Erosion and Sediment Control Plan

Wrights Road storage ponds

Prepared for Rooney Earthmoving Limited

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Revision 7

Document control

Revision 7

Prepared by	Richard Ablitt	18/09/2026
Reviewed by	Blair Gray	18/09/2026
Authorised by	Blair Gray	18/09/2026

Revision following review of onsite esc controls (refer to notes below)

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Prepared by	Richard Ablitt	04/08/2026
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Disclaimer:

This Erosion and Sediment Control Plan provides the key design outline for control measures to be provided on site. It is not possible at initial design stage to anticipate and include all site-specific design details, as some detail can only be included on the basis of in situ monitoring and adjustments. In order to be effective on site the plan will need to be implemented by a contractor experienced in sediment and erosion control. Ongoing monitoring will be required to assess its performance and make specific adjustments to its detail to respond to specific conditions on site and changes to those conditions. It is not suitable for unmonitored or unmanaged implementation or implementation by personnel who lack appropriate expertise and experience in erosion and sediment control. It is recommended that the sediment control plan be monitored regularly by appropriately experienced personnel in sediment and erosion control, who is to make such adjustments as are necessary to ensure its effective operation in view of the features, the condition or state of the site or changes to conditions on site.

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Revision 6 – changes to esc drawings to reflect onsite esc controls and amendments following independent review.

- Previously an excavated channel was to be constructed alongside Dixon's Road. This has not been constructed as the ground conditions are too wet during the current season (winter). The installation will be undertaken at a later date, prior to works for Pond 1 (area 2) and Pond 2.
- The refuelling area was previously situated on the embankment line. The location to ensure that the refuelling area can be maintained for a greater time.
- A secondary refuelling area will be installed for the construction works for Pond 1 (area 1). The reasoning is to minimise vehicle movements during pond 1 construction.
- The mid – top left section of the embankment (adjacent to Main Race MR4) currently consists of large trees. These will be felled at a later date. For this reason, the earth bund will not be installed. However, the earth bund will be constructed for the construction works associated with Pond 1 (area 2).
- The compound location has been changed to ensure that it is not located on the embankment line. The area was also a good location to removal gravel to be used on the haul roads.
- A large embankment has been installed around the perimeter of the site compound to ensure that site containers/plant/vehicles are fully contained.
- The wind and air monitoring station has been installed on the Southern perimeter. Dust monitoring stations are to be installed on the West and East perimeters.
- Soak pit locations have been adjusted dependent on local topography and performance.

- A water cart filling station will be established on the Northern perimeter – the area will be fully bunded with an earthen bund and be infilled with river boulders – in case the water cart overfills.
- The main haul road is graded toward the interior of the site. For this reason, there is only a drainage channel installed on the interior side. Furthermore, as the road slopes towards the interior a drainage channel is not required on the outer edge.

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1 Introduction

EnviroCo Ltd. has been engaged by Rooney Earthmoving Limited (REL) to prepare this Erosion and Sediment Control Plan (ESCP) for the civil works associated with the construction of a large irrigation storage pond and associated structures on behalf of Burnt Hill Storage Limited (BHSL). BHSL are the landowners, operate the dam storage, are the contracts principal and the environmental consents are in BHSL name.

The project is located at the corner of Wrights Road and Dixon Road, Burnt Hill, North Canterbury; at or about map reference Topo BW22:3480-9720. The project includes the construction of two water storage ponds and water is abstracted from the Waimakariri River from existing water infrastructure.

The document has been prepared to meet the requirements for an ESCP (Environment Canterbury (ECan) CRC263199 Condition 10). All erosion and sediment control measures will be established and maintained in general accordance with the ECan's *"Erosion and Sediment Control Toolbox for the Canterbury Region"* which can be accessed under http://esccanterbury.co.nz/.

The REL Project Manager is responsible for the implementation of this ESCP with support from EnviroCo Environmental Consultants.

1.1 ESCP objectives and environmental context

The primary objective of this ESCP is to specify environmental controls which will mitigate against the potential impact of construction activities on the environment. In summary the plan shall:

- Describe site management methods to minimise environmental impact.
- Outline incident response procedures.
- Ensure compliance with consents issued for the project.

Table 1 Project Consents

Consent Number	Description
CRC263186	To dam up to 8.2 million cubic meters of water.
CRC263195	To use land for earthworks associated with the construction, maintenance and use of storage ponds and associated infrastructure.
CRC263197	To use land to store and use up to 10,000 litres of diesel and other hazardous substances in an above ground portable fuel storage container.
CRC263201	To discharge fugitive dust and combustion products to air during the construction of storage ponds and associated infrastructures
CRC263199	To discharge stormwater to land during the construction of storage ponds and to discharge post-development stormwater.
RC135478	To construct, maintain and use storage ponds and associated structures

The ESCP document will be submitted to ECan by REL prior to the start of the project. Project staff will be made aware of the ESCP content, and a copy provided in project folders.

Table 2 provides a summary of information on the project's environmental risk/context. The key issues have been summarised with corresponding control strategies.

Table 2 Environmental risk summary

Environmental risk	Key issues and control strategies
Air Quality	• The primary potential air discharge from the construction of the project will be dust. • Dust control methods shall be utilised during the project, including dust suppressants, polymers and stockpiling best practice (i.e., compaction, profiling). • A project specific Dust Management Plan shall be prepared for the project in accordance with consent requirements (CRC263201 condition 6).
Erosion and sediment	• There is the potential for sediment discharge during earthworks.

	• Dirty water runoff will be directed to construction phase stormwater soakage areas with lay flat hoses. • The perimeter of the site will be protected by a dirty water conveyance channels. The channel alignment will be graded to transfer water to informal soak pits.
Noise	• Noise will be generated from plant and machinery operating on the site. • There are properties located less than 100m from the site boundary and may be considered sensitive receivers. REL will be conscious of the potential noise impacts to sensitive and will the noise impact as much as possible, while to taking into consideration the mitigation methodologies. Including: - Machinery and plant will be regularly serviced to minimise excessive noise generation. - Construction works undertaken during standard daylight hours. - Minimising the amount of time specific construction activities are undertaken near to sensitive receivers. - Construction of earth banks early on in works programme that will minimise noise during construction of storage ponds.
Contamination	• Phase 1 (site history) environmental site assessments have been undertaken for the project site[1]. The associated report concluded that there have been no significant potential sources of site contamination associated with the past and present activities at the site.
Archaeology/Cultural Heritage	• According to the WDC District Plan and the ECan GIS database, the area of the proposed works has not been identified as being significant to the Maori or having any known sites of archaeological significance. There are no silent files or statutory acknowledgement areas identified for the site area.

1.2 Site information and project background

The storage ponds are located on the south-western side of the corner of Wrights Road and Dixon Road, Burnt Hill, North Canterbury, in the Waimakariri District. The general map reference of the site is at or about NZMG 260 L35:4479-5882 (**Figure 1**). The proposed storage ponds are to be located on a 122.4 ha parcel with the legal description of Lot 1 DP27020 (certificate of title reference CB8K/1478, valuation roll number 21540-03201). The parcel of land is owned by BHSL.

[1] PDP (2012). *Phase 1 (Site History) Environmental Site Assessment – Corner Wrights Road and Dixon Road, Burnt Hill, North Canterbury*. Prepared for Waimakariri Irrigation Limited.

The site is located 12 kilometres downstream of the 'Browns Rock' intake of the Waimakariri River. The proposed storage ponds are located near to the existing water race system (MR4) and existing buffer pond.



Figure 1 *Project area. Source (PDP, 2013, Assessment of Environmental Effects for the Construction and use of Wrights Road Storage Ponds).*

The water in the storage ponds will be used to augment water into the irrigation scheme when water from the river supply is limited or unavailable, due to either high flow or low flow conditions in the Waimakariri River.

The proposed storage ponds incorporate a two-pond system, with both ponds filled via gravity, and Pond 1 topped up by flood pumps located beside the existing buffer pond. A second pump station located on Dixon Road will be designed to transfer water from Pond 2 to Pond 1 outlet.

Pond 1 has a footprint of approximately 30 ha. and provides a storage volume of about 2.0 million cubic metres. Pond 2 has a wetted footprint of about 72 ha and provides a storage volume of approximately 6.2 million cubic metres. The combined storage of both ponds is therefore on the order of 8.2 million cubic metres.

Figure 2 provides a conceptual diagram of the proposed storage pond design.

