursuant to the *Marine Parks Act 2004*.

The State
'The State' means the State of Queensland.

Term
'Term' means 24 February 2014 to 23 February 2024.

GENERAL PERMIT CONDITIONS

1. Access to construction site

Access to the construction site must be available to the Managing Agency during working hours.

2. Permitted works

At least 10 working days prior to the intended commencement of works, the Permittee must submit an Environmental Management Plan for approval by the Chief Executive. The Environmental Management Plan must address the site specific issues for each location as outlined in Attachment 1 of this Permit. This may be submitted by:

(i) post to Manager, Marine Resource Management, PO Box 15187, CITY EAST QLD 4002; or
(ii) email to qpws@nprsr.qld.gov.au.

3. Notification of conditions

The Permittee must inform staff, contractors and sub-contractors involved in the works of relevant restrictions applying under this permission, zoning plans, plans of management, Marine Park regulations and this permission.

4. Disturbance to adjacent areas

(a) The Permittee must ensure that the activities are conducted in a manner that causes minimal disturbance to the marine ecosystem (e.g. adjacent salt marsh, mangrove communities or tidal flats).

(b) The Permittee must rehabilitate, as far as practical, areas disturbed as a result of the permitted activity.

5. Removal of material and equipment

All material and equipment used in the activities must be removed from the Marine Park on completion of the activities associated with this permission or on expiry of the permission, whichever occurs first.

6. Acid Sulfate Soils

The Permittee must ensure that any potential acid sulfate soils exposed during the course of works are treated as necessary and contained to prevent any contamination of the Marine Park.

7. Notification of incident involving marine animals (turtle, dugong and cetaceans)

In the event a marine animal is injured or captured during the works, the Permittee must immediately notify the animal emergency hotline by telephoning RSPCA QLD on 1300 ANIMAL (1300 264 625).

8. Quality of sediment placed within the Marine Park

The Permittee must ensure that all excavated material to be placed within the Marine Park must be:

(i) clean and free of silt;

(ii) suitable for the purpose having regard to the location of the land and to the proposed use of the land; and

(iii) free from pests, chemicals and other contaminants.

9. Public Liability Insurance

(a) For the Term of this Permit, the Permittee must take out and maintain the following insurances:

(i) a public liability insurance policy for not less than $20 million arising from any one event in respect of the death of, or injury to persons, or loss or damage to property;

(ii) insurance under the *Workers Compensation and Rehabilitation Act 2003*(Qld) to cover workers, eligible persons, self-employed contractors, directors, trustees and partners.

(b) The Permittee must ensure that the insurance policies required under this condition are from an insurer registered to operate in Australia by the Australian Prudential & Regulatory Authority for the Term.

(c) The Permittee must ensure that the insurance policies required under this condition are in place prior to undertaking any activities in the Permit Area and must ensure they cover all invitees, employees, contractors, agents, members or clients of the Permittee.

(d) In any circumstance where the insurances required under this Permit are cancelled, altered or expire before the expiry date of this Permit, the Permittee must cease all activities in the Permit Area until such time as alternative insurance policies that comply with the requirements of this condition have been obtained by the Permittee.

(e) From time to time (but no more than once annually) the State may, if the Chief Executive deems appropriate, issue a notice to the Permittee increasing the minimum insurance cover required by this condition, and the Permittee must comply with the notice within 20 Business Days.

(f) Upon the State's request the Permittee must promptly produce evidence to the State's satisfaction that the insurances where required under condition 9(a) have been effected and maintained.

(g) The State may terminate or cancel this Permit if the Permittee fails to effect and maintain the insurance required in condition 9(a).

10. Indemnity

(a) The Permittee indemnifies the State and its Representatives against all liability, loss, costs and expenses (including any actions, claims, proceedings or demand brought by any third party, and any legal fees, costs and disbursements on a solicitor and own client basis) arising from or incurred in connection with:

(i) any default by the Permittee under this Permit;

(ii) any unlawful, wilful or negligent act or omission of the Permittee or any person for whose conduct the Permittee is liable; or

(iii) personal injury (including sickness and death) or property damage or loss in connection with the performance (or attempted or purported performance or non-performance) of this Permit or a breach of this Permit by the Permittee.

(b) The Permittee's liability to indemnify the State under condition 10(a) will be reduced proportionally to the extent that any negligent act or omission or breach of this Permit by the State caused the loss or liability.

(c) The indemnity granted in clause 10(a) is in addition to and not exclusive of any other remedies the State may have against the Operator at law.

(d) It is not necessary for the State to incur expense or to make a payment before enforcing a right of indemnity conferred by this Agreement.

11. Compliance with Laws

The Permittee must at its own expense during the Term comply with all Acts of Parliament, local laws, regulations or rules for the time being in force which apply to the Permit Area and/or the Permittee's use of the Permit Area.

12. No Warranty

(a) The State does not warrant that the Permit Area is free from defect or that it is safe or suitable for the Permitted Use.

(b) The Permittee uses the Permit Area entirely at its own risk and acknowledges that it has checked the area to ensure that it is suitable for the Permitted Use.

13. Breach and Termination

This Permit will be terminated immediately upon the Permittee failing to comply with the provisions of the insurance and indemnity conditions.

SITE SPECIFIC CONDITIONS

Daintree River

14. Location

Activities described in the `purposes of entry and use' of **Attachment 1 – Location and purpose of entry** of this Permit, must only take place in the Daintree River locations (Location No.1) described in **Attachment 1 – Location and purpose of entry** of this Permit.

15. Permitted works

(a) Prior to the commencement of works, the Permittee must submit a Dredge Management Plan for approval by the Chief Executive. This may be submitted by:

(i) post to Manager, Marine Resource Management, PO Box 15187, CITY EAST QLD 4002; or

(ii) email to qpws@nprsr.qld.gov.au

(b) All works are to be carried out in accordance with:

(i) Marine Parks Permit application dated 14 February 2008
(ii) Environmental Management Plan approved under condition 2 of this Permit;
(iii) Dredge Management Plan approved under part (a) of this condition;

16. Disposal of dredged material

All dredged material deemed suitable under condition 8 of this Permit, shall be placed between the level of Highest Astronomical Tide (HAT) and Lowest Astronomical Tide (LAT) at the Wonga Beach (Rocky Point, (Location No.3)), Helmet Creek (Location No.7) or Oak Beach (Location No.8) locations described in Attachment 1 of this Permit, as approved by the Chief Executive.

Attachment 1 – Location and purpose of entry

Location to which the permission applies			Purpose of entry and use authorised by permission
Location No.	**Location**	**Zone**	
1	Tidal waters in the vicinity of the Daintree Ferry Crossing, adjacent to Lot 359 on plan SP215752, **Daintree River**.	Conservation Park Zone CP-16-12, Daintree River	Carrying out works - maintenance dredging involving the annual removal of up to 10,000 m^3 of sand.
2	Tidal lands and tidal waters located adjacent to Lot 24 on Plan SP192589, Lot 2 on Plan RP747733, and Lot 369 on Plan SR803, **Wonga Beach**.	Habitat Protection Zone HP_16_5124, Cape Kimberley/Trinity Bay coastal area	Carrying out works - excavation of creek mouth/drainage features.
3	Tidal lands located adjacent to the **Rocky Point** Boat Ramp (16.38704°S, 145.41847°E), **Wonga Beach**.	Habitat Protection Zone HP_16_5124, Cape Kimberley/Trinity Bay coastal area	Carrying out beach replenishment works, specifically the placement of up to 5000m^3 of sand from the Daintree Ferry dredging, adjacent to the Rocky Point Boat Ramp.
4	Tidal lands and tidal waters adjacent to Lot 1 on Plan RP850456 and Lot 2 on Plan RP850456, **Cooya Beach**.	Habitat Protection Zone HP-16-5124, Cape Kimberley/Trinity Bay coastal area	Carrying out works - opening of a creek mouth at Cooya Beach.
5	Tidal lands between Macrossan and Mowbray Streets, **Four Mile Beach**, Port Douglas.	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area	Carrying out works - Removal of debris.
6	Tidal lands and tidal waters located within and adjacent to Lot 1 SR886, Lot 110 SR0606, Lot 131 SR529, Lot 6 C2253 and Lot 12 CP846979– **Four Mile Beach**, Port Douglas.	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area	Carrying out works - excavation of creek mouth/drainage features.
7	Tidal lands and tidal waters located adjacent to Lot 46 on Plan C22513, **Helmet Creek**, Port Douglas.	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area	Carrying out works - excavation of drainage features, sand skimming to reduce scarp erosion and placement of 3000m^3 of sand from the Daintree Ferry dredging.
8	Tidal lands adjacent to Lot 17 on Plan O9511, **Oak Beach**.	Conservation Park Zone CP-16-4032, Port Douglas to Yule Point coastal area.	Carrying out works - sand scraping for a distance of 300m along Oak Beach and placement of 2000m^3 of sand from the Daintree Ferry dredging, along erosion scarps.

Appendix B

Corrective Action Request (CAR) form



We Deliver

Part A — Notification

To be completed by person issuing CAR

Date

Issued by Signature .....

Activity

Responsibility

Reason for non-conformance

Comments

Part B—Corrective Action

To be completed by Site Supervisor

CAR number

Date received

Corrective action undertaken

Recommended preventative action

Responsibility

Comments

Date completed Signature .....

Part C—VERIFICATION

To be completed by Project Manager

Verification procedure

Date corrective action verified

Signature.....

CAR number	Date CAR received	CAR responsibility	Date CAR completed	Date verified	Signature
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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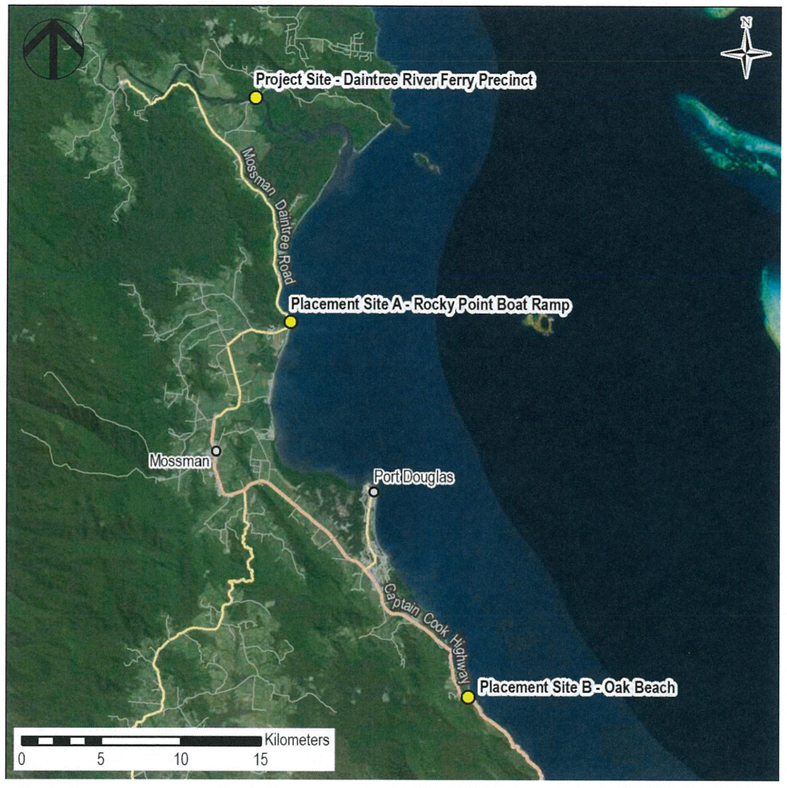
Appendix B

Design Drawings



We Deliver

DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT



LOCALITY PLAN
NOT TO SCALE

DRAWING INDEX	
DRAWING No.	**TITLE**
BEJ758-DW-CV-GEN-0001	LOCALITY PLAN, DRAWING INDEX & GENERAL NOTES
BEJ758-DW-CV-GEN-0002	SITE PLAN
BEJ758-DW-CV-GEN-0003	DREDGING - PLAN
BEJ758-DW-CV-GEN-0004	DREDGING - LONGSECTIONS
BEJ758-DW-CV-GEN-0005	DREDGING - TYPICAL SECTIONS
BEJ758-DW-CV-GEN-0006	DREDGING - DESIGN CROSS SECTIONS
BEJ758-DW-CV-GEN-0007	NOURISHMENT - SITE A - PLAN & SECTION
BEJ758-DW-CV-GEN-0008	NOURISHMENT - SITE B - PLAN & SECTION

GENERAL NOTES:

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE CONTRACT AND SPECIFICATIONS.
G2. SETOUT DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORKS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE SUPERINTENDENT.
G3. ALL DIMENSIONS ARE IN METRES UNO.
G4. THE CONTRACTOR SHALL MAINTAIN ALL WORK AREAS INCLUDING TEMPORARY OR PERMANENT HANDLING FACILITIES, STOCKPILES, DEWATERING SITES AND NOURISHMENT AREAS. WORK AREAS SHALL BE IN A SAFE AND STABLE CONDITION AND ENSURE SAFE ACCESS AND NAVIGABILIY IS MAINTAINED AT ALL TIMES.
G5. DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWINGS.

SURVEY:

S1. HORIZONTAL DATUM = GDA94, MGA ZONE 55.
S2. ALL REDUCED LEVELS ARE EXPRESSED IN METRES TO AUSTRALIAN HEIGHT DATUM UNO.
S3. EXISTING BATHYMETRIC LEVELS ARE BASED ON AQUAMAP MAY 2017 POST-DREDGE HYDROGRAPHIC SURVEY UNO.
S4. EXISTING SURVEY SOURCE: QUEENSLAND SURVEYING PTY LTD, A VERIS COMPANY, DRG No. 32715 DET 0001, REV A, 9/03/2018, 'DETAIL & LEVEL SURVEY OF THE NORTH & SOUTH SIDES OF DAINTREE FERRY CROSSING'.

TIDAL PLANES:

TIDAL PLANES FOR PORT DOUGLAS, AS PUBLISHED BY THE DEPARTMENT OF TRANSPORT AND MAIN ROADS (MARITIME SAFETY QUEENSLAND) (2018) ARE PROVIDED BELOW.

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANES
+3.36	+1.78	HIGHEST ASTRONOMICAL TIDE (HAT)
+2.49	+0.91	MEAN HIGH WATER SPRINGS (MHWS)
+1.83	+0.25	MEAN HIGH WATER NEAPS (MHWN)
+1.60	+0.02	MEAN SEA LEVEL (MSL)
+1.58	0.00	AUSTRALIAN HEIGHT DATUM (AHD)
+1.37	-0.21	MEAN LOW WATER NEAPS (MLWN)
+0.70	-0.88	MEAN LOW WATER SPRINGS (MLWS)
0.00	-1.58	LOWEST ASTRONOMICAL TIDE (LAT)

ABBREVIATIONS:

CH - CHAINAGE
CL - CENTRELINE
DRG - DRAWING
No. - NUMBER
RL - REDUCED LEVEL
RP - REAL PROPERTY
UNO - UNLESS NOTED OTHERWISE
TBC - TO BE CONFIRMED
TYP - TYPICAL

DREDGING:

D1. ALL DREDGING SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE ENVIRONMENTAL APPROVAL CONDITIONS, ENVIRONMENTAL MANAGEMENT PLAN (EMP) AND ANY REQUIREMENTS IMPOSED BY THE RELEVANT STATUTORY AUTHORITIES.
D2. ALL DREDGING SHALL BE UNDERTAKEN IN ACCORDANCE WITH BS 6349-5 (CODE OF PRACTICE FOR DREDGING AND LAND RECLAMATION) UNLESS OTHERWISE SPECIFIED OR DIRECTED.
D3. THE CONTRACTOR SHALL ENSURE THE PROTECTION OF ALL EXISTING INFRASTRUCTURE AND PROPERTY INCLUDING , BOAT RAMPS, FERRY, FERRY RAMPS, FERRY CABLES, OVERHEAD POWER LINES, SUBMERGED CABLES, BURIED SERVICES, JETTIES, PONTOONS, PILES, BOATS AND AIDS TO NAVIGATION.
D4. THE CONTRACTOR SHALL ENSURE NO DEBRIS IS DROPPED APART FROM AT DESIGNATED DISPOSAL SITES AND ANY SUBMARINE RUBBISH IS REMOVED FROM SITE.

NOURISHMENT:

N1. QUALITY AND QUANTITY OF DREDGED MATERIAL TO BE CONFIRMED PRIOR TO PLACEMENT AT THE DESIGNATED NOURISHMENT SITES.
N2. NOURISHMENT MATERIAL TO BE FREE FROM ORGANIC MATTER AND ANY DELETERIOUS OR CHEMICAL CONTAMINANTS.
N3. NO WORKS TO BE PERFORMED ON TOP OF TREE ROOTS. NO FILLING ON TOP OF TREE ROOTS UNLESS AUTHORISED BY A PROFESSIONAL ARBORRIST.
N4. FOUNDING LEVELS AND CONTOURS SHOWN ON DRAWINGS ARE INDICATIVE ONLY. ACTUAL LEVELS SHALL BE CONFIRMED ON SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ENGINEERS ADVICE.

SERVICES:

SR1. THE CONTRACTOR SHALL ASCERTAIN FROM THE APPROPRIATE AUTHORITIES THE POSITION AND THE DEPTH/HEIGHT OF ALL PUBLIC UTILITY OR OTHER SERVICES WHICH MAY BE AFFECTED DURING THE WORKS.

SR2. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO SECURE FROM DAMAGE ALL EXISTING GAS AND WATER MAINS, GAS AND WATER SERVICE PIPES, STORMWATER DRAINAGE LINES, SEWERS, ELECTRICAL CONDUITS, OVERHEAD LINES, TELEPHONE INSTALLATIONS, OR OTHER EXISTING SERVICES IN THE AREA OF ALL WORK SITES, OR WHICH ARE ADJACENT TO THE WORKS.

TEMPORARY DREDGED MATERIAL RE-HANDLING SITE:

T1. IF REQUIRED AS PART OF THE CONTRACTOR'S METHODOLOGY, THE CONTRACTOR SHALL PREPARE RE-HANDLING SITE DESIGN FOR THE STORAGE AND TREATMENT OF DREDGED MATERIAL TO SUIT THEIR INTENDED DREDGING AND MATERIAL RE-HANDLING METHODOLOGY FOR APPROVAL BY THE PRINCIPAL.

T2. DESIGN OF ALL STORAGE OR TREATMENT FACILITIES MUST CONFORM TO THE REQUIREMENTS SET OUT IN THE SPECIFICATION, THE ENVIRONMENTAL MANAGEMENT PLAN (EMP) AND THE ENVIRONMENTAL AUTHORITY (EPPR0180361) PERMIT.

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	K-St
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	K-St
PROJECT APPROVAL	K.STEMM	K-St
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.
RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

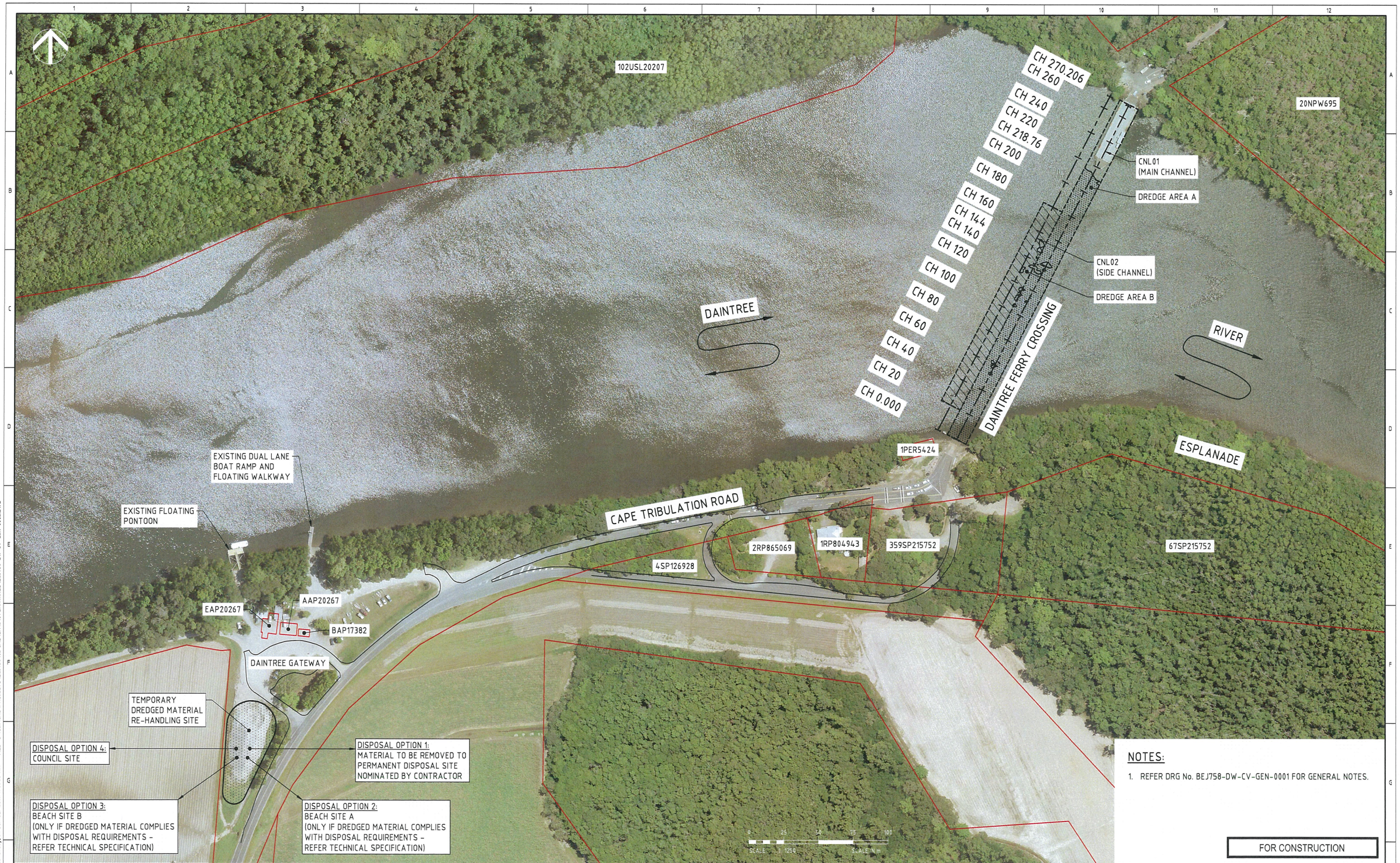
Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

DRAWING SCALE: AS SHOWN
ORIG. SIZE: A1
DRAFTER: J.BROOKER

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
LOCALITY PLAN, DRAWING INDEX & GENERAL NOTES

DRAWING No.: BEJ758-DW-CV-GEN-0001
REVISION: 1

© Kellogg Brown & Root
DATE: Wednesday, 31 October 2018 11:00:04 AM FILE: D:\G&T\ACAD\PROJECTS\BEJ758\03 CAD\CIVIL\01 DRAWINGS\BEJ758-DW-CV-GEN-0001.DWG



NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
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POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.

