WAKA KOTAHI
NZ TRANSPORT AGENCY

DRURY ACCESS RAMP PROJECT

Appendix F – Construction Water Erosion and Sediment Control Assessment (ESCP)

Revision No: A

Published Date: 13/07/2023

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Reference: 523844-W00001-REP-EN-0009

New Zealand Government

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NZ Transport Agency
June 2021

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Document Control

Rev No	Date	Description	Author	Reviewer	Verifier	Approver
A	13.07.2023	Draft	C Stewart			

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Abbreviations

Abbreviation	Term
AEE	Assessment of Environmental Effects
AUP	Auckland Unitary Plan (Operative in Part 2016)
CNVMP	Construction Noise and Vibration Management Plan
CTMP	Construction Traffic Management Plan
ESCP	Erosion Sediment Control Plan
GD05	Guideline Document 2016/005
NES Contaminated Soil	National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011
NES Freshwater	National Environmental Standards for Freshwater 2020
NIMT	North Island Main Trunk
NOR	Notice of Requirement
NUO	Network Utility Operator
P2B	SH1 Upgrades Project between Papakura to Bombay
RMA	Resource Management Act 1991
SH1	State Highway 1 Motorway, the Southern Motorway
SH22	State Highway 22, Great South Road
the Project	Drury Access Ramp Project
Waka Kotahi	Waka Kotahi NZ Transport Agency

EXECUTIVE SUMMARY

This report comprises a Construction Water Erosion and Sediment Control Assessment Report to support the Drury Access Ramp Project (the Project).

This assessment of effects considers the earthworks and stream works associated with the project and has been prepared in accordance with Auckland Council Guideline Document 2016/005 *Erosion and Sediment Control Guideline for Land Disturbing Activities in the Auckland Region* (GD05). It also considers the proposed methodology and earthworks against the relevant provisions of the Auckland Unitary Plan: Operative in Part (AUP:OP) and the National Policy Statement for Freshwater Management 2020 (NPSFM).

The works will include the construction of a new southbound access ramp and road. Best practice erosion and sediment control (ESC) methods will be implemented, in accordance with GD05.

The land has a generally low to rolling gradient and correspondingly reduced risk of erosion during rainfall. The works will comprise of a new 245m long bridge structure and approximately 17,395m^3 of cut and 40,184m^3 of fill earthworks to construct the off-ramp abutments and approximately 500m of new road. At the northern end of the works, the ramp alignment onto the new off ramp bridge structure will involve minor areas of reworking existing developed land (paved – existing motorway) such that subgrades exposed may be non-erodible hardfill.

The management of construction water proposed for the Project will be in accordance with current best practice, can be successfully implemented, and provides certainty in mitigating any actual and potential adverse effects. This conclusion is based on a review of the existing design information, and experience from other similar and adjacent roading projects in Auckland.

It is concluded that the proposed works methodology will minimise actual and potential adverse construction effects to an acceptable and negligible level.

1 INTRODUCTION

1.1 Project Background Drury Interchange

This Report supports the application lodged by Waka Kotahi NZ Transport Agency (Waka Kotahi) for the construction of a new southbound access ramp at Drury Interchange (The Project).

The proposal is considered in the context of the Papakura to Bombay Project (P2B). P2B is a Waka Kotahi project to improve the safety and functionality of State Highway 1 (SH1) and provide for long term growth in the south of Auckland. Waka Kotahi has structured P2B in to five stages. The most pertinent of these in this case is Stage 1B1, which pertains to the approved upgrades of Drury Interchange. Stage 1B1 was approved under the COVID-19 Recovery (Fast Track Consenting) Act 2020 ("FTA").

In addition, the proposed site for the Project interfaces the following consented and future developments in the area:

Future development areas in Drury which are detailed in section 2.1 below.

Realigned SH1 corridor and SH22 / Great South Road as consented in Stage 1B1 of the Papakura to Drury ("P2D") project by Waka Kotahi.

Future proofing works along North Island Main Trunk (NIMT) rail corridor by KiwiRail as part of Papakura to Pukekōhe (P2P) rail electrification works; and

1.2 Project Description Drury Centre Access Ramp

The proposal is for the construction of a new southbound access ramp from SH1 to provide direct connection to future development areas in Drury Town Centre. The approximate location of the proposed off-ramp in relation to the surrounding existing and planned environment is referred to in the AEE and shown in Figure 1-2 below.