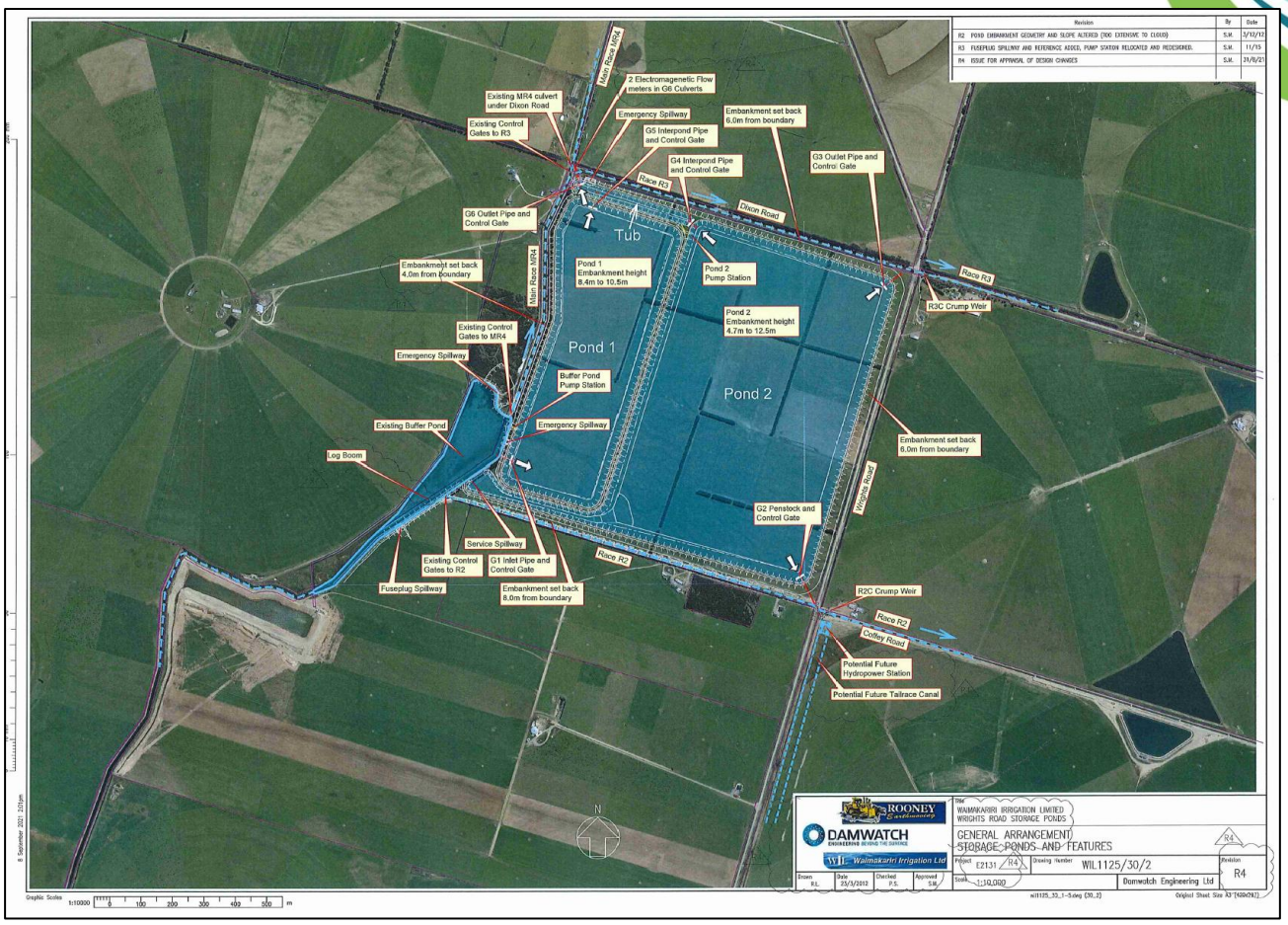


Figure 2 *Storage Pond design. Source; REL Wrights Road Storage Ponds. (Drawing number WIL1125/30/2).*

The ponds will be formed with a series of embankments. It will be necessary to excavate below ground level to a maximum depth of five meters below natural ground elevation. The excavated material will be positioned on the embankment as cut to fill. Only silt and turf will be stockpiled and will be located in different positions, dependent on construction progress. It is anticipated that the excavation works will occur at a rate of 8,000 – 10,000 m³/day (40,000 – 50,000m³ per week). The total cut to fill volume for the storage ponds is 1.4 – 1.5 million m³.

A geomembrane liner will be used to line the storage ponds to eliminate seepage from the storage pond into the ground. The geomembrane proposed for use in this project is to be 'Solamax GSE 1.50mm White Reflective Smooth'.

A Phase 1 (site history) environmental site assessment was carried out for the Wrights Road property in 2012, with the objective of identifying potential sources of contamination from past and present site activities. The site history assessment was conducted through the inspection of relevant historical records, including historical aerial photographs, certificates of title and council documents, a site walkover and interviews with personnel representing the existing and past site owners. A report was prepared which summarises the investigation and

outlines the findings of the investigation (PDP, 2012[2]). The report concludes that there have been no significant potential sources of site contamination associated with the past and present activities at the site.

REL have carried out test pit excavations at 20 Locations across the site. The depth of the test pits varied between 3.20m below ground (TP 11 and TP 12) to 5.20m below ground (TP 07). The investigation logs[3] demonstrate that the topsoil depth varies from approximately 0.15 m to 0.35 m below ground and is described as black, fine sandy silt. Under the topsoil is a layer of yellow brown, very silty sandy, fine to coarse gravel approximately 0.3 m to 0.7 m thick. Under this layer is a series of grey, sandy, fine to coarse gravels, interbedded with lenses of clean gravels. No groundwater was encountered in any of the test pits on site.

PDP (2013)[4] state that following a review of planning maps the depth of groundwater is greater than 6 m below ground and piezometric contours indicate that groundwater flows in a general south-easterly direction.

The nearest bore to the project site was reviewed by PDP (2013). The bore is located approximately 250 m from Wrights Road boundary to the east of the proposed site. The bore log from this site shows that the first 0.3 m is topsoil, with the clay bound gravels down to around 45 m below ground level. Groundwater in this bore has been measured at a depth of 41.3 m below ground level.

According to the S-map layer on Canterbury Maps the soils in and around the site are determined as Pallic Firm Brown Soils (NZSC Description). The soils are determined to have moderate over rapid permeability (**Figure 3**).

[2] PDP (2012). *Phase 1 (Site History) Environmental Site Assessment – Corner Wrights Road and Dixon Road, Burnt Hill, North Canterbury*. Prepared for Waimakariri Irrigation Limited.

[3] REL (2011). *Test Pit Investigation Log.* REL.

[4] PDP (2013). *Assessment of Environmental effects for the construction and use of wrights Road storage ponds. Prepared for Waimakariri Irrigation Limited.* November 2013

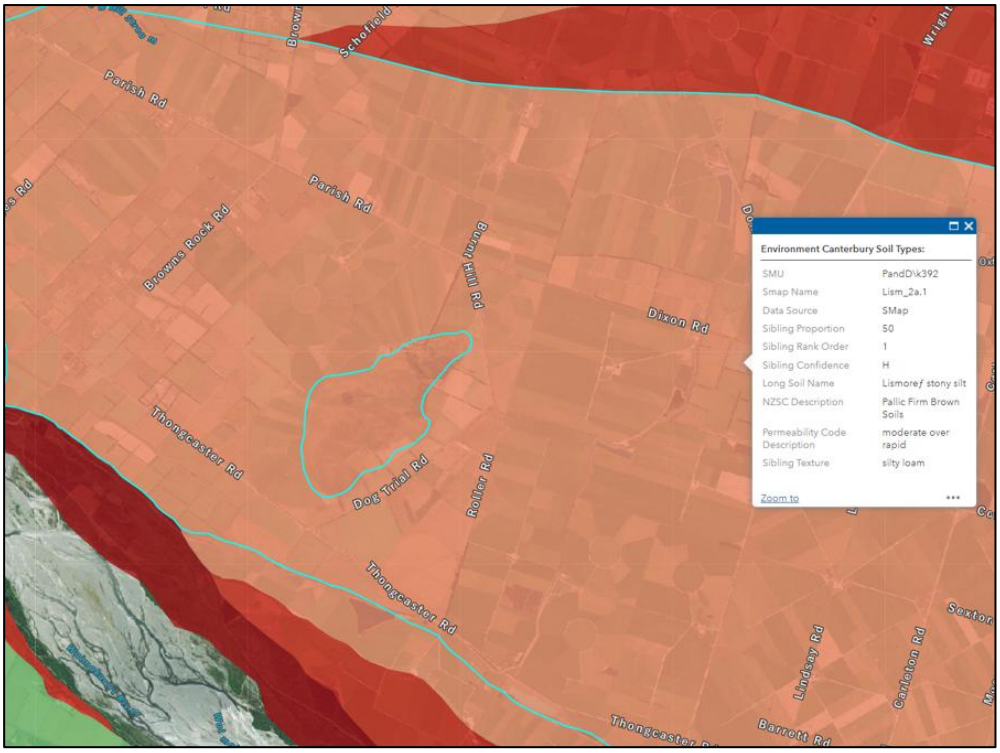


Figure 3 *Soil characterisation (Source: Canterbury Maps).*

1.3 Programme of works and summary description of works sequence

It is expected that the construction activities will take approximately 24 months. However, this is dependent on a number of variables, including weather delays. An extract of the draft works programme has been included in **Appendix A**. Please contact REL for the actual file if a detailed review is required.

In summary, the proposed development will involve the following land disturbing activities:

Site clearance and preparation works.

- Removal of existing trees and vegetation from the site. External fences to provide site demarcation and basic security.
- Turf and vegetative layers to be stripped and stockpiled. The silt layer directly beneath the vegetative layer will then be stripped and stockpiled in separate stockpiles. The stockpiled material will be used later to rehabilitate the external embankment batters prior to grass seeding.
- Soil screening plants will be used on the site during the project.
- Installation of erosion and sediment controls, to be undertaken during the initial site establishment phases.
- Project offices, fuelling stations and other associated infrastructure to be installed.

Pond excavations

- The pond will be excavated using bulldozers and scrapers. It is proposed to excavate to an approximate maximum depth of 5 m below natural ground elevation. Excavated materials will be placed in the embankment as cut to fill. Only silt and turf will be stockpiled. These stockpiles will be located in locations on site for later use. It is anticipated that the excavation works will occur at a rate of 5,000 m^3/day (25,000 m^3 per week).
- The total cut to fill volume for the storage ponds is in the order of 1.4-1.5 million m^3.
- Pond 1 will be excavated first, and the total area will be split into approximately 5 stages (1a to 1e). Following completion of Pond 1 the Pond 2 will be constructed – divided into three sections with between 1 and 2 stages in each.
- During the excavation for each of the separate stages informal soakage basins will be constructed.

Embankment construction

- Embankments will be constructed around the excavated areas to provide additional storage. The embankments will be positioned on suitable foundation material.
- It is anticipated that the embankments will be constructed in approximately 400mm layers to ensure that there is the correct compaction to achieve design requirements.
- After the placement of layers, the batters will be trimmed to the correct slope. The completed batter will then be rolled in preparation for the placement of geomembrane.
- The material for the embankments will be sourced from the site.

Pipeline Installation

- There are several low-level outlet pipelines proposed. The majority of the pipes will be laid during the early stages of the embankment construction. All pipelines under roads will be laid to meet WDC requirements.

Geomembrane Installation

- The geomembrane liner will be trenched-in at the crest to anchor the top edge in place, and the liner will be tensioned and held down in the floor of the pond by silt ballast, which will remain on the liner as the pond is filling.

Site Rehabilitation and Fencing

- The external embankment will be top soiled in preparation for grass seeding or suitable alternative vegetative cover. Alternative vegetation must be suitable for an embankment and must be a shallow rooting species. Any fencing around the site that is removed or damaged during the construction works will be repaired or replaced as

necessary.

- Removal of all erosion and sediment controls once full stabilisation has been achieved.

1.4 Plant and Equipment

It is proposed that the following plant will be required for the construction of the storage ponds and associated infrastructure.

• Twin and single engine scrapers for bulk earthmoving

• Large bulldozers to rip the ground and push scrapers

• Large graders for establishment of haul roads and to trim each lift layer

• Vibratory steel drum rollers to compact gravel lift layers

• Dump trucks to assist scrapers in bulk earthmoving

• Excavators to trim batters, load dump trucks, clear the site, lay pipes and trench-in cables

• Water trucks for dust suppression and to raise the moisture content of the gravels to assist with compaction

• Screening plant to screen suitable gravels for backfilling around pipes

• Concrete trucks

• Fuel storage will include the storage of up to 50,000L. The storage will be in accordance with rules 5.179 / 5.181 (LWRP – ECan) and Rule 31.16 in the Operative District Plan (Waimakariri District Council - WDC). Prior to the start of works the Principals Representative will provide a Certificate of Compliance to ECan and WDC.