RPEQ NAME: P.CUMMINGS

RPEQ NO: 2442

RPEQ DATE: 26.06.18

RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd

KBR

Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

DRAWING SCALE 1:1250

ORIG. SIZE A1

DRAFTER: J.BROOKER

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
SITE PLAN

DRAWING No. BEJ758-DW-CV-GEN-0002

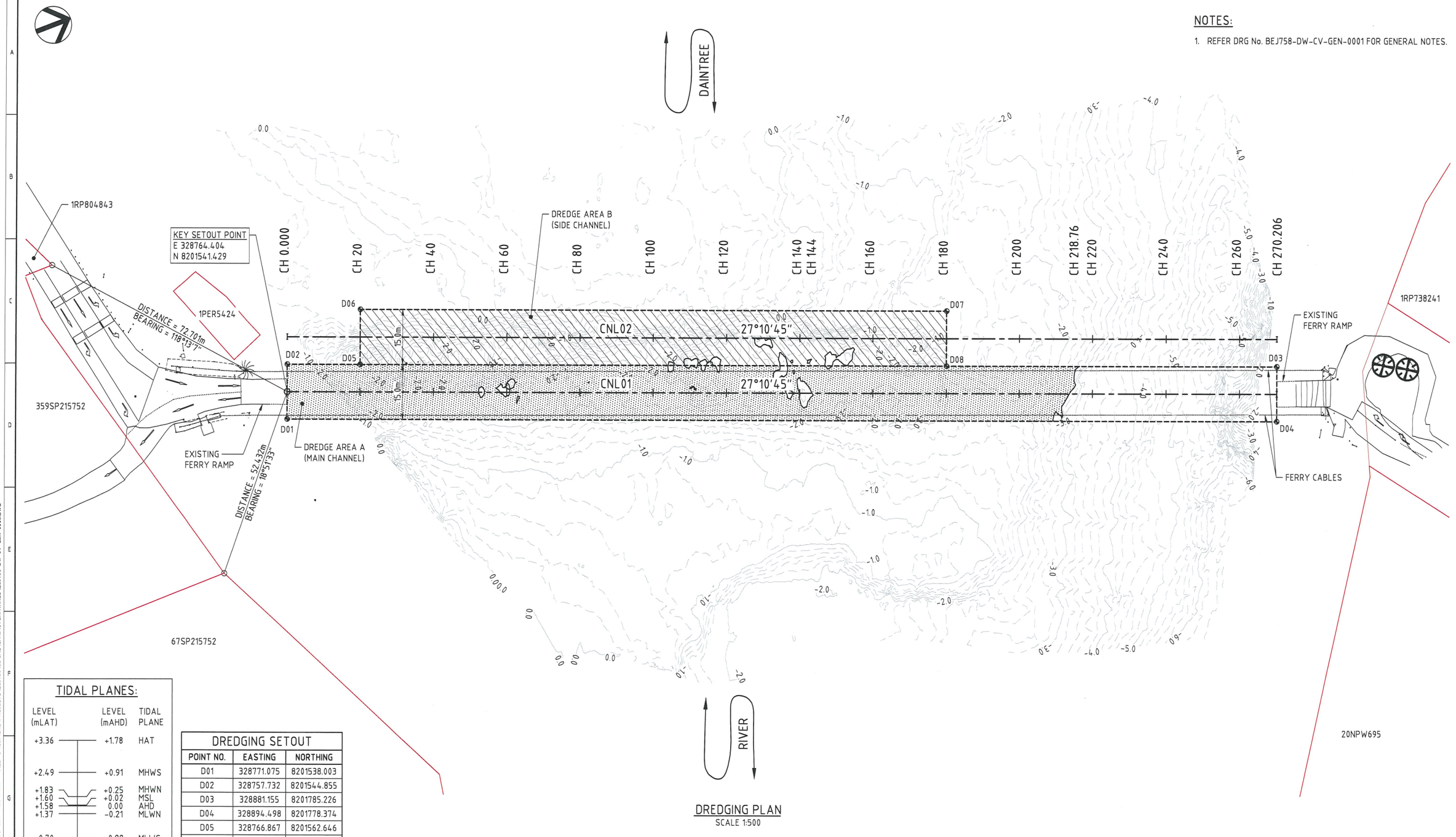
REVISION 1

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DATE: Wednesday, 31 October 2018 11:08:33 AM FILE: D:\GEN\CAD\PROJECTS\BEJ758\R13 CAD\CIVIL\01 DRAWINGS\BEJ758-DW-CV-GEN-0002.DWG

NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.



DREDGING PLAN
SCALE 1:500

TIDAL PLANES:

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANE
+3.36	+1.78	HAT
+2.49	+0.91	MHWS
+1.83	+0.25	MHWN
+1.60	+0.02	MSL
+1.58	0.00	AHD
+1.37	−0.21	MLWN
+0.70	−0.88	MLWS
0.00	−1.58	LAT

DREDGING SETOUT

POINT NO.	EASTING	NORTHING
D01	328771.075	8201538.003
D02	328757.732	8201544.855
D03	328881.155	8201785.226
D04	328894.498	8201778.374
D05	328766.867	8201562.646
D06	328753.523	8201569.498
D07	328826.607	8201711.831
D08	328839.951	8201704.980

SCALE 1:500 — 0 10 20 30 40 SCALE IN m

FOR CONSTRUCTION

REV.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.

RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

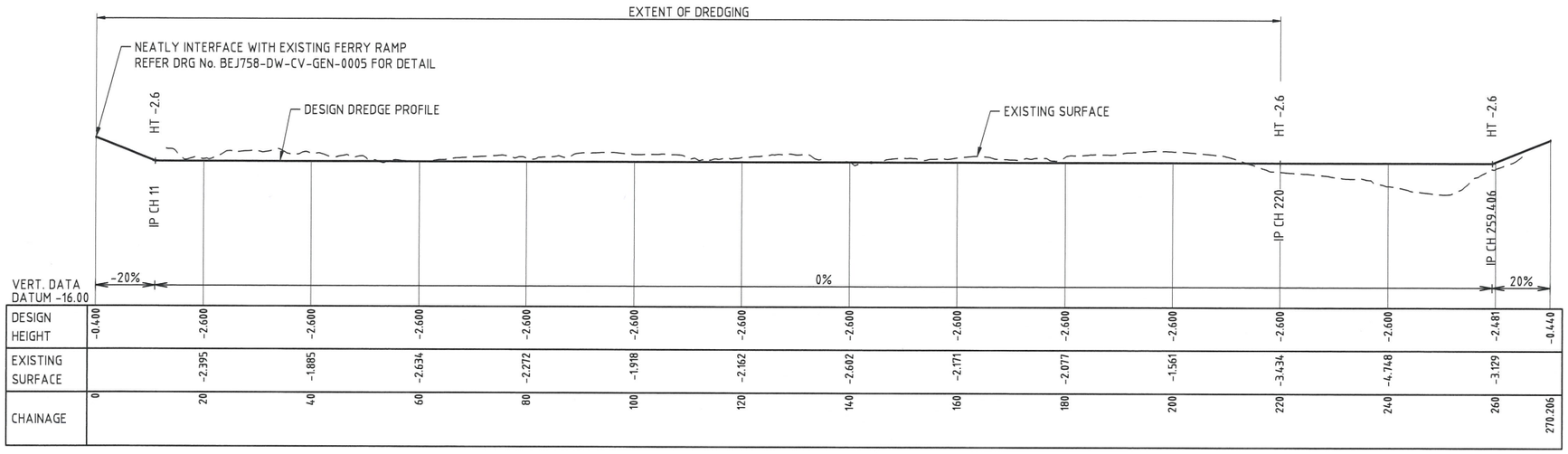
DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
DREDGING - PLAN

DRAWING SCALE 1:500
DRAFTER: J.BROOKER
ORIG. SIZE A1
DRAWING No. BEJ758-DW-CV-GEN-0003
REVISION 1

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DATE: Wednesday, 31 October 2018 11:02:16 AM FILE: D:\GBN\CAD\PROJECTS\BEJ758\R03 CAD\CIVIL\01 DRAWINGS\BEJ758-DW-CV-GEN-0003.DWG



DESIGN HEIGHT	-0.400	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.481	-0.440
EXISTING SURFACE		-2.395	-1.885	-2.634	-2.272	-1.918	-2.162	-2.602	-2.171	-2.077	-1.561	-3.434	-4.748	-3.129	
CHAINAGE	0	20	40	60	80	100	120	140	160	180	200	220	240	260	270.206

LONGITUDINAL SECTION, CONTROL LINE CNL01 (MAIN CHANNEL)

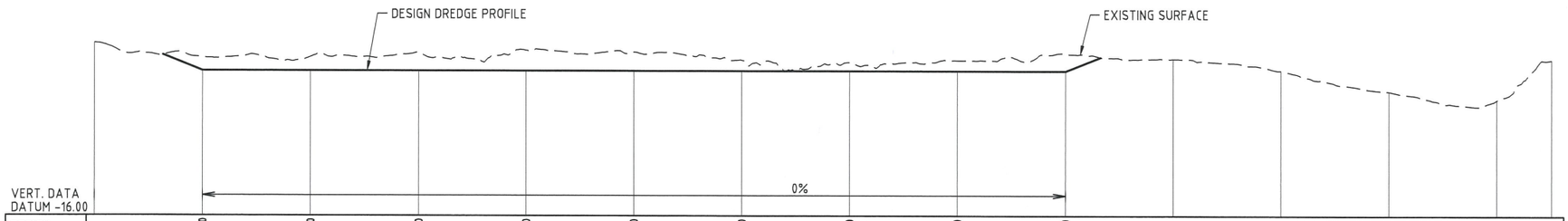
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250

NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.

TIDAL PLANES:

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANE
+3.36	+1.78	HAT
+2.49	+0.91	MHWS
+1.83	+0.25	MHWN
+1.60	+0.02	MSL
+1.58	0.00	AHD
+1.37	-0.21	MLWN
+0.70	-0.88	MLWS
0.00	-1.58	LAT



DESIGN HEIGHT		-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600	-2.600					
EXISTING SURFACE		-1.364	-1.300	-0.958	-0.686	-0.844	-1.585	-1.799	-1.592	-0.954	-1.454	-2.530	-4.457	-5.238	
CHAINAGE	0	20	40	60	80	100	120	140	160	180	200	220	240	260	270.206

LONGITUDINAL SECTION, CONTROL LINE CNL02 (SIDE CHANNEL)

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250

SCALE 1: 500 — 0 10 20 30 40 — SCALE IN m

SCALE 1: 250 — 0 5 10 15 20 — SCALE IN m

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.

RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

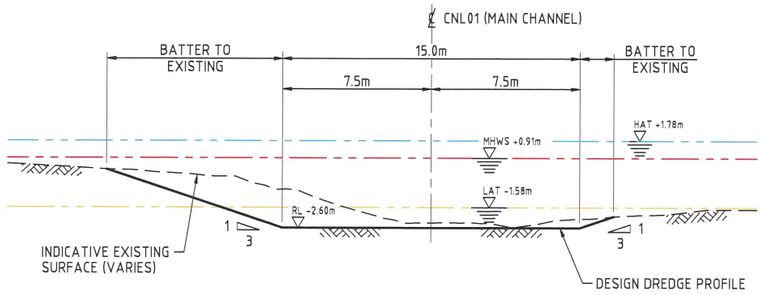
DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

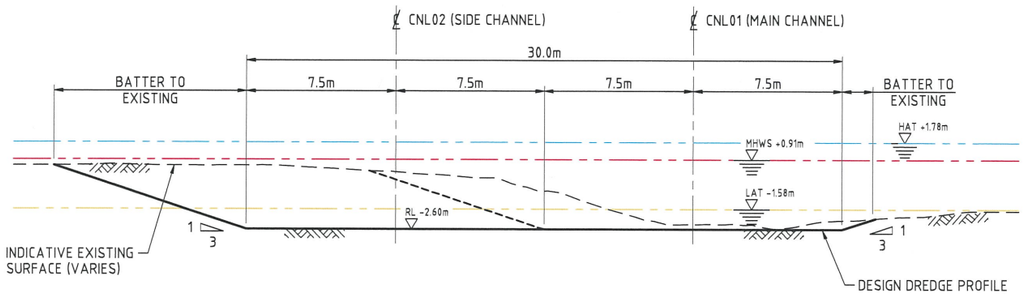
TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
DREDGING - LONGSECTIONS

DRAWING SCALE: AS SHOWN
DRAFTER: J.BROOKER
ORIG. SIZE: A1
DRAWING No.: BEJ758-DW-CV-GEN-0004
REVISION: 1

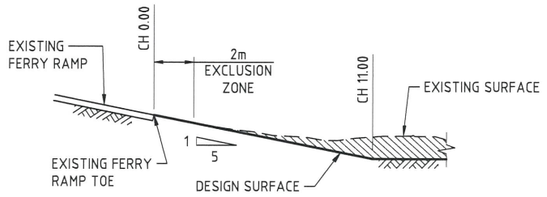
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TYPICAL SECTION - MAIN CHANNEL (AREA A)
SCALE 1:150



TYPICAL SECTION - MAIN CHANNEL (AREA A) AND SIDE CHANNEL (AREA B)
SCALE 1:150



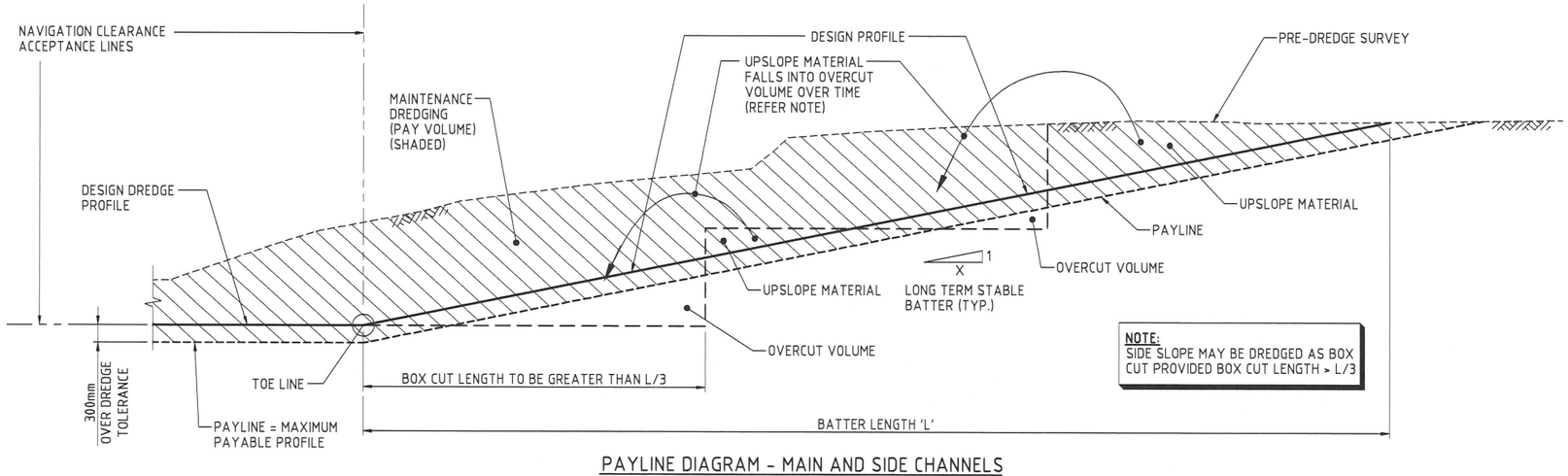
TYPICAL SECTION - EXISTING FERRY RAMP INTERFACE
SCALE 1:150

NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.

TIDAL PLANES:

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANE
+3.36	+1.78	HAT
+2.49	+0.91	MHWS
+1.83	+0.25	MHWN
+1.60	+0.02	MSL
+1.58	0.00	AHD
+1.37	-0.21	MLWN
+0.70	-0.88	MLWS
0.00	-1.58	LAT



PAYLINE DIAGRAM - MAIN AND SIDE CHANNELS
NOT TO SCALE

SCALE 1: 150 (0, 3, 6, 9, 12) SCALE IN m

FOR CONSTRUCTION

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE
			DRAFTING CHECK	P. LAS GOURGUES	
			ORIGINATE/ DESIGN	K.STEMM	
			INDEPENDENT CHECK	P.CUMMINGS	
			TECHNICAL APPROVAL	K.STEMM	
1	ISSUED FOR CONSTRUCTION	31.10.18	PROJECT APPROVAL	K.STEMM	
0	ISSUED FOR CONSTRUCTION	26.06.18	CLIENT APPROVAL		
A	ISSUED FOR CLIENT REVIEW	20.12.17			

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.
RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

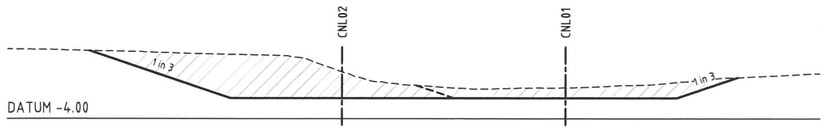
TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
DREDGING - TYPICAL SECTIONS

DRAWING SCALE 1:150
DRAFTER: J.BROOKER
ORIG. SIZE A1
DRAWING No. BEJ758-DW-CV-GEN-0005
REVISION 1

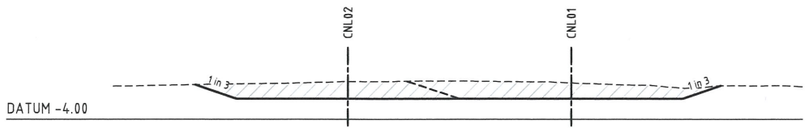
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NOTES:

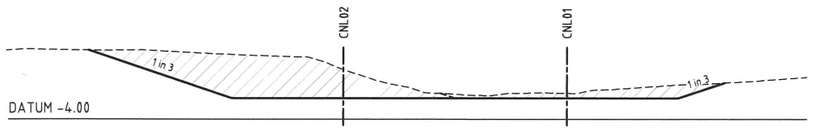
1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.



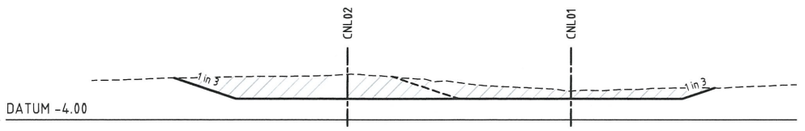
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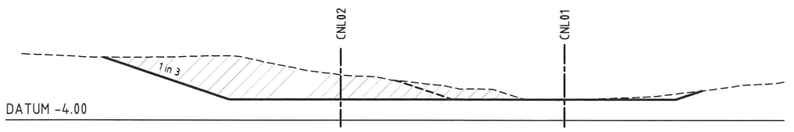
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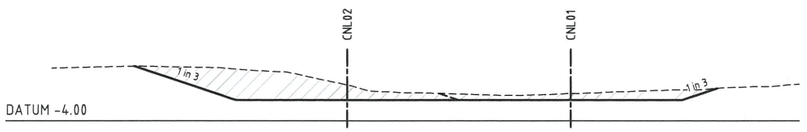
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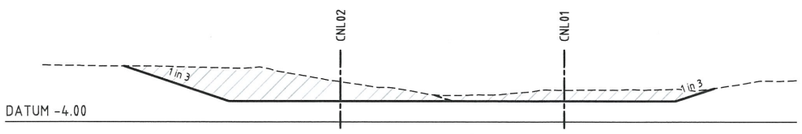
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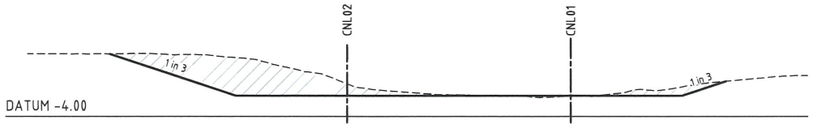
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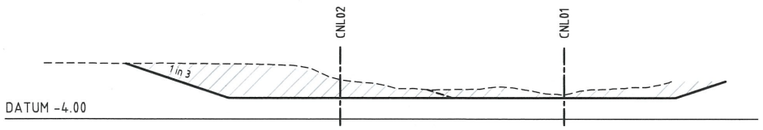
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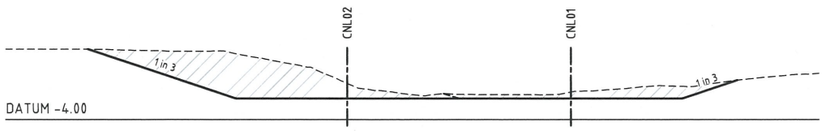
CHAINAGE 40.000



CHAINAGE 140.000



CHAINAGE 20.000



CHAINAGE 120.000

0 4 8 12 16

SCALE 1: 200 SCALE IN m

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.

RPEQ NAME: P.CUMMINGS

RPEQ NO: 2442

RPEQ DATE: 26.06.18

RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd

KBR

Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
DREDGING - DESIGN CROSS SECTIONS

DRAWING SCALE 1:200

ORIG. SIZE A1

DRAFTER: J.BROOKER

DRAWING No. BEJ758-DW-CV-GEN-0006

REVISION 1

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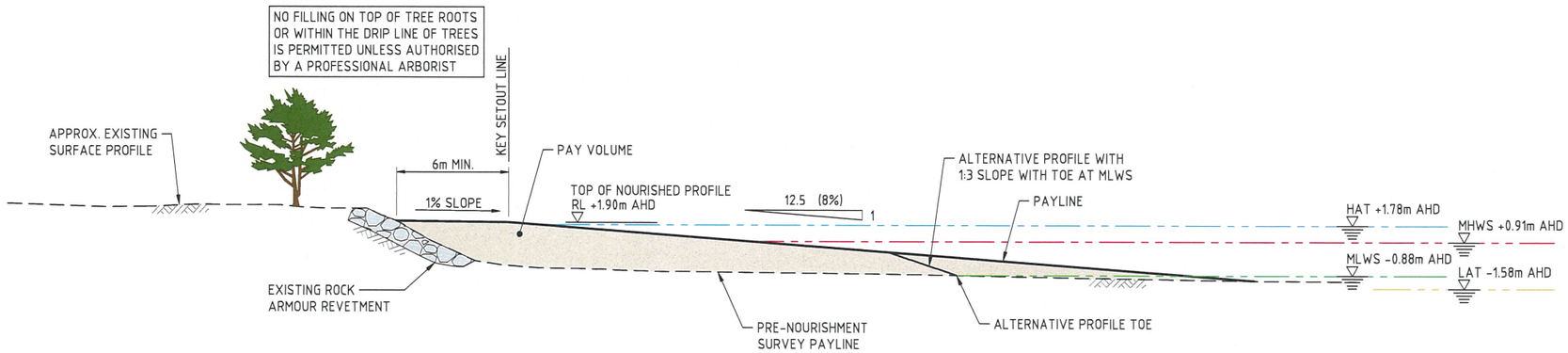
PLAN - NOURISHMENT SITE A
SCALE 1:1000

NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.
2. COASTLINE BASED ON 'COASTLINE AND STATE BORDER-QUEENSLAND' DIGITAL DATASET (STATE OF QUEENSLAND, 2017).



