MARTINUS INLAND RAIL

CONSTRUCTION SLOANE'S FROGLET PROJECT PLAN – STAGE B

A2I | Albury to Illabo

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GLOSSARY

TERM	DEFINITION
A2I	Albury to Illabo section of the Inland Rail project
A2P CEMF	Albury to Parkes Construction Environmental Management Framework (0-0000-900-EEC-00-SP-0002_2);
ARTC	Australian Rail Track Corporation
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BCS	Biodiversity, Conservation and Science Directorate of DCCEEW (now CPHR)
BDAR	Biodiversity Development Assessment Report
CBMP	Construction Biodiversity Management Plan – Stage B
CCS	Community Communications Strategy
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan – Stage B
CMS	Complaints Management System
CoA	Conditions of Approval
Construction	Includes work required to construct the CSSI as defined in the Project Description described in the documents listed in Condition A1 including commissioning trials of equipment and temporary use of any part of the CSSI but excluding Low Impact Work which is carried out or completed prior to approval of the CEMP.
CPESC	Certified Professional in Erosion and Sediment Control
CPHR	Conservation Programs and Heritage Regulation Directorate of DCCEEW (former BCS)
CSSI	Critical State Significant Infrastructure
CSWMP	Construction Soil and Water Management Plan – Stage B
CWMS	Construction Work Method Statement
DAWE	Department of Agriculture, Water and Environment
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCCEEW (Cth)	Commonwealth Department of Climate Change, Energy, the Environment and Water
DEC	Department of Environment and Conservation
DIPNR	Department of Infrastructure, Planning and Natural Resources

TERM	DEFINITION
DPE	NSW Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment
EAD	Environmental Assessment Documentation that includes: Inland Rail – Albury to Illabo Environmental Impact Statement (ARTC, August 2022); Albury to Illabo Response to Submissions (ARTC, November 2023); Albury to Illabo Preferred Infrastructure Report (ARTC, November 2023); Albury to Illabo Preferred Infrastructure Report Response to Submissions (ARTC, February 2024); Inland Rail – Albury to Illabo (SSI-10055) Response to request for additional information – Air Quality Assessment (letter dated 1 May 2024); Part 1 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024); Part 2 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024).
EHG	Environment and Heritage Group
EIS	Environmental Impact Statement
EMS	Environmental Management System
Environmental Representative (ER)	The Environmental Representative(s) for the CSSI approved by the Planning Secretary
EPA	Environmental Protection Authority (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal)
EPL	Environmental Protection License
ESCP	Erosion and Sediment Control Plan
ESR	Environmental Site Representative
EWMS	Environmental Work Method Statement
GPS	Global Positioning System
IBRA	Interim Biogeographic Regionalisation for Australia
IRPL	Inland Rail Pty Ltd
ISC	The Infrastructure Sustainability Council
km	Kilometre
LGA	Local Government Area

TERM	DEFINITION
Local road	Any road that is not defined as a classified road under the *Roads Act 1993*
m	metre
MNES	Matters of National Environmental Significance
MR	Martinus Rail
MR ESM	Martinus Rail Environment, Approvals and Sustainability Manager
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	Office of Environment and Heritage
PCT	Plant Community Type
PDCA	Plan-Do-Check-Act
PIR	Preferred Infrastructure Report
Planning Secretary	Secretary of the NSW Department of Planning, Housing and Infrastructure, or delegate
PMST	Protected Matters Search Tool
Primary CoA/UMM	CoA and/or UMMs that are specific to the development of this Plan
Project ecologist	Suitably qualified and experienced ecologist engaged by MR
Project, the	Albury to Illabo section of the Inland Rail project
RtS	Response to Submissions
SAP	Sensitive Area Plans
SAII	Serious and Irreversible Impact
SEM	Site Environmental Maps
SEMP	Site Establishment Management Plan
SMART	Specific, measurable, achievable, relevant and time-based
SSI	State Significant Infrastructure
SuMP	Sustainability Management Plan
TEC	Threatened Ecological Community
TSC Ac	*Threatened Species Conservation Act 1995* (NSW), repealed in 2017
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services)

TERM	DEFINITION
UMM	Updated Mitigation Measures (PIR RtS)
WoNS	Weeds of National Significance

1 INTRODUCTION

1.1 Scope of this Stage B Plan

The scope of this Construction Sloane's Froglet Management Plan (this Plan or this CSFMP) is to describe how works will be managed within and adjacent to Sloane's Froglet habitat, as required by CoA E26. This Plan is applicable to works at the Billy Hughes Bridge enhancement site.

This Plan addresses the requirements of the EAD that relate to construction activities including incorporating the relevant updated mitigation measures (UMMs), and Conditions of Approval (CoAs).

All Martinus Rail staff and sub-contractors are required to comply with and operate fully under the requirements of this Plan and related environmental management plans, over the full duration of the construction program.

1.2 Interactions with other management plans and strategies

This Plan has the following interrelationships with other management plans and documents:

- Albury to Parkes (A2I) Construction Environmental Management Framework (CEMF) (A2P CEMF) (0-0000-900-EEC-00-SP-0002_2);
- Construction Biodiversity Management Plan – Stage B which details the measures for managing biodiversity related impacts during Stage B construction;
- Construction Soil and Water Management Plan – Stage B which details the measures for managing soil and water related impacts during Stage B construction;
- D13 Operational Fauna Connectivity Monitoring and Adaptive Mitigation Program may include a similar monitoring regime for Sloane's Froglet as this Plan;
- Sensitive Area Plans (SAPs) detailed in Appendix A8 of the CEMP which highlight sensitive environmental areas to be managed during construction, including mapped Sloane's Froglet habitat adjacent to the project alignment and highlight 'no-go zones';
- Community Communication Strategy (CCS) which details procedures and processes for community notification, consultation and complaints management;

Where a reference to another document is made, this is assumed to be the most recent version, unless otherwise stated.

1.3 Consultation

1.3.1 Consultation for this Plan

This CSFMP will be prepared in consultation with Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Conservation Programs, Heritage and Regulation (CPHR)(former BCS) and the relevant landowners or local councils. This includes:

- Albury City Council;
- Transport for NSW;
- VISY Recycling.

TABLE 1: CONSULTATION SUMMARY

STAKEHOLDER	DATES	FEEDBACK PROVIDED	HOW ADDRESSED
CPHR (former BCS)	25/6/2025	▪ The plan should include rehabilitation, monitoring and operational phase measures. ▪ The draft plan does not provide species specific mitigation. ▪ RD recommends consultation with ACC about the measures and potential habitat creation in land vested to council.	▪ A section on rehabilitation has been added to the plan. Operational phase measures and monitoring are outside the remit of this document. ▪ Specific mitigation measures have been included that align with the CoAs and UMMs.

STAKEHOLDER	DATES	FEEDBACK PROVIDED	HOW ADDRESSED
		▪ Add evidence of consultation with council into the plan. ▪ RD does not support the use of frog exclusion fencing. ▪ How will exclusion zones be demarcated. ▪ Recommendation to commit to monitoring beyond the project footprint. ▪ Recommend updates to ESCP to show the south-western stockpile location more clearly.	▪ Consultation with ACC has occurred on the CSFMP. Operational measures for Sloane's Froglet will be contained in the Fauna Connectivity Strategy, where required. ▪ ACC consultation evidence has been added to the plan. ▪ Section 6.4 was updated to include details on the demarcation of exclusion zones. ▪ Monitoring outside the footprint will occur as part of the Surface Water Quality Monitoring Program. ▪ The ESCP has been updated as recommended.
Albury City Council	27/05/2025	▪ Sloane's should be listed as endangered. ▪ A request to include information about post-construction inspections of rehabilitation works.	▪ Sloane's Froglet has been listed as endangered in the plan. ▪ Details on post-construction monitoring of rehabilitated areas has been included in Section 6.5.
Transport for NSW	10/06/2025	▪ TfNSW did not provide any comments.	▪ NA
VISY Recycling	27/05/2025	▪ The plan is of exceptional quality and from a construction point of view Visy had nothing further to add. ▪ Can the plan be issued to landowner as the information is relevant to many land use practices.	▪ The plan will be made publicly available.

1.3.2 Ongoing consultation during construction

Ongoing consultation between Martinus Rail, IRPL, other construction projects, stakeholders, the community and relevant agencies regarding the management of Sloane's Froglet impacts will be undertaken during the construction of the project as required.

Sloane's Froglet management information where required will be communicated to the community and stakeholders in accordance with the principles and procedures outlined in the CCS. The project will provide timely, accurate, relevant and accessible information about construction activities that may have biodiversity impacts, with provision for feedback through a complaints line during construction.

1.4 Approval

In accordance with CoA E27, this Plan will be submitted to and approved by the Planning Secretary. No work that could impact the areas identified with Sloane's Froglet (*Crinia sloanei*) will be carried out prior to:

A) the completion of the targeted surveys required in Condition E25; and

B) the implementation of the approved Sloane's Froglet Management Plan required by Condition E26.

2 PURPOSE AND OBJECTIVES

2.1 Purpose

The purpose of this Construction Sloane's Froglet Management Plan (CSFMP) is to outline how works within and adjacent to Sloane's Froglet habitat will be managed during Stage B construction. This Plan will apply to works at the Billy Hughes enhancement site during construction only. In particular and in accordance with CoA E26 this Plan provides:

- Details of proposed detention basins to manage stormwater consistent with the Sloane's Froglet Stormwater Wetland Design Guidelines (Spire, 2017);
- Measures to prevent Sloane's Froglet habitat from being impacted by sediment; and
- Regular monitoring.

2.2 Objectives

The key objective of this CSFMP is to manage works within and adjacent to Sloanes Froglet habitat at the Billy Hughes Bridge enhancement site. To aid in achieving this objective, this CSFMP incorporates the relevant management measures from the following sources:

- The project EAD;
- Inland Rail – Albury to Illabo Infrastructure Approval CoA (SSI-10055);
- All relevant legislation and other requirements described in Section 3 of this Plan;
- Sloanes Froglet Stormwater Wetland Design Guidelines.

3 ENVIRONMENTAL REQUIREMENTS

3.1 Legislation

Legislation and regulations relevant to the management of works within and adjacent to Sloane's Froglet habitat include:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *Protection of the Environment Operations Act 1997* (POEO Act); and
- BC Act 2016 (Under Part 7 (Clause 27) of the Threatened Species Conservation Act (TSC Act)).

3.2 Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this Plan include:

- Conservation Advice *Crinia sloanei* (Sloane's Froglet) (Threatened Species Scientific Committee 2019);
- Controlled activities – Guidelines for riparian corridors on waterfront land (DPE 2022);
- Managing Urban Stormwater: Soils and Construction Vol 1 4th ed. by Landcom, 2004 (The Blue Book);
- Sloane's Froglet Interim Habitat Guide & Management Recommendations (OEH, 2014); and
- Sloane's Froglet Stormwater Wetland Design Guidelines (NSW OEH, 2017).

3.3 Minister's Conditions of Approval

The requirements of the CoA relevant to the development of this Plan are shown in Table 2.

A cross-reference is also included to indicate where the CoA is addressed in this Plan or other project management document.

TABLE 2 COA RELEVANT TO THIS PLAN – STAGE B

NO.	REQUIREMENT	WHERE ADDRESSED
E25	Prior to the commencement of works, the Proponent must complete targeted surveys during July and/ or August for Sloane's Froglet (*Crinia sloanei*) in all areas where that species was assumed present in the documents listed in Condition A1. The results of the targeted surveys are to be provided to DCCEEW and the Planning Secretary for information.	Section 6.9 of the CBMP
E26	In all locations where the Sloane's Froglet is recorded, a site-specific Sloane's Froglet Management Plan(s) must be prepared and implemented in consultation with DCCEEW and landowners to manage work within and adjacent to Sloane's Froglet habitat. The Sloane's Froglet Management Plan must include:	This Plan Section 1.3
	a) details of proposed detention basins to manage stormwater consistent with the Sloane's Froglet Stormwater Wetland Design Guidelines (Spire, 2017);	No stormwater detention basins are proposed as part of the Project. See Section 6.3
	b) measures to prevent Sloane's Froglet habitat from being impacted by sediment; and	Section 6 Progressive Erosion Sediment Control Plan

NO.	REQUIREMENT	WHERE ADDRESSED
	c) regular monitoring.	Section 7.3
E27	The Sloane's Froglet Management Plan must be submitted to and approved by the Planning Secretary. No work that could impact the areas identified with Sloane's Froglet (*Crinia sloanei*) are to be carried out prior to: (a) the completion of the targeted surveys required in Condition E29; and (b) the implementation of the approved Sloane's Froglet Management Plan required by Condition E26.	Section 4.2.1-surveys Section 1.4
E28	In all remaining areas that assumed the presence of Sloane's Froglet (*Crinia sloanei),* erosion and sediment control measures and protection of riparian areas must be installed in accordance with Conditions C10, E173 and E174 prior to work in these areas.	Section 6 Appendix A

3.4 Updated Mitigation Measures

Relevant Updated Mitigation Measures (UMMs), as identified in Appendix B of the PIR RtS, are listed in Table 3 below. A cross-reference is also included to indicate where and how the conditions are addressed in this CFSMP or other project management documents.

TABLE 3 UMMS RELEVANT TO THIS PLAN – STAGE B

REF.	ISSUE/IMPACT	MITIGATION MEASURE	WHERE ADDRESSED
BD9	Sloane's Froglet	Temporary frog exclusion fencing will be considered where construction compounds/laydown areas occur adjacent to mapped potential Sloane's Froglet breeding habitat.	No frog fencing to be installed as per CPHR feedback – see Section 6.4
BD10	Managing the potential for biodiversity impacts during construction	Prior to construction commencing, pre-clearance seasonal surveys will be undertaken for Sloane's Froglet at locations where prescribed impacts are shown in Appendix C5 of Appendix G: Revised Technical Paper 8: Biodiversity Development Assessment Report. Should the pre-clearance seasonal surveys identify the Sloane's Froglet is present, the following measures will be undertaken as necessary: ▪ implementation of suitable erosion and sediment controls (with reference to Appendix E of the Sloane's Froglet stormwater wetland design guidelines (Albury City Council and NSW Office of Environment and Heritage, 2017)) ▪ implementation of the exclusion zone as indicated in Map 3 of Appendix C5 of Appendix G: Revised Technical Paper 8: Biodiversity Development Assessment Report.	Section 4.2.1 Section 6.3 Appendix A

4 BACKGROUND

4.1 Species description

Sloane's Froglet (*Crinia sloanei*) is a small threatened (Endangered in NSW) frog restricted to a few localities in southern NSW. The froglet has a brown or browny-grey back often with darker brown or olive markings and males may also have orange or ochre coloured spots. The belly is white and peppered with small black spots. The throat of females is white, while breeding males have a greyish-green lower jaw and a pale grey throat. There is no webbing on the feet and toe-pads are absent. Eggs are pigmented and laid individually attached to blades of grass or other submerged vegetation.