1.5 Construction Hours

- Standard working hours will apply, typically between 7am to 6pm Monday to Friday and 8am to 5pm Saturday.
- Construction work shall not be carried out on Sundays or Public Holidays

It is recognised during the construction works; the use of machinery and plant will generate noise. The level of noise will vary throughout the project depending on the construction phase, type and number of equipment/plants used for the construction phase, duration of the activity and the location of the activity within the construction site.

The anticipated sound level at the nearest rural dwellings is mainly dependent on the distance from the centre of the sound source to the receiving position. It is anticipated that the site preparation works (which would include the initial scraping of the site) and embankment construction will be the activities most likely to occur nearest the property boundaries and are most likely to affect local residences. It should be noted that the duration of the activities

along the boundaries is expected to be short term, and the bulk of the noise generating activities will occur well away from the site boundaries and away from the dwellings.

The contractor will manage the construction works such that the noise generated from the construction activities, plant and equipment will comply with the noise criteria from NZS 6803:1984.

1.6 Key contacts, roles and responsibilities

Key personnel involved in this project are still to be determined. Table 3 will be completed as roles are assigned. Table 4 provides information for the principal responsibilities for the key roles on the project, from an environmental perspective.

Table 3 *Key project contacts.*

Name	Company	Position	Mobile	Email
Brent Walton	Burnt Hill Storage Limited	Principals Representative	022 086 9986	Brent.walton@wil.co.nz
Steven Woods	Stantec	Independent Certifier	027 220 2241	Steven.woods@stantec.com
Lawrie Saegers	Rawlinsons	Engineer to Contractor	021 610 302	l.saegers@rawlinsons.co.nz
Engineers Representative	TBC	TBC	TBC	TBC
Bryce Ranger **Cameron Rooney**	REL	Contractors Representatives	027 335 7530 027 622 3346	bryce.ranger@rooneygroup.co.nz cameron.rooney@rooneygroup.co.nz
Mike Clearwater	REL	Project Manager	027 4430297	mike.clearwater@rooneygroup.co.nz
TBC	TBC	Contractors Health and Safety Officer	TBC	TBC
Brodie Grave	REL	QA / Surveyor	0273208442	brodie.grave@rooneygroup.co.nz
Richard Ablitt	EnviroCo	Senior Environmental Consultant	027 226 9294	Richard@enviroco.nz
Blair Gray	EnviroCo	Director / Senior Environmental Consultant	027 226 9269	Blair@enviroco.nz
Jeremy Eldridge	Damwatch	Designers Design Manager	027 638 3155	Jeremy.eddridge@damwatch.co.nz

Name	Company	Position	Mobile	Email
Andrew Kilby	Damwatch	Designers Project Manager	021 634 878	Andrew.Kilby@damwatch.co.nz
Kitti Fekteova	Damwatch	Designers Representative	021 273 4411	Kitti.Fekteova@damwatch.co.nz
TBC	Canterbury Regional Council	Resource Management Officer	TBC	TBC
TBC	Waimakariri District Council	Compliance Officer	TBC	TBC
TBC	Te Ngai o Tuhahuriri Runanga	TBC	TBC	TBC

Table 4 *Roles and responsibilities of key project staff members.*

Contractors Representative	The Contractors Representative has overall responsibility for the project and environmental performance of the project and ensuring that the ESCP is implemented correctly. Their primary responsibilities include: • Ensuring that the project is adequately resourced, • Regularly liaising with the Site Supervisor, Environmental Consultant, and other professionals to ensure that good environmental practices are being implemented on site. • Ensuring that the Contractor (supervisors, operators, employees etc.) and their subcontractors are operating in accordance with the ESCP. • Ensuring that the necessary inspections and monitoring are being undertaken as required by the ESCP. • Restricting or stopping any activities that have the potential to or that have caused negative environmental effects.
Project Manager	The Project Manager is accountable to the Contractors Representative and the Environmental Consultant and is responsible for: • Ensuring that they understand and comply with the ESCP. • Coordinating the implementation of the ESCP measures, including daily environmental monitoring and inspections • Ensuring that all site employees and subcontractors are operating in

	accordance with the ESCP. • Ensuring that sufficient information is provided to operators on site regarding environmental risks. • Monitoring the weather and coordinating the implementation of appropriate environmental measures (i.e., dust suppression as determined by site observations or dust monitoring equipment).
Environmental Consultant	The Environmental Consultant holds a key role for the project and is accountable to the Project Manager & Contractors Representative. Their role includes providing support to the Project Manager and Contractor representatives with day-to day implementation of the ESCP and esc measures. Their primary responsibilities include: • Implementation of Environmental Management. • Ensure installation of environmental controls as per the ESCP. • Undertake environmental site inspections on the project on a fortnightly basis. • Oversee the maintenance and improvement of defective environmental controls. • Review environmental incidents and reporting by the contractor. • Understand the requirements of the ECan esc toolbox for Canterbury and provide guidance to the contractor.
All project staff (including sub-contractors)	All project staff are responsible for ensuring that their actions or inactions do not negatively affect the environmental performance of the project. All staff are required to: • Undertake all work in accordance with the ESCP. • Attend an environmental induction for the site. • Report any activity that has the potential to or has resulted in an environmental incident.

1.7 Communication protocols

The movement and provision of information in a timely manner is paramount to ensuring successful outcomes to the project.

Information management

Regular communication shall be maintained via:

- 24-hour a day communication through after-hours transfer to cell phones.
- Regular meetings between REL, EnviroCo and Project Engineers.
- Weekly management meetings including the Project Manager, Site Supervisor.
- Weekly toolbox meetings with all site personnel, including sub-contractors.
- Regular updates provide to WIL via Project Engineers.

Stakeholder Liaison

REL to have regular liaison with property owners of local residential properties and other interested parties in order to minimise potential impacts as much as possible.

It is recommended that REL/WIL ensure that all residential properties in the local area are informed of the construction project. This will include providing a project summary, development timeframes and contact details of key project staff. The information will be either provided via face-to-face contact, leaflets or attendance at community/business meetings.

Complaints Register

A register of complaints will be kept by REL with the following information:

- Name and address.
- Contact telephone number.
- Nature and description of the complaint.
- Location of the complaint.
- Date and time of the complaint.
- Weather conditions (including wind direction).
- How the complaint was followed up and resolved.

All complaints shall be followed up within 24 hours of being made. If deemed relevant to the construction works/environmental impact, Waimakariri District Council (WDC) / ECan shall be notified within a 24-hour period. The complaints register shall be made available to WDC / ECan upon request.

2 Erosion and Sediment Control

The following section is to be read in conjunction with the ESC drawings in **Appendix B**.

2.1 Principles

The basis for good erosion and sediment control follows the four fundamental principles as detailed in the ESCT[5]. The fundamental principles are:

- Control run-on water;
- Separate 'clean' from 'dirty' water;
- Protect the land surface from erosion; and
- Prevent sediment from leaving the site.

2.2 Site entrance/exit formation and maintenance

The access point to the site will be from Wrights Road. The entrance will be stabilised with a rock apron to ensure that the potential for tracking sediment/dirt onto local gravel roads is minimised.

The rock apron will be constructed according to the design criteria outlined in ECan's esc toolbox specification (**Figure 4**), including the use of a layer of geotextile beneath a layer of railway ballast or broken concrete of dimensions at least 50mm – 75mm at a minimum thickness of 150mm. The rock apron must be at least 15m long and 3m wide. Surface water must be directed away from the entrance and exit points. The layer of rock will need to be replaced if there is a build-up of sediment.

The existing road network (Wrights Road and Dixons Road) will be monitored and checked for any residual sediment tracking and removed as required.

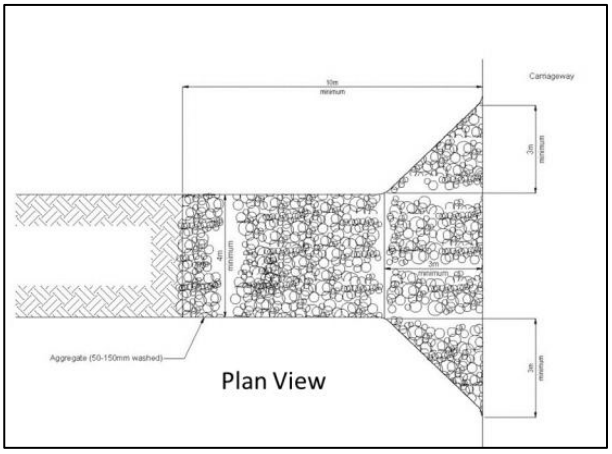


Figure 4 *Diagram of stabilised entranceway (Source: ECan esc toolbox).*

2.3 Minimisation of unstabilised areas

The installation of embankments during the early stages of the project will minimise wind velocity and exposure during bulk earthworks for the construction of each of the ponds.

[5] Ecan (2019). *Erosion and Sediment Control Toolbox*. Online document: http://esccanterbury.co.nz/.

The total area of the site will be staged and divided into two areas. This is required as each of the two ponds will be constructed separately, with pond 1 being constructed first. By doing so will minimise the total area of exposed ground and existing grassed areas will be maintained for as long as practically possible.

The formation of pond 1 will be completed in four distinct stages (P1 to P4). Each stage will have topsoil and silts stockpiled or used in embankment formation. Below illustrates the full sequence for pond 1 (**Figure 5**). Separate sequence phases are illustrated in **Section 2.8**.