SITE PHOTO - NOURISHMENT SITE A - ROCKY PT
NOT TO SCALE



TYPICAL SECTION
SCALE 1:150

SCALE 1: 1000 — 0 20 40 60 80 — SCALE IN m
SCALE 1: 150 — 0 3 6 9 12 — SCALE IN m

TIDAL PLANES:

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANE
+3.36	+1.78	HAT
+2.49	+0.91	MHWS
+1.83	+0.25	MHWN
+1.60	+0.02	MSL
+1.58	0.00	AHD
+1.37	-0.21	MLWN
+0.70	-0.88	MLWS
0.00	-1.58	LAT

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.
RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

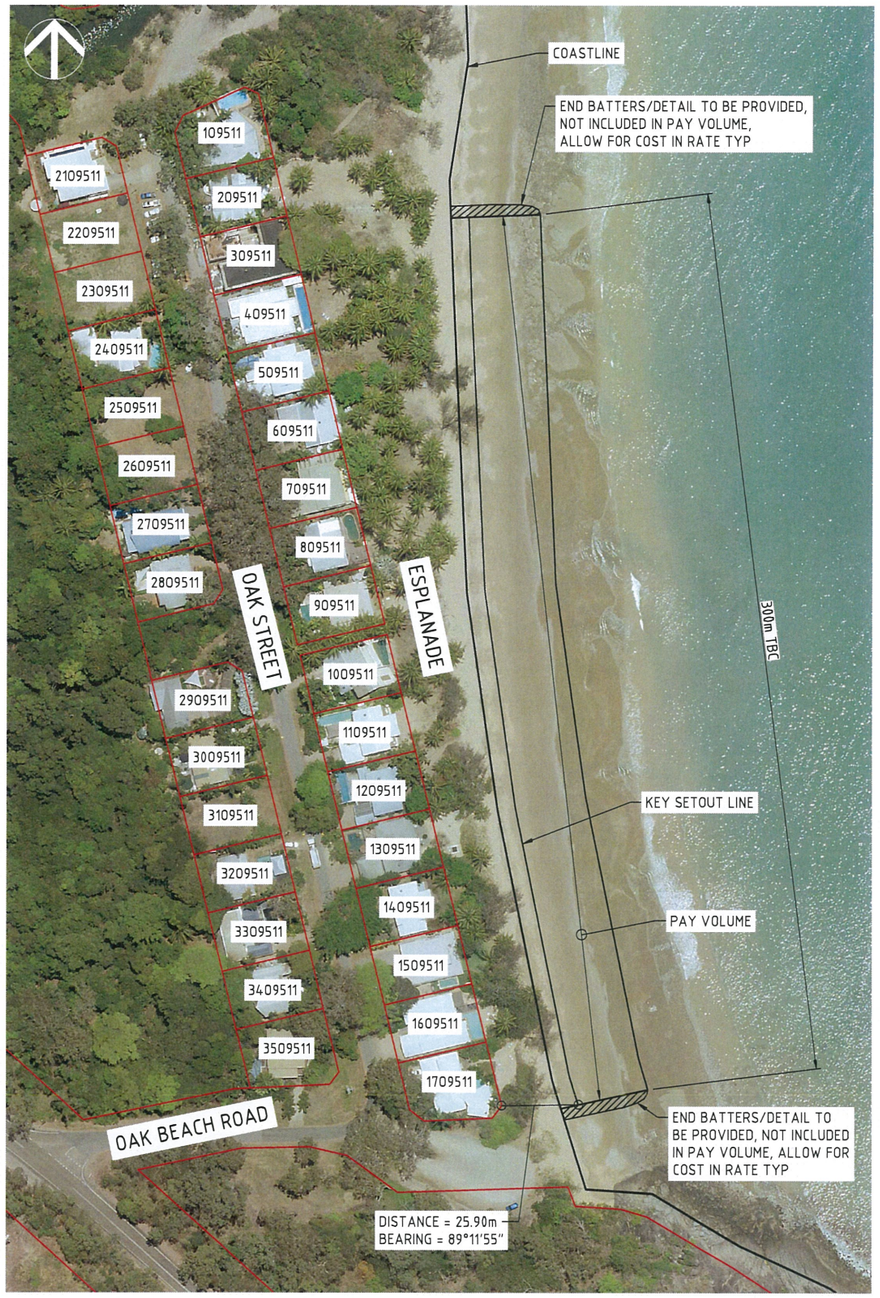
Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

DRAWING SCALE: AS SHOWN
DRAFTER: J.BROOKER
ORIG. SIZE: A1

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
NOURISHMENT - SITE A - PLAN & SECTION

DRAWING No.: BEJ758-DW-CV-GEN-0007
REVISION: 1

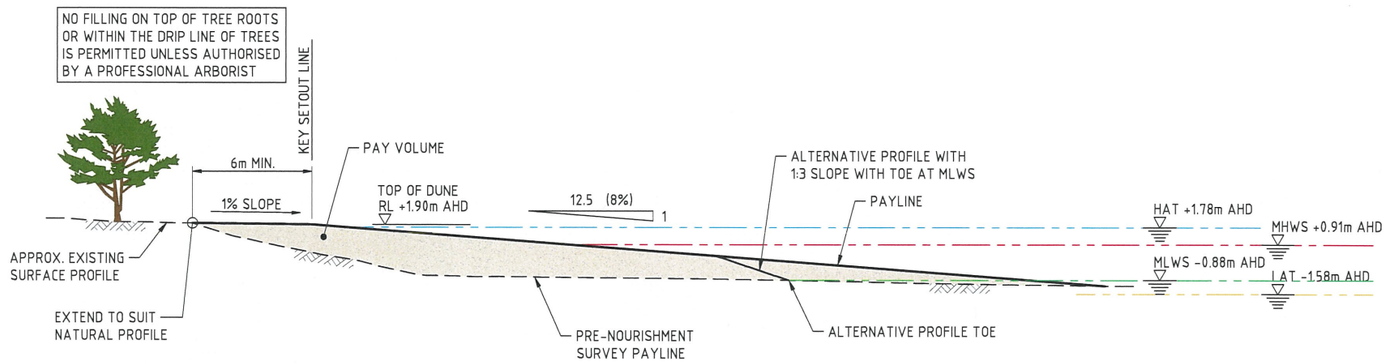
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PLAN – NOURISHMENT SITE B
SCALE 1:1000



SITE PHOTO – NOURISHMENT SITE B – OAK BEACH
NOT TO SCALE



TYPICAL SECTION
SCALE 1:150

NOTES:

1. REFER DRG No. BEJ758-DW-CV-GEN-0001 FOR GENERAL NOTES.
2. COASTLINE BASED ON 'COASTLINE AND STATE BORDER-QUEENSLAND' DIGITAL DATASET (STATE OF QUEENSLAND, 2017).

TIDAL PLANES:

LEVEL (mLAT)	LEVEL (mAHD)	TIDAL PLANE
+3.36	+1.78	HAT
+2.49	+0.91	MHWS
+1.83	+0.25	MHWN
+1.60	+0.02	MSL
+1.58	0.00	AHD
+1.37	-0.21	MLWN
+0.70	-0.88	MLWS
0.00	-1.58	LAT

SCALE 1: 1000 — 0 20 40 60 80 — SCALE IN m
SCALE 1: 150 — 0 3 6 9 12 — SCALE IN m

FOR CONSTRUCTION

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	31.10.18
0	ISSUED FOR CONSTRUCTION	26.06.18
A	ISSUED FOR CLIENT REVIEW	20.12.17

POSITION	NAME	SIGNATURE
DRAFTING CHECK	P. LAS GOURGUES	
ORIGINATE/ DESIGN	K.STEMM	
INDEPENDENT CHECK	P.CUMMINGS	
TECHNICAL APPROVAL	K.STEMM	
PROJECT APPROVAL	K.STEMM	
CLIENT APPROVAL		

ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd.
RPEQ NAME: P.CUMMINGS
RPEQ NO: 2442
RPEQ DATE: 26.06.18
RPEQ SIGNATURE:

DOUGLAS SHIRE COUNCIL

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

TITLE
DOUGLAS SHIRE COUNCIL
DAINTREE RIVER FERRY CROSSING
CHANNEL DREDGING & DREDGED MATERIAL PLACEMENT
NOURISHMENT - SITE B - PLAN & SECTION

DRAWING SCALE: AS SHOWN
ORIG. SIZE: A1
DRAFTER: J.BROOKER
DRAWING No.: BEJ758-DW-CV-GEN-0008
REVISION: 1

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DATE: Wednesday, 31 October 2018 11:11:31 AM FILE: O:\GBNCAD\PROJECTS\BEJ758\R3\3 CAD\CIVIL\01 DRAWINGS\BEJ758-DW-CV-GEN-0008.DWG

Appendix F

Acid Sulfate Soils Testing Results

MAKING COMPLEX EASY
A TETRA TECH COMPANY

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: L83185 15874

Date: 3 March 2025

Douglas Shire Council

To Whom it May Concern,

Daintree River Grab sampling - Chromium Suite Results Report February 2025

RPS Environmental Consultant, Liam Honey visited the Daintree River Ferry Crossing site on 3 February 2025 to collect sand samples via Grab Sampler from the riverbed. Sand samples were collected from six (6) locations across the river channel and analysed for Chromium Suite to determine if Acid Sulfate Soils (ASS) are present within the soils and for particle size distribution.

Method

The Grab sampler was lower off the side of the boat and dropped onto the riverbed. The bottom surface impact triggers the spring-loaded release mechanism cause the sampler to close and collect the sand sample. The sampler is then pulled up back onto the boat for the sand sample to be collected into sampling bags.

Sand sampling was conducted according to the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998. The approved sampling technique under this manual is as follows:

Samples taken were placed into an air-tight polyethylene bag (with the air excluded). The combined sample of a particular sand product is then clearly marked with a permanent marker and placed into an esky containing ice to keep samples cool and minimize sulfide oxidation. The chilled samples were transported within a 24-hour timeframe to a NATA accredited laboratory for analysis.

All quality standards and procedures were carried out according to Australian Standard AS 4969- 2008, the Laboratory Methods Guidelines (2004) Ahern CR, McElnea AE, Sullivan LA and Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998.

Sample locations

Refer to **Figure 1** below for the sand sample locations. The Hydrographic survey plan and sample locations are included in **Appendix A**.



Figure 1 Sand sample locations

Results

Sand samples taken from the bed of the Daintree River and were sent to a NATA accredited laboratory for analysis. The laboratory report of results is included in **Appendix B**, with a summary of the key results below in **Table 1**:

Table 1 – Sand sample results

Sample	Sulphur Trail (s-net Acidity %w/w S)	Acid Trail (a-net Acidity mol H^+/t)	pH KCl
S1	*0.0025*	*2.5*	8.7
S2	*0.0025*	*2.5*	7
S3	*0.0025*	*2.5*	6.8
S4	*0.0025*	*2.5*	6.6
S5	*0.0025*	*2.5*	6.6
S6	*0.0025*	*2.5*	7.2

Columns 2 & 3 must be compared against the Action Criteria >1000 tonnes disturbed column of **Table 2**

The particle size distribution of the sand can be seen in **Appendix B**.

Table 2 - Texture Based Acid Sulfate Soil Action Criteria (QASSTM)

Type of Material		Action Criteria 1-1000 Tonnes Disturbed		Action Criteria >1000 Tonnes Disturbed	
Texture Range MacDonald et al. (1990)	**Approx. Clay Content (%)**	**%S equiv. (oven-dry basis) e.g. S_{TOR} or S_{POS}**	**Mol H^+/tonne (oven-dry basis) e.g TPA or TSA**	**Sulfur trail %S oxidisable (oven-dry basis) e.g. S_{TOS} or S_{POS}**	**Acid Trail mol H^+/tonne (oven-dry basis) e.g. TPA or TSA**
Fine Medium to heavy clays, and silty clays	>40%	0.1	62	0.03	18
Medium Sandy loams to light clays	5-40	0.006	36		
Coarse Sandy to loamy sands and peats	<5	0.03	18		

Discussion

The Chromium Suite laboratory analysis results in **Table 1** show that all samples were below the weighted action criteria (*Ahern et al 1998*), refer to **Table 2**. The pH KCl for the samples above the weighted action criteria recorded between 6.6 to 8.7**.**

These results indicate that the sand samples do not require management actions with the use of lime.

Should you require any further details or clarification, please do not hesitate to contact RPS on (07) 4031 1336.

Yours sincerely,
for RPS AAP Consulting Pty Ltd

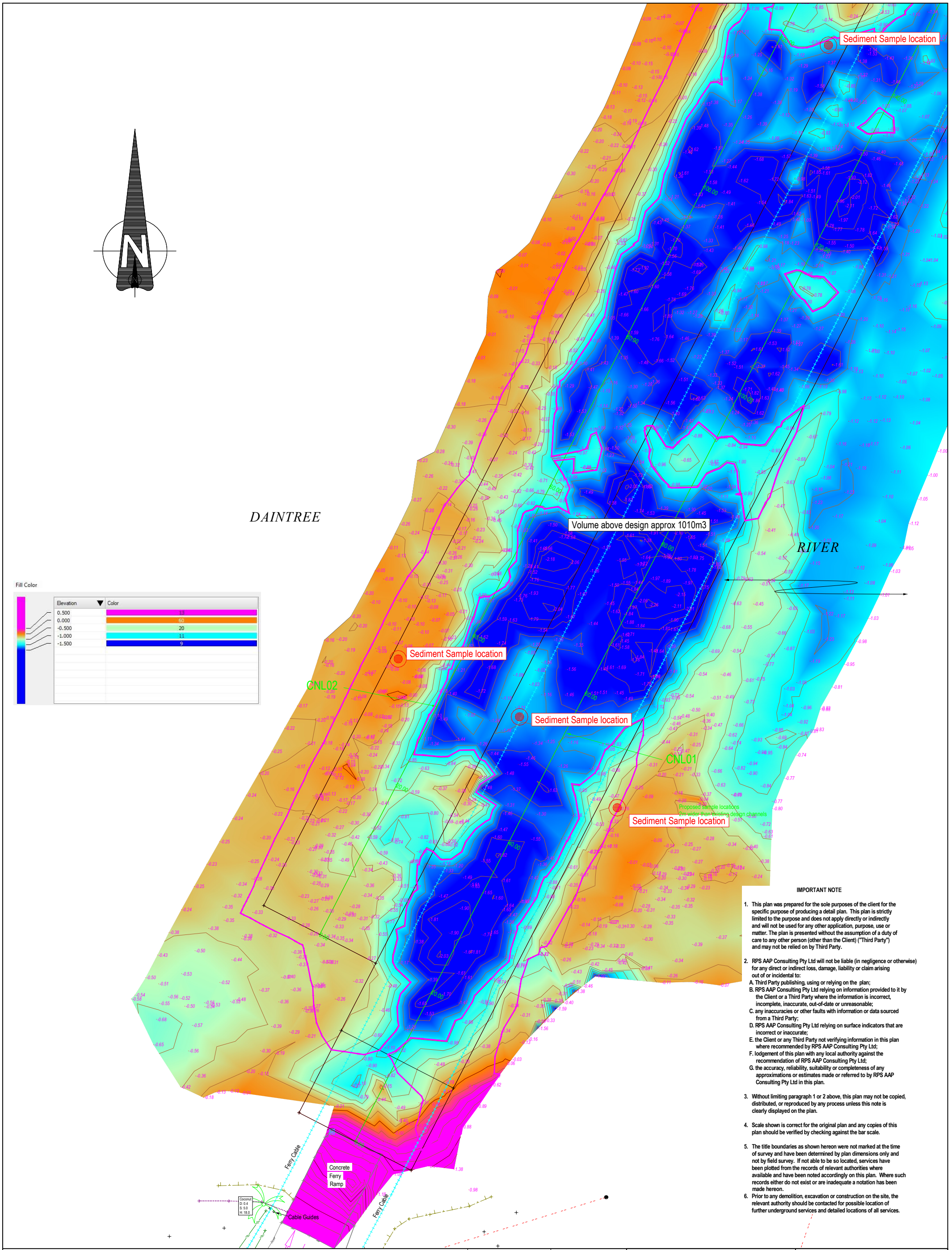


Monique Palmer
Senior Environmental Consultant
Monique.palmer@rpsconsulting.com

enc: Appendix A: Borehole Location Plan
Appendix B: SGS Analytical Report

APPENDIX A

Survey Plan



IMPORTANT NOTE

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6. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

NOTES

Level Datum: LAT (AHD levels Adjusted +1.58m)
Origin of Levels: PM123249
RL3.663 (Adjusted to LAT)
LAT levels adopted from KBR plan
"BEJ758-DW-CV-GEN-0004 Rev 1" provided by Douglas Shire Council.
LAT conversion in agreement with 2023 DTMR Semi Diurnal Tidal plane levels (Port Douglas Tidal plane levels)

Contour Interval: 0.2m
Index: 1.0m

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

Field/Level Book:

0 10 20
metres

SCALE 1:200 IS APPLICABLE ONLY TO THE ORIGINAL SHEET SIZE (A1).
(1:400 @ A3)

AMENDMENTS	
PROJECT MANAGER	D Pinkham
SURVEYED	AD 03/02/25
DRAWN	DGP
CHECKED	
CAD REF	149780-137.MJO
SHEET	1 OF SHEETS 2
DRAFTING CHECKED	
SHEET SIZE	A1

Douglas Shire Council

Daintree Ferry Crossing
Hydrographic Survey
Daintree River
Cape Tribulation Road

RPS AAP Consulting Pty Ltd
ACN 117 883 173
5954 Captain Cook Highway
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1:200	05/07/25	AU005051-15	

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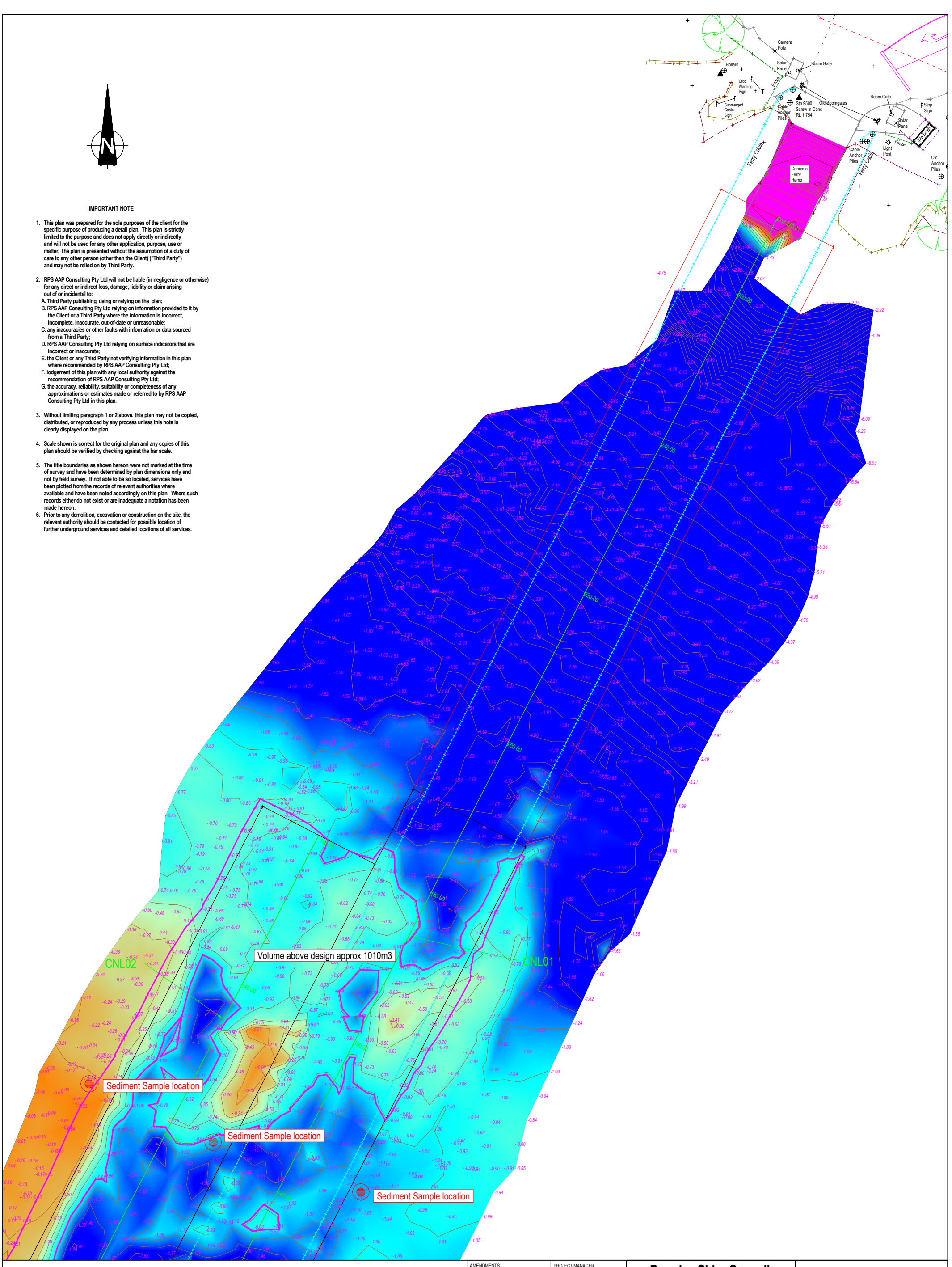
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NOTES

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Index: 1.0m

0 10 20
metres

Origin of Coordinates: GDA 2020
PM123249

Meridian: MGA

Field/Level Book:

SCALE 1:200 IS APPLICABLE ONLY TO THE ORIGINAL SHEET SIZE (A1).
(1:400 @ A3)

AMENDMENTS	PROJECT MANAGER D Pinkham	**Douglas Shire Council**	RPS AAP Consulting Pty Ltd ACN 117 883 173 5954 Captain Cook Highway Craiglie QLD 4877 T +61 7 4098 1148 F +61 7 4031 2942 W rpsgroup.com
	SURVEYED AD 03/02/25		
	DRAWN DGP	**Daintree Ferry Crossing** **Hydrographic Survey** **Daintree River** **Cape Tribulation Road**	
CHECKED	CAD REF 149780-137.MJO	SHEET 2 OF SHEETS 2	
DRAFTING CHECKED		SHEET SIZE A1	

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1:200	5/2/25	AU005051-15	

APPENDIX B

SGS Analytical Report

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Megan Davis	Manager	Jon Dicker
Client	RPS AAP CONSULTING PTY LTD	Laboratory	SGS Cairns Environmental
Address	PO BOX 1559 FORTITUDE VALLEY QLD 4006	Address	Unit 2, 58 Comport St Portsmith QLD 4870
Telephone	+61 7 4031 1336	Telephone	+61 07 4035 5111
Facsimile	(Not specified)	Facsimile	+61 07 4035 5122
Email	Megan.Davis1@rpsconsulting.com	Email	AU.Environmental.Cairns@sgs.com
Project	**604-OEENVCNS-387289_Daintree Ferry_CrSui**	SGS Reference	**CE179931 R0**
Order Number	**604-OEENVCNS-387289**	Date Received	03 Feb 2025
Samples	6	Date Reported	17 Feb 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

SIGNATORIES

Jon Dicker
Manager Northern QLD

Parameter	Units	Sample Number Sample Matrix Sample Date Sample Name LOR	CE179931.001 Soil 03 Feb 2025 S1	CE179931.002 Soil 03 Feb 2025 S2	CE179931.003 Soil 03 Feb 2025 S3	CE179931.004 Soil 03 Feb 2025 S4
Moisture Content Method: AN002 Tested: 4/2/2025						
% Moisture	%w/w	0.5	**22**	**22**	**23**	**21**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 11/2/2025						
pH KCl	pH Units	-	**8.7**	**7.0**	**6.8**	**6.6**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 11/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 13/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	**0.1**	<0.1	**0.1**	**0.3**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	**1.2**	**0.6**	**1.2**	**2.5**
ANC as % $CaCO_3$	% CaCO3	0.1	**0.1**	<0.1	**0.1**	**0.3**
Lime Equivalence	% CaCO3	0.1	**0.1**	<0.1	**0.1**	**0.3**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	**25**	**12**	**25**	**50**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	**0.040**	**0.020**	**0.040**	**0.080**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 13/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**-0.03**	**-0.01**	**-0.02**	**-0.05**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Particle sizing of soils by sieving Method: AN005 Tested: 14/2/2025						
Passing 2.00mm	%w/w	1	**57**	**76**	**84**	**81**
Retained 2.00mm	%w/w	1	**43**	**24**	**16**	**20**
Passing 600µm	%w/w	1	**8**	**12**	**5**	**33**
Retained 600µm	%w/w	1	**49**	**64**	**79**	**47**
Passing 300µm	%w/w	1	**1**	**2**	**2**	**10**
Retained 300µm	%w/w	1	**7**	**10**	**3**	**23**
Passing 212µm	%w/w	1	<1	**1**	**2**	**6**
Retained 212µm	%w/w	1	<1	<1	<1	**4**
Passing 63µm	%w/w	1	<1	<1	**1**	**3**
Retained 63µm	%w/w	1	<1	<1	<1	**3**