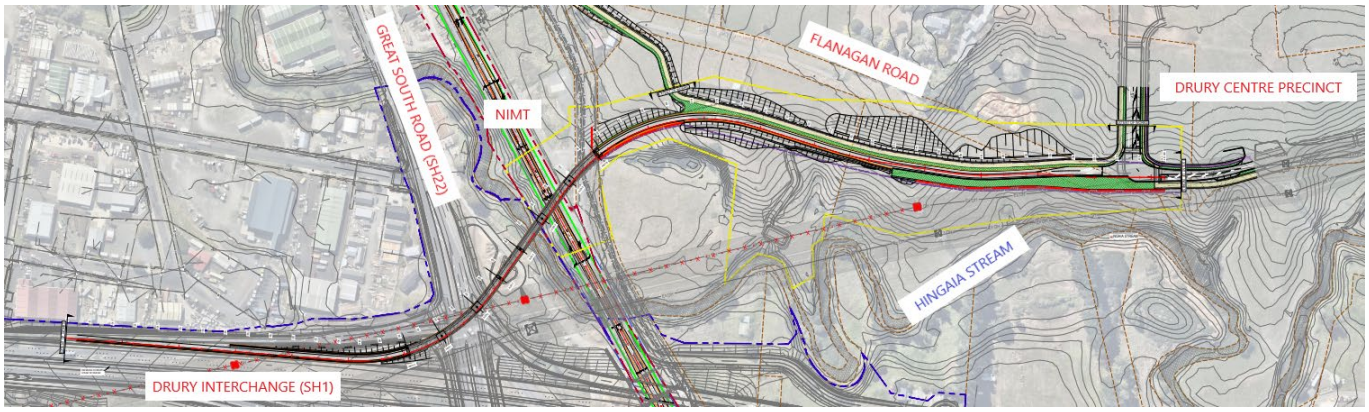

Figure 1-2 Indicative location plan of the Drury Access Ramp Project

In relation to construction water and erosion and sediment, the following are proposed for the Project:

Construction of a 245m long seven span structure bridge from the southbound lane of SH1 to an area off Flanagan Road.

Foundation piling works for bridge support; and

Establishment of a left-hand shoulder lane on the bridge with a minimum width of 2m and right-hand shoulder 1m in width.

Construction of a two-lane road approximately 500m in length, from the southern end of the bridge structure to connect to future development areas in Drury Town Centre referred to as Creek Road.

Retaining wall structures at three separate locations along the alignment.

Further details of the proposed off-ramp are shown on the plans attached as **Appendix B** of the AEE.

The Project takes place within the existing Flanagan Road (considered as a local road in the AUP) and existing services and utilities, which include: 1200mm diameter underground Waikato watermain parallel to the NIMT corridor; underground sewer and watermain pipes along Flanagan Road; and high voltage overhead lines located directly above the proposed ramp, which is planned to be removed.

The northern off ramp alignment works will be undertaken within the shoulder or footprint of the existing motorway corridor. Works at the northern end will include stripping to various depths and expansion of hardfill areas. The bridge structure construction requires works immediately adjacent to and above the freshwater environment of the Hingaia Stream.

The piers are located clear of the stream. These can be installed using standard construction practice including containment of the pile holes and pier construction within steel casing such that all construction activities are isolated from the surrounding freshwater environment. Machinery can be based on land, or on temporary platforms constructed to ensure that works areas are above and clear of the Hingaia Stream.

The southern abutment and approximately 500m of new road, involves a traditional cut to fill earthworks operation. The total earthworks volumes are approximately 17,395m^3 of cut and 40,184m^3 of fill. This includes the northern offramp which will be imported hardfill. The total earthworks footprint is approximately 2.2ha, approximately 0.3ha at the northern offramp and approximately 1.9ha to construct the southern abutment and 500m of new road.

Erosion and Sediment controls devices will be installed to provide treatment of site runoff before discharge to pasture and ultimately discharge to the Hingaia Stream.

1.3 Purpose of this Report

This report on erosion and sediment control (ESC) and sediment laden runoff during construction forms part of a suite of technical reports prepared for the Project. Its purpose is to inform the AEE for:

- NoR for alteration to the existing Designation 6706 for which Waka Kotahi is the Requiring Authority under section 181 of the RMA; and
- Resource consent application for national environmental standard matters under NES-CS and NES-F; and
- Resource consent application for regional matters under the AUP.