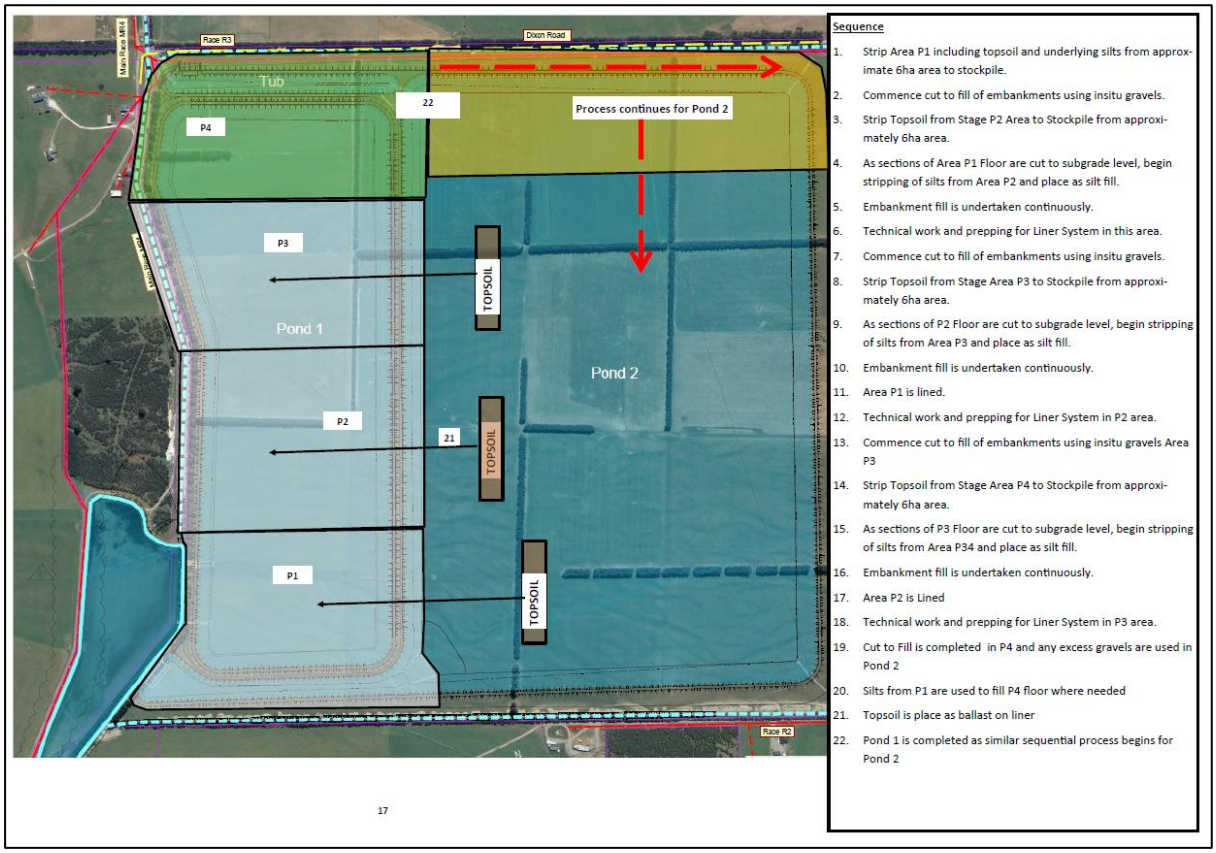


Figure 5 *Diagram to illustrate the proposed sequence for removal of material and stockpiling.*

For the purposes of this plan pond 2 will likely be split into the three sections as illustrated in the table below.

Section	Stages included
1	2a, 2b
2	2c and 2d
3	2e

Table 5 *Division of pond 2 construction*

Vehicle movements across the site can generate dust. It is proposed to have dedicated haul roads on the project site and vehicle speeds will be limited to 30 km/hr. Haul roads that are regularly used will have an all-weather surface installed. The material is likely to be aggregate which will minimise potential dust issues and sediment tracking.

All stockpiles will be oriented in line with the prevailing wind direction, be shaped to round off corners and exposed surfaces temporarily stabilised. Additional measures such as soil geobinders (Silt-Stop) and compost/straw blankets may also be applied. The additional measures are intended to allow 'stabilisation' which is a surface resistant to wind and water (rain drop, flow scour etc.) erosion.

2.4 Perimeter controls

As mentioned previously, the design requirements of this project involve the installation of an engineered earthbund around the perimeter of each the ponds. The scale of the earthbund construction will ensure that all dirty water is sufficiently contained within the area of excavation. A dirty water channel will be constructed at the toe of the embankment to ensure that sediment runoff from the embankment is sufficiently contained.

The actual pond excavation/site cut is also an effective control in terms of ensuring that water is not permitted to flow from the site.

The following sections provide detail on the management of sediment laden runoff and key perimeter controls.

2.4.1 Protection of existing water races

There are a several water races located around three sides of the project area. *Race 2* is on the Southern perimeter, *Main Race MR4* on the West and *Race 3* on the northern boundary. The existing vegetation adjacent to each of these water races is grass. The project does not include works that are closer than 8 meters (min) from the project boundary to the existing water race (in accordance with CRC263195 Condition 22 ii). The closest area of works will be the toe of the engineered embankment. At this location a diversion swale will be constructed to capture any surface water during construction of the embankment.

The initial construction of the engineered earth bund will include excavations to remove topsoil. Further excavation will be required to reach suitable material for the construction of the earth bund – the exact depth is unknown at the time of writing. The initial excavation is a site cut which will ensure that any water is sufficiently contained within the site.

Prior to the start of the construction of the engineered earthbund a perimeter dirty water diversion channel will be constructed. The channel will be maintained throughout the construction of the engineered earth bund and until full stabilisation is achieved. The dimensions will be in based on ECan ESC guidelines (illustrated in **Figure 7**).

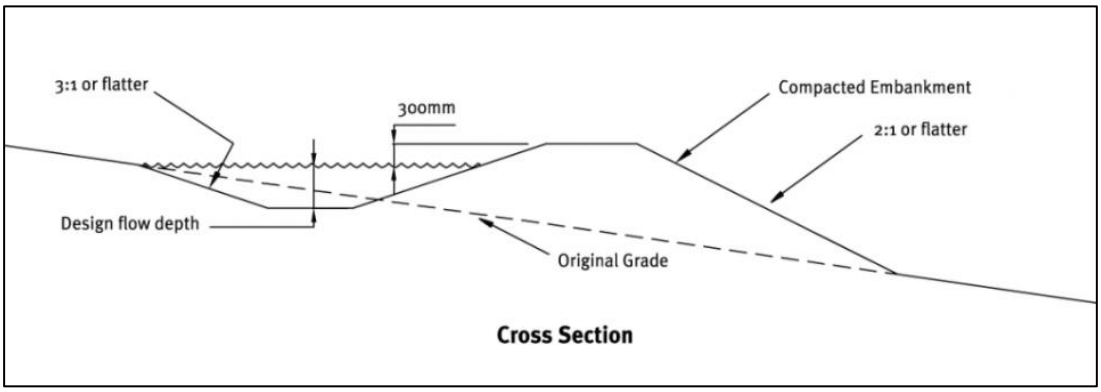


Figure 6 *Perimeter bund and diversion channel (source: esc canterbury guidelines).*

In consideration of the existing soil substrate, it is reasonable to assume that water will be discharged to ground along the channel's alignment. However, in the unlikely event of water accumulating in the channel it will be important to grade the channel to ensure that there is adequate water conveyance. Informal soak pits will be installed in the low points, these soak pits will be excavated to natural gravels at a minimum of 1.5 m depth.

2.4.2 Silt fences

It is not considered necessary or practical to install silt fences around the sites perimeter. However, there may be some circumstances whereby silt fences could be necessary. For instance, silt fences will be installed adjacent to the soakage pits. Key design information is provided in **Figure 7** and **8**.

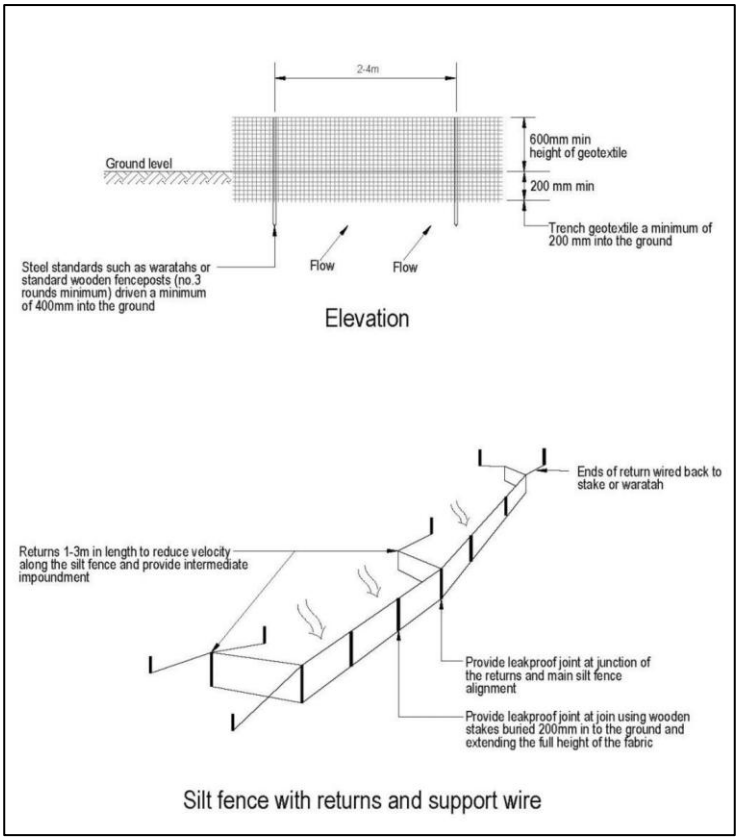


Figure 7 *Silt fence installation (source: esc canterbury guidelines).*

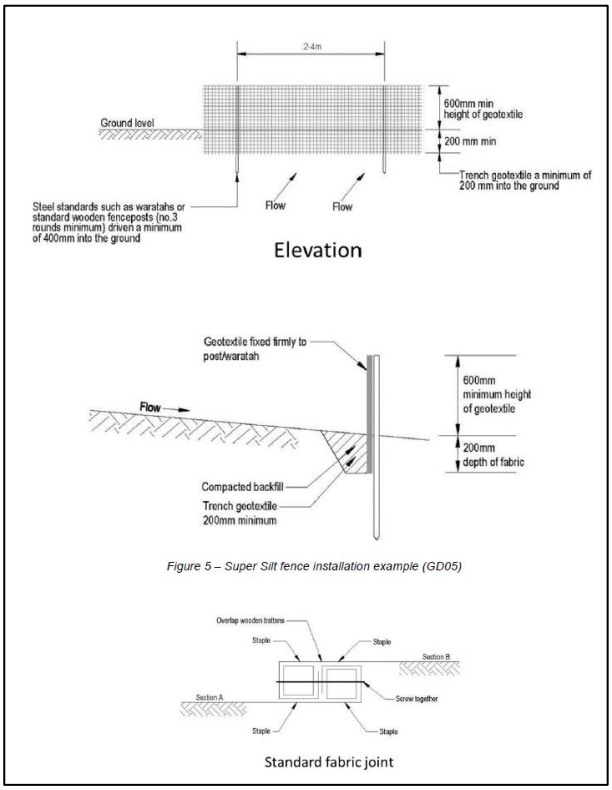


Figure 8 *Silt fence geotextile lap joint (source: esc canterbury guidelines).*

2.4.3 Silt socks and clean water diversions

Silt socks are often used as an effective way to manage potential runoff from exposed surfaces. It is often beneficial to install these on slopes to minimise flow velocity and trap sediment. The use of silt socks will be reviewed by the Environmental Consultant during the course of the project.