Parameter	Units	LOR	Sample Number: CE179931.005 Sample Matrix: Soil Sample Date: 03 Feb 2025 Sample Name: S5	Sample Number: CE179931.006 Sample Matrix: Soil Sample Date: 03 Feb 2025 Sample Name: S6
Moisture Content Method: AN002 Tested: 4/2/2025				
% Moisture	%w/w	0.5	**22**	**23**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 11/2/2025				
pH KCl	pH Units	-	**6.6**	**7.2**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 11/2/2025				
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 13/2/2025				
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	**0.1**	**0.1**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	**1.2**	**1.2**
ANC as % $CaCO_3$	% CaCO3	0.1	**0.1**	**0.1**
Lime Equivalence	% CaCO3	0.1	**0.1**	**0.1**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	**25**	**25**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	**0.040**	**0.040**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 13/2/2025				
s-Net Acidity	%w/w S	0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005
a-Net Acidity	moles H+/T	5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**-0.02**	**-0.03**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1
Particle sizing of soils by sieving Method: AN005 Tested: 14/2/2025				
Passing 2.00mm	%w/w	1	**67**	**73**
Retained 2.00mm	%w/w	1	**33**	**27**
Passing 600µm	%w/w	1	**11**	**13**
Retained 600µm	%w/w	1	**56**	**60**
Passing 300µm	%w/w	1	**3**	**3**
Retained 300µm	%w/w	1	**8**	**10**
Passing 212µm	%w/w	1	**3**	**2**
Retained 212µm	%w/w	1	<1	<1
Passing 63µm	%w/w	1	**2**	<1
Retained 63µm	%w/w	1	<1	**1**

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Acid Neutralising Capacity (ANC) Method: ME-(AU)-[ENV]AN214

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	LB137330	% CaCO3	0.1	<0.1	0%	104%
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	LB137330	kg H2SO4/T	0.1	<0.1	0%	NA
ANC as % $CaCO_3$	LB137330	% CaCO3	0.1	<0.1	0%	NA
Lime Equivalence	LB137330	% CaCO3	0.1	<0.1		
Acid Neutralisation Capacity (ANCBT) as acidity units	LB137330	moles H+/T	3	<3	0%	NA
Acid Neutralisation Capacity (ANCBT) as % S	LB137330	%w/w S	0.005	<0.005	0%	NA

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN005	The particle size distribution of a soil is determined by wet sieving, using a maximum of 900 mL of deionised water to sieve all fractions down to 75 µm. Referenced to AS1289.3.6.1 and AS1141.11.
AN214	Acid Neutralising Capacity (ANC)or Neutralising Value (NV): The crushed or as received sample is reacted with excess normal acid (HCl) and then back titrated with standard sodium hydroxide to determine the acid consumed. The result is expressed as kg H2SO4/tonne or %CaCO3. Based on AS4969-13.
AN217	Dried pulped sample is mixed with acid and chromium metal in a rapid distillation unit to produce hydrogen sulfide (H2S) which is collected and titrated with iodine (I2(aq)) to measure SCR.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	Chromium Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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Appendix G

Erosion and Sediment Control Plan

EROSION AND SEDIMENT CONTROL PLAN

SURFACE WATER MANAGEMENT

DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE

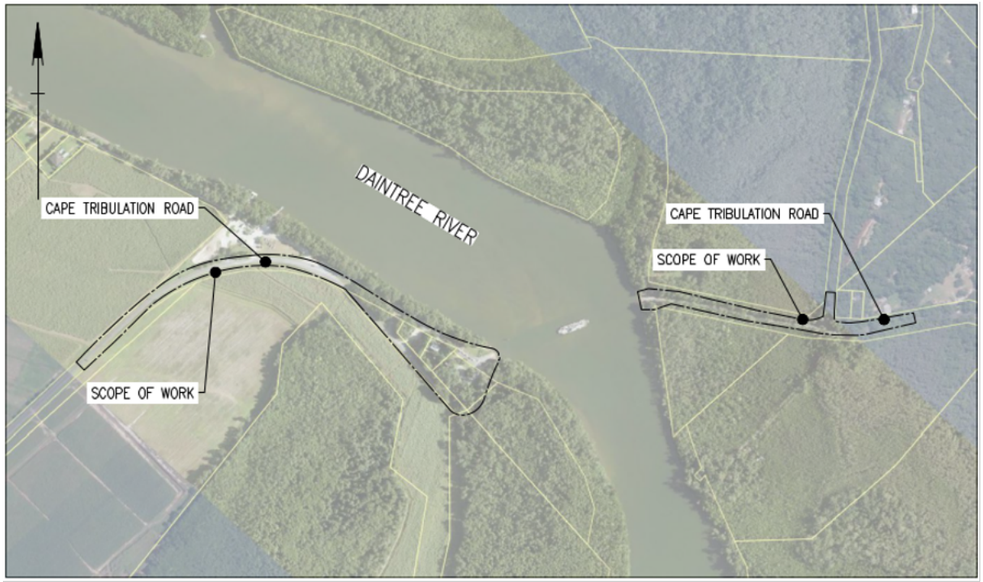


FIGURE 1: Extent of Works (Source: Civil Design Drawings (Hansen Engineering Group, 2025)



FIGURE 2: Daintree Ferry (Source: Douglas Shire Council)

This **Erosion and Sediment Control Plan** includes measures to address Surface Water Management for works associated with the proposed Daintree Ferry Landside Infrastructure Upgrades. Specifically, staged works to:

- Provide additional lanes and improved queuing areas
- Create a dedicated priority lane for local residents and cardholders
- Improve access for tour operators and boat ramp users
- Include new dual-loading ramps to support the four-lane ferry

ISSUED FOR USE

Green Way Environmental Pty Ltd
TA Red Sand Ecology
E. admin@redsandecology.com.au
www.redsandecology.com
I ABN 75 819 857 176

CLIENT: DURACK CIVIL PTY LTD
DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 1 OF 18

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EROSION AND SEDIMENT CONTROL PLAN

TIMEFRAME & STAGING

Durack Civil Pty Ltd (Durack) have been engaged by Douglas Shire Council (DSC) to undertake design and construct of the Daintree Ferry Landside Infrastructure Upgrade (southern and northern extents) and associated infrastructure to support commission of the new Daintree Ferry proposed for December 2027 (the Project). The Project is being funded by DSC to increase the passenger vehicle capacity of the existing Daintree ferry terminal reducing wait times for commuters. The Project is located 8 km east of Daintree on the Daintree River at approximate coordinates -16.26094,145.39758.

The Project is located within the existing road reserve and within Lot 4 on SP126928 and Lot 1 and Lot 2 on RP865069 ('the Site'). Works are proposed for both the northern and southern approaches to Daintree River, and include:

Southern extent of Daintree River:

- Widening of the existing alignment of Cape Tribulation Road by one (1) lane to the northwest on the approach to the Solar Whisper Wildlife Cruises pull-off area.
- Widening of the existing alignment of Cape Tribulation Road by one (1) lane to the northwest beyond the Solar Whisper Wildlife Cruises pull-off to accommodate the installation of a ticketing office/checkpoint.
- Installation of an additional four to six (4–6) lanes within the centre of the existing Cape Tribulation Road alignment on the approach to the ferry, to enable separation of visitor boarding and exiting lanes from local and permit-holder boarding and exiting lanes.
- Dredging works to accommodate a future wider vessel, including the establishment of a designated storage and testing area for dredged material.

Northern extent of Daintree River

- Widening of Cape Tribulation Road to the northwest of the existing alignment from two (2) lanes to four (4) lanes, up to the junction with Forest Creek Road.
- Widening of Cape Tribulation Road to the southwest of the existing alignment from two (2) lanes to four (4) lanes beyond the junction with Forest Creek Road.

It is understood that to meet the conditions of approval, and prior to commencement of any land disturbing activities and until all exposed soil areas are permanently stabilised against erosion; an Erosion and Sediment Control Plan (ESCP) in accordance with the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control (BPESC) Guideline and DSC Policy No. 5 Erosion and Sediment must be developed and implemented onsite.

This Erosion and Sediment Control Plan (ESCP) has been prepared in accordance with the IECA BPESC Guideline and assumes treatment standards based on defined Revised Universal Soil Loss Equation (RUSLE) calculations that are subject to change. The controls designed and recommended within this ESCP have been developed to manage soil disturbance associated with civil works including cut to fill, road realignment, infrastructure upgrades and pavement installation for the duration of the Project.

It is understood that works are to include on both the southern and northern extent:

- Civil earthworks associated with the road upgrades
- Infrastructure upgrades (Stormwater and electrical)
- Pavement and landscaping
- Installation of the new boat ramp

Progressive staging of works has been proposed to minimise the extent and duration of exposed surfaces, thereby reducing erosion and sediment mobilisation risk (refer Figure 4).

The purpose of this Project-specific ESCP is to maintain control of overland flows, minimise flow path lengths, and provide recommendations for the use of trapping devices to capture and treat sediment laden water. The highest risk of sediment mobilisation occurs where works are undertaken simultaneously, and upslope catchment flows have the potential to enter active work areas. However, the ESCP will seek to separate catchments where practicable and limit individual catchment areas to less than 2,500 m², thereby minimising the need for sediment basins. As construction progresses and controlled discharge points are established, the overall risk of sediment mobilisation is expected to reduce, allowing a corresponding reduction in the level of control measures required. Where RUSLE values remain below 150 t/ha/year and catchment areas are less than 2,500 m², Type 2 and Type 3 erosion and sediment controls will be implemented until the Site is stabilised.

Where works permit, catchments have considered the diversion of surface flows utilising slope, flow control and clean water diversion. Water that ponds within any excavations or at low points must be diverted to the nominated sediment basin or catchment control for treatment prior to pumping offsite. Where discharge parameters cannot be met, consideration can be made to permit irrigation to land or removed and disposed of via licensed vacuum truck in consultation with the nominated Suitably Qualified Person (SQP). Works are to be undertaken sequentially in a way that minimises the disturbance of existing vegetation and soil where possible. Care must be taken to ensure areas of exposure do not extend into concentrated flow paths without the exposure period being considered < 5 days and upslope clean water catchments being maintained through any active work areas.

Additional erosion and sediment control measures must be implemented, and a revised Erosion and Sediment Control Plan (ESCP) must be submitted for approval in the event that site conditions change significantly from those considered within this ESCP. Disturbance to natural watercourses or vegetated drainage paths (including bed and banks) and their associated riparian zones must be limited to the minimum practicable. Wherever reasonable and practicable, stormwater runoff entering the site from external areas, and non-sediment laden (clean) stormwater runoff entering a work area or area of soil disturbance, must be diverted around or through that area in a manner that minimises soil erosion and the contamination of that water for all discharges up to the specified design storm discharge.

Health and biodiversity issues for aquatic life correlate directly with the management of erosion and sediment loss. Due to the proximity of the Site to Daintree River, works pose a risk to the health and biodiversity of aquatic life by:

- Reduced light infiltration into water column.
- Smothering of sessile biota.
- Water quality and aquatic health issues associated with nutrients and metals attached to settled and suspended clay sized particles, and consequent de-silting operations.
- Economic impacts on community stakeholders reliant upon healthy waterways such as recreational and commercial fisheries, and eco-tourism.
- Social stigma associated with turbid water flows.

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DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 2 OF 18

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EROSION AND SEDIMENT CONTROL PLAN

TIMEFRAME & STAGING

The only way of providing adequate protection to major waterways, such as rivers, estuaries and bays, is to minimise the initial source of soil erosion, particularly raindrop impact erosion, by applying effective erosion control measures across a work site. Thus, the application of effective erosion control measures must always stand as the highest priority. It should also be noted that drainage control measures cannot control soil erosion resulting from raindrop impact erosion, which is one of the primary causes of high turbidity levels within stormwater runoff. Thus, the application of effective drainage control measures also does not negate the need for effective erosion control measures. Therefore, it is important to ensure that effective drainage, erosion and sediment control measures are appropriately integrated into all work sites during all phases of building and construction.

Installation Sequence:

1. Install stabilised site access/exit prior to the commencement of disturbance activities to site compound area. Roads outside the site are to be monitored for sediment and where sediment occurs, sweepers are to be used to collect the sediment and dispose of back on the site. No sediment is to be washed from roads into stormwater flow paths or the Daintree River.
2. Install sheet flow / perimeter controls such as sediment fence / mulch berms
3. Install clean water diversion including catchment (active work area) delineation e.g. diversion bunds/berms or catch drains
4. As existing drainage lines are removed or compromised by cut/fill works, surface water is to be directed to a nominated control prior to discharge.
5. Control types for the treatment of water being concentrated within a drainage line, discharging to a nominated Type 3 or Type 2 control are shown in the extract below.
6. Nominate designated stockpile, dredge spoil and laydown areas, noting stockpile areas are to be kept away from concentrated flow paths.
7. Any unstable areas of the Site where fill areas are loose and pose an erosion risk are to be covered at the completion of works each day and immediately prior to rainfall to provide stability and reduce erosion risk.
8. All design drains
9. All controls are to be constructed in accordance with the IECA standard design drawing.

During the construction period, all reasonable and practicable measures must be implemented to control flow velocities in such a manner than prevents soil erosion along drainage paths and at the entrance and exit of all drains and drainage pipes during all storms up to the relevant design storm discharge. To the maximum degree reasonable and practicable, all waters discharged during the construction phase must discharge onto stable land, in a non-erosive manner, and at a legal point of discharge.

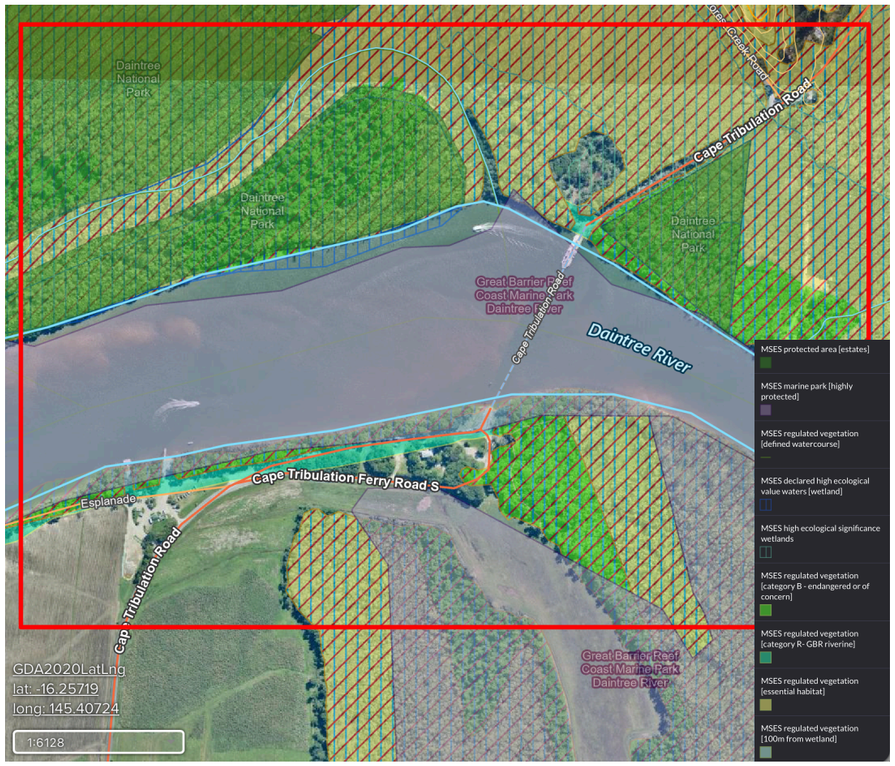


FIGURE 3: MSES for Consideration in ESC Planning (Source: QldGlobe)

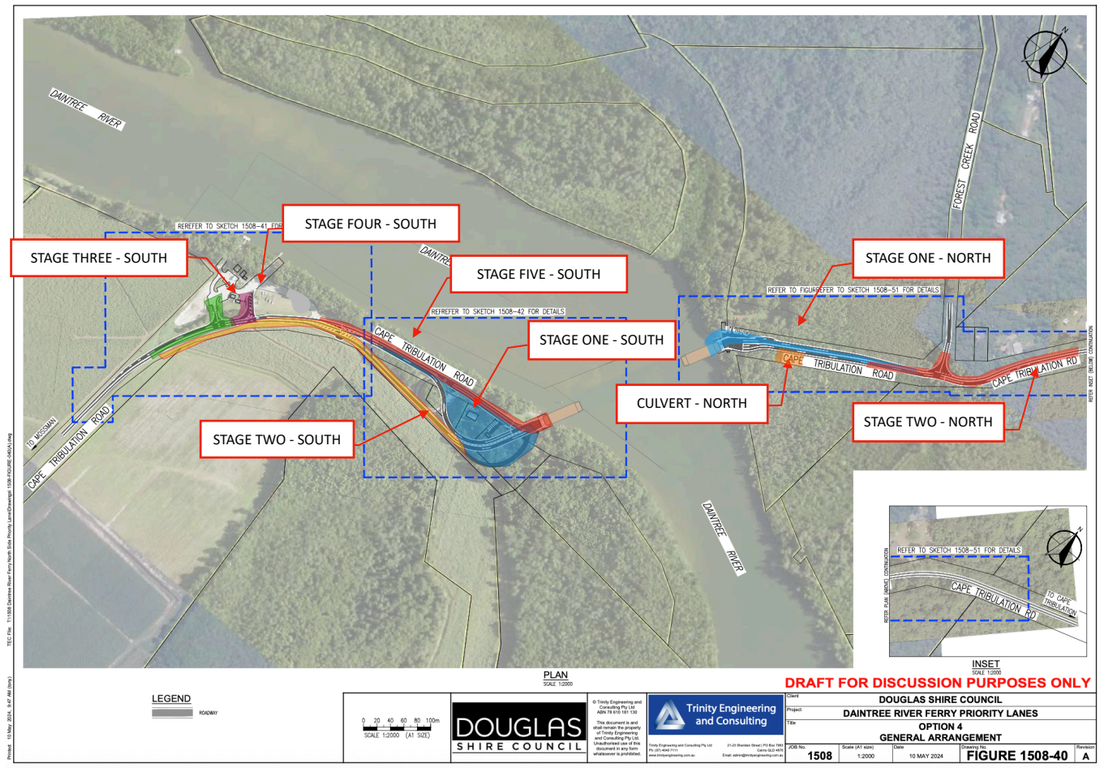


FIGURE 4: Proposed Staging

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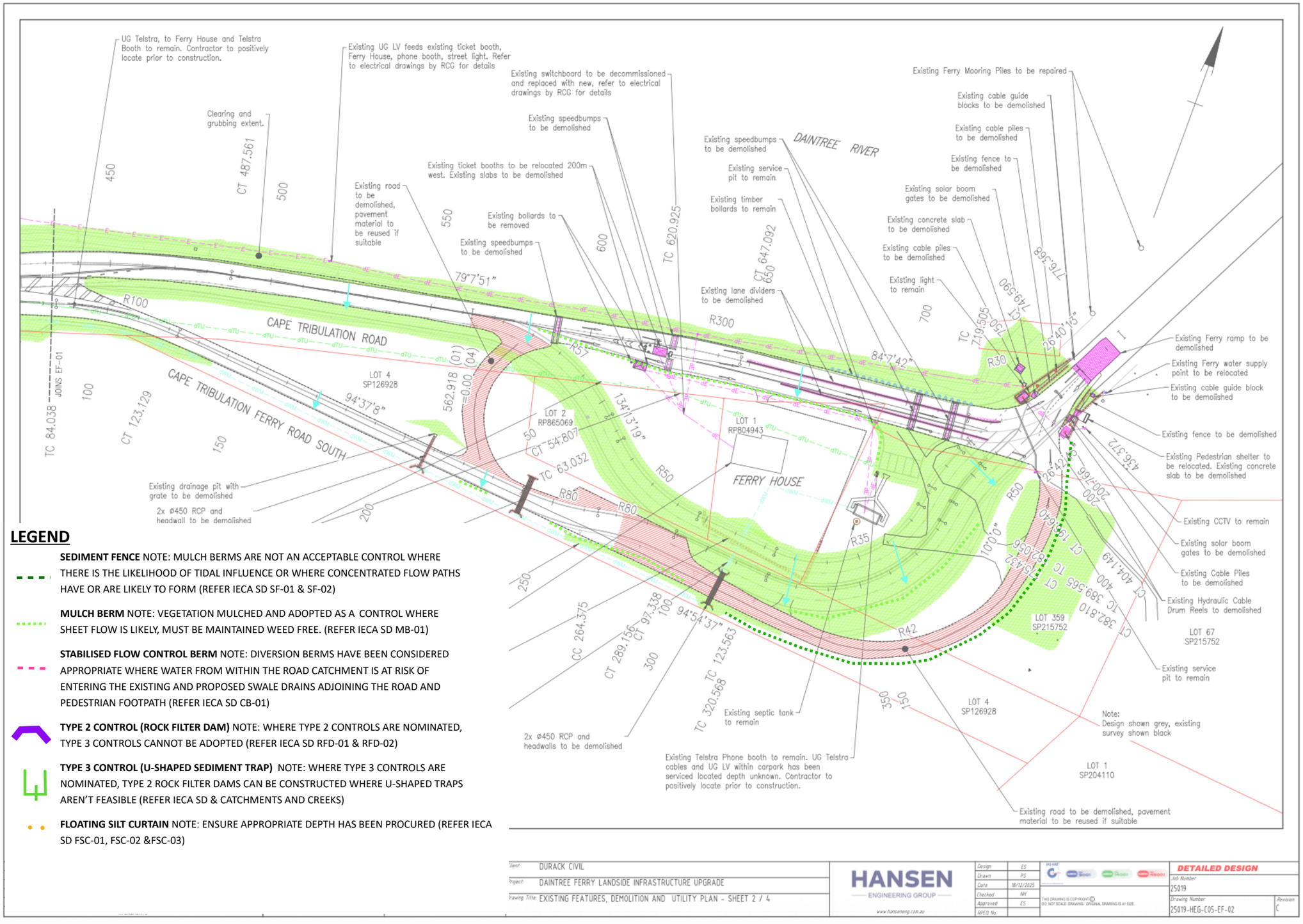
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EROSION AND SEDIMENT CONTROL PLAN

STAGE ONE - SOUTH



LEGEND

SEDIMENT FENCE NOTE: MULCH BERMS ARE NOT AN ACCEPTABLE CONTROL WHERE THERE IS THE LIKELIHOOD OF TIDAL INFLUENCE OR WHERE CONCENTRATED FLOW PATHS HAVE OR ARE LIKELY TO FORM (REFER IECA SD SF-01 & SF-02)