The purpose of this report is to:

- Identify potential sediment related effects during the construction phase of the Project works.
- Describe the erosion and sediment control (ESC) design principles that are to be adopted during the Project works.
- Assess the construction water effects that are likely to occur with the implementation of the ESC design principles and mitigation measures.

This report should be read in conjunction with the technical ESC methodology in **Attachment A** of this report and the General Arrangement Plans and indicative ESC Plans (ESCPs) provided in **Appendix B** of the AEE. The successful Contractor will confirm the specific construction water management details (in particular, the ESC measures) which will follow the principles and processes outlined within this report.

In assessing the effects related to land disturbing activities, the main elements associated with the proposed works that are assessed in this report are during the construction phase.

Land disturbing activities do not present a risk of ongoing adverse effects once the Project is operational.

2 EXISTING ENVIRONMENT

The following is an overview of the existing planning environment in the Project area. A detailed overview of the existing environment can be found in Section 1 of **Appendix A**.

2.1 Planning Environment

2.1.1 Designations

The primary designation which covers the majority of the Project corridor is Designation 6706, which is described in **Table 2-1** below. The corresponding planning environment maps are contained in **Appendix J**.

Table 2-1 The Designation in the Project area

Reference No.	Requiring Authority	Designation and Purpose	Location	Conditions
Designation 6706	Waka Kotahi	Motorway purposes between Auckland and Hamilton	SH1, north of Takanini interchange to the south of Quarry Road, Drury	Designation 6706 Conditions (Operative)

There are a number of designations that overlap the Project corridor, which are described in **Table 2-2** below. The corresponding existing environment maps are contained in **Appendix J**.

Table 2-2 Overlapping designations in the Project area

Reference No.	Requiring Authority	Designation and Purpose	Location
Designation 6302	KiwiRail	NIMT Railway Line	South of the Drury Interchange.
Designation 6566	Watercare Services Ltd	Water supply purposes – pump station and associated structures	Flanagan Road and NIMT

2.1.2 Papakura to Drury (P2D)

The overall works for Stage 1B1 were approved under the FTA on 12th November 2021, which included planning approvals for various upgrades at Drury Interchange, such as the realignment and raising of the interchange towards the east, new bridges over State Highway 22 (SH22), a new off-road Shared Use Path (SUP), additional shoulders and associated stormwater infrastructure. For brevity, the relevant approvals can be summarised as follows:

- Regional and district resource consents granted to Waka Kotahi for the construction and operation of the project. Granted for Stage 1B1 on 12 November 2021 in accordance with the FTA:
  - Land use consents LUC60391712.
  - Groundwater consent WAT60391714.
  - Stream works consent LUS60391713.
  - Coastal works consent CST60391716 and
  - Discharge consents DIS60391717 and DIS60391718.
- Decision on compliance for the State Highway 1 Papakura to Drury South State Highway 1 improvements (Listed Project LP15) – Transmission Line works under clause 3 of Schedule 6 of the FTA.

3 ASSESSMENT OF EFFECTS

The following sections discuss the positive effects and the potential adverse impacts of the Project work from sediment related discharges from construction water.

This assessment of effects has taken into consideration the statutory requirements described in Section 3.3 of this report in respect of the impact from construction water discharges from the project.

3.1 Assessment Methodology Overview

The following assessment of effects is based on the following criteria and planning framework:

- Degree of consistency with GD05, being the current best-practice erosion and sediment control guideline.
- Relevant policy frame of the National Policy Statement for Freshwater Management 2020 (NPSFM); and
- Relevant policy framework matters of discretion and assessment criteria of the Auckland Unitary Plan: Operative in Part (AUP: OP).

The details policy assessment of the land disturbance is provided in the AEE. The following assessment informs that and provides specific consideration of the AUP: OP provisions.

3.2 Positive Effects

The positive effects of the Project are described in Section 7.2 of the AEE and relate to transport efficiency and consequential environmental, social and economic benefits. The earthworks that are addressed in this Construction Water Assessment are necessary to achieve those outcomes.