Clean water diversions are not considered necessary as there is a low risk of water 'flowing' onto the site due to the existing topography and surrounding land use. However, this requirement will be reviewed by the Environmental Consultant and if necessary clean water diversions will be installed. If required, clean water diversions will be installed in accordance with ECan's esc guidelines (**Figure 9**).

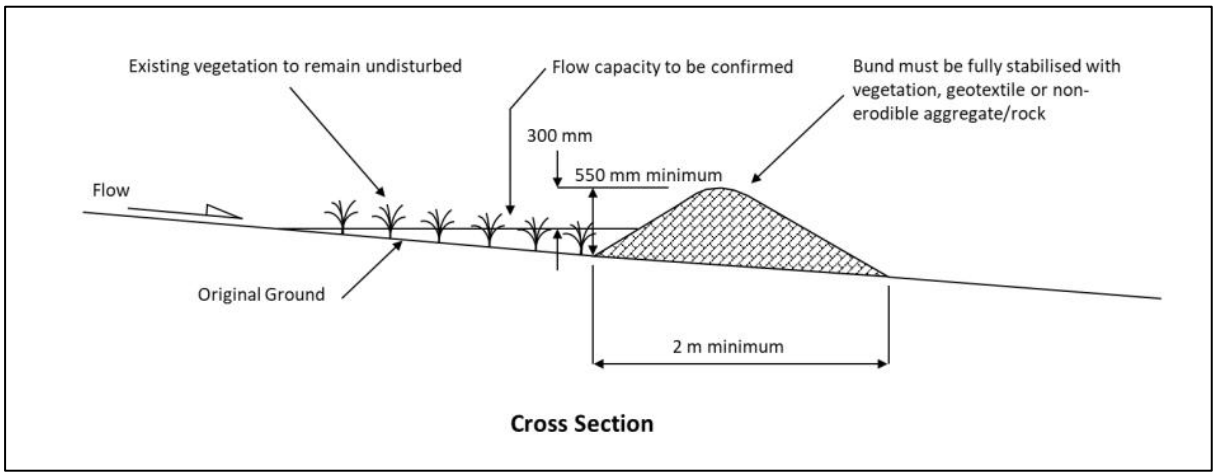


Figure 9 *Cross section clean and dirty water diversion and earth bund (source: esc canterbury guidelines).*

It is best practice to install fabric or other protection devices over stormwater sumps on local roads. However, the project is located in a rural location and the access roads are gravel and the discharge of stormwater is to roadside verges. Therefore, stormwater sump protection measures are not necessary on this project.

2.5 Stormwater management

Construction phase sediment laden surface water from within the pond area is to be managed onsite and discharged to ground. The discharge locations will vary during the course of the project as the construction sequence progresses.

- Existing (native topsoil) – The site ground conditions already exhibit sufficient soakage capacity. i.e. the existing paddock is dry. For this reason, no soakage trenches or soak pits are deemed necessary.

- Silty gravel layer (after topsoil strip) – The site ground conditions already exhibit sufficient soakage capacity. i.e. the paddock is dry. For this reason, no soakage trenches or soak pits are deemed necessary.

- Gravel layer after topsoil and silt strip – The site ground conditions already exhibit sufficient soakage capacity no ponding is anticipated.

- Pre-liner preparation layer – While we still expect reasonable soakage through this layer of the pond (prior to the HDPE liner) it is possible that some ponding may occur. If that is the case, then soak pits within the pond floor will be utilised to drain any stormwater ponding.

Soak pit locations

The pond floor design is level (flat). This means that ponding is unlikely to collect in a single area and likely to evaporate and/or soak through the gravel floor layer. If a soak pit is required, it will be located specific to the location of the ponding. For geotechnical / structural reasons the soak pits will be located at least 5 meters from the toe of any embankment or structure.

Note that the locations for the soak pits will vary during the course of the project and are dependent on each particular work phase. However, the approximate locations are provided on the respective ESC drawings in the appendices.

Soak pit sizing and calculations

The Damwatch design report[6] is clear that the site gravels are very permeable i.e. a hydraulic conductivity in the order of 3 x 10^{-2} to 3 x 10^{-3} m/s. However, in order to ensure that sizing/capacity designs perform efficiently then it is considered meaningful to provide sizing calculations and specifications for the soak pits.

Assumptions in calculations:

- Each of the soak pits will be designed to cater for an area of approximately 3 hectares.
- Information from HINDS[7] for the nearest monitoring station will be 'Oxford 1' H32321.
- The exposed C Value is determined as '0.10' (NZBC E1 Run-off coefficients) – High Soakage gravels (cultivated).
- The soakage rate (mm/hr) has been determined from the soil ultimate infiltration rates (*Hortons Equation*) from the CCC Waterways and Drainage guide (2020)[8]. A rate of 230mm/hr has been used. This rate is considered conservative and a much greater rate soakage performance is likely to be achieved.

Figure 10 provides details for the calculations. The minimum basin size has been calculated as 182.70 m² at a depth of 1m. In practice the width and length are likely to be dependent on

[6] Damwatch (2021). *Wrights Road Storage Ponds; Design Report*. Prepared on the 26th October 2021 for Waimakariri Irrigation Limited. Issue 6. Damwatch Project number E2131.

[7] High Intensity Rainfall System – HINDS (NIWA / Earth Sciences NZ).

[8] CCC (2020). *Waterways Wetlands and Drainage Guide: Part B - Chapter 21 (Rainfall and Runoff) – Updated June 2020*. Table 21-11

the ease of achieving the required m² with the use of large excavators. The dimensions will also be designed so that the excavations can be easily remediated by manual compaction using native materials.

Client	Rooney Earth Moving
Date	31.03.26
Project	Wrights Road Water Storage
Designer	Richard Ablitt / Blair Gray
	Exposed Soils
Inputs	
Rainfall 1 in 50 year 1Hr duration (0.020% AEP)	30.5
Climate/Scale Adjustments (16%, 5%)	37.1
Exposed soil C value	0.1
Impervious (A m2)	
Exposed soils	30000
Total Area (sq.m)	**30000**

Basin calculation	
Total Adjusted Area (ha)	0.30
Soakage Rate (mm/h)	230.00
Rainfall (mm)	37.15
Rc (cu.m)	111.45
Vsoak (cu.m)	42.02
Vstore (cu.m)	69.43
Balance	0.00

Minium basin dimensions	
Pit Area (sq.m)	**182.70**
Required Pit Depth (m)	**1.00**

Figure 10 Design calculations for soak-pits.

In summary, it is unlikely through most stages of construction that specific measures other than natural ground seepage will be required. However, if necessary informal soak pits will be used to drain ponding surface water. The volume of water requiring discharge is considered to be relatively minor in consideration of the infiltration capacity of the existing gravels. If required, during each construction stage informal soakage pits will be constructed. The soak pits will be excavated efficiently with excavators and backfilled to engineered fill standards.

2.6 Dirty water conveyance

Due to the sites layout and design, it is not considered practical to install dirty water conveyance channels within the excavations for the pond. This is because the earthworks will rapidly change the existing surface and there is not adequate space for a semi-permanent dirty water conveyance channel.

As the excavation works will be exposing natural gravels it is anticipated that the majority of water will naturally infiltrate to ground. However, in the event of water accumulating on the

project site the contractor will transfer the water to soak pits with the use of lay flat hoses and appropriately sized pumps.

In some circumstances, there will be the opportunity to install informal diversion channels prior to forecasted rain. These channels can be formed and efficiently constructed with an excavator bucker. They will be approximately between 100-200mm deep and 300-500mm wide, with the spoil windrowed on the downslope side.

2.7 Dust control

A Dust Management Plan[9] has been prepared for the project and should be referred to for detail information on dust management. However, this section serves to provide a summary of dust management practices.

Dust may be generated from construction/earth moving activities, unstabilised ground, vehicle movements or stockpiles, creating a nuisance to the public and neighbouring properties. To minimise the potential for fugitive dust, earthworks will be staged, and areas of existing vegetation shall be maintained wherever possible.

Water carts will be available for dust suppression of unstabilised surfaces and temporary soil stockpiles until ground is fully stabilised. Dust suppression polymers, e.g., Duststop™, can be used to manage exposed ground conditions in areas that are to be left undisturbed for a period of time, including stockpiles.

Vehicle loading and unloading operations shall occur during times of low wind velocity wherever possible. If the operation needs to occur during high wind speeds, the material is to be wetted to prevent the discharge of dust beyond the site boundary.

During later stages of the development, K-line sprinkler systems can be installed to manage exposed soils. These sprinkler systems will then be utilised for the establishment of grass on completed lots.

Additional control measures may include:

- All site workers shall be advised of the need to minimise dust by the responsible operation of machinery.
- Vehicle loading and unloading operations shall occur during times of low wind velocity wherever possible. If the operation needs to occur during high wind speeds, the material is to be wetted to prevent the discharge of dust beyond the boundary.
- Suspend dust generating activities when dust control measures become ineffective due to increased wind speed.
- Site entrance and exit locations shall be identified and stabilised with rock aprons at the site compound.

[9] Dust Management Plan (2024). *Wrights Road Storage Ponds.* Prepared by EnviroCo. for REL

- The existing roading network shall be regularly checked for sediment being tracked by vehicle movements from site and swept/sprayed by water cart as required.

2.8 Stockpile management

In general, the construction methodology is for the site to be topsoil stripped using excavators and dump trucks. Material will be unloaded into separate stockpiles of differing material.

During the construction of Pond 1 material will be excavated and stockpiled on the land that will be used for the construction of Pond 2. There will not be any stockpiling outside of the project's perimeter.

Figures 10 to 15, provide illustrations of the construction sequence for each respective stage.