Recent surveys (2012 to 2016) demonstrated an estimated decline in the species' range of over 90%. Ongoing habitat loss and degradation, including loss of connectivity between wetlands, landscape fragmentation, and recent severe drought, are causing an ongoing decline. One of the largest known population of Sloane's Froglet in NSW occurs in Albury, in an area undergoing rapid urban expansion.

4.1.1 Habitat

Knight (2014) describes Sloane's Froglet habitat. Sloane's Froglets use a variety of wetlands as breeding habitat. This includes natural and manmade wetlands, from tiny depressions less than 1m2 to very large wetlands 200 ha in size. In the Albury area Sloane's Froglets have been found calling in dams, shallow depressions, natural wetlands, roadside and irrigation drains, oxbows and gilgais.

Sloane's Froglet may not breed successfully in all these types of waterbodies. As with other frog species, some areas may be used for dispersal and refuge rather than breeding. Despite the range of wetlands Sloane's Froglet use, there are some common features to the habitat it is found in and, like most frog species, it has particular requirements, especially regarding water depth and vegetation.

4.2 Species presence at A2I

Sloane's Froglet was identified as having the potential to occur within the Project site in Appendix D2.8 of the Revised BDAR due to presence of historical records and presence of suitable habitat. As seasonal survey timeframes could not be met prior to the publishing of the EIS, the species was assumed present in areas where suitable habitat values were present.

4.2.1 Surveys

Per CoA E25 targeted surveys were undertaken by NGH during July and/or August 2024 for Sloane's Froglet in all areas where that species was assumed present. The Methods and Results report for these surveys is attached as Appendix D of the CBMP. The survey effort was completed in accordance with CoA E25 and with consideration for the NSW Survey Guide for Threatened Frogs (DPIE, 2020). The target species, Sloane's Froglet (*Crinia sloanei*), was not detected aurally or visually at any site. The survey report noted that based on the results, a Sloane's Froglet Management Plan is not required as the species does not occur in the project area. Condition E25 of the CoA has been satisfied and there is no further survey work required for Sloane's Froglet to fulfill this condition.

The survey report was issued to DCCEEW and the Planning Secretary for information and forwarded to CPHR. CPHR provided feedback stating that the survey method was 'generally adequate to confirm species absence', however noted that 'Sloane's Froglet (*Crinia sloanei*) can be difficult to distinguish from other Crinia species when there are multiple species and large numbers of frogs calling' and that additional measures were not taken to confirm species absence at the Billy Hughes Bridge enhancement site. As such, CPHR provided a written recommendation to DPHI that a precautionary approach be applied at the Billy Hughes bridge enhancement site and that a site-specific Sloane's Froglet Management Plan be implemented in accordance with CoA E26 in their letter dated 27 November 2024 and titled 'Inland Rail – Albury to Illabo (SSI-10055), Sloane's Froglet survey results'. This approach was supported by DPHI as per the letter dated 3 December 2024, which states 'The Department supports the advice of CPHR recommending a Sloane's Froglet Management Plan is implemented for construction works at the Billy Hughes bridge site as required by Condition E26'.

As per CoA E26, this site-specific Sloane's Froglet Management Plan for the Billy Hughes bridge enhancement site will be implemented prior to the commencement of construction in areas identified as a precaution in the southern end of the enhancement site. Site-specific management plans are not required for any other enhancement sites.

4.2.2 Sloane's Froglet habitat at Billy Hughes Bridge enhancement site

Refer to Figure 1 for mapping of predicted breeding habitat for Sloane's Froglet within the southern drainage line at the Billy Hughes bridge enhancement site.

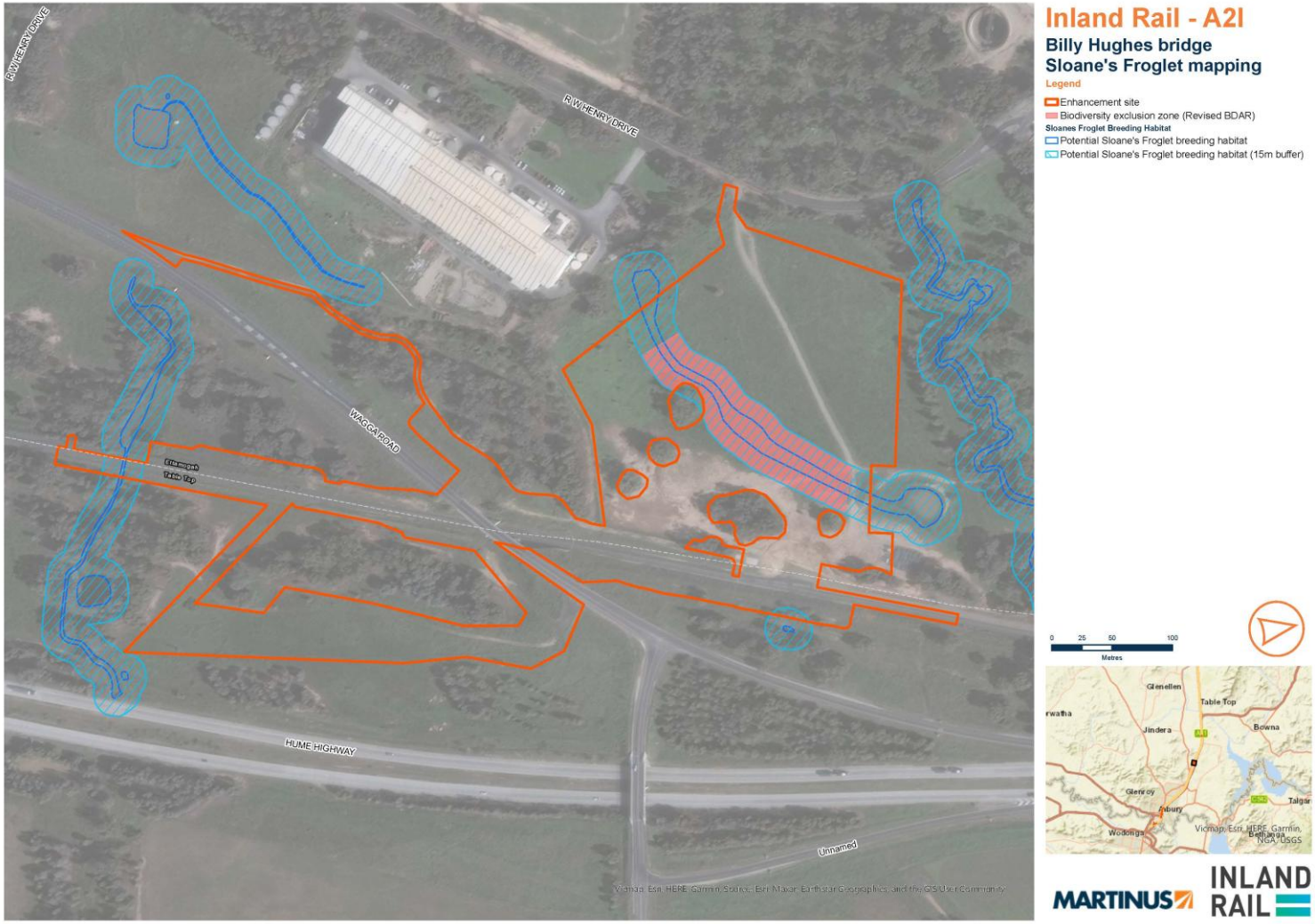


FIGURE 1 SLOANE'S FROGLET MAPPING - BILLY HUGHES BRIDGE

5 CONSTRUCTION IMPACTS

5.1 Construction activities

Key activities at Billy Hughes bridge enhancement site that will occur within or adjacent to Sloane's Froglet habitat include:

- Clearing of native vegetation (including habitat);
- Works around watercourses within the riparian zone (including clearing of riparian vegetation);
- Noise, vibration, and light impacts from ancillary facilities and construction works;
- Fencing and property boundary adjustment work;
- General earthworks near vegetation, resulting in disturbance of soils, consequential erosion and the mobilisation of sediment;
- Instream works including culvert works and bridge alterations;
- Establishment of ancillary facilities and access tracks;
- Heavy and light vehicle movements;
- Earthworks, including stockpiling of material;
- Utility and drainage works;
- Use of chemicals/fuels (potential for spills).

5.2 Impact to Sloane's Froglet

An assessment of both direct and prescribed impacts to the Sloane's Froglet was completed as part of the EAD. Direct impacts are outlined in Section 9.1.3.2 of PIR RtS Appendix G and have been replicated in Table 4. Direct impacts are being offset through a payment into the Biodiversity Conservation Fund (see Section 6.1).

TABLE 4 DIRECT IMPACTS TO SLOANE'S FROGLET SPECIES CREDIT SPECIES- AS PER EAD

IBRA Subregion	Direct impact
Lower Slopes	0.03 hectares
Inland Slopes	0.23 hectares

The prescribed biodiversity impacts from the EAD are summarised in Table 5.

At the Billy Hughes Bridge site an Exclusion Zone (see Appendix C-5) was applied to the majority of the mapped Sloane's Froglet habitat so that any works will be required to avoid impacting this area. As such this Exclusion Zone area was not included in the prescribed impacts calculations as it is being specifically avoided and protected.

TABLE 5 PRESCRIBED IMPACTS TO SLOANE'S FROGLET FROM EAD

Prescribed Biodiversity Impact	Relevance to works at Billy Hughes bridge enhancement site
Impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities	Unmanaged construction activities in proximity to watercourses or waterbodies could increase levels of turbidity and sediment deposition, decrease dissolved oxygen, and change pH levels in receiving environments. Other potential impacts on water quality could occur due to spills, leakages and disturbance of contaminated land. Impact to Sloane's Froglet breeding site downstream from Billy Hughes Bridge will be minimised through mitigative controls for preserving water quality, including sediment control being managed in accordance with Appendix E of the Sloane's Froglet stormwater wetland design guidelines. Work on access roads construction in drainage lines will also be timed to avoid the breeding season of the Sloane's Froglet, where reasonable and feasible.

Prescribed Biodiversity Impact	Relevance to works at Billy Hughes bridge enhancement site
	The prescribed impact to potential Sloane's Froglet breeding habitat (including mapped buffers) in non-native vegetation areas within the proposal site totals 6.80 hectares. Note that at the Billy Hughes Bridge site an Exclusion Zone (see Appendix C-5 of PIR RtS Appendix G) has been applied to the majority of the mapped Sloane's Froglet habitat so that any works will be required to avoid impacting this area. As such this Exclusion Zone area has not been included in the prescribed impacts calculations as it is being specifically avoided and protected.

6 MANAGEMENT AND MITIGATION

As identified in the EAD, the strategy for mitigating residual impacts within or adjacent to Sloane's Froglet habitat is based on exclusion zones and appropriate erosion and sediment controls. The full set of measures is contained in Section 6.6.

6.1 Offsets

The direct impacts described in Section 5 above have been offset. In accordance with CoA E23, the retirement of the credits has been carried out in accordance with the BC Act prior to impact. Evidence of the retirement of credits in satisfaction of CoA E24 has been provided to the Planning Secretary prior to impacts to the biodiversity values.

6.2 Detention Basins

CoA E26 (a) requires the CSFMP to include details of proposed detention basins to manage stormwater consistent with the Sloane's Froglet Stormwater Wetland Design Guidelines (Spire, 2017). It is noted that detention basins are not proposed as part of the Project in areas within or adjacent to Sloane's Froglet habitat as the project scope of works in these areas does not necessitate a detention basin or the creation of breeding habitat for the Sloane's Froglet.

The project has considered The Sloane's Froglet Stormwater Wetland Design Guidelines and permanent stormwater management at the Billy Hughes Bridge enhancement site is outside the scope of the project.

The guidelines state that "where a development requires a stormwater management system, Sloane's froglet breeding habitat must be created or maintained" in line with the guidelines. The Project does not include the construction of stormwater management systems that would be suitable for the creation of breeding habitat. Furthermore, and as noted within the EAD, the construction footprint is within land that is subject to a temporary lease agreement. The lease agreement terms dictate that the site is returned to pre-construction conditions.

6.3 Erosion and sediment controls

In accordance with CoA E26 (b), erosion and sediment control measures and protection of riparian areas will be installed in accordance with **Conditions C10, E173, and E174** prior to work at the Billy Hughes Bridge enhancement site. The erosion and sediment controls will be reviewed on a progressive basis to ensure they are working as intended. A Progressive Erosion and Sediment Control (PESCP) has been included as Appendix A.

Further details regarding erosion and sediment controls are contained within Section 6 of the Construction Soil and Water Management Plan (CSWMP).

6.4 Exclusion zones

In accordance with CoA E35, an exclusion zone will be established to protect riparian vegetation adjoining Billy Hughes Bridge (the eastern compound and track lowering works) before construction commences in this area. Given the sensitivity of the area, onsite measures to delineate the exclusion zone would be limited to measures with little disturbance such as ground markers. The exclusion zone will also be included in the project GIS system and marked on the Sensitive Area Plans (SAPs) and the ESCP. The exclusion zone will be maintained until construction is completed in the area. The exclusion zone is shown in Figure 2.

It is noted that UMM BD9 requires frog exclusion fencing to be considered where construction compounds/laydown areas occur adjacent to mapped potential Sloane's Froglet breeding habitat. Following consultation with CPHR it was determined that frog exclusion fencing is not suitable for the Billy Hughes Bridge enhancement site and will therefore not be installed during construction works.