MULCH BERM NOTE: VEGETATION MULCHED AND ADOPTED AS A CONTROL WHERE SHEET FLOW IS LIKELY, MUST BE MAINTAINED WEED FREE. (REFER IECA SD MB-01)

STABILISED FLOW CONTROL BERM NOTE: DIVERSION BERMS HAVE BEEN CONSIDERED APPROPRIATE WHERE WATER FROM WITHIN THE ROAD CATCHMENT IS AT RISK OF ENTERING THE EXISTING AND PROPOSED SWALE DRAINS ADJOINING THE ROAD AND PEDESTRIAN FOOTPATH (REFER IECA SD CB-01)

TYPE 2 CONTROL (ROCK FILTER DAM) NOTE: WHERE TYPE 2 CONTROLS ARE NOMINATED, TYPE 3 CONTROLS CANNOT BE ADOPTED (REFER IECA SD RFD-01 & RFD-02)

TYPE 3 CONTROL (U-SHAPED SEDIMENT TRAP) NOTE: WHERE TYPE 3 CONTROLS ARE NOMINATED, TYPE 2 ROCK FILTER DAMS CAN BE CONSTRUCTED WHERE U-SHAPED TRAPS AREN'T FEASIBLE (REFER IECA SD & CATCHMENTS AND CREEKS)

FLOATING SILT CURTAIN NOTE: ENSURE APPROPRIATE DEPTH HAS BEEN PROCURED (REFER IECA SD FSC-01, FSC-02 &FSC-03)

Client:	DURACK CIVIL				
Project:	DAINTREE FERRY LANDSIDE INFRASTRUCTURE UPGRADE	HANSEN ENGINEERING GROUP www.hansenengr.com.au	Design ES Drawn PS Date 18/12/2025 Checked NH Approved ES RPEQ No.	THIS DRAWING IS COPYRIGHT © DO NOT SCALE DRAWING. ORIGINAL DRAWING IS AT SIZE.	DETAILED DESIGN Job Number 25019 Drawing Number 25019-HEG-C05-EF-02 Revision C
Drawing Title:	EXISTING FEATURES, DEMOLITION AND UTILITY PLAN - SHEET 2 / 4				

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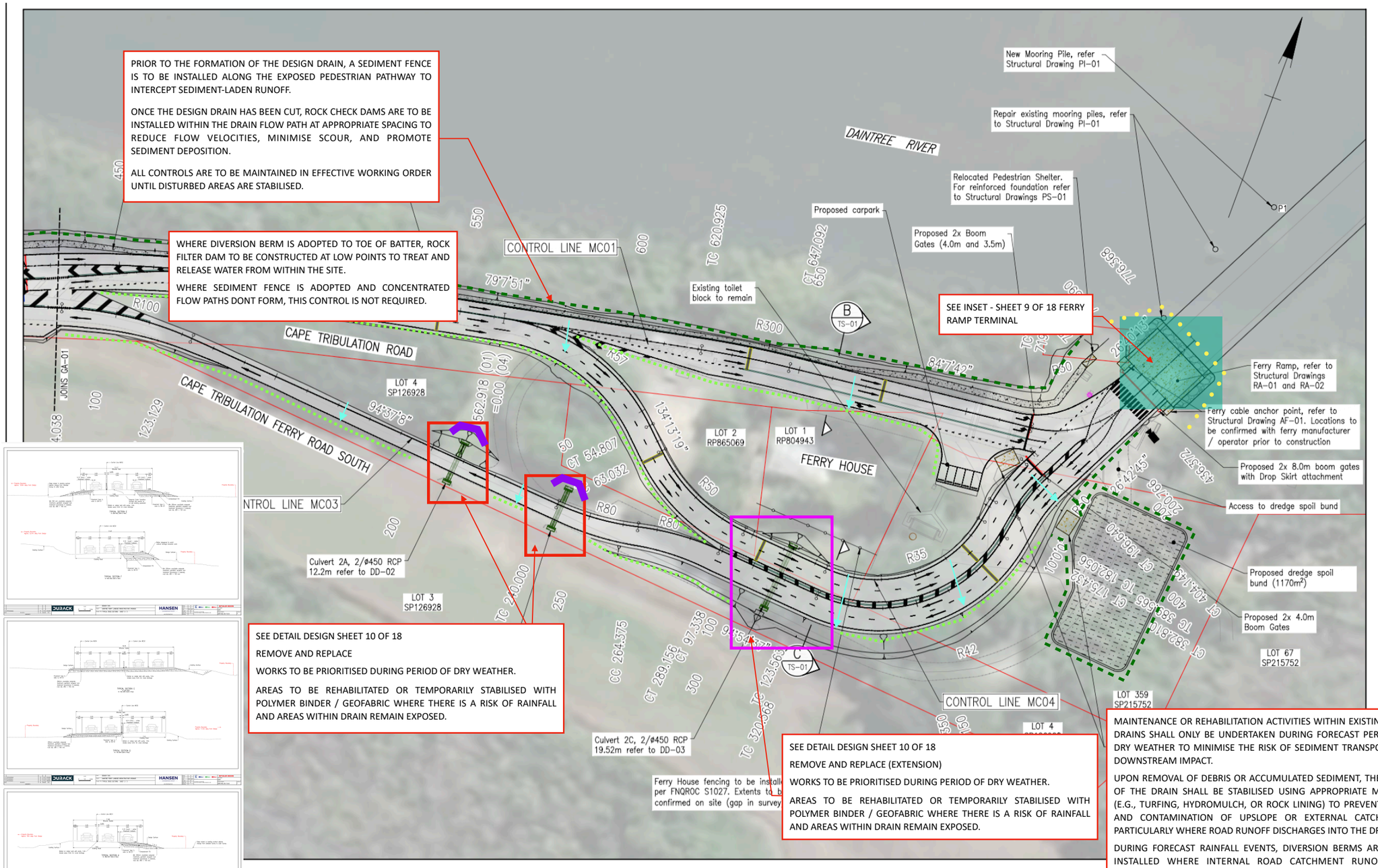
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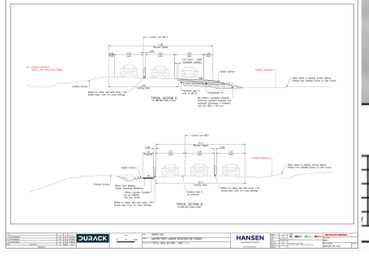
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EROSION AND SEDIMENT CONTROL PLAN

STAGE ONE, TWO & FIVE - SOUTH





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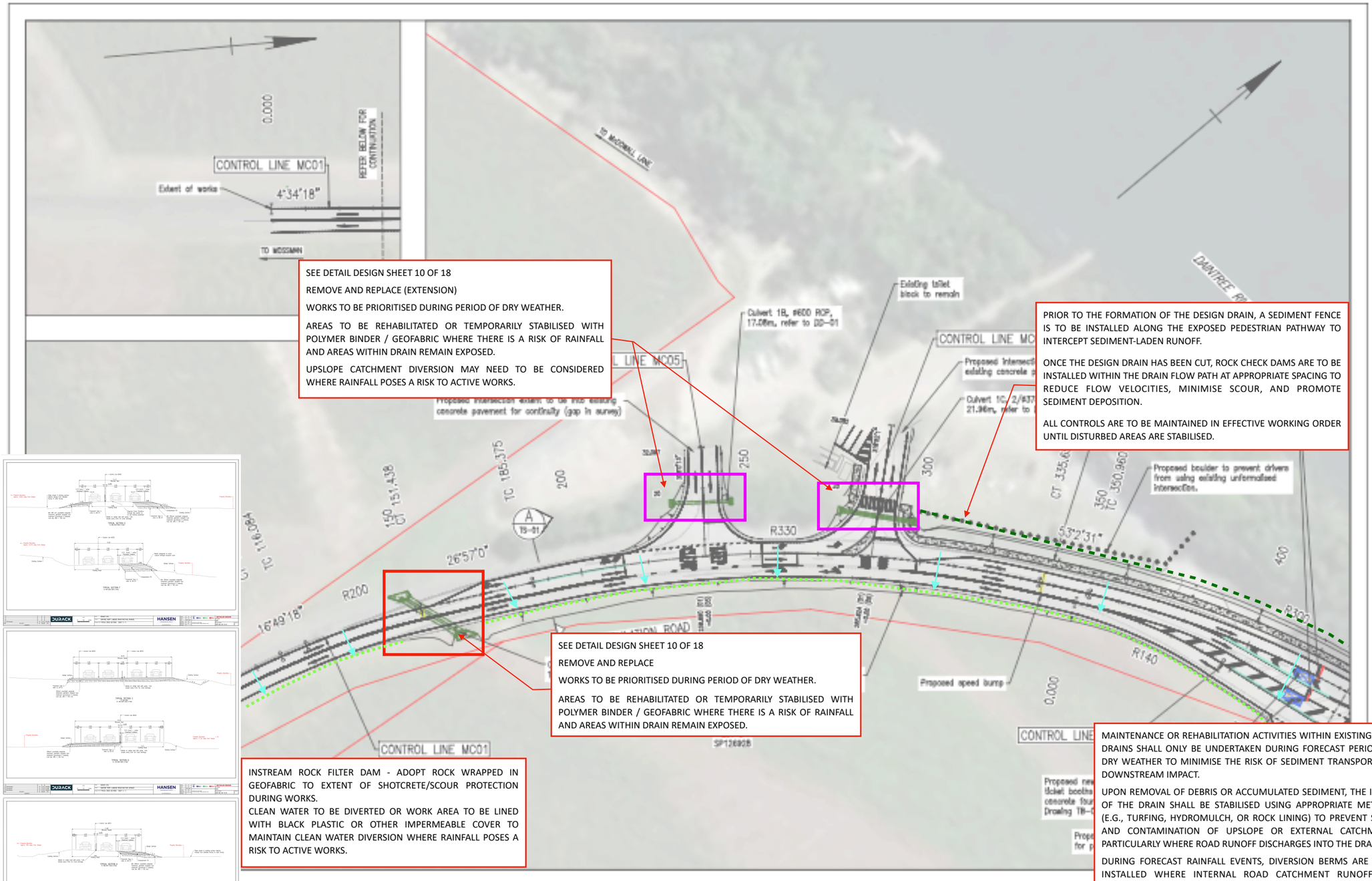
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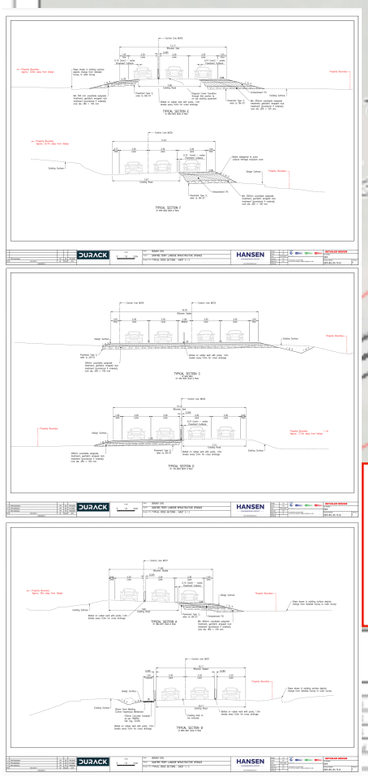
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EROSION AND SEDIMENT CONTROL PLAN

STAGE THREE & FOUR - SOUTH





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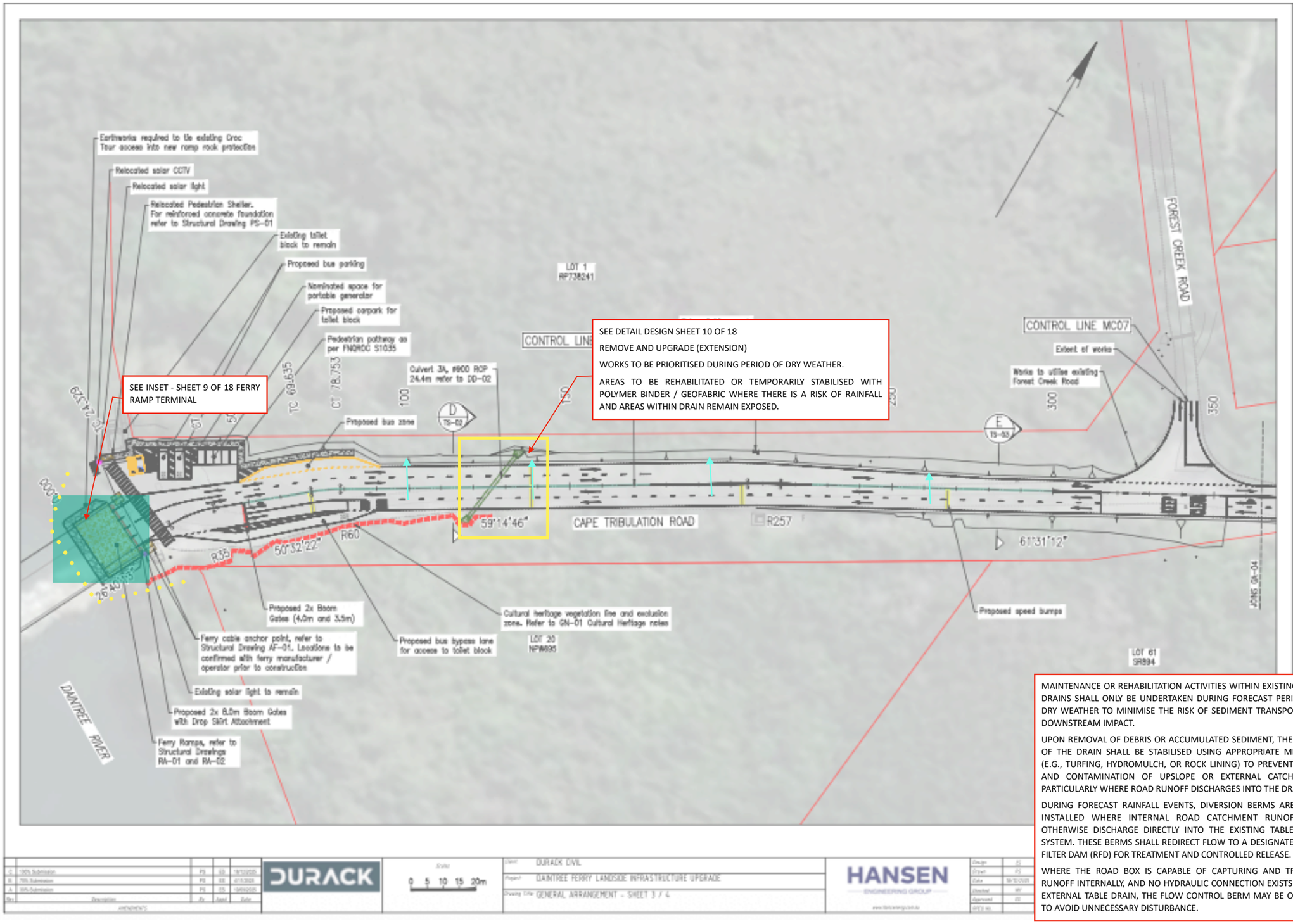
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EROSION AND SEDIMENT CONTROL PLAN

COMBINED STAGES - NORTH



MAINTENANCE OR REHABILITATION ACTIVITIES WITHIN EXISTING TABLE DRAINS SHALL ONLY BE UNDERTAKEN DURING FORECAST PERIODS OF DRY WEATHER TO MINIMISE THE RISK OF SEDIMENT TRANSPORT AND DOWNSTREAM IMPACT.

UPON REMOVAL OF DEBRIS OR ACCUMULATED SEDIMENT, THE INVERT OF THE DRAIN SHALL BE STABILISED USING APPROPRIATE METHODS (E.G., TURFING, HYDROMULCH, OR ROCK LINING) TO PREVENT SCOUR AND CONTAMINATION OF UPSLOPE OR EXTERNAL CATCHMENTS, PARTICULARLY WHERE ROAD RUNOFF DISCHARGES INTO THE DRAIN.

DURING FORECAST RAINFALL EVENTS, DIVERSION BERMS ARE TO BE INSTALLED WHERE INTERNAL ROAD CATCHMENT RUNOFF MAY OTHERWISE DISCHARGE DIRECTLY INTO THE EXISTING TABLE DRAIN SYSTEM. THESE BERMS SHALL REDIRECT FLOW TO A DESIGNATED ROCK FILTER DAM (RFD) FOR TREATMENT AND CONTROLLED RELEASE.

WHERE THE ROAD BOX IS CAPABLE OF CAPTURING AND TREATING RUNOFF INTERNALLY, AND NO HYDRAULIC CONNECTION EXISTS TO THE EXTERNAL TABLE DRAIN, THE FLOW CONTROL BERM MAY BE OMITTED TO AVOID UNNECESSARY DISTURBANCE.

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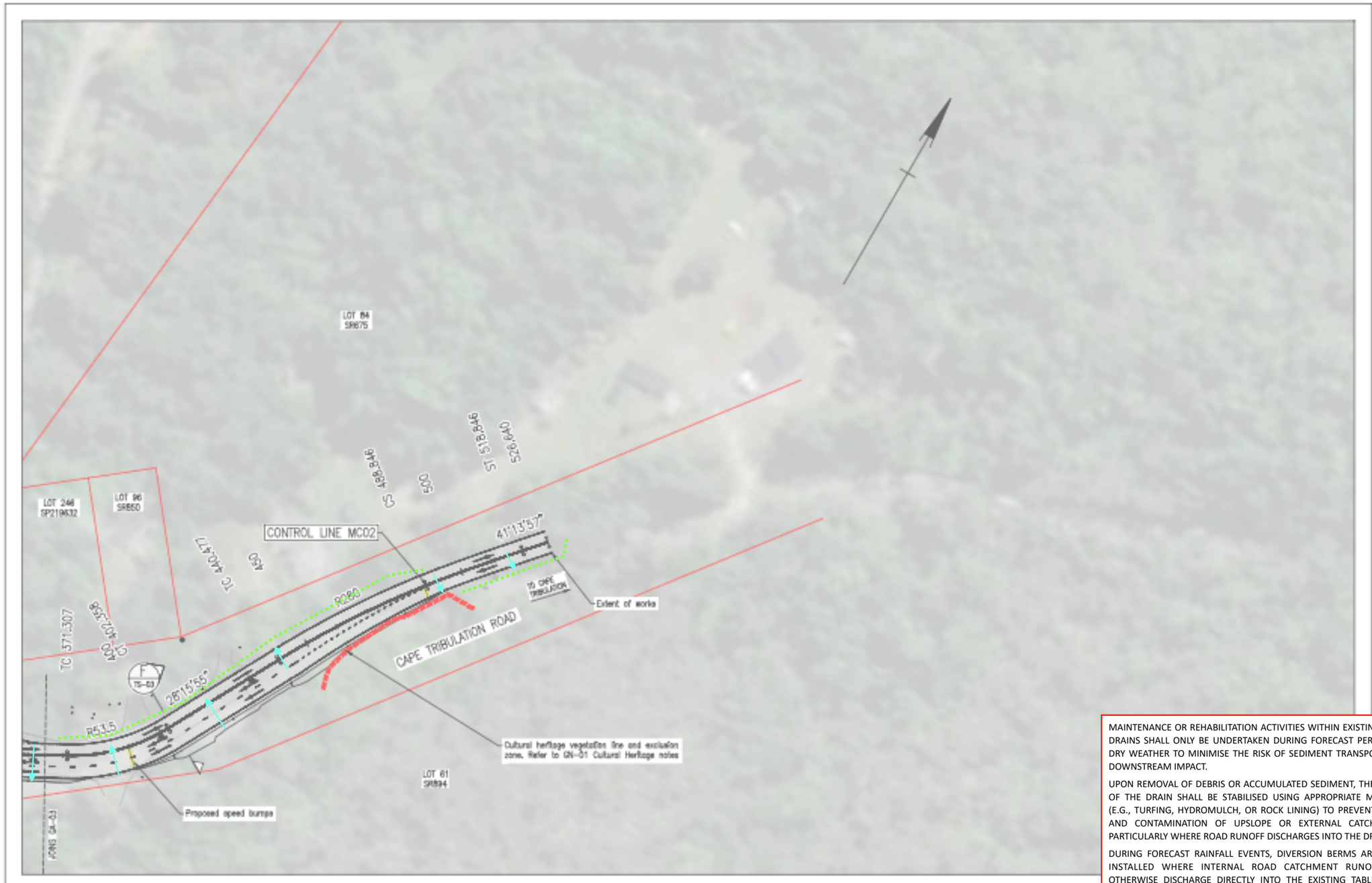
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DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
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EROSION AND SEDIMENT CONTROL PLAN

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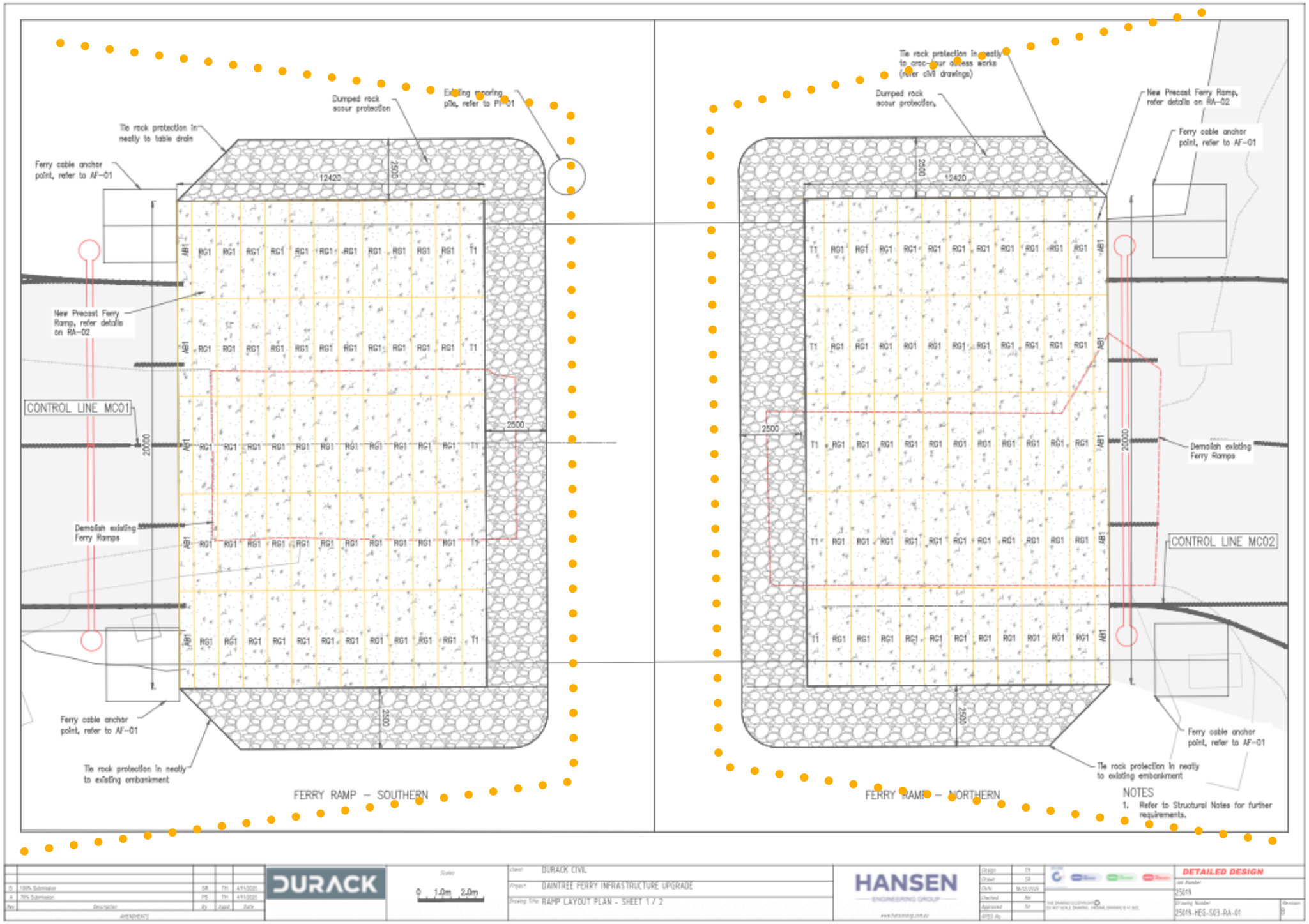
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EROSION AND SEDIMENT CONTROL PLAN

FERRY RAMP TERMINAL - NORTH & SOUTH



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EROSION AND SEDIMENT CONTROL PLAN

CULVERT NOTES

Information has been extracted from Catchments and Creeks Fact Sheet - Bridge and Culvert Construction. Further information can be found here https://catchmentsandcreeks.com.au/docs/BC-1.pdf

Table 10 – Issues relating to vehicular access across the stream during construction

Condition	Comments
No traffic	• No additional requirements.
Traffic via temporary side road	• Fish passage requirements may need to apply to the side road crossing.
Traffic via adjacent dual-carriage roadway	• Possible use of the land between the two roads as a sediment trap/basin.
Traffic needs to be maintained on the road being built	• Construction of culvert must be staged.