3.3 Potential Adverse Effects

The potential adverse effects of sediment laden discharges from the Project during the construction phase include direct impacts on water quality, freshwater and marine biodiversity, values of specific interest to Mana Whenua, other cultural values and values such as natural character. These potential impacts of accelerated erosion and sediment discharge are well documented and are summarised in Section A1.4 of GD05 as follows:

Where appropriate ESCs are not implemented, there is potential for a range of adverse effects on the social, natural, environmental, cultural and economic wellbeing of the region, including:

- Ecological values associated with direct and indirect impacts on flora and fauna on land and in adjacent freshwater and marine waterbodies, such as:
  - Smothering.
  - Deterioration of habitat from discharge of sediment and pollutants and sedimentation (e.g. stream blockage, reduced light levels, weed growth).
  - Abrasion and direct impact to fish, stream insects, shellfish, and other bottom-dwelling organisms.
- Water quality for consumable water resources.
- Aesthetic and recreational values of land and waterbodies.
- Property and public utilities:
  - Blocking of pipes/drains leading to indirect flooding issues.
  - Build-up of sediment in ports, marinas and navigable channels which require dredging.
  - The consequential need for disposal of dredge material.
  - Recreational and commercial fishing, marine farming, and tourism industries.

- Cultural matters of significance to mana whenua, including the mauri of water, mahinga kai, customary rights and kaitiaki initiatives.

3.3.1 National Policy Statement for Freshwater management 2020

The NPSFM came into effect on 3 September 2020.

Objective 2.1(1) states:

(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:
   (a) first, the health and well-being of water bodies and freshwater ecosystems
   (b) second, the health needs of people (such as drinking water)
   (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The objective is reflected in 15 policies, of which (1), (3), (5) and (9) are of most relevance to the consideration of the potential sediment related effects of this proposal.

It is also noted that under s55 of the RMA, necessary provisions of the NPSFM have been incorporated into the AUP.

3.3.2 Auckland Unitary Plan: Operative in Part (AUP: OP)

The AUP: OP is the primary statutory instrument that the sediment effects of the proposal are considered against. Its development has been informed by the higher order documents[1] and its provisions are specific to the Auckland region. It informs the identification of appropriate assessment criteria for water quality and flooding effects of the Project. It also sets out particular matters Council must give regard to when assessing applications for discharge consents. Under the AUP: OP, the potential water quality effects of land disturbance are regulated as a land use activity under Section 9(2) and a discharge under Section 15(1) of the RMA.

AUP: OP Chapter E11 Land Disturbance – Regional, Rules E11.4.2(A13) and (A14) activities ancillary to erosion and sediment control are permitted activities for the diversion and discharge of sediment laden water where the contributing earthworks comply with the relevant permitted activity standards or a resource consent is held. Both those pathways require ESC measures to be designed, constructed and maintained in accordance with GD05, unless an alternative approach is approved by a consent.

AUP: OP Chapter E26 Infrastructure, Standards E26.5.5.2, Matters of Discretion E26.5.7.1 and associated Assessment Criteria E26.5.7.2 contain the general standards for earthworks and matters to be considered as restricted discretionary activity. **Table 3-1** below assesses the Project against these standards.

Assessment of the proposed works against these criteria will inform the recommendations in Section 4 of this report and any appropriate conditions in the application AEE.

[1] Including NPSFM 2017 but not the current NPSFM that became operative in September 2020.

Table 3-1 Auckland Unitary Plan: Operative in Part Provision Assessment

General Standards (E26.5.5.2)		Project Response
(3)	Land disturbance must not, after reasonable mixing, result in any of the following effects in receiving waters: (a) the production of conspicuous oil or grease films, scums, or foams, or floatable or suspended materials. (b) any conspicuous change in the colour or visual clarity. (c) any emission of objectionable odour. (d) the rendering of fresh water unsuitable for consumption by farm animals; or (e) any significant adverse effects on aquatic life	The earthworks associated with the Project will be relatively small in size and will be staged and will cover a total area of 2.2ha. Within this area, the works are sequenced, with stabilisation occurring, and all works will be subject to the implementation of ESC measures designed, constructed and maintained in accordance with GD05 (to be confirmed within Site Specific Erosion and Sediment Control Plans (SSESCPs)). These measures to be implemented are assessed as best practice and reflect previous onsite knowledge and experience from other similar projects. It is assessed that with these provisions in place these potential adverse effects will be avoided.
(4)	Best practice erosion and sediment control measures must be implemented for the duration of the land disturbance. Those measures must be installed prior to the commencement of land disturbance and maintained until the site is stabilised against erosion. *Note 1 - Best practice in Auckland is generally deemed to be compliance with Council Technical Publication 90 Erosion and Sediment Control Guideline for Land Disturbing Activities in the Auckland Region or similar design*	Best practice ESC for the Project is defined as GD05. Note GD05 is Auckland Council's 2016 update of the previous TP90 guideline document. All ESC will be implemented, operated and maintained in accordance with the principle and practices of GD05. ESCs in accordance with GD05 will be implemented (prior to earthworks commencing) and will be maintained until such a time as a stabilised surface is established for that specific device catchment. GD05 replaced TP90 and is the correct best practice guideline. Through the design and construction phases of the Project, there will be scope for innovation and alternative means of achieving the same environmental outcome as specified in consent conditions. Therefore, the ESCs will be further confirmed within the SSESCPs. The assessment and the inclusion of a monitoring programme will confirm the effectiveness of the approach through the construction period.