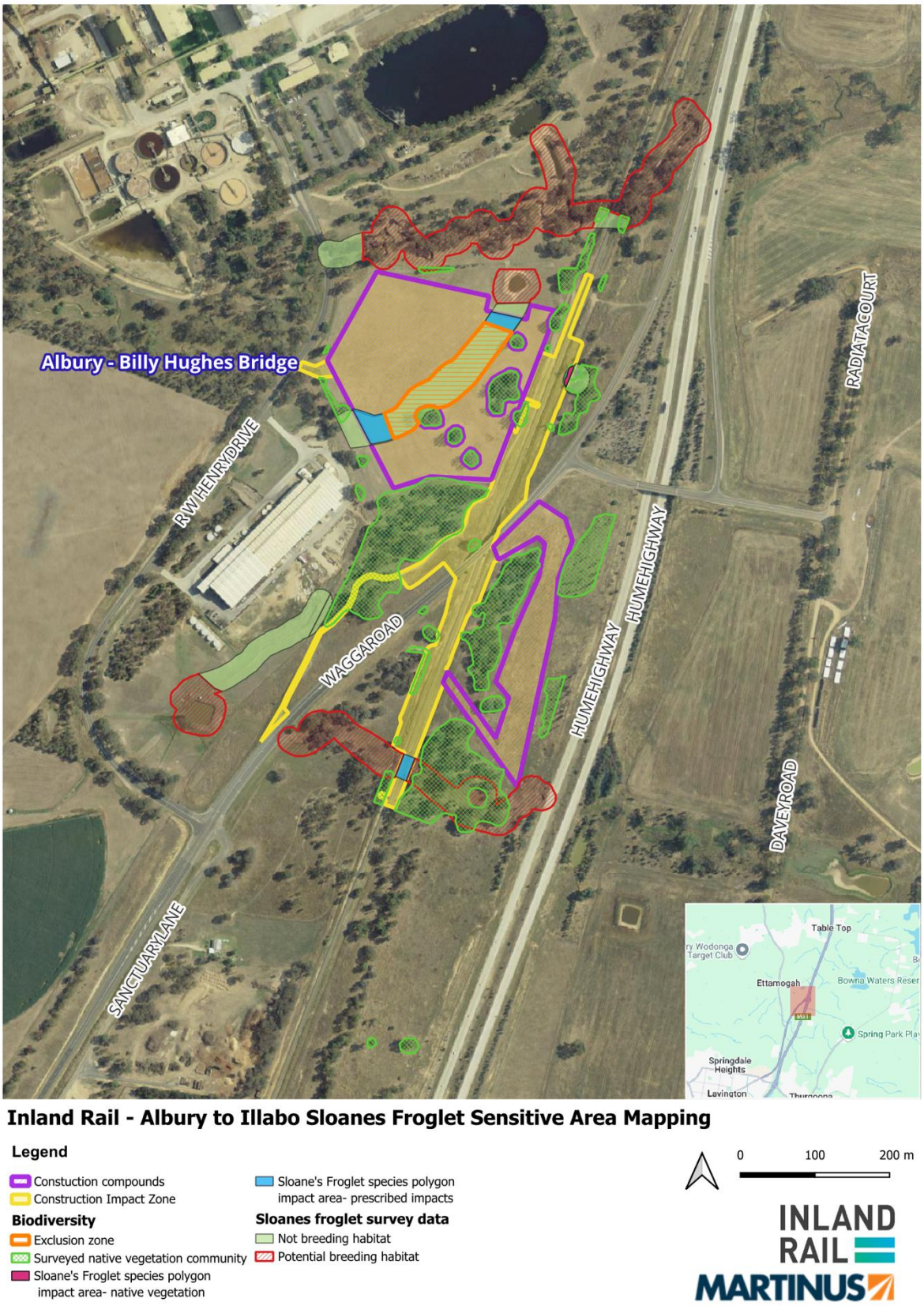


FIGURE 2 EXCLUSION ZONE AND BILLY HUGHES BRIDGE ENHANCEMENT SITE

6.5 Rehabilitation

Following the completion of construction, the site will be restored to its pre-construction condition. In the areas where the project has impacted Sloane's Froglet breeding habitat (as marked in blue in Figure 2) restoration will include plantings that provide suitable habitat for the froglet. Appendix G of the Sloane's Froglet Stormwater Wetland Design Guidelines nominates suitable species for planting. If other species are proposed, the advice of Albury City Council will be sought prior to planting.

Rehabilitated areas will be monitored for plant establishment for a period of 12 months after rehabilitation occurs, subject to land owner agreement.

6.6 Management and mitigation measures

A range of environmental requirements and management measures are identified in the EAD and CoA. Specific measures and requirements to address biodiversity impacts are outlined in Table 20 of the CBMP. Table 27 of the CSWMP contains measures and requirements relating to erosion and sediment control. The relevant measures applicable to works within or adjacent to Sloane's Froglet habitat at the Bully Hughes Bridge enhancement site are shown in Table 6. For consistency, the same IDs have been used for the measures taken from the CBMP and CSWMP. The following mitigation measures have been developed with consideration of SMART (specific, measurable, achievable, relevant and time-based) principles.

TABLE 6 SLOANE'S FROGLET MANAGEMENT AND MITIGATION MEASURES – BILLY HUGHES BRIDGE ENHANCEMENT SITE

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
General						
CB-01	Training will be provided to all project personnel, including relevant sub-contractors on biodiversity management practices and the requirements from this Plan through inductions, toolbox talks and activity-specific training.	Billy Hughes Bridge	Pre-construction	MR ESM	Good Practice	Toolbox Talks Project Induction Training Records
CB-02	Construction workforce will be supplied with sensitive area maps (showing clearing boundaries and exclusion zones), including updates as required.	Billy Hughes Bridge	Pre- Construction Construction	MR ESM	UMM BD7 A2P CEMF	Sensitive Area Plans
CB-06	Impacts to plant community types and threatened species habitat must not exceed the impacts identified in CoA E20. Prior to impacts on the biodiversity values of the CSSI, the number and classes of ecosystem credits and species credits (like-for-like) as set out in the BAM Biodiversity Credit Report which forms part of the Final BDAR, will be retired in accordance with the BC Act. Evidence of retirement be provided to DPHI prior to impact.	Billy Hughes Bridge	Pre-Construction Construction	MR ESM MR Design Manager MR Project Manager MR Site Supervisor MR Engineers	CoA E20 CoA E21 CoA E25 CoA E26	Detailed Design Reports Post-clearing Report Project Clearing Register Retirement Evidence per CoA E24
CB-08	The project disturbance footprint/construction boundary to be delineated by a surveyor before works commence.	Billy Hughes Bridge	Pre-Construction	MR ESM MR Site Supervisor MR Engineers	Good Practice	Project disturbance footprint survey/GIS layer

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
CB-09	The project's fauna handling and rescue procedure would be implemented for: ▪ All activities conducted by site personnel (including sub-contractors) that have the potential to encounter fauna that will need to be relocated or removed from site; and ▪ Vegetation clearing and land disturbance. Handling of fauna may be necessary for fauna to be relocated or, if injured, taken to a vet or wildlife carer. A wildlife licence and/or scientific licence must be held by any staff handling fauna and should be undertaken either by the Project Ecologist or a person skilled in handling the species of fauna encountered.	Billy Hughes Bridge	Pre-Construction Construction	MR ESM Project ecologist	Good Practice	Fauna Handling Record Sheet
Pre-clearing and clearing						
CB-10	The clearing of native vegetation will be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological communities, threatened species and their habitat. Indicative clearing extents will be provided to IRPL at least 80 days prior to clearing.	Billy Hughes Bridge	Detailed Design Pre-Construction Construction	MR ESM MR Design Manager MR Project Manager MR Site Supervisor MR Engineers	CoA E19	Detailed Design Reports Pre-clearing Survey Reports Environmental Work Method Statements Construction Work Methods Statements

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
CB-11	Pre-clearance surveys will be carried out prior to construction by a suitability qualified ecologist. This would include but not be limited to: ▪ Inspections of artificial and natural structures that provide potential microbat habitat. If bats are identified roosting in these structures, individuals will be excluded from this habitat (meaning bats can exit the habitat unharmed during their nocturnal activity period but not re-enter); ▪ Native aquatic fauna salvage in watercourses of residual pools directly impacted by construction, including but not limited to Sloane's Froglet mapped habitat areas. All salvaged aquatic fauna will be relocated to similar habitat nearby; ▪ Pre-clearance disturbance survey including mapping of weeds and development of suitable controls to manage them Verification that the area cleared is correct and within the boundary and GIS data provided to IRPL.	Billy Hughes Bridge	Pre-Construction Construction	MR ESM Project ecologist	UMM BD5	Pre-clearing Survey Reports Fauna Handling Record Sheet
CB-12	The project ecologist must be onsite to supervise the clearing works during two stage clearing and in areas of known and assumed present threatened species habitat (i.e. species polygons). They will: ▪ Thoroughly inspect all hollows that are accessible from the ground immediately before clearing;	Billy Hughes Bridge	Pre-Construction Construction	MR ESM Project ecologist	Good practice	Pre-clearing Survey Reports Fauna Handling Record Sheet Post-clearing report

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
	▪ Carefully determine the appropriate felling methodology and supervise the removal of habitat features and hollows when trees are dropped to the ground; ▪ Ensure detected fauna are encouraged to self-relocate or capture and relocate any encountered fauna to pre-identified release sites; ▪ Ensure that any injured wildlife is transported to a veterinarian or wildlife carer; ▪ Where breeding fauna or dependent young are detected during the clearing works, consult with a licensed carer to determine whether the animal/s require ongoing care or can be safely relocated to an adjacent habitat. Locations of fauna release (including GPS coordinates) will be recorded in a post-clearing report. Once all fauna habitat inspections and any required fauna removal are complete, the remaining vegetation clearing will commence.					
CB-13	At the completion of clearing, the project ecologist will prepare a Post-Clearing Report.	Billy Hughes Bridge	Pre-Construction Construction	MR ESM Project ecologist	Good practice	Post-clearing report
Exclusion zones						
CB-14	Exclusion areas will be established and maintained around native vegetation and riparian vegetation identified for retention and protection, particularly areas of biodiversity	Billy Hughes Bridge	Pre-Construction Construction	MR ESM Project ecologist MR Site Supervisor	UMM BD6	Weekly Environmental Inspection Checklist Sensitive Area Plans

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
	value adjoining the project site that are located in close proximity to work areas and identified on the Sensitive Area Maps for consideration.			MR Engineers		Pre-clearing Survey Report Environmental Work Method Statements Construction Work Methods Statements
Threatened species management						
CB-19	If potential or actual impacts to any threatened communities or species not listed in Condition E20 are discovered, all work that may impact the identified species or community must stop to prevent further impact. The Planning Secretary and DCCEEW (NSW) (and DCCEEW (Cth) where relevant) will be notified in writing. Work will not recommence until the relevant agencies have been consulted and any required approvals have been obtained.	Billy Hughes Bridge	Detailed Design Pre-Construction Construction	MR ESM Project ecologist MR Project Manager MR Site Supervisor MR Engineers	CoA E22	Communications with the Planning Secretary and DCCEEW (NSW) (and DCCEEW (Cth) where relevant). Monitoring Reports
CB-20	In all remaining areas that assumed the presence of Sloane's Froglet (*Crinia sloanei*), erosion and sediment control measures and protection of riparian areas must be installed in accordance with **Conditions C10, E173, and E174** prior to work in these area.	Billy Hughes Bridge	Stage B Pre-Construction/ Construction	MR ESM Project ecologist MR Site Supervisor MR Engineers	CoA E28	CSWMP Sensitive Area Plans Erosion and Sediment Control Plans Weekly Environmental Inspection Checklist
CB-19	If potential or actual impacts to any threatened communities or species not listed in Condition E20 are discovered, all work that may impact the identified species or community must stop to	Billy Hughes Bridge	Detailed Design Pre-Construction Construction	MR ESM Project ecologist MR Project Manager	CoA E22	Communications with the Planning Secretary and DCCEEW (NSW) (and

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
	prevent further impact. The Planning Secretary and DCCEEW (NSW) (and DCCEEW (Cth) where relevant) will be notified in writing. Work will not recommence until the relevant agencies have been consulted and any required approvals have been obtained.			MR Site Supervisor MR Engineers		DCCEEW (Cth) where relevant). Monitoring Reports
Habitat retention						
CB-24	Riparian land and watercourses disturbed during construction will be rehabilitated and revegetated with native species of local provenance from the relevant native vegetation community on completion of Work impacting the riparian land in accordance with the Controlled activities – Guidelines for riparian corridors on waterfront land (DPE 2022) and A Rehabilitation Manual of Australian Streams (Rutherfurd et al. 2000).	Billy Hughes Bridge	Stage B Construction	MR ESM MR Design Manager Project ecologist MR Site Supervisor MR Engineers	CoA E34	Pre-clearing Survey Reports Post-clearing reports
Lighting						
CB-25	Where works are undertaken at night, direction lighting will be used and directed away from vegetated areas where practicable.	Billy Hughes Bridge	Detailed Design Construction	MR ESM Project ecologist MR Site Supervisor MR Engineers	Good Practice	Weekly Environmental Inspection Checklists Temporary Lighting Designs Construction Work Method Statements

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
Soil and water quality						
CB-26	Before undertaking any work and during maintenance or construction activities, erosion and sediment controls will be implemented and maintained to prevent water pollution consistent with Managing Urban Stormwater: Soils and Construction Vol 1 4th ed. by Landcom, 2004 (The Blue Book).	Billy Hughes Bridge	Pre-Construction Construction	MR ESM MR Site Supervisor MR Engineers	CoA E174	CSWMP Erosion and Sediment Control Plans Weekly Environmental Inspection Checklist
CB-27	Soil and water quality management measures will be implemented in accordance with the Soil and Water Management Plan to minimise erosion during clearing.	Billy Hughes Bridge	Pre-Construction Construction	MR ESM MR Site Supervisor MR Engineers	Good Practice	CSWMP Erosion and Sediment Control Plans Weekly Environmental Inspection Checklist
Working in waterways and on waterfront land						
CB-30	Refuelling will be conducted outside of waterfront land, so far as is practicable, with appropriate measures in place to avoid impacts to waterways, aquatic habitats and groundwater. This includes spill kits always kept with maintenance vehicles and or machinery within 100 m of a watercourse.	Billy Hughes Bridge	Construction	MR Site Supervisor	UMM BD15	Weekly Environmental Inspection Checklist Sensitive Area Plans Temporary Work Designs Environmental Work Method Statements Construction Work Methods Statements
CB-32	Activities within vegetated riparian zones will be managed to minimise impacts to aquatic environments as far as practicable. Riparian	Billy Hughes Bridge	Detailed Design Construction	MR ESM MR Design Manager	UMM BD8	Detailed Design Reports

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
	areas subject to disturbance will be progressively stabilised and rehabilitated.			MR Site Supervisor MR Engineers		Weekly Environmental Inspection Checklist Environmental Work Method Statements Construction Work Methods Statements Landscape Design Reports
CB-35	When carrying out work within 40 metres of a watercourse the integrity of riparian corridors would be protected in accordance with the *Controlled activities – Guidelines for riparian corridors on waterfront land* (DPE 2022).	Billy Hughes Bridge	Detailed Design Construction	MR ESM MR Design Manager MR Site Supervisor MR Engineers	CoA E173	Detailed Design Reports Weekly Environmental Inspection Checklist Environmental Work Method Statements Construction Work Methods Statements Landscape Design Reports
Monitoring						
CB-37	Biodiversity monitoring will be undertaken in accordance with the Biodiversity Monitoring Program detailed in Section 7.3.	Billy Hughes Bridge	Pre-construction Construction	MR ESM Project ecologist	CoA C26	Monitoring Reports
Erosion and Sediment Control						
CSW-03	Before undertaking any work and during maintenance or construction activities, erosion and sediment controls must be implemented	Billy Hughes Bridge	Pre-construction Construction	MR ESM	CoA E26 CoA E174	Appendix A

ID	MANAGEMENT MEASURE	LOCATION	WHEN TO IMPLEMENT	RESPONSIBILITY FOR IMPLEMENTATION	REFERENCE OR SOURCE	EVIDENCE OF IMPLEMENTATION
	and maintained to prevent water pollution consistent with Managing Urban Stormwater: Soils and Construction Vol 1 4th ed. by Landcom, 2004 (The Blue Book).				UMM HFWQ7	

7 COMPLIANCE MANAGEMENT

7.1 Roles and responsibilities

The project's organisational structure and overall roles and responsibilities are outlined in the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Table 6 and Section 7.4.