Expansion of an existing culvert:

Figures 5 to 8 provide an example of the staged expansion of an existing culvert while maintaining public access across the waterway.

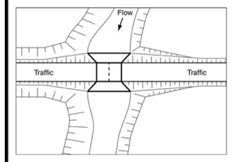


Figure 5 – Existing culvert

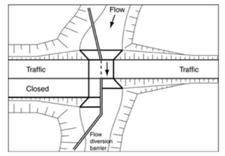


Figure 6 – Stage 1: Partial construction of culvert

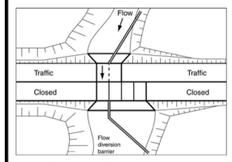


Figure 7 – Stage 2: Partial construction of culvert

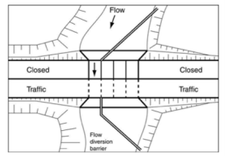


Figure 8 – Stage 3: Relocate traffic and final culvert construction

Figures 9 to 13 provide an example of the staged construction of a new culvert while providing public access across the waterway.

Figures 14 to 18 provide an example of the staged construction of a new culvert while providing public access across the waterway and achieving sediment retention within the bounds of the road reserve.

Table 4 – Best practice channel clearing and stabilisation requirements

Risk [1]	Best practice requirements
All cases	• All reasonable and practicable steps taken to apply best practice erosion control measures to completed channel works, or otherwise stabilise such works, prior to an anticipated increase in stream flow that will inundate such areas.
Very low	• Channel clearing limited to maximum 8 weeks of programmed work. • Disturbed soil surfaces stabilised with minimum 70% cover [2] within 30 days of completion of works within any constructed drainage channel or waterway. • Non-completed works stabilised if exposed, or expected to be exposed, for a period exceeding 30 days.
Low	• Channel clearing limited to maximum 6 weeks of programmed work. • Disturbed soil surfaces stabilised with minimum 70% cover [2] within 30 days of completion of works within any constructed drainage channel or waterway. • Non-completed channel works stabilised if exposed, or expected to be exposed, for a period exceeding 30 days.
Moderate	• Channel clearing limited to maximum 4 weeks of programmed work. • Disturbed soil surfaces stabilised with minimum 80% cover [2] within 10 days of completion of works within any constructed drainage channel or waterway. • Appropriate consideration given to the use of rock protection, biodegradable *Erosion Control Mesh* or the equivalent, on all erodible stream banks subject to high velocity flows. • Non-completed channel works stabilised if exposed, or expected to be exposed, for a period exceeding 20 days.
High	• Channel clearing limited to maximum 2 weeks of programmed work. • Disturbed soil surfaces stabilised with minimum 90% cover [2] within 5 days of completion of works within any constructed drainage channel or waterway. • Appropriate consideration given to the use of rock protection, biodegradable *Erosion Control Mesh* or the equivalent, on all erodible stream banks subject to high velocity flows. • Non-completed channel works stabilised if exposed, or expected to be exposed, for a period exceeding 10 days.
Extreme	• Channel clearing limited to maximum 1 week of programmed work. • Disturbed soil surfaces stabilised with minimum 90% cover [2] within 5 days of completion of works within any area of a work site. • Appropriate consideration given to the use of rock protection, biodegradable *Erosion Control Mesh* or the equivalent, on all erodible stream banks subject to high velocity flows. • Non-completed channel works stabilised if exposed, or expected to be exposed, for a period exceeding 5 days.

[1] Erosion risk based on channel flow conditions (Table 3), or as directed by the relevant regulatory authority.

[2] Minimum cover requirement may be reduced if the natural cover of the immediate land is less than the nominated value, for example in arid and semi-arid areas.

Tables 5 to 8 outline some of the construction issues relating to property flooding, fish passage, type of crossing structure, and the degree and clarity of base flows.

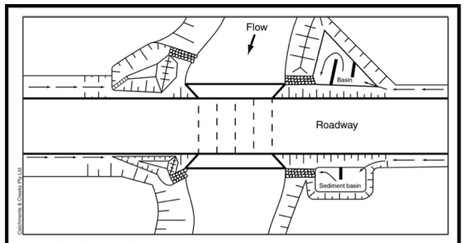


Figure 19 – Example of major sediment traps constructed at the four corners of the road and stream junction

Due to a combination tyre wear, brake dust, oils and metal fibres, stormwater runoff from roads potentially represents one of the most polluted forms of stormwater. Bridge crossings can generate above average concentrations of oils as vehicles bounce over expansion joints. To help control these pollutants, it is common for construction phase sediment basins to be retained as permanent stormwater treatment ponds as shown in Photos 13 and 14.



Photo 11 – Excavated sediment trap associated with culvert construction



Photo 12 – Bridge construction showing one of four rock filter dam sediment traps



Figure 13 – Sediment basin adjacent a new culvert crossing



Photo 14 – Construction sediment basins retained as permanent stormwater treatment ponds

ESC NOTE:

BATTERS AND SWALE DRAINS

THE EXISTING SWALE DRAIN MUST REMAIN FUNCTIONAL AND STABILISED (E.G. GRASS COVER, JUTE MESH, OR ROCK LINING) TO ENSURE CLEAN WATER DIVERSION IS MAINTAINED. ANY DISTURBANCE TO THE SWALE SHOULD BE REINSTATED IMMEDIATELY WITH TEMPORARY OR PERMANENT STABILISATION TO PREVENT SEDIMENT-LADEN WATER FROM ENTERING CLEAN WATER SYSTEMS.

WHERE BATTERS AND SWALE DRAINS ARE RE-PROFILED TO ACCOMMODATE NEW STORMWATER INFRASTRUCTURE:

- STABILISATION SHALL BE IMPLEMENTED PROGRESSIVELY AND AS SOON AS PRACTICABLE FOLLOWING RESHAPING WORKS
- APPLY TEMPORARY STABILISATION (E.G., HYDROMULCH, JUTE/COIR MATTING, GEOFABRIC, OR ROCK PROTECTION) IMMEDIATELY FOLLOWING COMPLETION OF EARTHWORKS, OR PRIOR TO FORECAST RAINFALL, TO MINIMISE EROSION POTENTIAL.
- WHERE RE-PROFILING COINCIDES WITH CULVERT OR OUTLET CONSTRUCTION, INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS(E.G., CHECK STRUCTURES, FLOW DISSIPATION, OR ROCK ENERGY DISSIPATERS) TO MANAGE CONCENTRATED FLOWS AND PREVENT SCOUR.
- ALL DISTURBED SURFACES ARE TO BE PROTECTED WITHIN 14 DAYS OF EXPOSURE, OR SOONER IF RAINFALL IS FORECAST, CONSISTENT WITH IECA TIMING REQUIREMENTS.
- WHERE SURFACE FLOW CANNOT BE TEMPORARILY DIVERTED, ENSURE FLOW VELOCITIES REMAIN BELOW ALLOWABLE LIMITS FOR THE ADOPTED TEMPORARY LINING MATERIAL (REFER IECA TABLE 6.2).
- INSPECT AND MAINTAIN TEMPORARY STABILISATION AND CONTROL STRUCTURES AFTER RAINFALL AND REPLACE OR REPAIR DAMAGED MATERIALS IMMEDIATELY.
- REMOVE TEMPORARY MEASURES ONLY AFTER PERMANENT STABILISATION (≥80% VEGETATION COVER OR PERMANENT SURFACE) IS ESTABLISHED AND VERIFIED BY THE SUPERVISING ENVIRONMENTAL OFFICER OR SQP.

IN-STREAM WORKS AND CULVERT REPLACEMENT

ALL IN-STREAM WORKS, INCLUDING CULVERT REPLACEMENT AND DRAINAGE STRUCTURE INSTALLATION, MUST BE CONDUCTED IN A MANNER THAT MINIMISES DISTURBANCE TO THE WATERWAY, PREVENTS SEDIMENT RELEASE, AND MAINTAINS DOWNSTREAM WATER QUALITY.

REQUIREMENTS:

- SCHEDULE WORKS DURING DRY CONDITIONS AND OUTSIDE FORECAST RAINFALL WHEREVER PRACTICAL.
- PRIORITISE PERMANENT ROCK PLACEMENT AND SCOUR PROTECTION TO REDUCE AREAS OF EXPOSURE
- ISOLATE THE ACTIVE WORK AREA FROM FLOWING WATER USING APPROVED DIVERSION BUNDS, COFFERDAMS, SANDBAGS, OR BYPASS PIPES AS DETAILED IN THE DESIGN OR CONSTRUCTION METHODOLOGY.
- MAINTAIN CLEAN WATER FLOW AROUND THE WORK AREA AT ALL TIMES; WATER MUST NOT BE DIVERTED THROUGH DISTURBED OR EXCAVATED ZONES.
- TREAT ANY WATER WITHIN THE WORK ZONE PRIOR TO DEWATERING OR DISCHARGE USING SEDIMENT FILTRATION, FLOCCULANT DOSING, OR BATCH TREATMENT CONSISTENT WITH IECA BEST PRACTICE (2018)
- INSTALL SEDIMENT FENCING, ROCK FILTER DAMS, AND TEMPORARY GEOFABRIC LININGS TO CONTAIN TURBID RUNOFF AND STABILISE EXPOSED BANKS.
- REINSTATE DISTURBED AREAS IMMEDIATELY FOLLOWING COMPLETION, USING COIR/JUTE MATTING, ROCK PROTECTION, POLYMER OR HYDROMULCH (NOT CONCENTRATED FLOW PATHS) AS APPROPRIATE.
- INSPECT AND MAINTAIN ALL CONTROLS DAILY AND AFTER RAINFALL EVENTS UNTIL PERMANENT STABILISATION IS ACHIEVED (≥80 % VEGETATIVE COVER OR SEALED SURFACE).
- REMOVE TEMPORARY ISOLATION AND CONTROLS ONLY AFTER APPROVAL FROM THE ENVIRONMENTAL REPRESENTATIVE OR SQP, AND ONCE WATER QUALITY MEETS RELEASE STANDARDS.

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EROSION AND SEDIMENT CONTROL PLAN

EROSION RISK CALCULATIONS

ALL CATCHMENTS TO BE MAINTAINED AT < 2,500M²

TABLE 1.EROSION RISK RATING & MANAGEMENT

Erosion risk rating[1]	Expected 24 hour rainfall	Average monthly erosivity (R-factor)	For controls to be progressively removed % Stabilisation to occur within x (days)	Temporary stabilisation of areas where the exposure period exceeds (days)
Very Low	0 to 2 mm	0 to 60	60% within 30 days	30 days
Low	2 to 10 mm	60 to 100	70% within 30 days	30 days
Moderate	10 to 25 mm	100 to 285	70% within 20 days	20 days
High	25 to 100 mm	285 to 1500	75% within 10 days	10 days
Extreme	>100 mm	> 1500	80% within 5 days	5 days

[1] Erosion risk rating based on worst case expected rainfall within 24-hour period or average monthly rainfall (Extracted from IECA BPESC Table G2 and G3). All cases require the application of reasonable and practicable step to apply best practice erosion and sediment control measures to completed earthworks, or otherwise stabilise such works, prior to anticipated rainfall - including existing unstable, undisturbed soil surfaces under the management of control of the building / construction works. All temporary earth banks, flow diversion systems, and sediment basin embankments must be machine-compacted, seeded and mulched within ten (10) days of formation for the purpose of establishing a vegetative cover, unless otherwise stated within an approved Vegetation Management Plan.

TABLE 2. EXTRACT IECA BPESC GUIDELINE APPENDIX B TABLE B1

Table B1 – Sediment control standard (default) based on soil loss rate

Catchment Area (m^2) [1]	Soil loss (t/ha/yr) [2]			Soil loss (t/ha/month) [3]		
	Type 1	Type 2	Type 3	Type 1	Type 2	Type 3
250	N/A	N/A	[4]	N/A	N/A	[4]
1000	N/A	N/A	All cases	N/A	N/A	All cases
2500	N/A	> 75	75	N/A	> 6.25	6.25
>2500	> 150	150	75	> 12.5	12.5	6.25
> 10,000	> 75	N/A	75	> 6.25	N/A	6.25

Notes:

[1] Area is defined by the catchment area draining to a given site discharge. Sub-dividing a given drainage catchment shall not reduce its 'effective area' if runoff from these sub-areas ultimately discharges from the site at the same general location. The 'area' does not include any 'clean' water catchment that bypasses the sediment trap. The catchment area shall be defined by the 'worst case' scenario, i.e. the largest effective area that exists at any instance during the soil disturbance.

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DURACK

CLIENT: DURACK CIVIL PTY LTD
DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 11 OF 18

THIS SWMP HAS BEEN CERTIFIED BY SARAH HOBSON, CPESC NO. 11425 AND RSP-ESC NO. 2619 TO SATISFY THE INTENT AND MINIMUM STANDARDS NOMINATED WITHIN THE IECA (2008) BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINE & MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION BLUE BOOK

LOCATIONS ARE INDICATIVE AND ARE TO BE ADOPTED WITH SPECIFIC REFERENCE TO THE SPECIFICATIONS WITHIN THIS PLAN AND IN CONSULTATION WITH ENGINEERS ONSITE. THIS PLAN HAS RELIED ON THIRD PARTY INFORMATION AND THEREFORE THE EXACT LOCATIONS OF PROJECT BOUNDARIES, STORMWATER AND ROAD DESIGN MAY VARY SLIGHTLY. ALL CONTROLS ARE TO BE INSTALLED WITHIN THE PROJECT BOUNDARIES AND WHERE POSSIBLE WITH MINIMAL IMPACT TO VEGETATION OUTSIDE THE CLEARING FOOTPRINT.

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EROSION AND SEDIMENT CONTROL PLAN

ROLES AND RESPONSIBILITIES

TABLE 3. PROJECT ROLES AND RESPONSIBILITIES

ROLE	RESPONSIBILITIES
Project Manager	1. Overall responsibility for the environment and the impacts construction has on the environment. 2. Responsible for implementation of and accountable for the requirements listed within site specific SWMP. 3. Shall notify the Managing Contractor if appointed and the relevant State / Commonwealth agency of any environmental harm or potential environmental harm. 4. Manage program activities and staging in consultation with their Supervisor to control potential damage to the environment
Site Supervisor	1. Ensure provision of dust suppression and water sprays is provided 2. inspect works at regular intervals to identify areas of dust generation 3. Shall ensure infield compliance. 4. Manage sub-contractors and the timely completion of corrective actions for non-compliance. 5. Notify the Project Manager and Environmental Representative of any environmental harm or potential environmental harm. 6. The Supervisor, designated by the Project Manager, shall be responsible for the implementation of and the maintenance of erosion and sediment controls. 7. Conduct daily site inspections, documented within site diary to ensure ESC's are operational and being actively maintained. 8. Monitor daily rainfall risk and identify the need for interim stabilisation measures to be applied prior to imminent rainfall. 9. Notify Environmental Representative where rainfall is likely to exceed control capacity and if uncontrolled discharges from Site occur. 10. In consultation with the Environmental Representative test, treat, re-test and discharge captured run-off as per operational guidelines and adopted water quality objectives.
Project Engineer in consultation with Environmental Representative / CPESC	1. Maintain records of monitoring results, inspections, audits and submit to Subcontractors HSEQ Advisor in consultation with the Principal Contractor (where requested). 2. Under the direction of the Principal Contractor, organise and manage subcontractors (if required) for the monitoring and management of air borne emissions (dust) and waterway pollutants. 3. Provide advice, as required regarding ESC implementation and review. 4. Review SWMP and update accordingly, including as stabilisation is achieved and the reduction in control types may be determined 5. Collect and submit laboratory analysis as required.
Site Construction Workers	1. During construction, all subcontractors and employees will be responsible for carrying out actions as directed to ensure compliance with the SWMP. 2. Notify the Supervisor of any observed areas of erosion risk and / or maintenance requirements post rainfall event or changes in active work areas.
All personnel	1. In accordance with the EP Act 1994 all personnel have a Duty to Notify. Any damage to ESC devices and any potential of actual environmental harm is to be raised with the Supervisor.

INSPECTIONS, MONITORING AND REPORTING

Weekly inspection of erosion and sediment controls shall be undertaken as part of the strategies adopted to mange erosion risk during works with a risk of impacts to water quality. Pre-rainfall inspections are to be conducted at a minimum within 48-hours of an anticipated rainfall event. Similarly a post-rainfall inspection shall be conducted immediately following rainfall (where safe access permits) or where rainfall has triggered runoff from the Project site. The Contractor must undertake the installation, inspection, repair, and maintenance of all environmental control measures required by the SWMP.

The Contractor must inspect all environmental control measures at least:

A. once each week;

B. immediately after any major rainfall event; and

C. as otherwise directed by the Superintendent.

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DURACK

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SITE: DM00726
MOUNTAIN TOP ROAD, GEORGICA NSW
PROJECT: FLOOD RESTORATION PORTFOLIO (LISMORE)
TITLE: SOIL & WATER MANAGEMENT PLAN
SCALE: NTS
DATE: 29 JANUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1534
DRAWING REF. RSE-1534 DM00726 SWMP
REVISION: 0
SHEET: 12 OF 18

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EROSION AND SEDIMENT CONTROL PLAN

INSPECTION AND TEST PLANS (ITPS)

INSPECTIONS, MONITORING AND REPORTING

An Inspection and Test Plan (ITP) will be implemented for erosion and sediment controls in accordance with the Blue Book, including inspection of site preparation, stabilisation measures (mulching, matting, turfing, drains), maintenance, and corrective actions.

Activity / Control	Inspection / Test	Frequency	Acceptance Criteria	Responsible Person	Records / Sign-off
Site establishment	Check diversion drains, entry/exit controls, stockpile protection	Prior to earthworks	Installed as per ESCP drawings	Site Supervisor / Environmental Representative	Pre-start checklist
Stabilised site access	Check aggregate condition, shaker grids, sediment tracking	Weekly	No visible sediment tracking to road	Site Supervisor / Environmental Representative	Daily log
Diversion berm – installation	Verify location matches ESCP plans; check crest height and continuity; confirm tie-ins to high ground/outlets	Prior to earthworks and after installation	Installed per drawings; crest height ≥ design + freeboard; no low points; positive drainage to approved outlet	Site Supervisor / Environmental Representative	Pre-start checklist, photos
Diversion berm – spacing & capacity	Measure spacing intervals; confirm downstream energy dissipation; check capacity against design (visual)	Weekly & after ≥10 mm rain	Spacing per design; outlets stable; no overtopping evidence; check dams/level spreaders installed where specified	Site Supervisor / Environmental Representative	Inspection report
Diversion berm – erosion & stability	Inspect for rilling, scouring on upstream/downstream faces; check linings (mulch, turf, geofabric) intact	Weekly & after ≥10 mm rain	No active erosion; lining intact; batter slopes stable; repair within 24–48 hrs. if defects identified	Site Supervisor / Environmental Representative	Maintenance log, photos
Diversion berm – sediment & debris	Check for sediment build-up blocking flow path or outlets; remove debris from inlets/turnouts	Weekly & after ≥10 mm rain	<25% of flow depth obstructed; inlets/outlets clear; sediment removed and disposed per ESCP	Site Supervisor / Environmental Representative	Maintenance log
Diversion berm – tie-in & spill points	Confirm tie-ins at edges and around structures; check designated spill locations are armoured and functional	Weekly & after ≥10 mm rain	No bypassing around ends; spill points protected (rock, turf, mat); no undercutting	Site Supervisor / Environmental Representative	Inspection report, photos
Silt fences	Inspect alignment, keying-in, sediment accumulation	Weekly & after ≥10 mm rain	Fences upright, keyed 200 mm, <50% sediment capacity	Site Supervisor / Environmental Representative	Inspection report
Rock Sediment Basin	Verify freeboard, emergency spillway, cleanout markers	Weekly & after ≥10 mm rain	Basin volume maintained, no overtopping	Site Supervisor / Environmental Representative	Basin log, photos
Dust controls	Check watering, polymer sprays, stockpile cover	Daily during dry weather	No visible dust leaving site	Site Supervisor / Environmental Representative	Site diary
Water quality	Turbidity/NTU monitoring at discharge	During discharge & after rain	<50 NTU (or baseline +10%)	Site Supervisor / Environmental Representative	Lab certificate / field log

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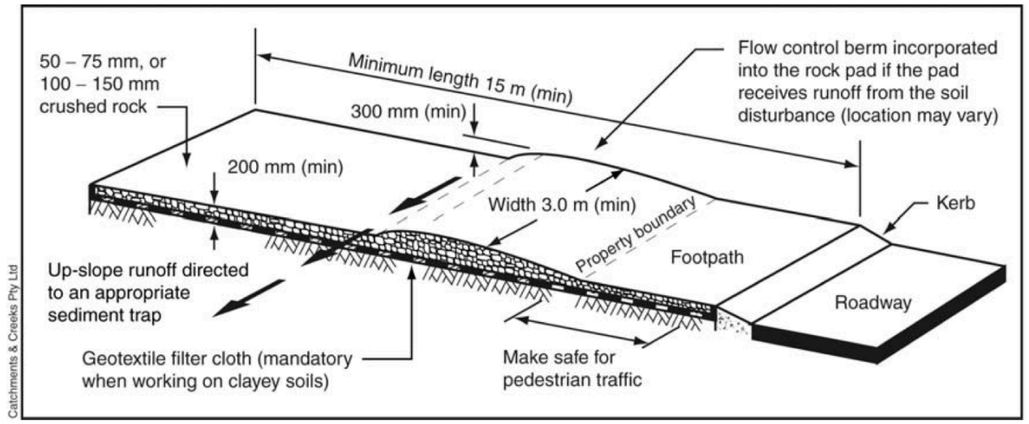
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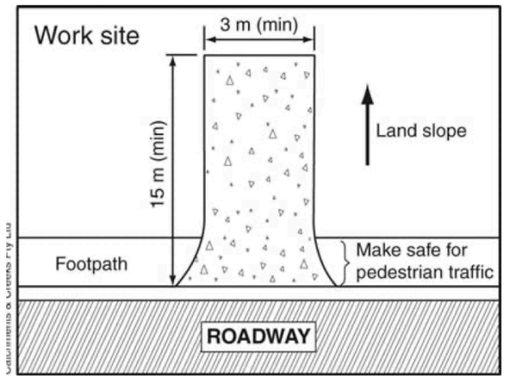
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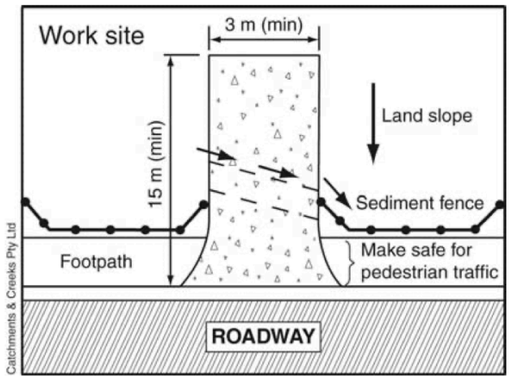
CLIENT: DURACK CIVIL PTY LTD
DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 13 OF 18