Figure 11 *Construction sequence (P1).*

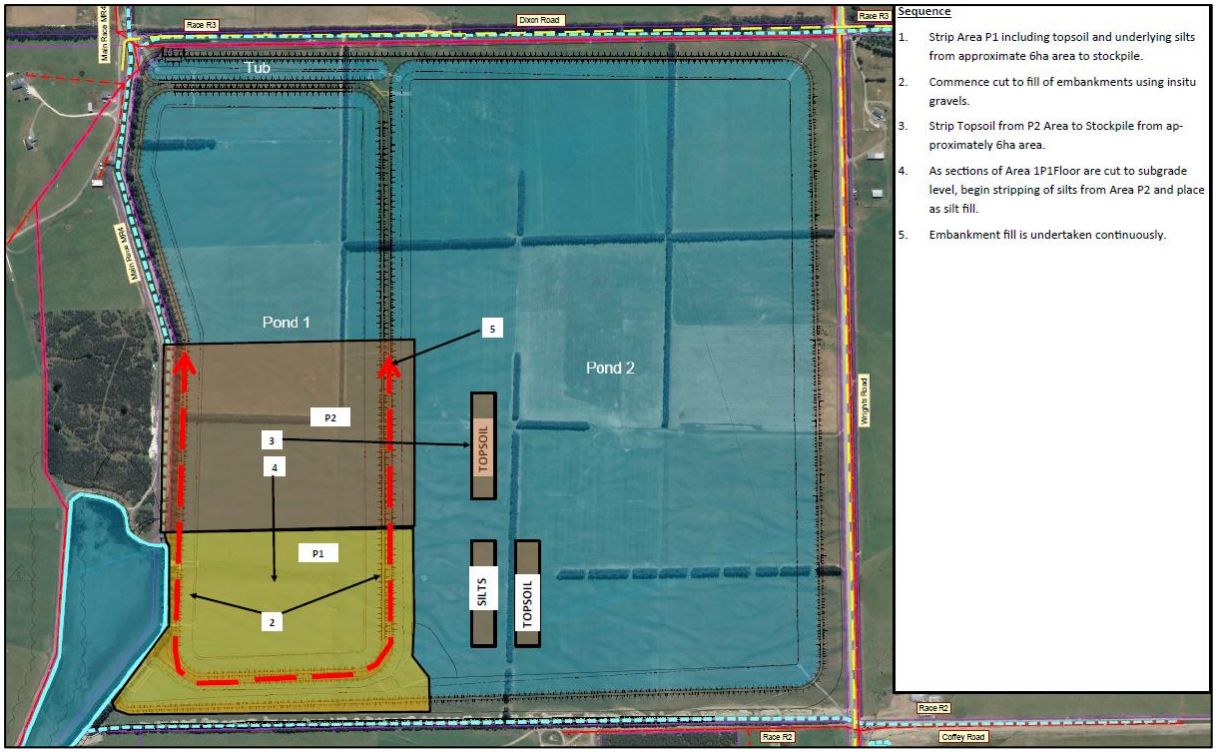


Figure 12 *Construction sequence (P1, P2).*

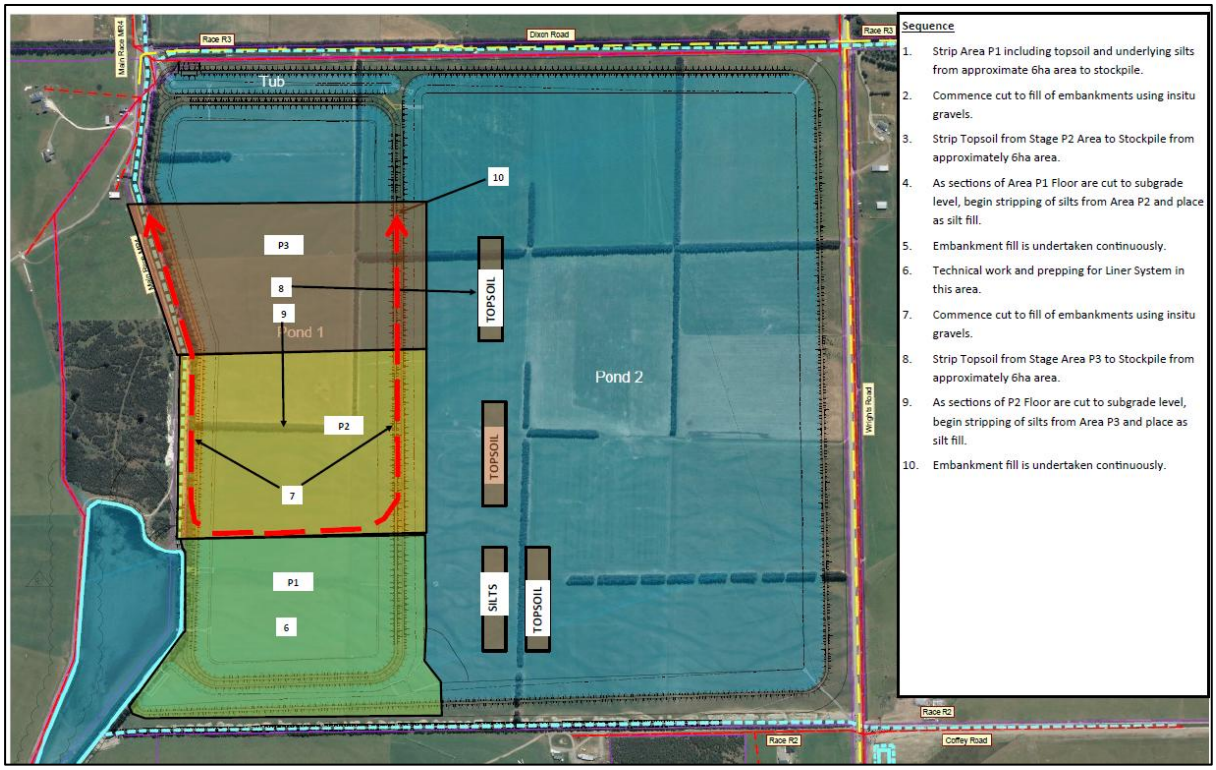


Figure 13 *Construction sequence (P1, P2, P3).*

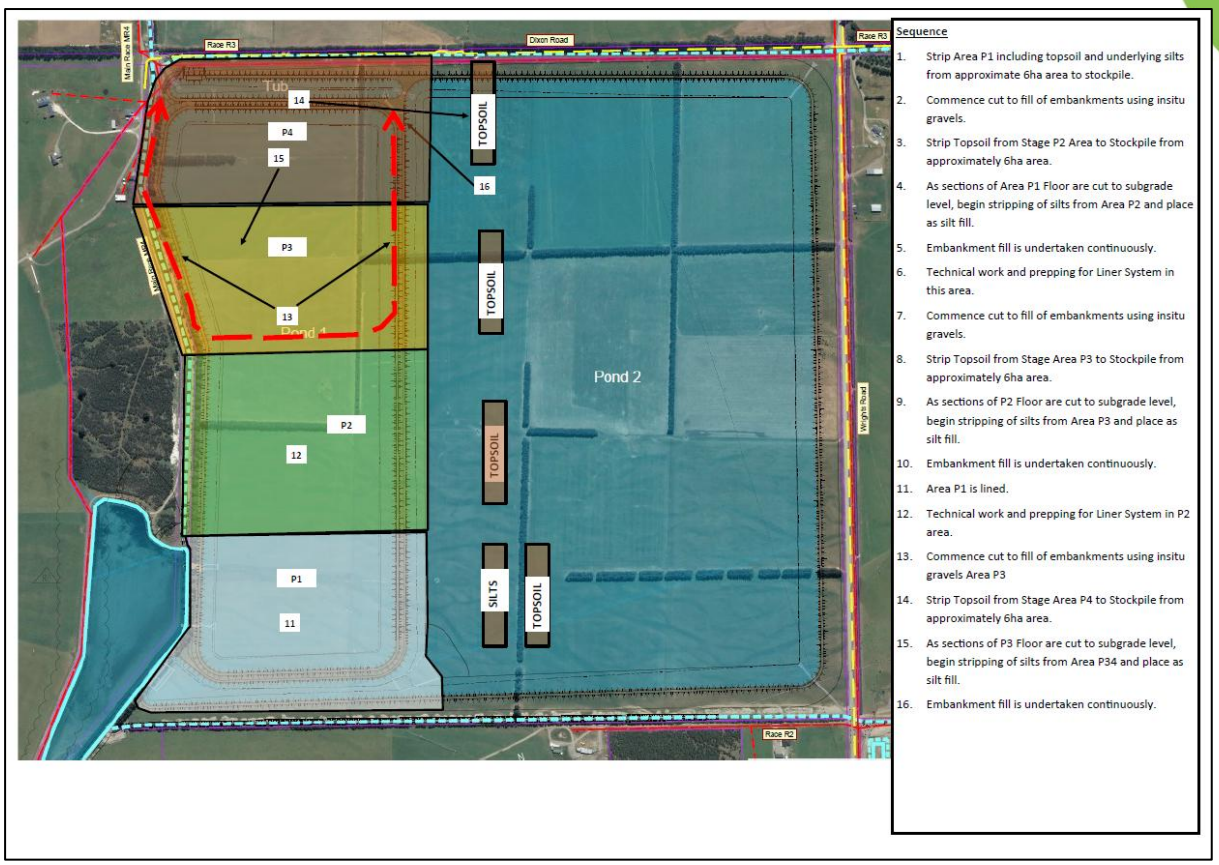


Figure 14 *Construction sequence (P1, P2, P3, P4).*

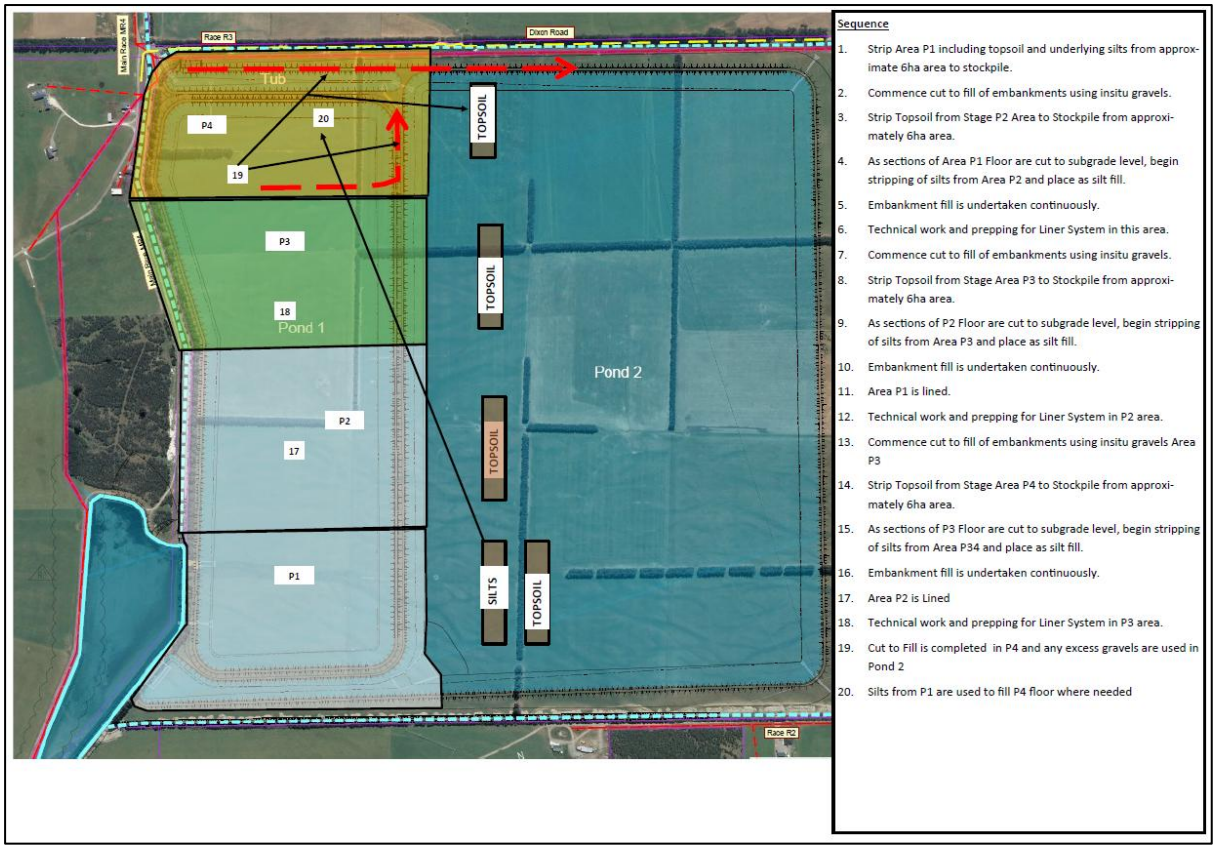


Figure 15 *Construction sequence (P1, P2, P3, P4 – final works).*

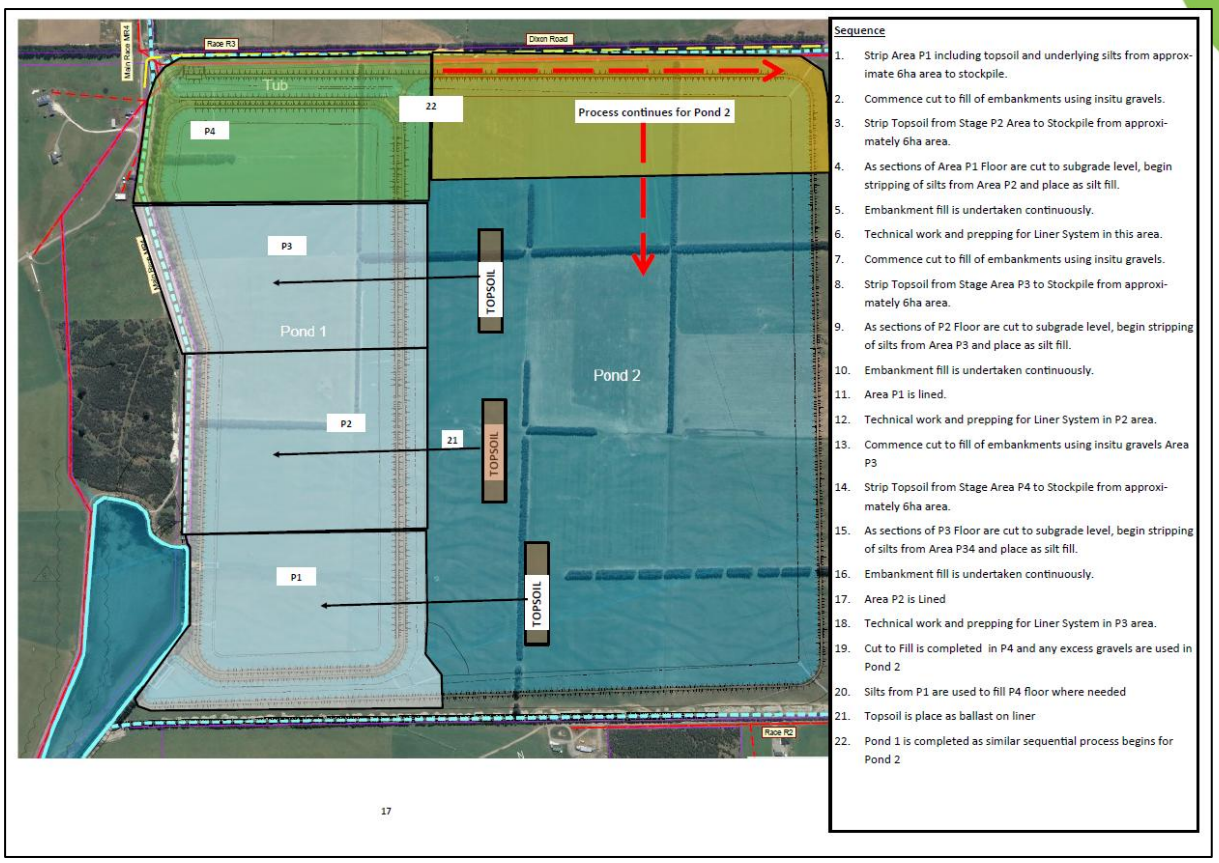


Figure 16 *Construction sequence (P1, P2, P3, P4 – final works & progress to pond 2).*

The location of the stockpiles will vary during the project, and the positioning is dependent on the construction stage that is being constructed at any given time. The following controls will apply to stockpiles:

- Stockpiles oriented inline with the prevailing wind direction;
- Stockpiles will be located a minimum of 10 meters from the sites perimeter;
- The stockpiles will be profiled and compacted;
- Designed with a grade that is suitable for a watercart access;
- There must not be any stockpiling near water races – at least 10 m away to prevent the discharge of sediment laden water and a vegetated strip to be maintained between the watercourse and the stockpiles;
- Watercarts will be available that have water cannon capability in situations whereby a standard water cart cannot access exposed areas;
- Use of soil polymers, covering with geotextile (or equivalent) or hydroseeding for longer term stabilisation;

2.8.1 Imported material

Where it is necessary to import material to the site to construct and maintain the storage ponds the contractor will ensure that the material meets the criteria of clean fill as defined in

the Ministry of the Environment Guide to Managing Cleanfills[10] - in accordance with CRC122897 condition 23. The contractor shall be responsible for requesting the relevant information from the supplier of imported material.

In order to comply with CRC122897 condition 23 the contractor is requested to ensure that the delivery of cleanfill imported materials are recorded accurately. The record shall include the following information:

- the name of the person and company that delivered the clean fill to the site;
- the date of deposition;
- the source of the material;
- the volume of the material deposited; and
- where on the site the material is deposited.

2.9 Vehicle refuelling

There is to be no refuelling of vehicles or machinery within excavated areas. All fuel will be stored securely or removed from the site overnight. All small portable fuel containers (5L – 20L) will be kept with lids on in a bunded container on site when not actively be used. No refuelling will take place within 20m of a waterway, including stormwater drains.

2.10 Incident response procedures – spills

The following section provides an overview of spill control and response procedures. However please refer to the Spil Response Plan[11] for more detailed information.

A suitably sized spill kit will be stored on site. The spill kit shall be located by the site office and staff shall be trained in its use. In the event of a spill of fuel or other contaminant, the contractor will take appropriate action to minimise any further spillage and environmental impact. This may include the excavation and removal of any contaminated material.