7.2 Training

To ensure that this Plan is effectively implemented, all site personnel working at the Billy Hughes bridge enhancement site (including sub-contractors) will undergo site induction training that includes Sloane's Froglet management issues prior to construction commencing. The induction training will address elements related to biodiversity management including:

- Existence and requirements of this Plan;
- Relevant legislation, regulations and conditions (where applicable);
- Existence of the SAPs;
- Clearing procedures;
- No-go/exclusion zones;
- Threatened species within the project area;
- Unexpected finds procedures for threatened species; and
- Biosecurity and weeds procedures.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in biodiversity management or those undertaking an activity with a high risk of environmental impact.

Daily pre-start meetings conducted by the Martinus Rail Foreman/Site Supervisor will inform the site workforce of any environmental issues relevant to Sloane's Froglet management that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are outlined in the CEMP.

7.3 Monitoring

Monitoring will be undertaken as outlined within the Construction Biodiversity Monitoring Program. The Construction Biodiversity Monitoring Program is provided in Appendix G of the CBMP.

Monitoring for water quality impacts is outlined within the CSWMP.

7.4 Inspections

Regular inspections at the Billy Hughes bridge enhancement site will occur for the duration of the project. Martinus Rail will carry out daily, weekly and monthly site inspections. The inspections will check the implementation and effectiveness of the management measures identified in Section 6 and the environmental performance of the project relevant to the management of works within or adjacent to Sloane's Froglet habitat at Billy Hughes bridge enhancement site.

Weekly and other routine inspections by the ER will occur throughout construction. Detail on the nature and frequency of these inspections are documented in the CEMP.

The inspection requirements relevant to this Plan are summarised in Table 7.

TABLE 7 INSPECTIONS

Item	Scope	Frequency	Responsibility	Records/reporting
Daily inspections	Daily site inspections of the site to check that the mitigation measures outlined in this Plan are being implemented, in particular the ESCP and the exclusion zones.	Daily	MR Site supervisor	Daily diary
Weekly inspections	Inspection of the site erosion and sediment controls, spill response equipment, stockpiles and the site access point(s).	Weekly Daily monitoring when adverse weather is predicted.	MR ESM or delegate	Environmental Inspection Checklist
Monthly Inspections	Monthly site inspections will be undertaken with the project ecologist and the project soil conservationist to verify the effectiveness of the mitigation measures outlined within this plan.	Monthly	MR ESM or delegate	Environmental Inspection Checklist
Pre-rainfall inspection	Inspection of the environmental controls to assess site preparedness for potential forecast rainfall events. Inspection to be undertaken on working days, if safe to do so. Issue actions to repair/maintain any damaged controls, or install additional controls if necessary.	Prior to predicted rainfall greater than 15 mm at 80% chance of occurring	MR Site Supervisors	Pre rainfall inspection checklist
Post-rainfall inspection	Post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures and issue appropriate actions to repair or maintain any controls and/or install additional controls where required. Post rainfall inspections will occur after a rainfall event. For the purpose of this inspection, a rainfall event occurs when more than 5mm of rain has been received and/or runoff occurs.	Within the next working day, if safe to do.	MR ESM or delegate MR Site Supervisors	Post rainfall inspection checklist

7.5 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of Sloane's Froglet management measures, compliance with this Plan, conditions of approval and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 9 of the CEMP.

7.6 Reporting and identified records

Reporting requirements and responsibilities are documented in Section 10.2 of the CEMP and Sections 1.5 and 4.1 of the Monitoring Program in Appendix G.

Additionally, in the event of an incident or non-compliance, the Planning Secretary will be notified in writing of the findings of the review conducted by the project relating to the incident or non-compliance.

The project will maintain accurate records substantiating all construction activities associated with the project or relevant to the conditions of approval, including measures taken to implement this Plan.

Records will be made available to the Planning Secretary upon request, within the timeframe nominated in the request.

8 REVIEW AND IMPROVEMENT

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets to identify opportunities for improvement.

Issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance;
- Identify environmental risks not already included in the risk register;
- Determine the cause or causes of non-conformances and deficiencies;
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- Verify the effectiveness of the corrective and preventative actions;
- Document any changes in procedures resulting from process improvement;
- Make comparisons with objectives and targets.

Martinus Rail will be responsible for ensuring that project environmental risks are identified and included in the risk register and that appropriate mitigation measures are implemented throughout the construction of the project, as part of the continuous improvement process as outlined in Section 6 of the CEMP.

8.2 Update and amendment

The processes described in Section 10 of the CEMP may result in the need to update or revise this Plan.

Any revisions to this Plan will be in accordance with the process outlined in Section 10 of the CEMP. A copy of the updated Plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

The review and document control processes for this Plan are described in Section 10 of the CEMP.

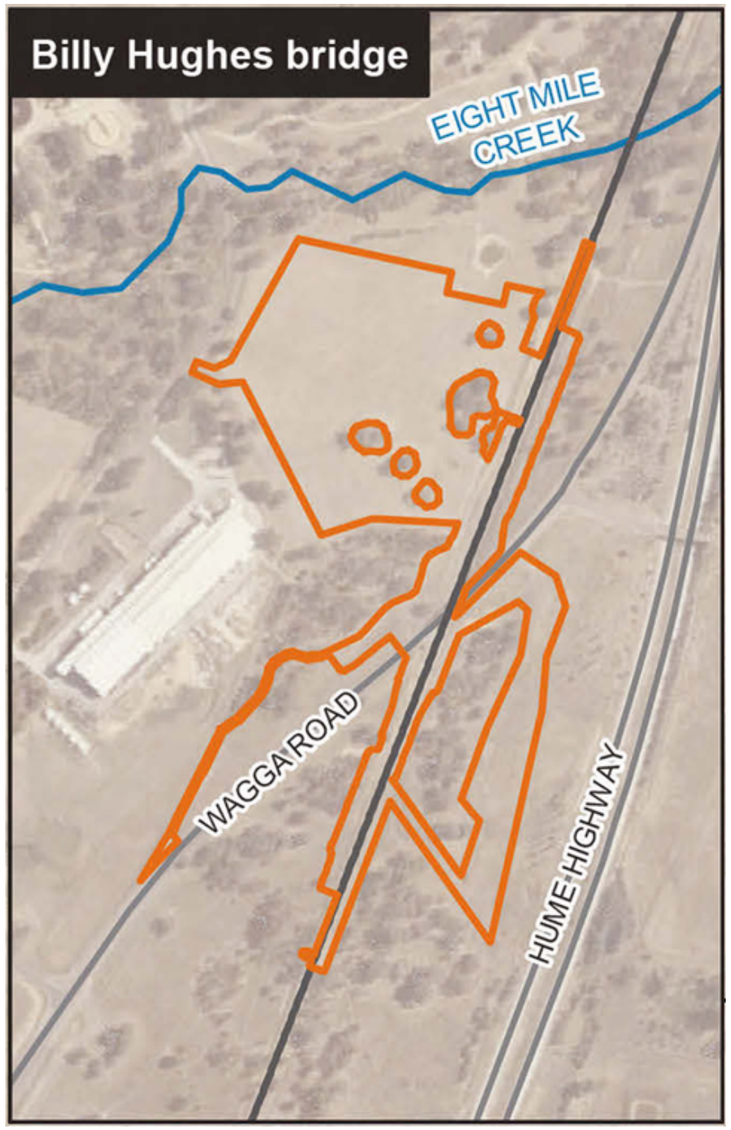
APPENDICES

APPENDIX A

Progressive Erosion and Sediment Control Plan

This plan is indicative only and will be updated on a progressive basis.

PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN
BILLY HUGHES BRIDGE



PROJECT AREA & FEATURES

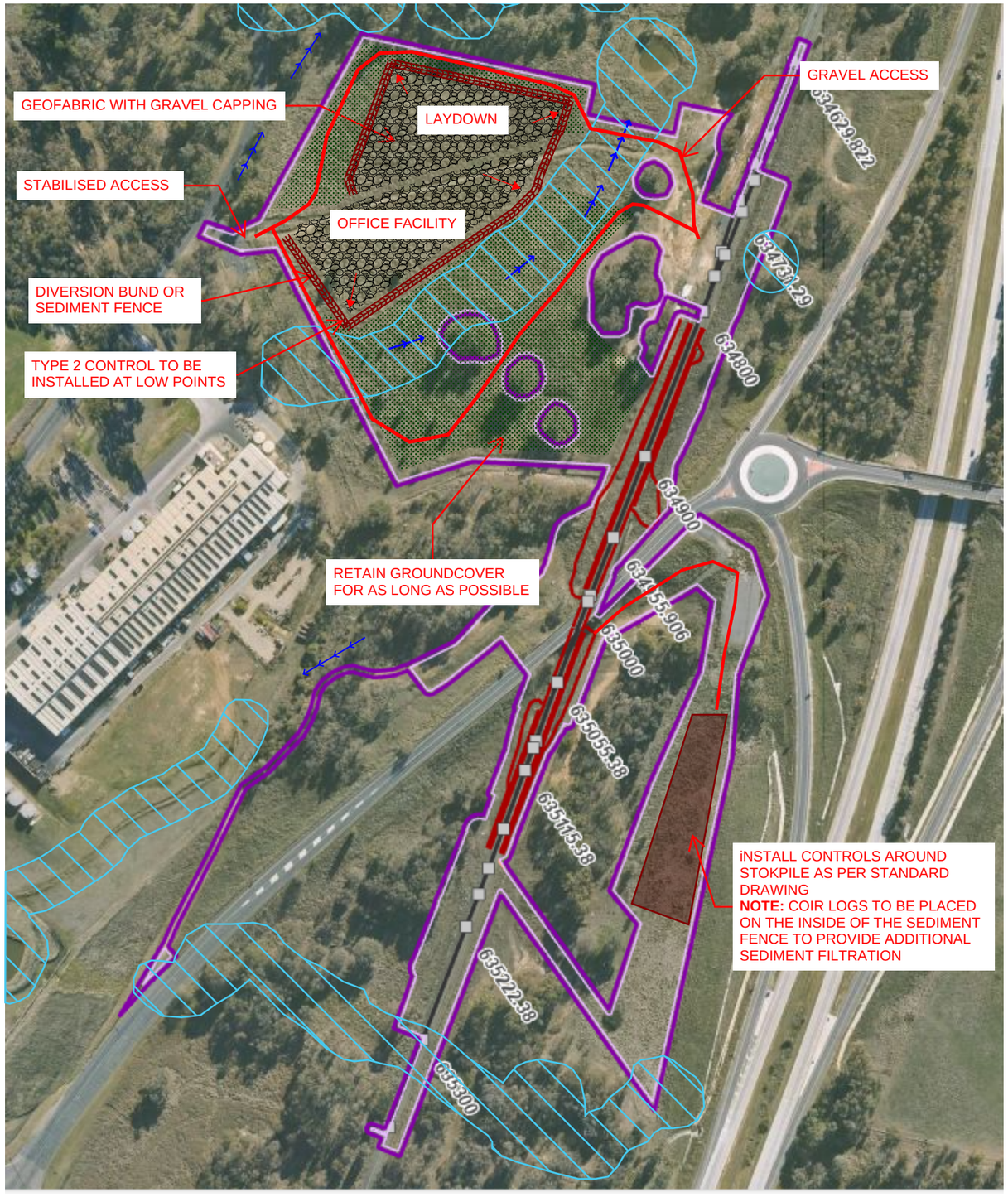
DRAWING LIST:

REVISION	DESCRIPTION	APPROVED	DATE
A	ORIGINAL ISSUE	SS	27/02/25

MARTINUS
TREESTONE ENVIRONMENTAL

CLIENT	MARTINUS		
DRAWN	SS	DESIGNED SS	DATE 27/02/25
CPESC CERTIFICATION	APPROVED Sarah Steel CPESC 7317		
PROJECT	A2I - BILLY HUGHES BRIDGE		
DRAWING TITLE	PROJECT AREA AND FEATURES		
PROJECT No 0052	DRAWING No 001	REV A	

BILLY HUGHES BRIDGE - SITE ESTABLISHMENT AND ENABLING WORKS



LEGEND - ESC
- Dirty Water
- Clean Water
- Diversion Bund
- Excavated Sediment Trap (Type 2 control)
- Stabilised Access
- Gravel Sheeting
- Sediment Fence
- Fence
- Rock Check
- Catch Drain
- Cess Drain
- Pit and Pipe System
- Spoon Drain
- Sloanes Froglet Breeding Habitat - No Go Zone
- Grassed Area (To be Retained)
- Protection Slab
- Temporary Pipe Crossing
- Project Boundary

Construction and Installation Sequence :

1. Delineate boundary of works and No Go Zones to prevent unauthorised access.
2. Install stabilised access point.
3. Progressively install designated access track to provide access to work area. Access track to be sheeted with gravel. Install pipes at low points of access track traversing Sloanes Froglet Breeding Area to allow for low flows.
4. Progressively clear vegetation and strip topsoil. Topsoil material, mixed with the grass layer, can be used to construct diversion bunds, otherwise place in a stockpile area and protect as per standard drawing for stockpiles
5. Diversion bund to be compacted with an excavator bucket or equivalent.
6. Office and laydown facility to be established on clean gravel.
7. Place rock checks in flow path along diversion bunds to slow water velocity running along the toe of the bunds
8. Progressively install ESC controls - diversion bund, sediment fence, rock checks and type 2 controls at low points in accordance with the standard drawings

General

1. Daily monitoring of weather forecast to be undertaken
2. Any dewatering needs to be undertaken in accordance with 'Dewatering Permit' requirements
3. Remove accumulated sediment before it reaches half the above ground height of a silt fence or velocity check structure.
4. Whenever sediment fills 50% of the original storage volume of a type 2 control (excavated sediment trap, rock filter dam) it needs to be excavated and disposed of.