THIS SWMP HAS BEEN CERTIFIED BY SARAH HOBSON, CPESC NO. 11425 AND RSP-ESC NO. 2619 TO SATISFY THE INTENT AND MINIMUM STANDARDS NOMINATED WITHIN THE IECA (2008) BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINE & MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION BLUE BOOK

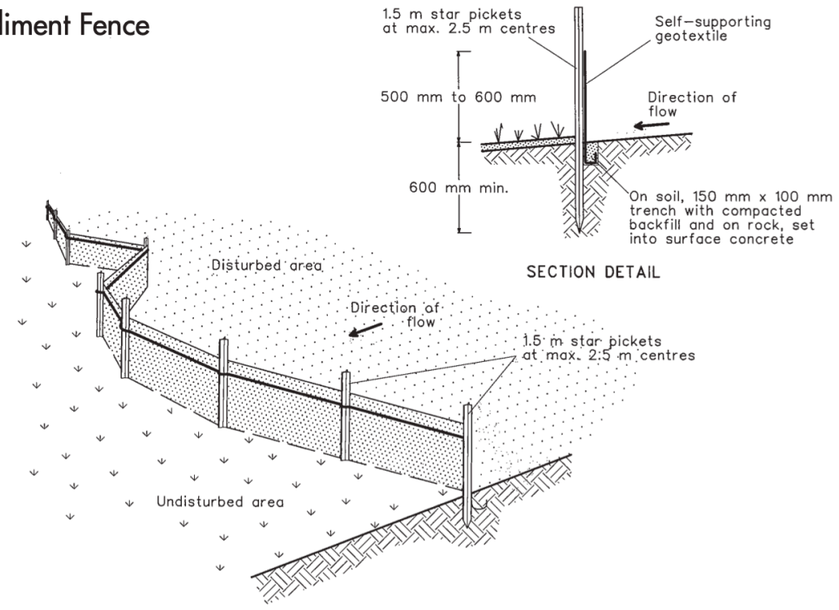
STANDARD DESIGN EXAMPLE DRAWINGS



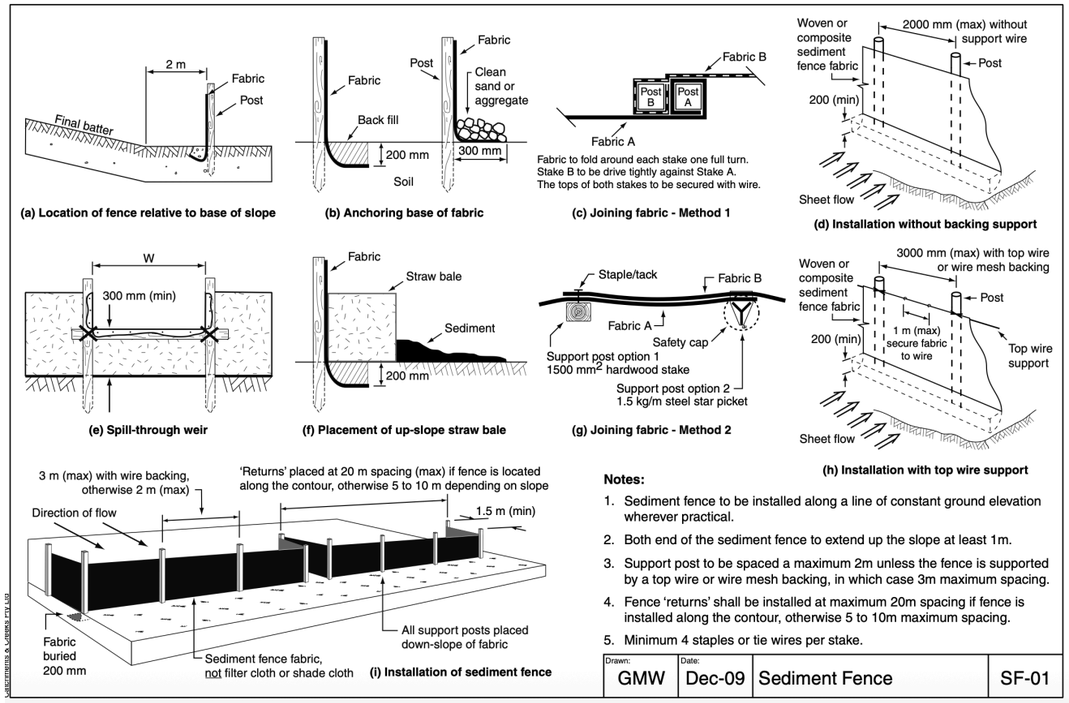




Sediment Fence



60



Notes:

1. Sediment fence to be installed along a line of constant ground elevation wherever practical.
2. Both end of the sediment fence to extend up the slope at least 1m.
3. Support post to be spaced a maximum 2m unless the fence is supported by a top wire or wire mesh backing, in which case 3m maximum spacing.
4. Fence 'returns' shall be installed at maximum 20m spacing if fence is installed along the contour, otherwise 5 to 10m maximum spacing.
5. Minimum 4 staples or tie wires per stake.

Drawn:	Date:		
GMW	Dec-09	Sediment Fence	SF-01

MATERIALS

FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

FABRIC REINFORCEMENT: WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

SUPPORT POSTS/STAKES: 1500mm² (MIN) HARDWOOD, 2500mm² (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:
(i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;
(ii) ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
(iii) AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.

3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDING ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:
(i) V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
(ii) SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.

5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.

6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.

7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.

8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.

9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH. ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.

10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:
(i) ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH THE TWO STAKES TIED TOGETHER WITH WIRE; OR
(ii) OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.

11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.

12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.

13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THOUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.

14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.

2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.

3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/ STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.

4. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

MAINTENANCE

1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. REPLACE THE FABRIC IF THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6-MONTHS.

REMOVAL

1. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:	Date:		
GMW	Apr-10	Sediment Fence	SF-02

UNLESS OTHERWISE NOTED WITHIN THIS PLAN OR SPECIFIED BY THE REGULATORY AUTHORITY, THE DESIGN STORM FOR SEDIMENT TRAPS NOMINATED BELOW MUST BE TAKEN AS 0.5 TIMES THE 1 IN 1 YEAR ARI PEAK DISCHARGE. WHERE CONTROLS CANNOT BE ADOPTED IN ACCORDANCE WITH IECA STANDARD DESIGN AND CATCHMENT & CREEKS PTY LTD DRAWINGS EXTRACTED ABOVE AND AVAILABLE HTTPS://WWW.AUSTIECA.COM.AU/PUBLICATIONS/BOOK-6-STANDARD-DRAWINGS FOR THE NOMINATED DESIGN DISCHARGE AND STANDARD DRAWINGS AS SHOWN IN THE 'BLUE BOOK'. CONTROLS MUST BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER.

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DURACK

CLIENT: DURACK CIVIL PTY LTD
DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 14 OF 18

THIS SWMP HAS BEEN CERTIFIED BY SARAH HOBSON, CPESC NO. 11425 AND RSP-ESC NO. 2619 TO SATISFY THE INTENT AND MINIMUM STANDARDS NOMINATED WITHIN THE IECA (2008) BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINE & MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION BLUE BOOK

STANDARD DESIGN EXAMPLE DRAWINGS

MATERIALS

(i) MULCH MUST COMPLY WITH THE REQUIREMENTS OF AS4454.

(ii) MAXIMUM SOLUBLE SALT CONCENTRATION OF 5dS/m.

(iii) MOISTURE CONTENT OF 30 TO 50% PRIOR TO APPLICATION.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND EXTENT. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, MATERIAL TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. WHEN SELECTING THE LOCATION OF A MULCH FILTER BERM, TO THE MAXIMUM DEGREE PRACTICAL, ENSURE THE BERM IS LOCATED:

(i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;

(ii) ALONG A LINE OF CONSTANT ELEVATION (PREFERRED, BUT NOT ALWAYS PRACTICAL);

(iii) AT LEAST 1m, IDEALLY 3m, FROM THE TOE OF A FILL EMBANKMENT;

(iv) AWAY FROM AREAS OF CONCENTRATED FLOW.

3. ENSURE THE BERM IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE BERM, OR THE UNDESIRABLE DISCHARGE OF WATER AROUND THE END OF THE BERM.

4. ENSURE THE BERM HAS BEEN PLACED SUCH THAT PONDING UP-SLOPE OF THE BERM IS MAXIMISED.

5. ENSURE BOTH ENDS OF THE BERM ARE ADEQUATELY TURNED UP THE SLOPE TO PREVENT FLOW BYPASSING PRIOR TO WATER PASSING OVER THE BERM.

6. ENSURE 100% CONTACT WITH THE SOIL SURFACE.

7. WHERE SPECIFIED, TAKE APPROPRIATE STEPS TO VEGETATE THE BERM.

MAINTENANCE

1. DURING THE CONSTRUCTION PERIOD, INSPECT ALL BERMS AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR OR REPLACE ANY DAMAGED SECTIONS.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 100mm OR 1/3 THE HEIGHT OF THE BERM.

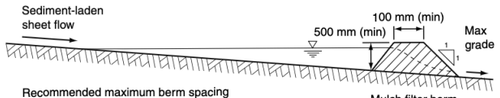
5. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL (IF REQUIRED)

1. WHEN DISTURBED AREAS UP-SLOPE OF THE BERM ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE BERM MAYBE REMOVED.

2. REMOVE ANY COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.



Recommended maximum berm spacing

Land slope	Max spacing
< 2%	30 m
5%	25 m
10%	15 m
20%	8 m

Figure 1 - Typical placement of mulch filter berm

Drawn:	Date:		
GMW	Apr-10	Mulch Filter Berms	MB-01

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MATERIALS (GENERAL)

MULCH: TO THE MAXIMUM DEGREE PRACTICAL THE MULCH SHALL BE FREE OF WEED SPECIES ESPECIALLY PROHIBITED NOXIOUS WEED SEED. DO NOT USE WOODY OR OTHER HEAVY MATERIALS THAN MAY INTERFERE WITH THE EMERGENCE OF SEEDLINGS.

APPLICATION (GENERAL)

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND APPLICATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF APPLICATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THE SURFACE IS FREE OF DEEP TRACK MARKS OF OTHER FEATURES THAT MAY RESULT IN FLOW CONCENTRATION DOWN THE SLOPE. WHERE NECESSARY, ESTABLISH UP-SLOPE DRAINAGE CONTROLS TO LIMIT RUN-ON WATER THAT MAY DISTURB THE MULCH.

3. SPREAD ENOUGH MULCH TO COMPLETELY COVER THE SURFACE OF THE SOIL AT THE DENSITY OR THICKNESS SPECIFIED IN THE APPROVED PLANS, BUT NOT GREATER THAN 50mm.

4. MACHINE APPLICATIONS SHALL COMPRISE A MINIMUM OF TWO PASSES IN OPPOSITE DIRECTIONS UNLESS OTHERWISE SPECIFIED.

5. DURING APPLICATION, ALL REASONABLE EFFORTS SHALL BE TAKEN TO AVOID SPRAY ONTO ROADS, PATHWAYS, DRAINAGE CHANNELS NOT INTENDED FOR APPLICATION, AND EXISTING VEGETATION.

6. SUITABLE ANCHORAGE OF THE MULCH MUST BE ACCOMPLISHED IMMEDIATELY AFTER THE MULCH HAS BEEN PLACED.

7. ENSURE THE MULCH IS RESTRAINED FROM EXCESSIVE MOVEMENT BY WIND OR STORMWATER RUNOFF BY THE APPROPRIATELY APPLICATION OF AN APPROVED TACKIFIER. ON FLAT OR GENTLE SLOPES, STRAW MULCH MAY BE FIXED TO THE SOIL BY MECHANICAL CRIMPING.

8. IF THE TREATED AREA WAS SEEDED, CONTINUE TO WATER AFTER MULCHING IN ACCORDANCE WITH WEATHER CONDITIONS, OR AS REQUIRED TO OBTAIN SUITABLE GERMINATION AND PLANT ESTABLISHMENT.

9. APPLICATION (SPRAYING) OF A TACKIFIER MUST NOT BE PERFORMED DURING PERIODS OF WINDY CONDITIONS THAT WOULD PREVENT THE PROPER PLACEMENT OF ADHESIVE.

10. THE CONTRACTOR MUST TAKE APPROPRIATE STEPS TO PROTECT ALL TRAFFIC, SIGNS, STRUCTURES, AND OTHER OBJECTS FROM BEING MARKED OR DISFIGURED BY THE TACKIFIER MATERIAL.

APPLICATION (HYDROMULCHING)

THE FOLLOWING SPECIFICATION APPLIES TO GRASS SEEDING, NOT THE APPLICATION OF NATIVE TREE OR SHRUB SEED.

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND APPLICATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF APPLICATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THE SURFACE IS FREE OF DEEP TRACK MARKS OF OTHER FEATURES THAT MAY RESULT IN FLOW CONCENTRATION DOWN THE SLOPE. WHERE NECESSARY, ESTABLISH UP-SLOPE DRAINAGE CONTROLS TO LIMIT RUN-ON WATER THAT MAY DISTURB THE MULCH.

3. PRIOR TO APPLICATION, ROUGHEN THE SOIL SURFACE AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING WHERE PRACTICAL.

4. IF THE SOIL IS DRY, WATER THE TREATMENT AREA BEFORE HYDROSEEDING TO INCREASE PENETRATION OF THE ADHESIVE AND FERTILISER ADDITIVES.

5. ADD STRAW, WOOD OR PAPER CELLULOSE FIBRE MULCH TO THE SLURRY AT THE SPECIFIED RATE, OTHERWISE AT A RATE OF 2 TO 3 TONNES PER HECTARE.

6. MACHINE APPLICATIONS SHALL COMPRISE A MINIMUM OF TWO PASSES IN OPPOSITE DIRECTIONS UNLESS OTHERWISE SPECIFIED.

7. DURING APPLICATION, ALL REASONABLE EFFORTS SHALL BE TAKEN TO AVOID SPRAY ONTO ROADS, PATHWAYS, DRAINAGE CHANNELS NOT INTENDED FOR APPLICATION, AND EXISTING VEGETATION.

8. THE CONTRACTOR MUST TAKE APPROPRIATE STEPS TO PROTECT ALL TRAFFIC, SIGNS, STRUCTURES, AND OTHER OBJECTS FROM BEING MARKED OR DISFIGURED BY THE MULCH AND/OR ASSOCIATED TACKIFIER.

9. CONTINUE TO WATER AFTER ALLOWING 24 HOURS DRYING TIME. WATER IN ACCORDANCE WITH THE WEATHER CONDITIONS, OR AS REQUIRED TO MAINTAIN SUITABLE GERMINATION AND PLANT GROWTH. THE WOOD-FIBRE SHOULD BE KEPT MOIST UNTIL GERMINATION OCCURS.

MAINTENANCE

1. INSPECT ALL MULCHES FORTNIGHTLY AND AFTER RUNOFF-PRODUCING RAINFALL AND STRONG WINDS.

2. CHECK FOR RILL EROSION, OR DISLODGMENT OF THE MULCH.

3. REPLACE ANY DISPLACED MULCH TO MAINTAIN THE REQUIRED COVERAGE.

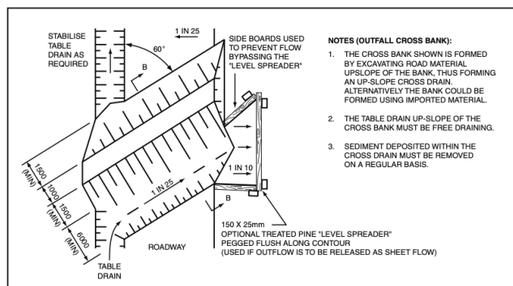
4. IF STORMWATER RUNOFF DISPLACES MORE THAN 10% OF THE MULCH, THEN INVESTIGATE THE NEED FOR ADDITIONAL DRAINAGE CONTROLS TO PREVENT FURTHER DISPLACEMENT.

5. CONTINUE INSPECTIONS UNTIL VEGETATION IS SUITABLY ESTABLISHED OR EROSION CONTROL IS NO LONGER REQUIRED.

6. IF THE MULCHING IS NOT EFFECTIVE IN CONTAINING THE SOIL EROSION IT SHOULD BE REPLACED, OR AN ALTERNATIVE EROSION CONTROL PROCEDURE ADOPTED.

Drawn:	Date:		
GMW	Dec-09	Mulching (light)	M-01

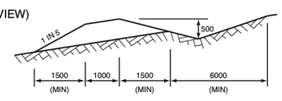
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NOTES (OUTFALL CROSS BANK):

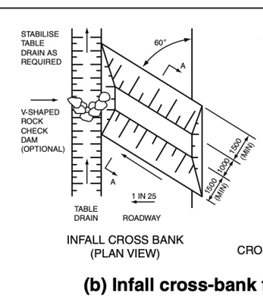
1. THE CROSS BANK SHOWN IS FORMED BY EXCAVATING ROAD MATERIAL UPSLOPE OF THE BANK, THUS FORMING AN UP-SLOPE CROSS DRAIN. ALTERNATIVELY THE BANK COULD BE FORMED USING IMPORTED MATERIAL.
2. THE TABLE DRAIN UP-SLOPE OF THE CROSS BANK MUST BE FREE DRAINING.
3. SEDIMENT DEPOSITED WITHIN THE CROSS DRAIN MUST BE REMOVED ON A REGULAR BASIS.

OUTFALL CROSS BANK (PLAN VIEW)



CROSS BANK PROFILE (INSITU MATERIAL)

(a) Outfall cross-bank for low speed tracks



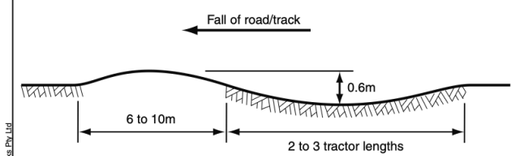
INFALL CROSS BANK (PLAN VIEW)

NOTES (INFALL CROSS BANK):

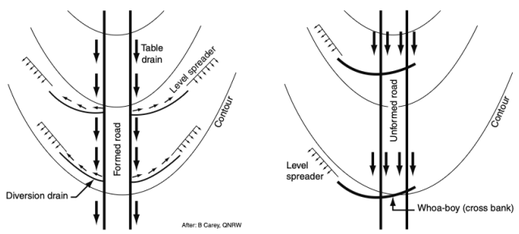
1. THE CROSS BANK SHOWN IS FORMED USING IMPORTED MATERIAL AND THUS DOES NOT REQUIRE ANY EXCAVATIONS INTO THE ROAD UP-SLOPE OF THE BANK. ALTERNATIVELY, THE BANK COULD BE FORMED USING INSITU MATERIAL.
2. ROCK CHECK DAMS OR OTHER STABILISATION MEASURES PLACED IN THE TABLE DRAIN MUST NOT CAUSE PONDING ON THE ROAD.

CROSS BANK PROFILE (IMPORTED MATERIAL)

(b) Infall cross-bank for low speed tracks



(e) Typical cross-bank profile for low speed tracks



(c) - (d) Drainage options for ridge tracks

General notes:
1. Drainage structures are applicable to unsealed roads and tracks.
2. Design details vary with traffic volume and speeds.

Drawn:	Date:		
GMW	Dec-09	Construction Road Drainage	CR-01

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STANDARD DESIGN EXAMPLE DRAWINGS

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE LOCATION FOR THE BERM, CLEARING ONLY THE AREA THAT IS NEEDED TO PROVIDE ACCESS FOR PERSONNEL AND EQUIPMENT.

3. REMOVE ROOTS, STUMPS, AND OTHER DEBRIS AND DISPOSE OF THEM PROPERLY.

4. FORM THE BERM FROM THE MATERIAL, AND TO THE DIMENSION SPECIFIED IN THE APPROVED PLANS.

5. IF FORMED FROM SANDBAGS, THEN ENSURE THE BAGS ARE TIGHTLY PACKED SUCH THAT WATER LEAKAGE THROUGH THE BAGS IS MINIMISED.

6. CHECK THE ALIGNMENT OF THE BERM TO ENSURE POSITIVE DRAINAGE IN THE DESIRED DIRECTION.

7. ENSURE THE BERM DISCHARGES TO A STABLE OUTLET.

8. ENSURE THE BERM DOES NOT DISCHARGE TO AN UNSTABLE FILL SLOPE.

MAINTENANCE

1. INSPECT FLOW CONTROL BERMS AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. INSPECT THE BERM FOR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD. MAKE REPAIRS AS NECESSARY.

3. CHECK THAT FILL MATERIAL OR SEDIMENT HAS NOT PARTIALLY BLOCKED THE DRAINAGE PATH UP-SLOPE OF THE EMBANKMENT. WHERE NECESSARY, REMOVE ANY DEPOSITED MATERIAL TO ALLOW FREE DRAINAGE.

4. DISPOSE OF ANY COLLECTED SEDIMENT OR FILL IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

5. REPAIR ANY PLACES IN THE BERM THAT ARE WEAKENED OR IN RISK OF FAILURE.

REMOVAL

1. WHEN THE SOIL DISTURBANCE ABOVE THE BANK IS FINISHED AND THE AREA IS STABILISED, THE FLOW CONTROL BERM SHOULD BE REMOVED, UNLESS IT IS TO REMAIN AS A PERMANENT DRAINAGE FEATURE.

2. DISPOSE OF ANY SEDIMENT OR EARTH IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.
3. GRADE THE AREA AND SMOOTH IT OUT IN PREPARATION FOR STABILISATION.