General Standards (E26.5.5.2)		Project Response
(5)	Dewatering of trenches and other excavations must be done in accordance with best practice and must not result in a discharge of untreated sediment laden water to any stormwater reticulation system or water body.	Dewatering may be required. The associated SSESCPs will outline this detail which will include treatment of any pumped water prior to discharge into reticulated systems or any water body in accordance with best practice procedures and standards detailed in GD05.

General Standards (E26.5.5.2)		Project Response
(6)	Trenching must be progressively closed and stabilised such that no more than 120m of continuous trench is exposed to erosion at any one time	Trenching will be required for services. It will be undertaken on a progressive basis with backfilling and stabilisation to occur as works progress to ensure that no more than 120m of trench is exposed at any one time.
(7)	Only cleanfill material may be imported and utilised as part of the land disturbance.	Imported aggregate will be required for the Project. Only cleanfill material will be used.
(8)	To prevent the spread of contaminated soil and organic material with kauri dieback disease, vehicle and equipment hygiene procedures must be adopted when working within 3 times the radius of the canopy drip line of a New Zealand kauri tree. Soil and organic material from land disturbance within 3 times the radius of the canopy drip line must not be transported beyond that areas unless being transported to landfill for disposal	No kauri tree vegetation has been identified within the Project footprint.

Matters of Discretion (E26.5.7.1) and associated Assessment Criteria (E26.5.7.2)		Project Response
(1)	(a) compliance with the standards. (b) the design and suitability of erosion and sediment control measures to be implemented. (c) adverse effects of land disturbance and sediment discharge on water bodies, particularly sensitive receiving environments. (d) effects on cultural and spiritual values of Mana Whenua including water quality, preservation of wāhi tapu, and kaimoana gathering. (e) the proportion of the catchment which is exposed. (f) staging of works and progressive stabilisation. (g) timing and duration of works. (h) term of consent. (i) potential effects on significant ecological and indigenous biodiversity values. (j) the treatment of stockpiled materials on the site including requirements to remove material if it is not to be reused on the site; and (k) information and monitoring requirements.	All relevant standards and guidelines will be complied with at all times on the Project. This will be achieved by implementing best practice ESCs and also the implementation of a monitoring programme which includes the ability to adjust ESCs over time in response to monitoring outcomes. The design of the ESCs is based on accepted industry best practice. All ESCs are outlined within this document and will be confirmed within the SSESCP documents prior to works commencing. This approach provides for a check and balance that these remain appropriate. The learnings and continuous improvement philosophy from the monitoring programme will also assist in achieving this matter. With the implementation of best practice ESCs, any adverse effects are expected to be temporary and minor. Earthworks and other construction activities that could result in a discharge will be treated to a level that ensures existing receiving environment values are maintained. It is recognised that water quality is a significant concern for Mana Whenua, and therefore, the construction water management outlined will ensure that any adverse effects are expected to be temporary and minor. All earthworks will be progressively worked and stabilised and therefore only a portion of the earthworks is expected to be open at any one time. With respect to the catchment as a whole, there are other earthworks occurring in the catchment which are not Project related. While through the Project there is no “control” of these

		activities it is important to recognise that these other earthworks activities will also be subject to ESCs. Works associated with the larger P2D project are likely to be continuous along SH1. For works outside of the summer earthworks season, specific risk assessment will be identified through the SSESCPs. Works over any winter period will focus on activities that minimise earthworks and will apply and more stringent stabilisation and monitoring. A term of consent associated with the duration of earthworks, with some contingency, is assessed as appropriate. Any stockpiling of cut material will be temporary within the earthworks footprint of the GD05 sediment control devices. Any stockpiles that are required, are to be subject to ESC measures and will be identified through the SSESCPs process. Section 4 **(Appendix A)** of this report outlines the monitoring that is proposed. This includes visual assessment and rainfall related monitoring with the overall intent of identifying any issues and management responses that may occur.