REVISION	DESCRIPTION	APPROVED	DATE
D	WESTERN STOCKPILE ADDED	SS	10/07/25
C	UPDATED WITH IR COMMENTS	SS	25/05/25
B	UPDATED WITH FROGLET NO GO ZONE	SS	12/05/25
A	ORIGINAL ISSUE	SS	27/02/25

MARTINUS
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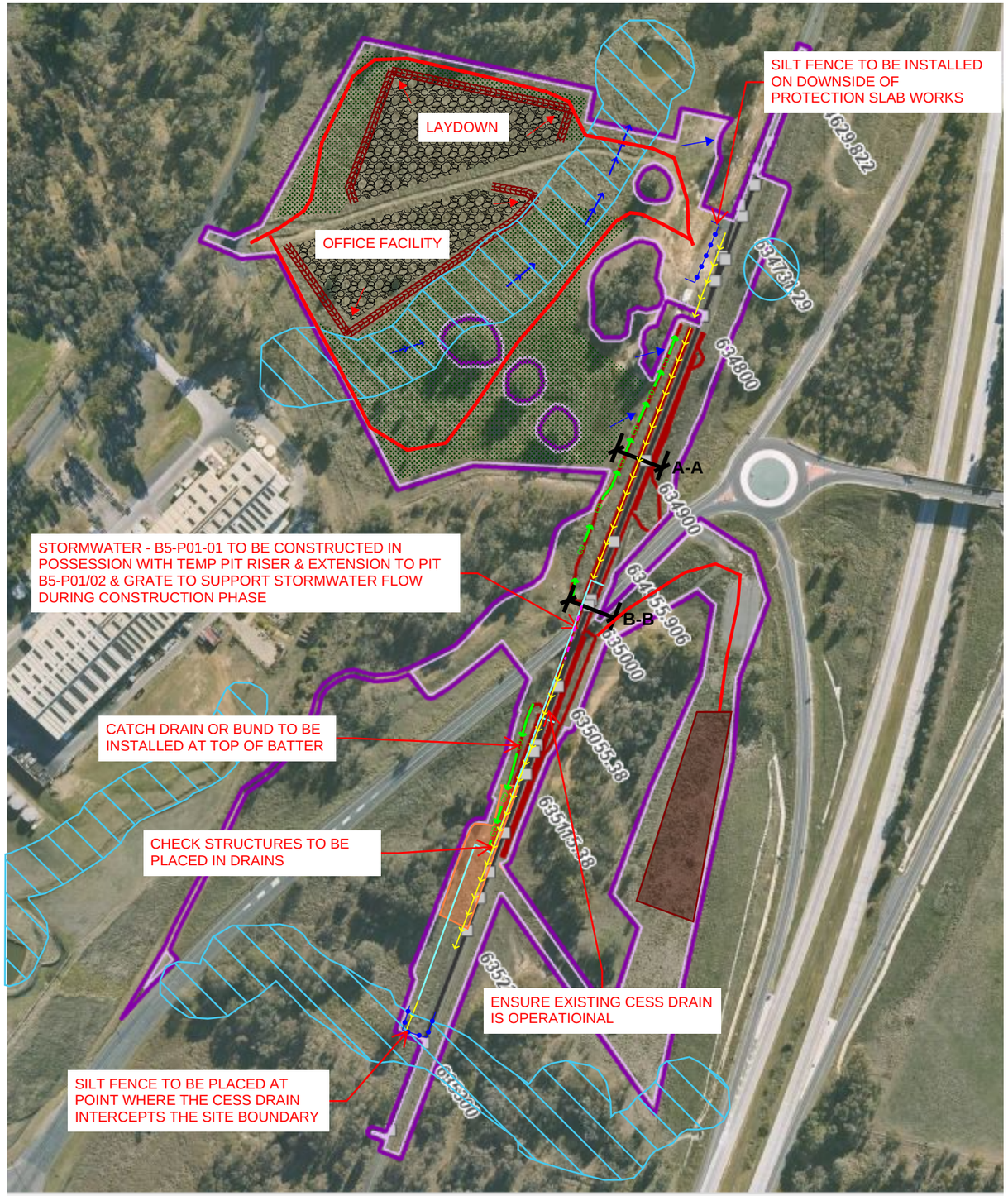
NTS

CLIENT: MARTINUS
DRAWN: SS | DESIGNED: SS | DATE: 10/07/25
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317

PROJECT: A2I - BILLY HUGHES BRIDGE
DRAWING TITLE: PESCP - SITE ESTABLISHMENT AND ENABLING WORKS
PROJECT No: 0052 | DRAWING No: 002 | REV: D

BILLY HUGHES BRIDGE - WESTERN CORRIDOR WORKS



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- Grassed Area (To be Retained)
- Protection Slab
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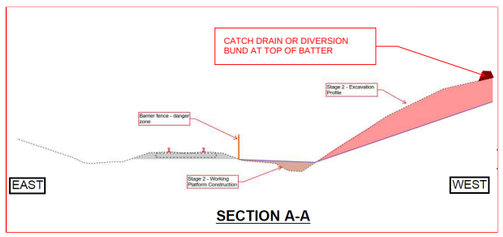
- Project Boundary

Construction and Installation Sequence :

1. Delineate boundary of works and No Go Zones to prevent unauthorised access.
2. All vehicles to remain on designated access track or sheeted surfaces.
3. Install catch drain/dirversion bund at top of batter and utilise existing cess drain at toe of batter. Drains to have check structures (coir logs, rock checks, sand bags) placed in them to control velocity. Refer to standard drawings for spacing.
4. Install stormwater B5-P01-01 with temporary pit riser and extension to pit B5-P01/02 and grate to maintain stormwater flow
5. Utilise exisiting drainage (cess drains) where possible.
6. Install permanent drainage early in the works and utilise for temporary drainage of the site or maintain existing drainage for as long as possible (catch drain, cess drain, spoon drain and pit and pipe system).
7. All fill or spoil material stockpiles to have erosion and sediment controls as per the standard drawing.

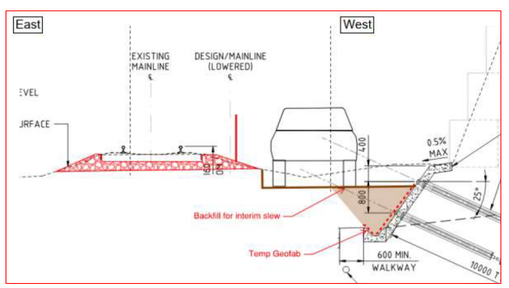
General

1. Daily monitoring of weather forecast to be undertaken
2. Any dewatering needs to be undertaken in accordance with 'Dewatering Permit' requirements
3. Remove accumulated sediment before it reaches half the above ground height of a silt fence or velocity check structure.
4. Whenever sediment fills 50% of the original storage volume of a type 2 control (excavated sediment trap, rock filter dam) it needs to be excavated and disposed of.



SECTION A-A

SECTION B-B



REVISION	DESCRIPTION	APPROVED	DATE
D	WESTERN STOCKPILE ADDED	SS	10/07/25
C	UPDATED WITH IR COMMENTS	SS	25/05/25
B	UPDATED WITH FROGLET NO GO ZONE	SS	12/05/25
A	ORIGINAL ISSUE	SS	27/02/25

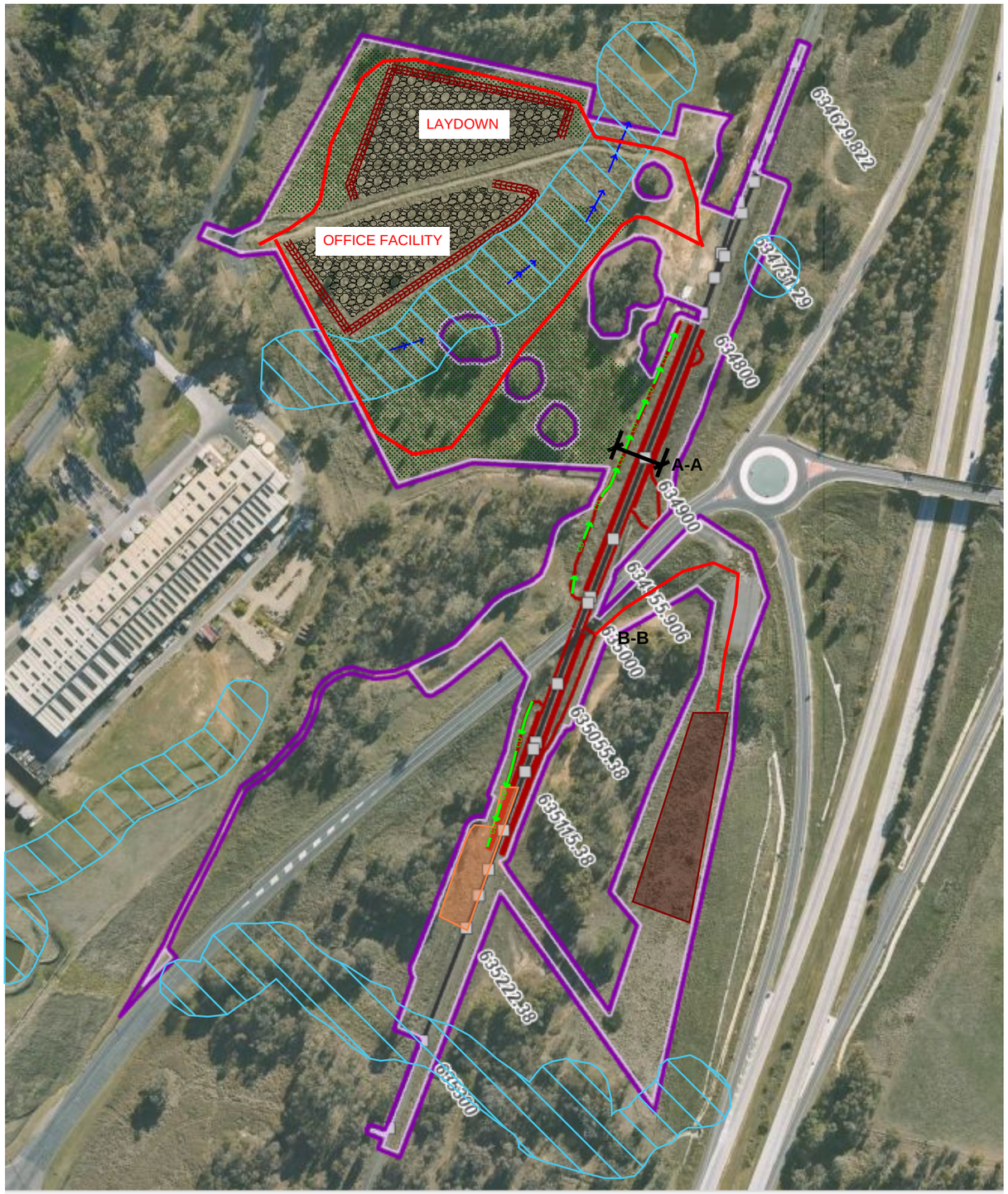
MARTINUS
TREESTONE ENVIRONMENTAL

NTS

CLIENT: MARTINUS
DRAWN: SS | DESIGNED: SS | DATE: 10/07/25
CPESC CERTIFICATION: APPROVED Sarah Steel CPESC 7317

PROJECT: A2I - BILLY HUGHES BRIDGE
DRAWING TITLE: PESCP - WESTERN CORRIDOR WORKS
PROJECT No: 0052 | DRAWING No: 003 | REV: D

BILLY HUGHES BRIDGE - INTERIM TRACK SLEW



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- Spoon Drain
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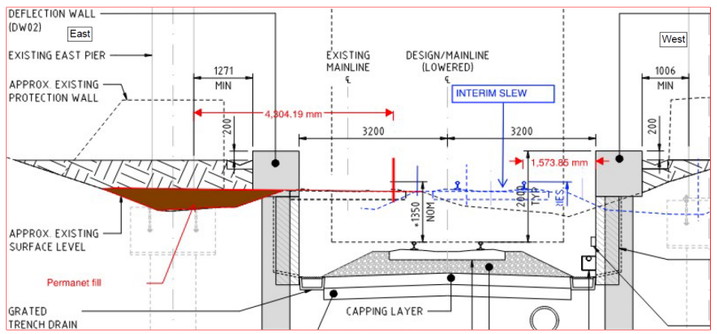
- Grassed Area (To be Retained)
- Protection Slab
- Temporary Pipe Crossing
- Project Boundary

Construction and Installation Sequence :

1. Delineate boundary of works and No Go Zones to prevent unauthorised access.
2. All vehicles to remain on designated access track or sheeted surfaces
3. Maintain cess and catch drains to direct stormwater.
4. Maintain ESC controls - rock checks or coir logs in cess drains.
6. Ensure material (soil and ballast) is kept out of grated trench drain whilst undertaking the works

General

1. Daily monitoring of weather forecast to be undertaken
2. Any dewatering needs to be undertaken in accordance with 'Dewatering Permit' requirements
3. Remove accumulated sediment before it reaches half the above ground height of a silt fence or velocity check structure.
4. Whenever sediment fills 50% of the original storage volume of a type 2 control (excavated sediment trap, rock filter dam) it needs to be excavated and disposed of.