4. STABILISE THE AREA BY GRASSING OR AS SPECIFIED IN THE APPROVED PLAN.

Table 1 - Recommended dimensions of flow control berms

Parameter	Earth banks	Vegetated banks	Compost berms	Sandbag berms
Height (min)	500 mm	500 mm	300 mm	N/A
Top width (min)	500 mm	500 mm	100 mm	N/A
Base width (min)	2500 mm	2500 mm	600 mm	N/A
Side slope (max)	2:1 (H:V)	2:1 (H:V)	1:1 (H:V)	N/A
Freeboard	300 mm	150 mm	100 mm	50 mm

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Drawn:	Date:		
GMW	Dec-09	Flow Control Berms	CB-01

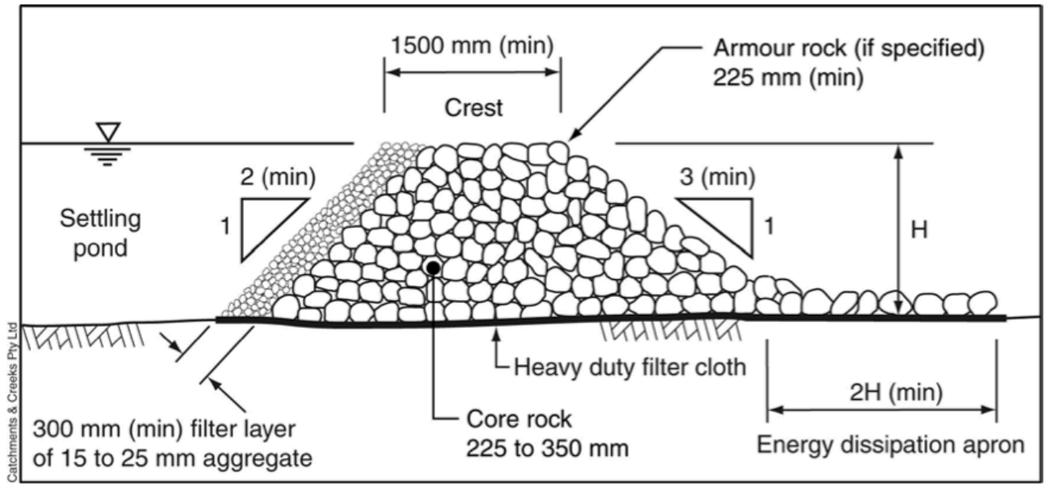


Figure 1 – Rock filter dam with aggregate filter

Rock filter dams with geotextile filters (Figure 2) usually require the use of an aggregate layer to achieve the desired stage-discharge flow conditions for the embankment for the purpose of achieving the optimum settling pond conditions (refer to 'Design Procedure' over page).

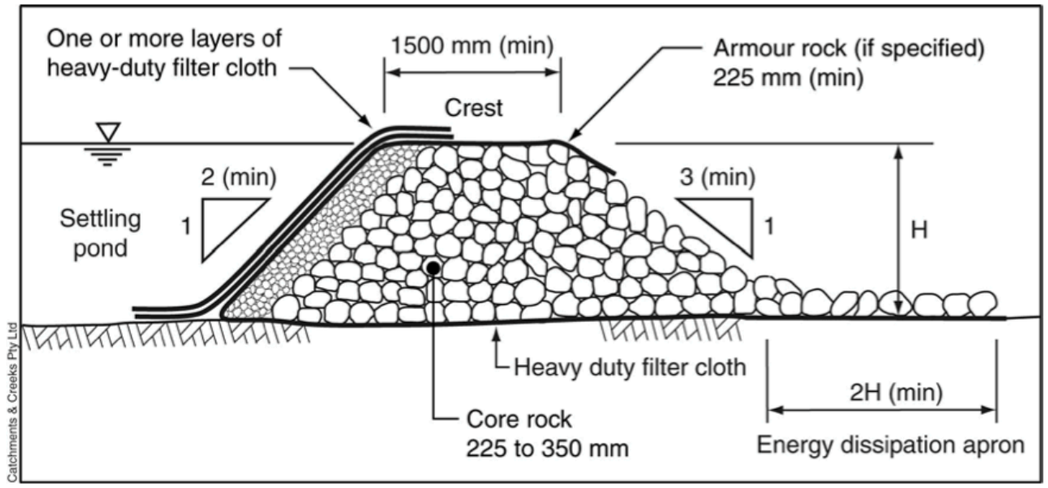


Figure 2 – Rock filter dam with geotextile (filter cloth) filter

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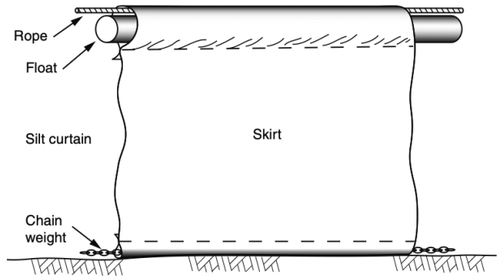
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DURACK

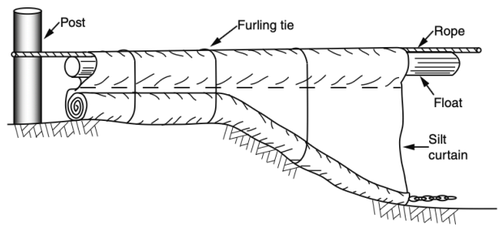
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SHEET: 16 OF 18

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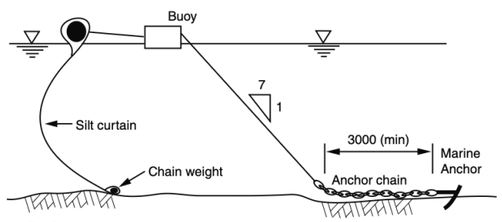
STANDARD DESIGN EXAMPLE DRAWINGS



(a) Components of a floating silt curtain

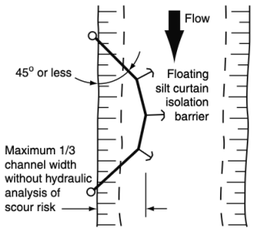


(b) Typical land anchorage system

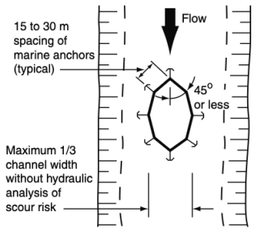


After Trow Consulting Engineers Ltd (1997)

(c) Typical marine anchorage system



(d) Typical installation of floating silt curtain



(e) Typical installation of floating silt curtain

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Drawn:	Date:		
GMW	Feb-10	Floating Silt Curtain	FSC-01

MATERIALS

SILT CURTAIN FABRIC: MANUFACTURED FROM A WOVEN GEOTEXTILE, CANVAS/TARP MATERIAL, OR A COMMERCIALLY AVAILABLE SILT CURTAIN SUCH AS NYLON REINFORCED POLYVINYL CHLORIDE (PVC) OR EQUIVALENT.

BALLAST CHAIN: 10 TO 13mm GALVANISED CHAIN WITH MINIMUM 1.9 TO 3.3kg/m WEIGHT.

LAND ANCHOR: MINIMUM 100mm DIAMETER TIMBER POST (OR EQUIVALENT).

MARINE ANCHOR: MINIMUM 5kg LIGHTWEIGHT (DANFORTH) TYPE ANCHOR WITH 10 TO 13mm NYLON TIE ROPE AND MINIMUM 3m LENGTH OF 8mm GALVANISED CONNECTING CHAIN.

INSTALLATION

1. PRIOR TO COMMENCING ANY WORKS, OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED TO CONDUCT THE NECESSARY WORKS INCLUDING PERMITS FOR THE DISTURBANCE OF RIPARIAN AND AQUATIC VEGETATION, AND THE CONSTRUCTION OF ALL PERMANENT OR TEMPORARY INSTREAM BARRIERS AND INSTREAM SEDIMENT CONTROL MEASURES.

2. PRIOR TO THE INSTALLATION, CHECK WEATHER REPORTS FOR A SUITABLE WINDLESS, CALM DAY. DO NOT PROCEED WITH THE INSTALLATION UNLESS SAFE TO DO SO.

3. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

4. CLEAR THE IMMEDIATE LAUNCHING AREA OF ROCK AND DEBRIS. AVOID DISTURBING GROUNDCOVER VEGETATION.

5. LAYOUT A PLASTIC LAUNCHING PAD (SPILLWAY) AT RIGHT ANGLES TO THE WATERCOURSE BANK AND PEG OR ANCHOR IT DOWN. THIS IS TO PROTECT THE CURTAIN AND REDUCE FRICTION WHEN LAUNCHING.

6. UNFOLD THE CURTAIN IN AN OPEN AREA PRIOR TO ITS INSTALLATION. ENSURE THE BARRIER IS FABRICATED WITH SUFFICIENT DIMENSIONS TO BE IN GOOD CONTACT WITH THE BOTTOM OF THE CHANNEL. THE DEPTH OF THE BARRIER SHOULD BE APPROXIMATELY 10% GREATER THAN THE WATER DEPTH TO ENSURE IT RESTS ON THE BED.

7. IDEALLY, THE LENGTH OF THE BARRIER IS 10 TO 20% LONGER THAN THE MEASURED LENGTH OF THE PROPOSED ENCLOSURE.

8. UNFOLD THE FIRST CURTAIN PANEL ON THE SLIPWAY.

9. INSERT THE FLOATS BOTH ENDS FOR EASE OF INSTALLATION.

10. PULL THROUGH THE STEEL CHAIN IN THE BOTTOM SLEEVE USING THE DRAW CORD.

11. PULL THROUGH THE ROPE USING THE DRAW CORD.

12. PRIOR TO DEPLOYING THE BARRIER, GATHER UP THE CURTAIN AND TIE THE CURTAIN WITH LIGHTWEIGHT STRAPS OR ROPE EVERY 1 TO 1.5m. THE AIM OF THIS IS TO ENABLE THE CURTAIN TO BE SET IN PLACE IN THE WATER EASILY WITHOUT THE CURTAIN BEING DRAGGED ALONG THE CHANNEL BED.

13. SET THE UPSTREAM BANK ANCHOR POINT AND TIE OFF ONE END OF THE BARRIER, ENSURING NO WATER WILL BE ABLE TO FLOW INTO THE UPSTREAM END.

14. DEPLOY THE BARRIER FROM THE END OF A BOAT. FASTEN THE FREE END OF THE BARRIER TO THE DOWNSTREAM ANCHOR POINT, THEN ANCHOR THE BARRIER AT INTERMEDIATE POINTS.

15. TAPER THE ENDS OF THE BARRIER TO THE SHAPE OF THE SHORELINE, OTHERWISE TIE THE ENDS OF THE BARRIER WITH FURLING STRAPS SO THE DEPTH OF THE BARRIER CAN BE ADJUSTED TO THE SHAPE OF THE BANK.

16. AFTER THE BARRIER HAS BEEN ANCHORED, CHECK TO SEE THAT THE SKIRT IS NOT TWISTED AROUND THE FLOTATION UNITS. WHEN THE BARRIER IS PROPERLY DEPLOYED, CUT THE TIE ROPES AND LET THE BALLAST WEIGHTS SINK TO THE BED.

17. ENSURE THE SKIRT (AT MAXIMUM WATER LEVEL) IS FREE OF LARGE PLEATS THAT MAY COLLECT SEDIMENT CAUSING THE BARRIER TO BE PULLED UNDER THE WATER SURFACE.

MAINTENANCE

1. INSPECT THE SILT CURTAIN DAILY FOR DAMAGE.

2. ENSURE THE TOP OF THE BARRIER REMAINS ABOVE THE WATER SURFACE, AND THE CURTAIN IS FREE OF TEARS OR GAPS.

3. ENSURE THE BARRIER REMAINS IN THE SPECIFIED LOCATION.

4. CHECK FOR TURBIDITY LEAKS.

5. CHECK ALL ANCHOR POINTS.

6. REPAIR OR REPLACE ANY TORN SEGMENTS.

7. CHECK FOR SEDIMENT BUILD-UP ON THE BOTTOM OF THE SKIRT THAT MAY BEGIN TO PULL THE CURTAIN UNDER THE WATER.

8. DISPOSE OF ANY EXCESSIVE SEDIMENT OR DEBRIS DEPOSITS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

9. REPAIR ANY PLACES IN THE ISOLATION BARRIER THAT HAVE WEAKENED OR THAT HAVE BEEN SUBJECTED TO DAMAGE FROM INFLOWS OR OVERTOPPING WATER.

REMOVAL

1. THE SILT CURTAIN SHOULD BE REMOVED AS SOON AS POSSIBLE AFTER IT IS NO LONGER NEEDED.

2. IF EXCESSIVE SEDIMENT OR DEBRIS HAS COLLECTED AROUND THE BARRIER, THEN REMOVE SUCH MATERIAL BEFORE THE BARRIER IS REMOVED AND DISPOSE OF SUCH MATERIAL PROPERLY.

3. ENSURE THE CHANNEL WATER CONTAINED WITHIN THE ENCLOSURE HAS ACHIEVED A SUITABLE WATER QUALITY BEFORE REMOVING THE SILT CURTAIN.

4. ENSURE THE RELEASE OF SEDIMENT AND THE DAMAGE TO THE CHANNEL'S BED AND BANKS IS MINIMISED DURING REMOVAL OF THE SILT CURTAIN.

5. IF IT IS NOT FEASIBLE TO WAIT FOR ADEQUATE SETTLEMENT OF SUSPENDED SEDIMENTS, THEN WHERE PRACTICABLE, PUMP THE SEDIMENT-LADEN WATER TO AN OFF-STREAM DE-WATERING SEDIMENT CONTROL SYSTEM FOR TREATMENT. THIS TREATMENT AREA SHOULD IDEALLY BE LOCATED AT LEAST 50m FROM THE CHANNEL.

6. REMOVE ALL CONSTRUCTION MATERIALS, EXCESSIVE SEDIMENT DEPOSITS AND DEBRIS AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. RESTORE THE WATERCOURSE CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILISE AND/OR REVEGETATE ALL DISTURBED AREAS.

Drawn:	Date:		
GMW	Feb-10	Floating Silt Curtain	FSC-02

MATERIALS

SILT CURTAIN FABRIC: MANUFACTURED FROM A WOVEN GEOTEXTILE, CANVAS/TARP MATERIAL, OR A COMMERCIALLY AVAILABLE SILT CURTAIN SUCH AS NYLON REINFORCED POLYVINYL CHLORIDE (PVC) OR EQUIVALENT.

BALLAST CHAIN: 10 TO 13mm GALVANISED CHAIN WITH MINIMUM 1.9 TO 3.3kg/m WEIGHT.

LAND ANCHOR: MINIMUM 100mm DIAMETER TIMBER POST (OR EQUIVALENT).

MARINE ANCHOR: MINIMUM 5kg LIGHTWEIGHT (DANFORTH) TYPE ANCHOR WITH 10 TO 13mm NYLON TIE ROPE AND MINIMUM 3m LENGTH OF 8mm GALVANISED CONNECTING CHAIN.

ALTERNATIVE LAND-BASED INSTALLATION PROCEDURE

1. UNFOLD THE FIRST CURTAIN PANEL ON THE SLIPWAY.

2. INSERT THE FLOATS BOTH ENDS FOR EASE OF INSTALLATION.

3. PULL THROUGH THE STEEL CHAIN IN THE BOTTOM SLEEVE USING THE DRAW CORD.

4. PULL THROUGH THE ROPE USING THE DRAW CORD.

5. PRIOR TO DEPLOYING THE BARRIER, GATHER UP THE CURTAIN AND TIE THE CURTAIN WITH LIGHTWEIGHT STRAPS OR ROPE EVERY 1 TO 1.5m. THE AIM OF THIS IS TO ENABLE THE CURTAIN TO BE SET IN PLACE IN THE WATER EASILY WITHOUT THE WEIGHTS BEING DRAGGED ALONG THE BOTTOM.

6. SET THE UPSTREAM BANK ANCHOR POINT AND TIE OFF ONE END OF THE BARRIER, ENSURING NO WATER WILL BE ABLE TO FLOW INTO THE UPSTREAM END.

7. INSTALL AN EXTRA LENGTH OF ROPE OR CABLE IN THE FINAL CURTAIN POSITION IN THE WATER.

8. TIE THE END OF THE CURTAIN ROPE TO THE EXTRA LENGTH ALREADY IN POSITION AND PULL THE CURTAIN INTO THE WATER STOPPING WHEN THE END OF THE FIRST SECTION OF CURTAIN IS STILL ON THE BANK.

9. UNFOLD THE SECOND SECTION OF CURTAIN ON THE SLIPWAY MAKING SURE THE CURTAIN IS CORRECTLY ORIENTATED WITH THE FIRST SECTION OF CURTAIN

10. INSERT THE FLOATS, CHAIN AND ROPE AS BEFORE.

11. USING THE DRAW CORD FROM THE FIRST SECTION, TIE UP THE ENDS USING THE EYELETS ALREADY IN THE CURTAIN.

12. GATHER UP THE CURTAIN AND TIE TOGETHER WITH TWINE OR THIN ROPE.

13. LAUNCH AS BEFORE.

14. CONTINUE UNTIL THE ENTIRE CURTAIN IS INSTALLED.

15. ANCHOR WELL TO SHORE ANCHORS.

16. USING A SUITABLE BOAT, MOVE ALONG THE CURTAIN AND CUT THE TIES HOLDING THE CHAIN AND CURTAIN AND ALLOW THE WEIGHTED END TO SINK.

17. ENSURE THE SKIRT (AT MAXIMUM WATER LEVEL) IS FREE OF LARGE PLEATS THAT MAY COLLECT SEDIMENT CAUSING THE BARRIER TO BE PULLED UNDER THE WATER SURFACE.

MAINTENANCE

1. INSPECT THE SILT CURTAIN DAILY FOR DAMAGE.

2. ENSURE THE TOP OF THE BARRIER REMAINS ABOVE THE WATER SURFACE, AND THE CURTAIN IS FREE OF TEARS OR GAPS.

3. ENSURE THE BARRIER REMAINS IN THE SPECIFIED LOCATION.

4. CHECK FOR TURBIDITY LEAKS.

5. CHECK ALL ANCHOR POINTS.

6. REPAIR OR REPLACE ANY TORN SEGMENTS.

7. CHECK FOR SEDIMENT BUILD-UP ON THE BOTTOM OF THE SKIRT THAT MAY BEGIN TO PULL THE CURTAIN UNDER THE WATER.

8. DISPOSE OF ANY EXCESSIVE SEDIMENT OR DEBRIS DEPOSITS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

9. REPAIR ANY PLACES IN THE ISOLATION BARRIER THAT HAVE WEAKENED OR THAT HAVE BEEN SUBJECTED TO DAMAGE FROM INFLOWS OR OVERTOPPING WATER.

REMOVAL

1. THE SILT CURTAIN SHOULD BE REMOVED AS SOON AS POSSIBLE AFTER IT IS NO LONGER NEEDED.

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3. ENSURE THE CHANNEL WATER CONTAINED WITHIN THE ENCLOSURE HAS ACHIEVED A SUITABLE WATER QUALITY BEFORE REMOVING THE SILT CURTAIN.

4. ENSURE THE RELEASE OF SEDIMENT AND THE DAMAGE TO THE CHANNEL'S BED AND BANKS IS MINIMISED DURING REMOVAL OF THE SILT CURTAIN.

5. IF IT IS NOT FEASIBLE TO WAIT FOR ADEQUATE SETTLEMENT OF SUSPENDED SEDIMENTS, THEN WHERE PRACTICABLE, PUMP THE SEDIMENT-LADEN WATER TO AN OFF-STREAM DE-WATERING SEDIMENT CONTROL SYSTEM FOR TREATMENT. THIS TREATMENT AREA SHOULD IDEALLY BE LOCATED AT LEAST 50m FROM THE CHANNEL.

6. REMOVE ALL CONSTRUCTION MATERIALS, EXCESSIVE SEDIMENT DEPOSITS AND DEBRIS AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. RESTORE THE WATERCOURSE CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILISE AND/OR REVEGETATE ALL DISTURBED AREAS.

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UNLESS OTHERWISE NOTED WITHIN THIS PLAN OR SPECIFIED BY THE REGULATORY AUTHORITY, THE DESIGN STORM FOR SEDIMENT TRAPS NOMINATED BELOW MUST BE TAKEN AS 0.5 TIMES THE 1 IN 1 YEAR ARI PEAK DISCHARGE. WHERE CONTROLS CANNOT BE ADOPTED IN ACCORDANCE WITH IECA STANDARD DESIGN AND CATCHMENT & CREEKS PTY LTD DRAWINGS EXTRACTED ABOVE AND AVAILABLE HTTPS://WWW.AUSTIECA.COM.AU/PUBLICATIONS/BOOK-6-STANDARD-DRAWINGS FOR THE NOMINATED DESIGN DISCHARGE AND STANDARD DRAWINGS AS SHOWN IN THE 'BLUE BOOK'. CONTROLS MUST BE DESIGNED BY A SUITABLY QUALIFIED ENGINEER.

LOCATIONS ARE INDICATIVE AND ARE TO BE ADOPTED WITH SPECIFIC REFERENCE TO THE SPECIFICATIONS WITHIN THIS PLAN AND IN CONSULTATION WITH ENGINEERS ONSITE. THIS PLAN HAS RELIED ON THIRD PARTY INFORMATION AND THEREFORE THE EXACT LOCATIONS OF PROJECT BOUNDARIES, STORMWATER AND ROAD DESIGN MAY VARY SLIGHTLY. ALL CONTROLS ARE TO BE INSTALLED WITHIN THE PROJECT BOUNDARIES AND WHERE POSSIBLE WITH MINIMAL IMPACT TO VEGETATION OUTSIDE THE CLEARING FOOTPRINT.

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DURACK

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DRAWN BY: SARAH HOBSON
CERTIFICATION: CPESC NO. 11425 | RSP-ESC NO. 2619
SITE: CAPE TRIBULATION ROAD, LOWER DAINTREE QUEENSLAND
PROJECT: DAINTREE RIVER FERRY PRIORITY LANES
TITLE: EROSION AND SEDIMENT CONTROL PLAN
SCALE: NTS
DATE: 09 FEBRUARY 2026
CHECKED BY: BP
PROJECT No. RSE-1575
DRAWING REF. RSE-1575_ESCP 01
REVISION: 0
SHEET: 17 OF 18

THIS SWMP HAS BEEN CERTIFIED BY SARAH HOBSON, CPESC NO. 11425 AND RSP-ESC NO. 2619 TO SATISFY THE INTENT AND MINIMUM STANDARDS NOMINATED WITHIN THE IECA (2008) BEST PRACTICE EROSION AND SEDIMENT CONTROL GUIDELINE & MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION BLUE BOOK

STANDARD DESIGN EXAMPLE DRAWINGS

Design examples

The nominated design discharge should not bypass around the ends of the sediment trap as shown in Figures 12 and 13.

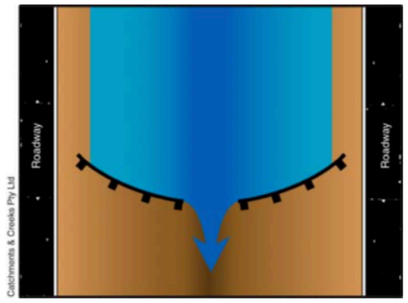


Figure 12 – When placed in a wide drainage swale, the sediment trap takes the shape of a gradual arc

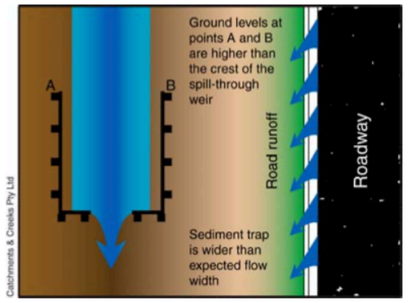


Figure 13 – When placed in a narrow table drain, the sediment trap normally needs to be installed as a narrow U-shape trap



Photo 3 – Up-slope ends of the fence are flared out to adequately capture the inflow



Photo 4 – U-shaped sediment trap incorporating a filter tube and geotextile outlet chute (note the sediment trap is formed from impervious plywood panels covered in fabric)



Photo 5 – U-shaped sediment trap within a steep table drain



Photo 6 – U-shaped sediment trap within a mild-sloping table drain

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