Material contaminated from the spill must be disposed of at a facility authorised to receive such material. Drivers are to retain all disposal dockets. A spill report is to be completed in accordance with the company policy.

The main contractor will advise EnviroCo of any spills as soon as possible and the project team will liaise with ECan, if required.

[10] Ministry for the Environment (2002). *Guide to the management of clean fills (2002).* Note that the 2002 guide was referenced in CRC122897 but has now been superseded by the *WasteMINZ Technical Guidelines for Disposal to land* (2022).
[11] EnviroCo (2025). *Spill Response Plan. Wrights Road storage ponds.* Prepared for Rooney Earthmoving Limited. 30th October 2025.

- **CONTROL THE SPILL** - Immediate efforts shall be made to control the spill, identify the source, and prevent further discharge.
- **CONTACT** - Notify the Project Manager.
- **ISOLATE** - The area around the spill should be made safe. This may include turning off machinery and setting up an isolation area. All staff in the vicinity of the spill should be notified.
- **PPE** - Appropriate PPE should be donned, such as overalls, gloves, protective eye goggles and a P2 mask.
- **CLEAN UP** - The spill kit should be deployed for the clean-up process. Typical materials in spill kits include absorbent pads/pillows, socks, absorbent peat/pellets.
- **REMOVAL** - The contaminated material should be removed, scraping until there are no longer any visual or olfactory cues.
- **DISPOSAL** - All materials associated with the clean-up shall be placed in a sealed container and disposed of offsite at an appropriate receiving facility.
- **REPORT** - For spills that are over 5L and/or enter the stormwater network or surface water bodies, ECan shall be notified on 0800 765 588.

Figure 17 *Spill control procedure.*

2.11 Weather conditions

The Project Manager will be responsible for monitoring and implementing measures to manage changes in weather. The strategy for dealing with changes in weather is as follows:

- Regular weather reports will be obtained from the meteorological office.
- Increase dust control during dry and windy conditions by use of additional water carts.
- If rain is forecasted, check sediment control devices.
- The Project Manager will inspect and recommend implementation of tidy up measures to staff on site.

In the event that significant volumes of sediment from the works enter a natural waterway, or storm water system that discharges to a natural waterway, the Site Manager will advise the Independent Certifier who will provide details to ECan, for their records.

2.11.1 Prior to a heavy rain warning

- Seal off all earthwork's areas with a smooth drum roller.
- Check sediment control entrainment and treatment devices.
- Ensure that all site cut-off drains, bunds and other controls have been constructed in the correct position.
- Ensure all clean water diversion systems are fully operational.

2.11.2 During a storm event

- Monitor treatment devices and sediment control measures to identify maintenance requirements.
- Report any failures.

- Implement emergency measures to avoid, remedy or mitigate any significant adverse effects on the environment as necessary.
- Following a storm event, maintenance and reporting will be carried out. An evaluation should be made as to whether improvements are required.