SECTION A-A

REVISION	DESCRIPTION	APPROVED	DATE
D	WESTERN STOCKPILE ADDED	SS	10/07/25
C	UPDATED WITH IR COMMENTS	SS	25/05/25
B	UPDATED WITH FROGLET NO GO ZONE	SS	12/05/25
A	ORIGINAL ISSUE	SS	27/02/25

MARTINUS
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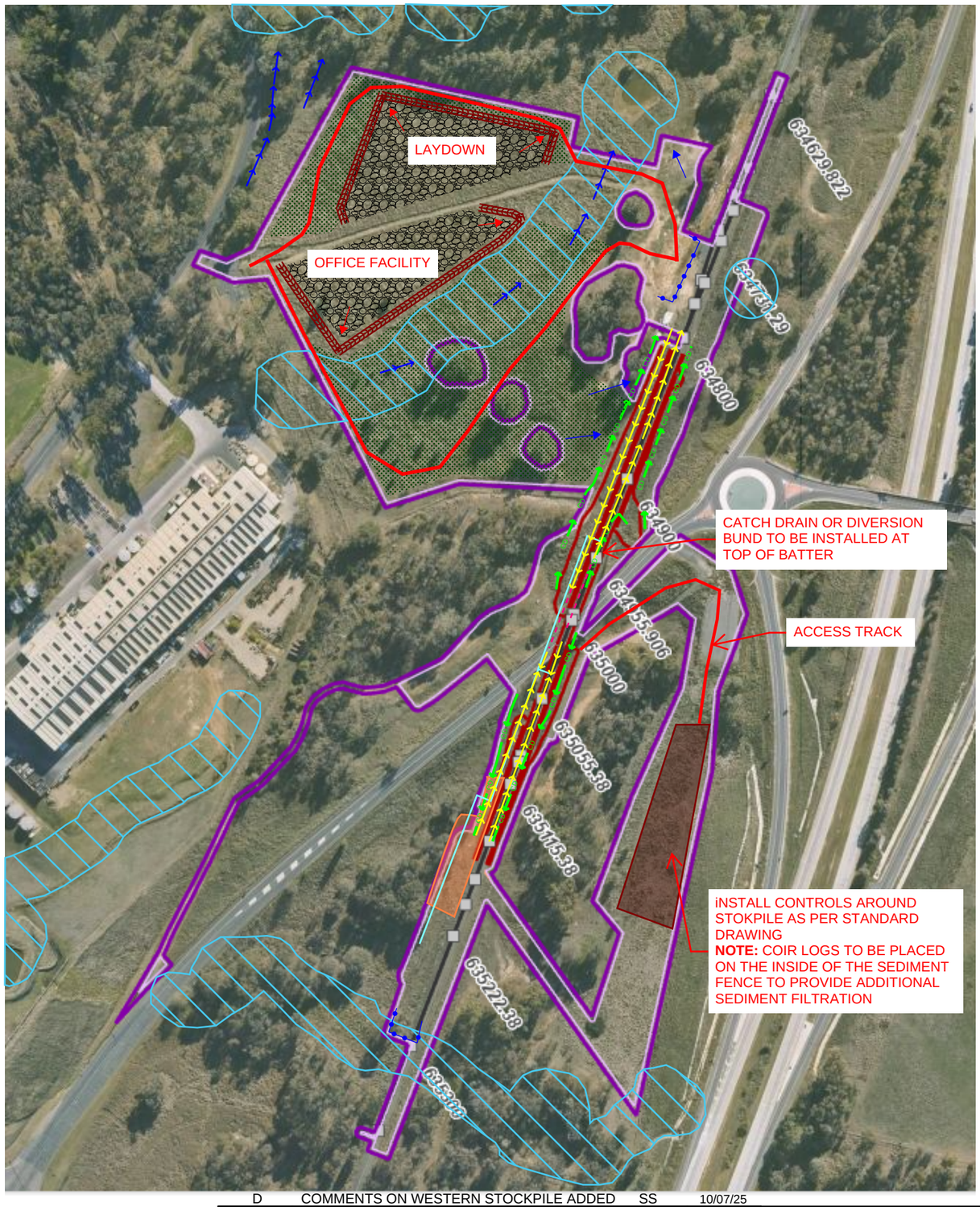
NTS

CLIENT: MARTINUS
DRAWN: SS | DESIGNED: SS | DATE: 10/07/25
CPESC CERTIFICATION
APPROVED
Sarah Steel
CPESC 7317

PROJECT: A2I - BILLY HUGHES BRIDGE
DRAWING TITLE: PESCP - ITERIM TRACK SLEW
PROJECT No: 0052 | DRAWING No: 004 | REV: D

BILLY HUGHES BRIDGE - EASTERN CORRIDOR WORKS



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Construction and Installation Sequence :

1. Delineate boundary of works and No Go Zones to prevent unauthorised access.
2. All vehicles to remain on designated access track or sheeted surfaces.
3. Install catch drain/dirversion bund at top of batter and utilise existing cess drain at toe of batter. Drains to have check structures (coir logs, rock checks, sand bags) placed in them to control velocity. Refer to standard drawings for spacing.
4. Utilise exisiting drainage (cess drains) where possible.
5. Install permanent drainage early in the works and utilise for temporary drainage of the site or maintain existing drainage for as long as possible (catch drain, cess drain, spoon drain and pit and pipe system).
6. All fill or spoil material stockpiles to have erosion and sediment controls as per the standard drawing.

General

1. Daily monitoring of weather forecast to be undertaken
2. Any dewatering needs to be undertaken in accordance with 'Dewatering Permit' requirements
3. Remove accumulated sediment before it reaches half the above ground height of a silt fence or velocity check structure.
4. Whenever sediment fills 50% of the original storage volume of a type 2 control (excavated sediment trap, rock filter dam) it needs to be excavated and disposed of.

REVISION	DESCRIPTION	APPROVED	DATE
D	COMMENTS ON WESTERN STOCKPILE ADDED	SS	10/07/25
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B	UPDATED WITH FROGLET NO GO ZONE	SS	12/05/25
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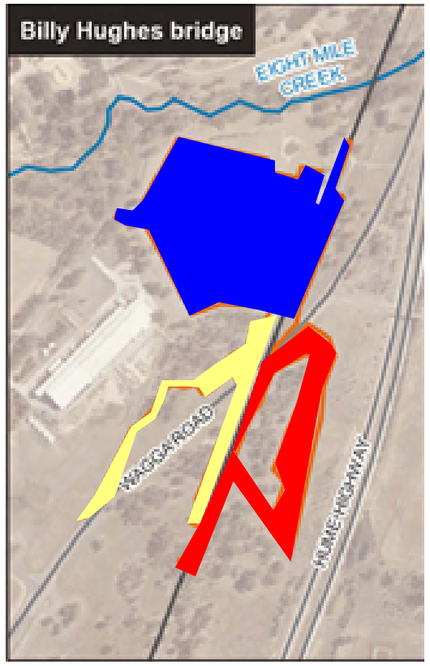
MARTINUS
TREESTONE ENVIRONMENTAL

NTS

CLIENT: MARTINUS			PROJECT: A2I - BILLY HUGHES BRIDGE
DRAWN: SS	DESIGNED: SS	DATE: 10/07/25	DRAWING TITLE: PESCP - EASTERN CORRIDOR WORKS
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317			
PROJECT No: 0052	DRAWING No: 005	REV: D	

EROSION RISK ASSESSMENT AND DRAINAGE CALCULATIONS



RUSLE - EROSION RISK ASSESSMENT

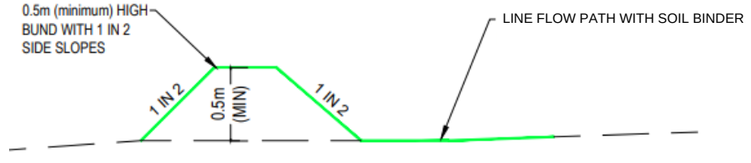
Catchment ID	Area (ha)	R	K	Slope Length (m)	Slope (%)	LS	P	C	A(t/ha/yr)	A/t/yr	Control
Billy Hughes Bridge											
Catchment 1	5.39	1046	0.05	80	2	0.41	1.3	1	28	150	TYPE 3
Catchment 2	1.18	1046	0.05	80	2	0.41	1.3	1	28	33	TYPE 3
Catchment 3	2.15	1046	0.05	80	2	0.41	1.3	1	28	60	TYPE 3

DRAIN AND BUND SIZING

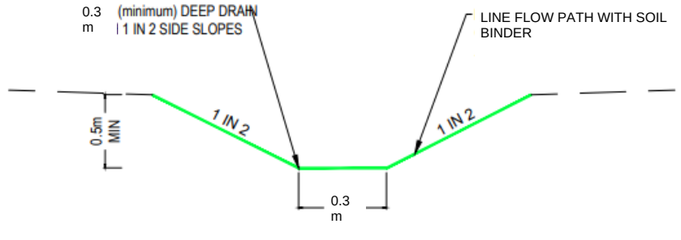
DRAIN/BUND ID	AREA (HA)	ARI	C_{ARI}	TIME OF CONC (mins)	I_{ARI}	FLOW - Q (m^3/s)	LONG. SLOPE (m/m)	BASE WIDTH	SIDE SLOPE 1 (1 in x)	SIDE SLOPE 2 (1 in x)	LINING	MANNING ROUGH COEFF	MAX PERM VEL (m/s)	DESIGN VEL (m/s)	DEPTH OF FLOW (m)	DEPTH WITH F/BOARD (m)	DRAIN TOP WIDTH (m)	OK / NOT OK
Bund <1HA <1% Slope	1	10	0.48	10	39.9	0.05	0.01	0	2	20	Soil Binder	0.02	1.5	0.8	0.08	0.23	5.01	OK
Bund <1HA <3% Slope	1	10	0.48	10	39.9	0.05	0.03	0	2	20	Soil Binder	0.02	1.5	0.93	0.07	0.22	4.89	OK
Bund <1HA <5% Slope	1	10	0.48	10	39.9	0.05	0.05	0	2	20	Soil Binder	0.02	1.5	1.12	0.07	0.22	4.74	OK
Bund <2HA <1% Slope	2	10	0.48	10	39.9	0.11	0.01	0	2	20	Soil Binder	0.02	1.5	0.96	0.10	0.25	5.51	OK
Bund <2HA <3% Slope	2	10	0.48	10	39.9	0.11	0.03	0	2	20	Soil Binder	0.02	1.5	1.12	0.09	0.24	5.35	OK
Bund <2HA <5% Slope	2	10	0.48	10	39.9	0.11	0.05	0	2	20	Soil Binder	0.02	1.5	1.35	0.08	0.23	5.16	OK
Bund <3HA <1% Slope	3	10	0.48	10	39.9	0.16	0.01	0	2	20	Soil Binder	0.02	1.5	1.06	0.12	0.27	5.88	OK
Bund <3HA <3% Slope	3	10	0.48	10	39.9	0.16	0.03	0	2	20	Soil Binder	0.02	1.5	1.23	0.11	0.26	5.69	OK
Bund <3HA <5% Slope	3	10	0.48	10	39.9	0.16	0.05	0	2	20	Soil Binder	0.02	1.5	1.49	0.10	0.25	5.47	OK
Drain <1HA <1% Slope	1	10	0.48	10	39.9	0.05	0.01	0.60	2	2	Soil Binder	0.02	1.5	1.03	0.07	0.22	1.48	OK
Drain <1HA <3% Slope	1	10	0.48	10	39.9	0.05	0.03	0.60	2	2	Soil Binder	0.02	1.5	1.18	0.06	0.21	1.45	OK
Drain <1HA <5% Slope	1	10	0.48	10	39.9	0.05	0.05	0.60	2	2	Soil Binder	0.02	1.5	1.40	0.05	0.20	1.41	OK
Drain <2HA <1% Slope	2	10	0.48	10	39.9	0.11	0.01	0.60	2	2	Soil Binder	0.02	1.5	1.29	0.10	0.25	1.61	OK
Drain <2HA <3% Slope	2	10	0.48	10	39.9	0.11	0.03	0.60	2	2	Soil Binder	0.02	1.5	1.49	0.09	0.24	1.57	OK
Drain <2HA <5% Slope	2	10	0.48	10	39.9	0.11	0.05	0.60	2	2	Soil Binder	0.02	2.5	1.77	0.08	0.23	1.52	OK
Bund <3HA <1% Slope	3	10	0.48	10	39.9	0.16	0.01	0.60	2	2	Soil Binder	0.02	1.5	1.46	0.13	0.28	1.71	OK
Bund <3HA <3% Slope	3	10	0.48	10	39.9	0.16	0.03	0.60	2	2	Soil Binder	0.02	2.5	1.68	0.11	0.26	1.66	OK
Bund <3HA <5% Slope	3	10	0.48	10	39.9	0.16	0.05	0.60	2	2	Soil Binder	0.02	2.5	2.01	0.10	0.25	1.60	OK

STANDARD DRAINAGE TYPES

Drain/Bund Type	Description
Bund <1HA	<5% Grade: 0.5m High - Vital HR @ L/m2
Bund <2HA	
Bund <3HA	
Drain <1HA	<5% Grade: 0.6m base width, 0.3m deep - Vital HR @ L/m2
Drain <2HA	
Drain <3HA	



DIVERSION BERM - TYPICAL DETAIL



DIVERSION DRAIN - TYPICAL DETAIL

REVISION	DESCRIPTION	APPROVED	DATE
A	ORIGINAL ISSUE	SS	25/05/2025

MARTINUS
TREESTONE ENVIRONMENTAL

CLIENT: MARTINUS
DRAWN: SS | DESIGNED: SS | DATE: 25/05/2025
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317

PROJECT: A2I BILLY HUGHES
DRAWING TITLE: EROSION RISK ASSESSMENT AND CALCULATIONS
PROJECT No: 0052 | DRAWING No: 006 | REV: A

CONSTRUCTION

1. REFER TO APPROVED PLANS FOR LOCATION AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE FOUNDATION AREA OF THE OUTLET STRUCTURE (IF ANY), AND INSTALL AS PER SEPARATE INSTRUCTIONS.

3. EXCAVATE THE SETTLING POND IN ACCORDANCE WITH THE APPROVED PLANS. UNLESS OTHERWISE SPECIFIED, THE EXCAVATED PIT SHOULD HAVE A SIDE SLOPE OF 2:1(H:V) OR FLATTER.

4. APPROPRIATELY STABILISE ANY BANK SUBJECT TO DIRECT INFLOW.

5. ESTABLISH ALL NECESSARY UP-SLOPE DRAINAGE CONTROL MEASURES TO ENSURE THAT SEDIMENT-LADEN RUNOFF IS APPROPRIATELY DIRECTED INTO THE SEDIMENT TRAP.