3.3.3 Assessment of Potential Effects

Overall, it is considered that the potential risk of an elevated sediment yield is low. This is primarily due to the gentle to rolling slopes of the Project area, the relatively small area (approximately 2.2 ha) of earthworks proposed and the staged nature of the works incorporating progressive stabilisation.

Despite the low-risk construction methodology, the potentially higher risk areas and activities within the Project are identified as:

- Those works required immediately adjacent to the Hingaia Stream which are in the Sediment Control Protection Area (SCPA)[2].
- Pumping of any sediment laden water from excavations.
- Minor batter earthworks activities on any steeper slopes (greater than 10 degrees) that may eventuate over the course of the Project works.
- Managing site risk is a combination of:
  - The competency and performance of the successful contractor (currently unknown).
  - Timing and duration of works.
  - The quality construction, operation and maintenance of the ESCs implemented.

Attachment A provides the design, construction, maintenance and monitoring details of the proposed ESC methodology to be implemented through the construction phase of the Project. That methodology is based on best practice and has been successfully implemented on similar projects of similar and larger scale as well as other Waka Kotahi projects with significantly steeper topography, and larger earthworks areas and volumes, and sediment-related risk[3]. It has also been implemented for other upgrades of the state highway motorway system and local roading networks through Auckland[4].

[2] Sediment Control Protection Area, within 100m of the CMA or within 50m of a watercourse or wetland.

[3] Including Ara Tuhono – Puhoi to Warkworth; SH1 Mercer to Longswamp, SH1 Longswamp, SH1 Rangiriri, SH1 Huntly Bypass.

[4] Including P2D stage 1A, Northern Corridor; Southern Corridor; SH16 Upgrades (St Lukes, Causeway, Te Atatatu, Lincoln Road, Royal Road); SH20 Waterview).

The ESCs implemented on site will be designed and maintained in accordance with GD05. Prior to earthworks commencing in each works area, a SSESCP will be developed for those works. This could be in the form of a series of plans for the various activities to occur during construction or based on specific chainages of works that need to occur. This approach allows for flexibility, fine tuning and ownership of the ESC measures and methodologies by the contractor.

A Chemical Treatment Management Plan (Chem TMP) will be prepared for the Project and submitted to Council (for certification) prior to be commencement of works. The CTMP will set out the methodology for determining the effectiveness and dosing rates for chemical treatment to enhance the sediment retention efficiency of sediment retention ponds (SRP's) and decanting earth bunds (DEBs). The CTMP will include all bench testing results to confirm the chemical treatment set up and including all relevant batch dosing information.

While the values of the receiving environments adjacent to the Project alignment are recognised and are to be protected from unacceptable effects, the Project alignment and scale of works proposed do not present a significant risk or challenge in terms of managing sediment related effects.

The northern off ramp alignment works will be undertaken within the shoulder or footprint of the existing motorway corridor. Works at the northern end will include stripping to various depths and expansion of hardfill areas, which have a reduced risk of erosion and sediment discharge. The bridge structure construction requires works immediately adjacent to and above the freshwater environment of the Hingaia Stream.

The piers are located clear of the stream. These can be installed using standard construction practice including containment of the pile holes and pier construction within steel casing such that all construction activities are isolated from the surrounding freshwater environment. Machinery can be based on land, or on temporary staging platforms constructed to ensure that works areas are above and clear of the Hingaia Stream. Any temporary piles required for the temporary staging platforms will be clear of the Hingaia Stream.

The southern abutment and approximately 500m of new road, involves a traditional cut to fill earthworks operation. ESC devices will be installed to provide treatment of site runoff before discharge to pasture and ultimately discharge to the Hingaia Stream.

Prior to earthworks commencing in each works area, a SSESCP will be developed for those works. The earthwork volumes and area are minor, and the sediment related risk is considered low.

The Project does not require particularly complex or high-risk earthworks. The cut and cover methodology for northern works areas and progressive stabilisation of all areas will minimise erosion risk. Traditional erosion and sediment control will be used for the southern works area. Sediment control measures will retain a high proportion of eroded sediment and minimise discharges to an acceptable level.