6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

MAINTENANCE

1. CHECK EXCAVATED SEDIMENT TRAPS AFTER EACH RUNOFF EVENT AND MAKE REPAIRS IMMEDIATELY.

2. INSPECT THE BANKS FOR SLUMPING OR EXCESSIVE SCOUR.

3. IF FLOW THROUGH THE STRUCTURE IS REDUCED TO AN UNACCEPTABLE LEVEL DUE TO BLOCKAGE OF THE OUTLET STRUCTURE (IF ANY), THEN MAKE ALL NECESSARY REPAIRS AND MAINTENANCE TO RESTORE THE DESIRED FLOW CONDITIONS.

4. CHECK THE STRUCTURE AND SURROUNDING CHANNEL BANKS FOR DAMAGE FROM OVERTOPPING FLOWS AND MAKE REPAIRS AS NECESSARY.

5. REMOVE SEDIMENT AND RESTORE ORIGINAL SEDIMENT STORAGE VOLUME WHEN COLLECTED SEDIMENT EXCEEDS 30% OF THE PIT VOLUME.

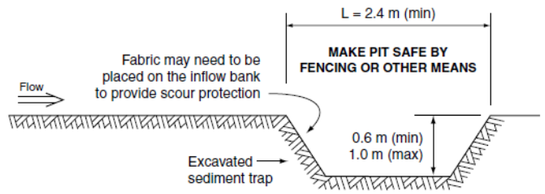
6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

REMOVAL

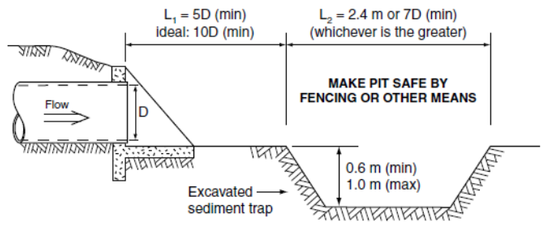
1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

2. ALL WATER AND SEDIMENT SHOULD BE REMOVED FROM THE BASIN PRIOR TO THE DAM'S REMOVAL. DISPOSE OF SEDIMENT AND WATER IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

3. BRING THE DISTURBED AREA TO A PROPER GRADE, THEN SMOOTH, COMPACT AND STABILISE AND/OR REVEGETATE AS REQUIRED.



(a) Excavated sediment trap located within a minor drainage path



Where space is not available, make optimum use of the available space

(b) Excavated sediment trap located downstream of a stormwater outlet

Drawn:	Date:		
GMW	Apr-10	Excavated Sediment Trap	EST-01

MATERIALS

FIBRE ROLLS: TYPICALLY 200 TO 250mm JUTE, COIR OR STRAW ROLL TIED WITH SYNTHETIC OR BIODEGRADABLE MESH.

STAKES: MINIMUM 25 x 25mm TIMBER STAKES.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION 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.

2. WHEN PLACED ACROSS NON-VEGETATED OR NEWLY SEEDED SLOPES, THE ROLLS MUST BE PLACED ALONG THE CONTOUR.

3. IF PLACED ON OPEN OR LOOSE SOIL, ENSURE THE FIBRE ROLLS ARE TRENCHED 75 TO 125mm IN SANDY SOILS AND 50 TO 75mm IN CLAYEY SOILS.

4. ENSURE THE OUTER MOST ENDS OF THE FIBRE ROLL ARE TURNED UP THE SLOPE TO ALLOW WATER TO ADEQUATELY POND UP-SLOPE OF THE ROLL, AND TO MINIMISE FLOW BYPASSING.

5. WHEN PLACED ACROSS THE INVERT OF MINOR DRAINS, ENSURE THE SOCKS ARE PLACED SUCH THAT:

(i) THE CREST OF THE DOWNSTREAM ROLL IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM SOCK (IF ANY);

(ii) EACH ROLL EXTENDS UP THE CHANNEL BANKS SUCH THAT THE CREST OF THE FIBRE ROLL AT ITS LOWEST POINT IS LOWER THAN THE GROUND LEVEL AT EITHER END OF THE ROLL.

6. ENSURE THE ANCHORING STAKES ARE DRIVEN INTO THE END OF EACH ROLL AND ALONG THE LENGTH OF EACH ROLL AT A SPACING NOT EXCEEDING 1.2m OR SIX TIMES THE ROLL DIAMETER, WHICHEVER IS THE LESSER. A MAXIMUM STAKE SPACING OF 0.3m APPLIES WHEN USED TO FORM CHECK DAMS.

7. ADJOINING ROLL MUST BE OVERLAP AT LEAST 450mm, NOT ABUTTED.

MAINTENANCE

1. INSPECT ALL FIBRE ROLLS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING STORMS OR OTHERWISE AT WEEKLY INTERVALS.

2. REPAIR OR REPLACE DAMAGED FIBRE ROLLS.

3. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. ALL EXCESSIVE SEDIMENT TRAPPED BY THE ROLLS MUST BE REMOVED FROM THE DRAIN OR SLOPE IF SUCH SEDIMENT IS LIKELY TO BE WASHED AWAY BY EXPECTED FLOWS.

2. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. THE BIODEGRADABLE CONTENT OF THE STRAW ROLLS MAY NOT NECESSARILY NEED TO BE REMOVED FROM THE SITE.

4. ALL SYNTHETIC (PLASTIC) MESH OR OTHER NON READILY BIODEGRADABLE MATERIAL MUST BE REMOVED FROM THE SITE ONCE THE SLOPE OR DRAIN IS STABILISED, OR THE ROLLS HAVE DETERIORATED TO A POINT WHERE THEY ARE NO LONGER PROVIDING THEIR INTENDED DRAINAGE OR SEDIMENT CONTROL FUNCTION.

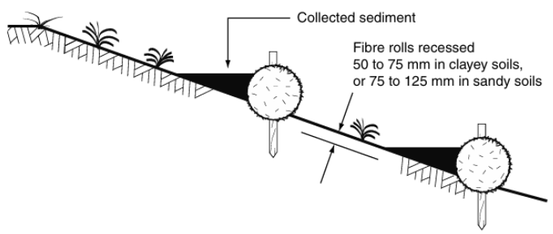
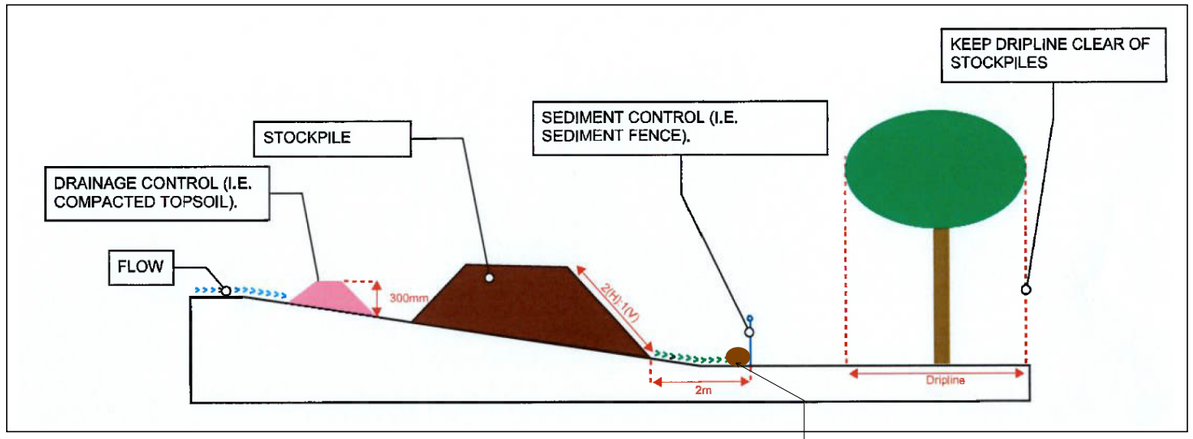


Figure 1 - Typical installation of fibre rolls

Drawn:	Date:		
GMW	Apr-10	Fibre Rolls	FR-01



STOCKPILE CONTROLS

Place coir logs on inside of sediment fence to provide additional filtration in Sloanes Froglet Habitat Area

Recommended maximum slope length up-slope of a sediment control on non-vegetated slopes

Batter Slope			Horizontal Spacing (m)	Vertical Spacing (m)
Percentage	Degrees	(H):(V)		
1%	0.57	100:1	60	0.6
2%	1.15	50:1	60	1.2
4%	2.29	25:1	40	1.6
6%	3.43	16.7:1	32	1.9
8%	4.47	12.5:1	28	2.2
10%	5.71	10:1	25	2.5
15%	8.53	6.67:1	19	2.9
20%	11.3	5:1	16	3.2
25%	14.0	4:1	14	3.5
30%	16.7	3.33:1	12	3.5
40%	21.8	2.5:1	9	3.5
50%	26.6	2:1	6	3.0

Coir Log Sediment Trap

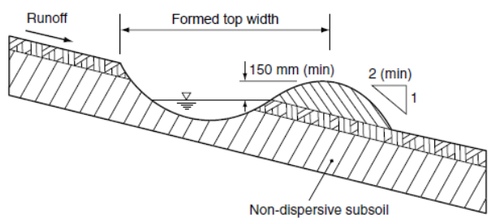
Coir Log Detail

REVISION	DESCRIPTION	APPROVED	DATE
C	DETAIL ADDED TO STOCKPILE CONTROLS	SS	10/07/25
B	UPDATED WITH IR COMMENTS	SS	25/05/25
A	ORIGINAL ISSUE	SS	27/02/25

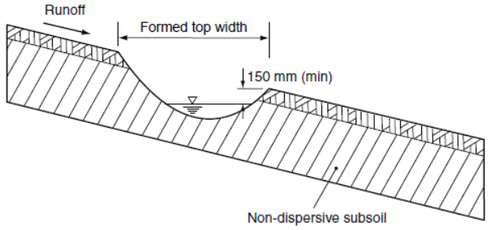
MARTINUS
TREESTONE ENVIRONMENTAL

CLIENT: MARTINUS
DRAWN: SS | DESIGNED: SS | DATE: 25/05/25
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317

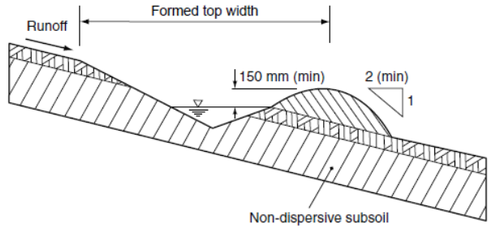
PROJECT: A2I - BILLY HUGHES
DRAWING TITLE: STANDARD DRAWINGS
PROJECT No: 0052 | DRAWING No: 007 | REV: C



(a) Parabolic catch drain with down-slope bank



(c) Parabolic catch drain without bank



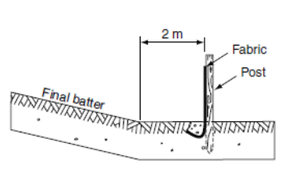
(b) Triangular V-drain with down-slope bank

Constructed dimensions of parabolic catch drains		
Drain type	Formed top width with or without bank	Formed depth with or without bank
Type-A	1.6 m	0.30 m
Type-B	2.4 m	0.45 m
Type-C	3.6 m	0.65 m

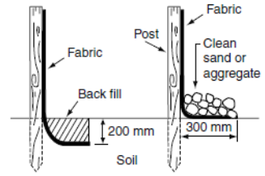
Constructed dimensions of triangular V-drains		
Drain type	Formed top width with or without bank	Formed depth with or without bank
Type-AV	2.0 m	0.30 m
Type-BV	2.7 m	0.45 m
Type-CV	3.9 m	0.65 m

NOT TO SCALE

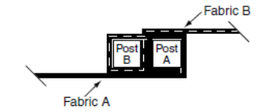
Drawn:	Date:		
GMW	Dec-09	Catch Drains	CD-01



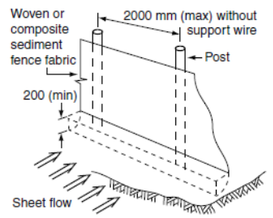
(a) Location of fence relative to base of slope



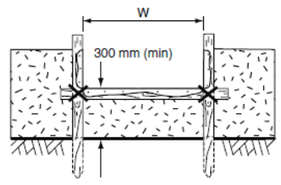
(b) Anchoring base of fabric



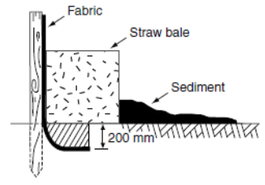
(c) Joining fabric - Method 1



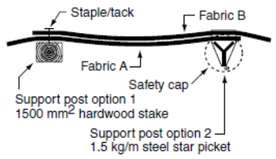
(d) Installation without backing support



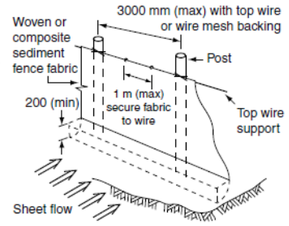
(e) Spill-through weir



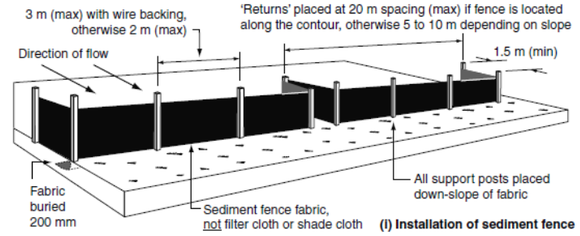
(f) Placement of up-slope straw bale



(g) Joining fabric - Method 2



(h) Installation with top wire support

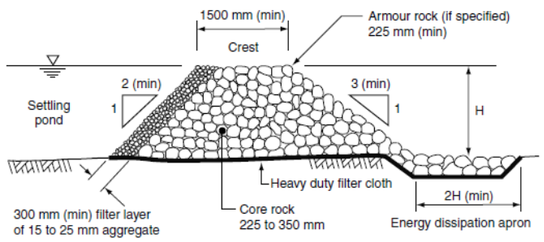


(i) Installation of sediment fence

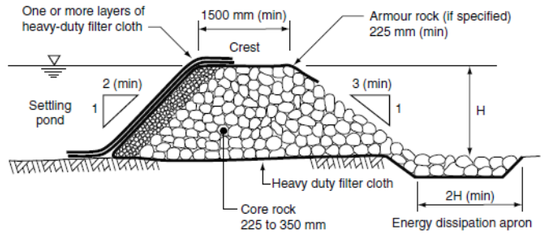
Notes:

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.

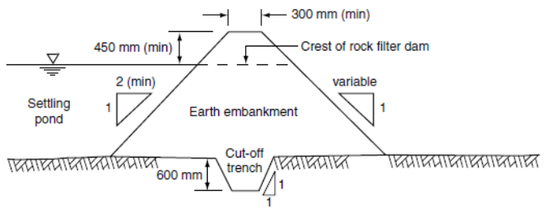
Drawn:	Date:		
GMW	Dec-09	Sediment Fence	SF-01



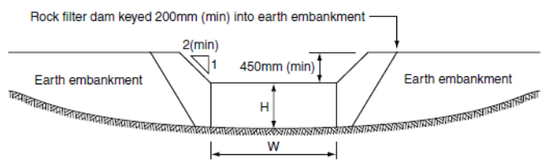
(a) Rock filter dam with aggregate filter



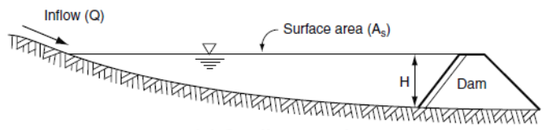
(b) Rock filter dam with geotextile and aggregate filter



(c) Typical cross-section of constructed earth abutment

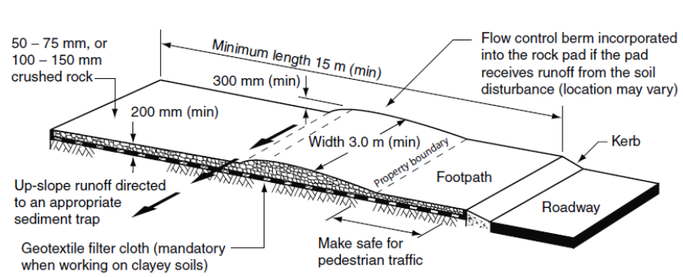


(d) Typical profile of rock filter dam crest when integrated into an earth embankment

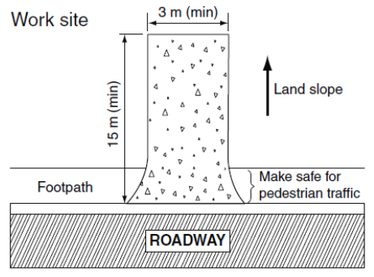


(e) Settling pond

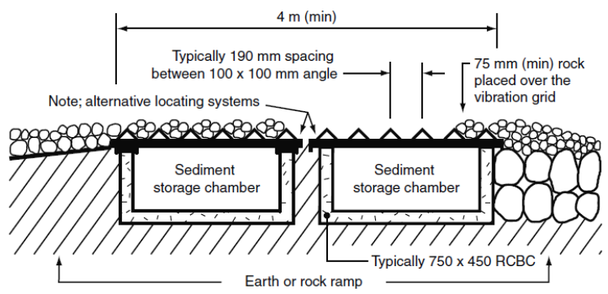
Drawn:	Date:		
GMW	Feb-10	Rock Filter Dam	RFD-01



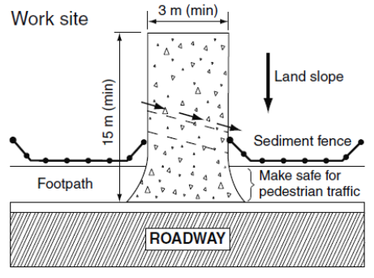
(a) Rock entry/exit pad for construction sites
(refer to Standard Drawing Exit-03 for building sites)



(b) Rock pad sloping away from road



(c) Alternative low maintenance arrangement
(still under development)



(d) Rock pad sloping towards the road

Drawn:	Date:		
GMW	Apr-10	Construction Exit - Rock Pad (construction sites only)	Exit-01

REVISION	DESCRIPTION	APPROVED	DATE
B	UPDATED WITH IR COMMENTS	SS	25/05/25
A	ORIGINAL ISSUE	SS	27/02/25

MARTINUS
TREESTONE ENVIRONMENTAL

CLIENT: MARTINUS			PROJECT: A2I - BILLY HUGHES
DRAWN: SS	DESIGNED: SS	DATE: 25/05/25	DRAWING TITLE: STANDARD DRAWINGS
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317			PROJECT No: 0052 / DRAWING No: 008 / REV: B

MATERIALS

ROCK: 150 TO 300mm EQUIVALENT DIAMETER, HARD, EROSION RESISTANT ROCK.

SANDBAGS: GEOTEXTILE BAGS (WOVEN SYNTHETIC, OR NON-WOVEN BIODEGRADABLE) FILLED WITH CLEAN COARSE SAND, CLEAN AGGREGATE, OR COMPOST.

INSTALLATION (ROCK CHECK DAM)

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. PRIOR TO PLACEMENT OF THE SEDIMENT TRAP, ENSURE THE DRAINAGE CHANNEL IS DEEP ENOUGH TO PREVENT WATER BEING UNSAFELY DIVERTED OUT OF THE DRAIN ONCE THE CHECK DAMS ARE INSTALLED.

3. LOCATE EACH CHECK DAM SEDIMENT TRAP AS DIRECTED WITHIN THE APPROVED PLANS, OR OTHERWISE AT SUCH A SPACING TO ACHIEVE THE REQUIRED SEDIMENT TRAPPING OUTCOMES.

4. IF THE CHECK DAMS ARE ALSO BEING USED TO CONTROL EROSION WITHIN THE DRAINAGE CHANNEL, THEN LOCATE EACH SUCCESSIVE CHECK DAM SUCH THAT THE CREST OF THE IMMEDIATE DOWNSTREAM DAM IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM CHECK DAM.

5. CONSTRUCT EACH CHECK DAM TO THE DIMENSIONS AND PROFILE SHOWN WITHIN THE APPROVED PLAN.

6. WHERE SPECIFIED, THE CHECK DAMS MUST BE CONSTRUCTED ON A SHEET OF GEOTEXTILE FABRIC USED AS A DOWNSTREAM SPLASH PAD.

7. EACH CHECK DAM MUST BE EXTENDED UP THE CHANNEL BANK (WHERE PRACTICABLE) TO AN ELEVATION AT LEAST 150mm ABOVE THE CREST LEVEL OF THE DAM.

INSTALLATION (COMPOST-FILLED SOCKS)

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. PRIOR TO PLACEMENT OF THE SEDIMENT TRAP, ENSURE THE DRAINAGE CHANNEL IS DEEP ENOUGH TO PREVENT WATER BEING UNSAFELY DIVERTED OUT OF THE DRAIN ONCE THE CHECK DAMS ARE INSTALLED.

3. LOCATE EACH SOCK AS DIRECTED WITHIN THE APPROVED PLANS, OR OTHERWISE AT SUCH A SPACING TO ACHIEVE THE REQUIRED SEDIMENT TRAPPING OUTCOMES.

4. PLACE EACH SOCK TO THE LINES AND PROFILE SHOWN IN THE APPROVED PLAN OR AS DIRECTED BY THE SITE SUPERVISOR.

5. ENSURE EACH SOCK EXTENDS UP THE CHANNEL BANKS (WHERE PRACTICAL) TO A LEVEL AT LEAST 100mm ABOVE THE CREST LEVEL OF THE CHECK DAM.

MAINTENANCE

1. INSPECT EACH CHECK DAM AND THE DRAINAGE CHANNEL AT LEAST WEEKLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN ANY OF THE CHECK DAMS, THEN CHECK THE SPACING OF THE DAMS AND WHERE NECESSARY INSTALL INTERMEDIATE CHECK DAMS OR A SUITABLE CHANNEL LINER.

3. CHECK FOR DISPLACEMENT OF THE CHECK DAMS.

4. CHECK FOR SOIL SCOUR AROUND THE ENDS OF EACH CHECK DAM. IF SUCH EROSION IS OCCURRING, CONSIDER EXTENDING THE WIDTH OF THE CHECK DAM TO AVOID SUCH PROBLEMS.

5. IF SEVERE SOIL EROSION OCCURS EITHER UNDER OR AROUND THE CHECK DAMS, THEN SEEK EXPERT ADVICE ON AN ALTERNATIVE TREATMENT MEASURE.

6. DE-SILT SEDIMENT TRAP IF THE SEDIMENT LEVEL EXCEEDS 1/3 THE CREST HEIGHT.

7. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. WHEN CONSTRUCTION WORK WITHIN THE DRAINAGE AREA ABOVE THE CHECK DAMS HAS BEEN COMPLETED AND DISTURBED AREAS SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE DAMS MUST BE REMOVED, UNLESS THE SEDIMENT TRAPS ARE TO REMAIN AS A PERMANENT FEATURE.

2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REMOVE AND APPROPRIATELY DISPOSE OF ALL MATERIALS INCLUDING ANY GEOTEXTILE FABRIC.

4. STABILISE THE DISTURBED CHANNEL WITH A LINING OF FABRIC AND ROCK, OR ESTABLISH VEGETATION AS APPROPRIATE.

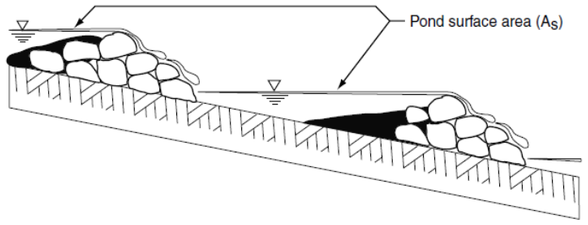
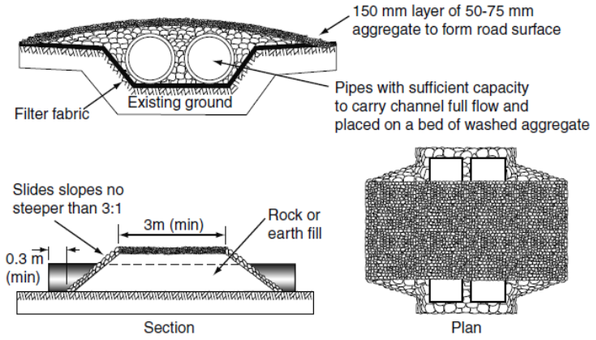
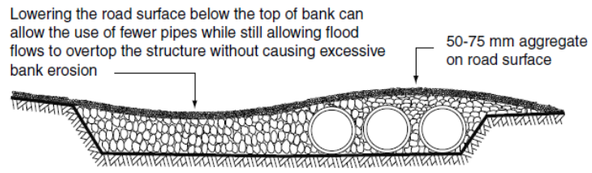


Figure 1 - Placement of check dam sediment traps

Drawn:	Date:		
GMW	Apr-10	Check Dam Sediment Trap	CDT-01

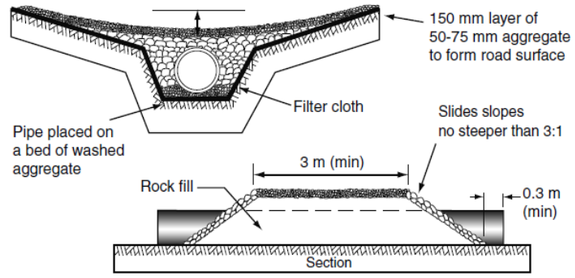


(a) Preferred arrangement for temporary culvert crossings

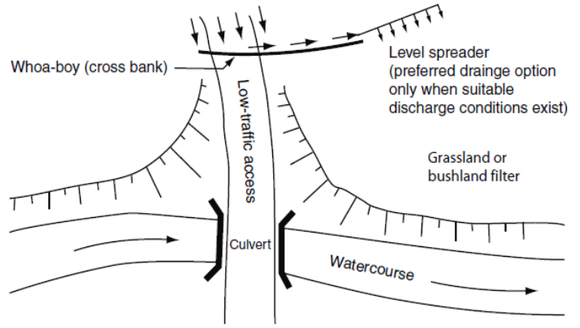


(b) Typical profile of temporary culvert crossings of wide channels

In situations where it is not practicable to allow overflows to initially passing around the culvert on a stable (well vegetated) stream bank, then the center must be set low to allow flow to pass over the culvert along the centreline of the channel



(c) Alternative layout for the crossing of confined channels



(d) Typical arrangement of surface runoff controls associated with approach ramps

Drawn:	Date:		
GMW	Dec-09	Temporary Culvert Crossing	TCC-01

MATERIAL

GRAVEL: 20–50mm HARD, ANGULAR, DURABLE, WEATHER RESISTANT AND EVENLY GRADED WITH 50% BY WEIGHT LARGER THAN THE SPECIFIED NOMINAL ROCK SIZE AND SUFFICIENT SMALL ROCK TO FILL THE VOIDS BETWEEN THE LARGER ROCK. THE DIAMETER OF THE LARGEST ROCK SIZE SHOULD BE NO LARGER THAN 1.5 TIMES THE NOMINAL ROCK SIZE.

INSTALLATION

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. SPREAD ENOUGH GRAVEL TO COMPLETELY COVER THE SURFACE OF THE SOIL AT THE DENSITY OR THICKNESS SPECIFIED IN THE APPROVED PLANS. IF THE APPLICATION DENSITY IS NOT SUPPLIED, THEN APPLY AT A THICKNESS OF AT LEAST TWICE THE MEAN ROCK SIZE.

3. MAKE ALL NECESSARY ADJUSTMENTS TO ENSURE ANY RUN-ON STORMWATER FLOW IS ALLOWED TO PASS FREELY ACROSS THE TREATED AREA FOLLOWING ITS NATURAL DRAINAGE PATH.

MAINTENANCE

1. INSPECT ALL TREATED SURFACES FORTNIGHTLY AND AFTER RUNOFF-PRODUCING RAINFALL.

2. CHECK FOR RILL EROSION, OR DISLODGMENT OF THE GRAVEL.

3. REPLACE ANY DISPLACED GRAVEL TO MAINTAIN THE REQUIRED COVERAGE.

4. IF WASH-OUTS OCCUR, REPAIR THE SLOPE AND REINSTALL SURFACE COVER.

5. IF THE GRAVELLING IS NOT EFFECTIVE IN CONTAINING THE SOIL EROSION IT SHOULD BE REPLACED, OR AN ALTERNATIVE EROSION CONTROL PROCEDURE ADOPTED.

Drawn:	Date:		
GMW	Dec-09	Gravelling	Gravel-01

REVISION	DESCRIPTION	APPROVED	DATE
B	UPDATED WITH IR COMMENTS	SS	25/05/25
A	ORIGINAL ISSUE	SS	25/02/25

MARTINUS
TREESTONE ENVIRONMENTAL

CLIENT: MARTINUS			PROJECT: A2I - BILLY HUGHES
DRAWN: SS	DESIGNED: SS	DATE: 25/05/25	DRAWING TITLE: STANDARD DRAWINGS
CPESC CERTIFICATION: APPROVED, Sarah Steel, CPESC 7317			
PROJECT No: 0052	DRAWING No: 009	REV: B	

MARTINUS