There are no unusual or specifically high-risk elements of this proposal that would prevent a GD05 compliant ESC methodology being successfully implemented. Based on the details provided in **Attachment A** it is anticipated that the potential adverse sediment-related effects can be minimised to an acceptable level that will not result in significant impacts on the freshwater or coastal receiving environments of the Project area.

With the adoption of the proposed ESC methodology, the potential adverse effects of treated sediment laden runoff on the water quality and ecological values of the receiving environments are anticipated to be temporary and minor.

3.4 Summary

The detailed description of the ESC methodology to be implemented is provided in **Attachment A** along with indicative erosion and sediment control plans (ESCP).

All ESC measures will be designed, constructed, maintained and decommissioned in accordance with GD05.

Management of construction water will seek to achieve the following objectives:

- Minimise the potential for sediment generation and sediment yield by maximising the effectiveness of ESC measures.

- Take all reasonable steps to avoid or minimise potential adverse effects on freshwater and marine environments within or beyond the Project works boundary, with particular regard to reducing opportunities for sediment generation and discharge of non-sediment contaminants.

SSESCPs will be prepared for each work area and submitted to Auckland Council for certification against GD05 prior to the corresponding works commencing. The development of the SSESCP's will be in accordance with the direction and principles detailed in Section 2 of **Attachment A** and will allow for flexibility and practicality of approach to ESC and allow the ability to adapt appropriately to specific site conditions.

Comprehensive site monitoring and management, as described in Section 2 of **Attachment A**, will allow for continuous improvement in response to monitoring outcomes to be implemented and utilised for the construction activity. Proactive monitoring, which will occur as part of the Project implementation, is a way of assessing the effectiveness of the treatment and allowing for improvements/modifications as the Project works continue. Monitoring will include visual inspection of the construction water management devices and the downstream environment.

4 RECOMMENDATIONS

Based on the consideration of statutory framework/requirements set out in Section 1 of this report, the assessment of potential adverse effects resulting from construction water impacts identified in Section 3 and the detailed description of the ESC methodology to be implemented as provided in **Attachment A,** the following mitigation and management measures are recommended. It is noted that the ESC methodology is the same best practice principles and practices as for the adjacent P2D 1B1 project.

- All earthworks and land disturbance activities should be undertaken in general accordance with this assessment including **Attachment A**.
- The approach to managing construction water discharges will be confirmed by the contractor prior to works commencing through the preparation (and certification by Council) of SSESCPs for specific activities within the Project area.
- SSESCPs will include the following information:
  - Contour information.
  - ESC measures for the works being undertaken within a particular construction area.
  - Chemical treatment design and details.
  - Catchment boundaries of works and devices installed.
  - Location of the work.
  - Details of construction methods.
  - Design criteria, typical and site-specific details of ESC.
  - Pumping procedures and management.
  - The identification of staff who will monitor compliance with conditions.
- A Chem TMP should be prepared for the Project and submitted to Council (for certification) prior to be commencement of works to confirm the chemical treatment set up and including all relevant batch dosing information.
- Any SRPs or DEBs constructed should be chemically treated in accordance with the Project Chemical Treatment Management Plan.
- Any exposed areas should be subject to a 14-day stabilisation period. If areas are stripped and exposed to erosion, and works are not to occur within a 14-day period, then temporary stabilisation will need to occur. Stabilisation methodologies will need to be based on proven options and will include mulch, geotextile and hard fill.

Through the implementation of the recommended key mitigation measures above, any construction water discharges will be subject to best practice management and proven management conditions, which will enable any potential effects from the Project works to be appropriately managed.

5 CONCLUSION

The construction water management proposed for the Project is in accordance with current best practice, can be successfully implemented and provides certainty in mitigating any actual and potential adverse effects. This conclusion is based on a review of the existing design information, and experience from other similar and adjacent roading projects in Auckland. Ongoing monitoring, and the ability to amend or improve ESC practices during the construction of the Project to directly address any identified issues over the construction period is essential. The proposed SSESCPs will provide further certainty that the construction water management can be effectively managed throughout.

It is concluded that any change in water quality associated with the construction runoff during the construction phase will be temporary and minor.

ATTACHMENT A: CONSTRUCTION WATER EROSION AND SEDIMENT CONTROL TECHNICAL APPENDIX

Drury Access Ramp Project

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