2.11.3 Structure failure

- All reasonable care shall be exercised in the construction and maintenance of protection works to minimise the potential for failure. However, in the event of such failures occurring all practicable means will be employed to contain and minimise any potential impact on the environment.
- The Project Manager shall inform EnviroCo of any failure of protection of works or earthworks.
- The Project Manager will inform the ECan compliance officer in the event of a significant discharge of sediment into a waterway due to failure of protection earthworks.
- The failure shall be contained in the immediate area where possible and steps taken to secure the site to prevent further impact on the environment.
- Any failure event will be reported on an incident form.
- Evaluation of the failure will be made to determine whether there is a possibility of recurrence.
- Priority will be given to rectifying failures and prevention of recurrence.

2.12 Erosion sediment control inspection and maintenance

In accordance with best practice, site staff will inspect all ESC devices daily and any maintenance required shall be recorded and appropriate action taken. All ESC devices will be inspected following any rain event where sediment is generated, and retained sediment removed if it is negatively impacting the performance of environmental controls.

ESC is the responsibility of all staff on site. If any staff member observes an ESC device failure or can suggest improvements, they can contact EnviroCo or/and the Project Manager as soon as possible.

No amendments are to be made to the EMP without the approval of EnviroCo. The updates will then be provided to the Independent Certifier and provided to ECan for their records.

3 Monitoring and Reporting

Environmental monitoring is of importance throughout the duration of the project to ensure that there are not any adverse environmental impacts. The frequency of monitoring to be undertaken will be appropriate to the construction activity, level of environmental risk and consent requirements.

3.1 Inspection of esc controls prior to bulk earthworks

Prior to bulk earthworks commencing Blair Gray (Principal Environmental Consultant; SQEP) of EnviroCo shall be engaged by the contractor to undertake a full inspection of all erosion and sediment controls. The EnviroCo consultant shall certify that the appropriate erosion and sediment control measures have been constructed in accordance with the Erosion and Sediment Control Plan, in accordance with CRC122900 Condition 12. The inspection shall be undertaken at least one month prior to the start of construction. The certification will be provided to the Compliance Manger of Canterbury Regional Council. The list below provides a summary of the key areas of completion prior to esc signoff:

- Stabilised entrance constructed;
- Perimeter controls (as applicable) installed;
- Major haul road constructed on the southern perimeter;
- Designated refuelling area established;
- Spill kit(s) available;
- Watercarts and reticulated water available for dust suppression;
- Silt logs available;
- Monitoring equipment installed for dust monitoring purposes.

3.2 Routine environmental inspections

Daily site walkovers will be undertaken to inspect the ESC controls. These shall be undertaken by project staff (delegated by the REL Project Manager) and any issues recorded and dealt with as a priority.

EnviroCo shall undertake fortnightly erosion and sediment control inspections to assess compliance with resource consents, regional rules and the ESCP. Site inspection reports detailing the site score and any ESC maintenance required will be made available to staff by e-mail within 48 hours. Additional advice during a significant weather event will be provided as requested. Copies of all compliance report will be supplied to ECan upon request.

The contractor shall cooperate with any external environmental auditing in relation to compliance with consents, regional rules or other legislation. This includes assisting with routine compliance inspections from ECan monitoring officers.

4 Training and Project Staff Development

All staff shall receive environmental training that is appropriate/relevant to their role, discipline, and position. As a minimum all staff shall have received introductory training on the project's key environmental risks, ESC controls and their responsibilities. All personnel will also have an awareness of the sites consents. This information shall be communicated to staff via site inductions and discussions with the Environmental Consultant.

Other staff training opportunities may include the following:

- Toolbox talks can be delivered for training purposes and can be related to a specific area of works, such as spill kit training, installation of silt fences and dirty water management. This method of training an effective method of providing environmental training and can be modified during the course of the project.
- Pre-start meetings are typically used prior to the commencement of new work activities. It is important that all safety and environmental issues are discussed and these meeting provide a good opportunity to identify environmental risks and ways to mitigate the risks. The meetings will also include information on the reporting of incidents.
- Staff attendance at ESC training provided by regional/local councils. These training courses provide learning opportunities for project staff and ensure that employees understand their personal environmental responsibilities and best practice for the installation of ESCs.
- Training for specific staff based on position and responsibilities. For example, water quality monitoring, spill prevention and control, erosion and sediment control.

The level of training is the responsibility of the Project Manager.

5 Decommissioning or Abandonment

In the event that the site is to be abandoned prior to the completion of the program, the Project Manager will notify the EnviroCo Environmental Consultant.

Decommissioning of esc controls is not to be undertaken without acceptance by the EnviroCo Environmental Consultant. Decommissioning will ensure that esc measures are not decommissioned until the site is stabilised and the stormwater system for the developed site if functioning (CRC122900 conditions 17 and 18).

The Environmental Consultant will advise on the proposed change and confirm that the site is *safe* (low environmental risk) for decommissioning.

The specific arrangement for decommissioning procedures will vary during each specific stage of the project. However the general decommissioning criteria is outlined within the ECan esc toolbox, with specific requirements that all exposed areas are fully stabilised with no erosion risks and grassed areas have achieved '*thick grass sward*' or 80% thick grass coverage. Silt fences or earth bunds (where installed) will typically stay intact/operational for the full duration of construction until there is no longer erosion or sediment discharge risk.

In consideration of the construction methodology which initially involves topsoil removal within the pond's footprint, it is likely that any period following this (until later construction stages) will have exposed gravels and silts. If decommissioning was required at this time it

would be challenging to establish grass as a stabilised surface on the gravel substrate. In such situations it will be important that topsoil is spread over exposed surfaces and seeded. A soil polymer would also be used as an effective measure to control potential dust issues, until full vegetation establishment.

ESC devices that are located outside of the pond's footprint include silt fences and earthbunds. The removal of silt fences will only occur once the site is stabilised and there is not any environmental risk of sediment discharge. The final removal of silt fences will also include mechanical removal of the waratahs or support posts used for the silt fences. Vegetated earthbunds are likely to remain as removal would cause increased disturbance and cause the exposure of soils. Any vehicle tracking externally on road surfaces, as a result of decommissioning activities, will be cleaned and sediment removed immediately.

6 Accidental Discovery of Archaeological or Contaminated Material

6.1 Accidental discovery of archaeological material

In the event of the accidental discovery of archaeological material, all work in the vicinity (within 20m) must cease immediately, and the area isolated by fencing or other means. The project manager must be informed, and no further work is to occur in the area until advised by the project manager.

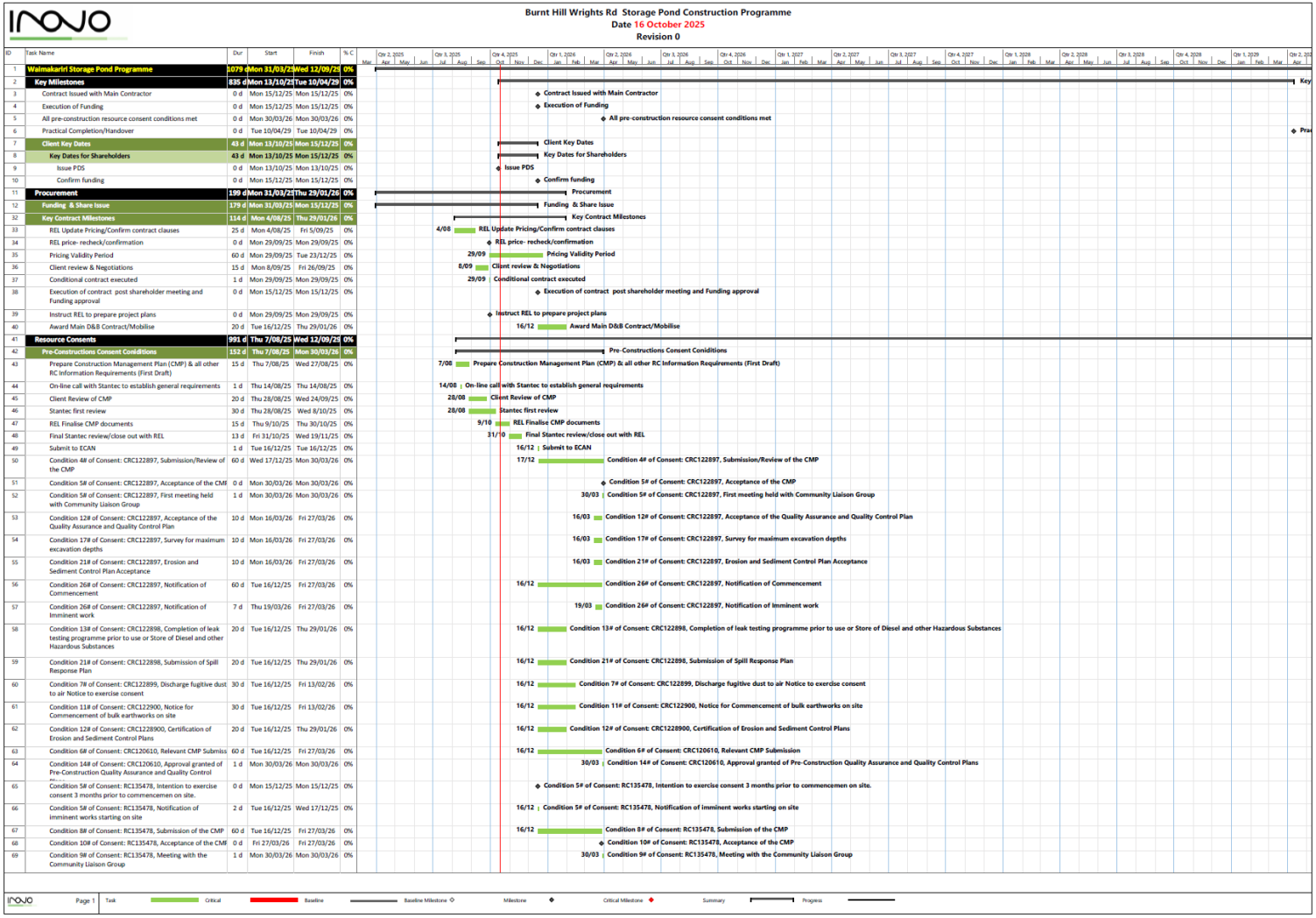
No further work is to occur in the area until advised by the project manager. In the event that an archaeological feature/artefact has been identified Heritage New Zealand must be informed and a qualified archaeologist will require access to the site to conduct investigations.

Please refer to **Appendix C** which provides an accidental discovery protocol for archaeology.

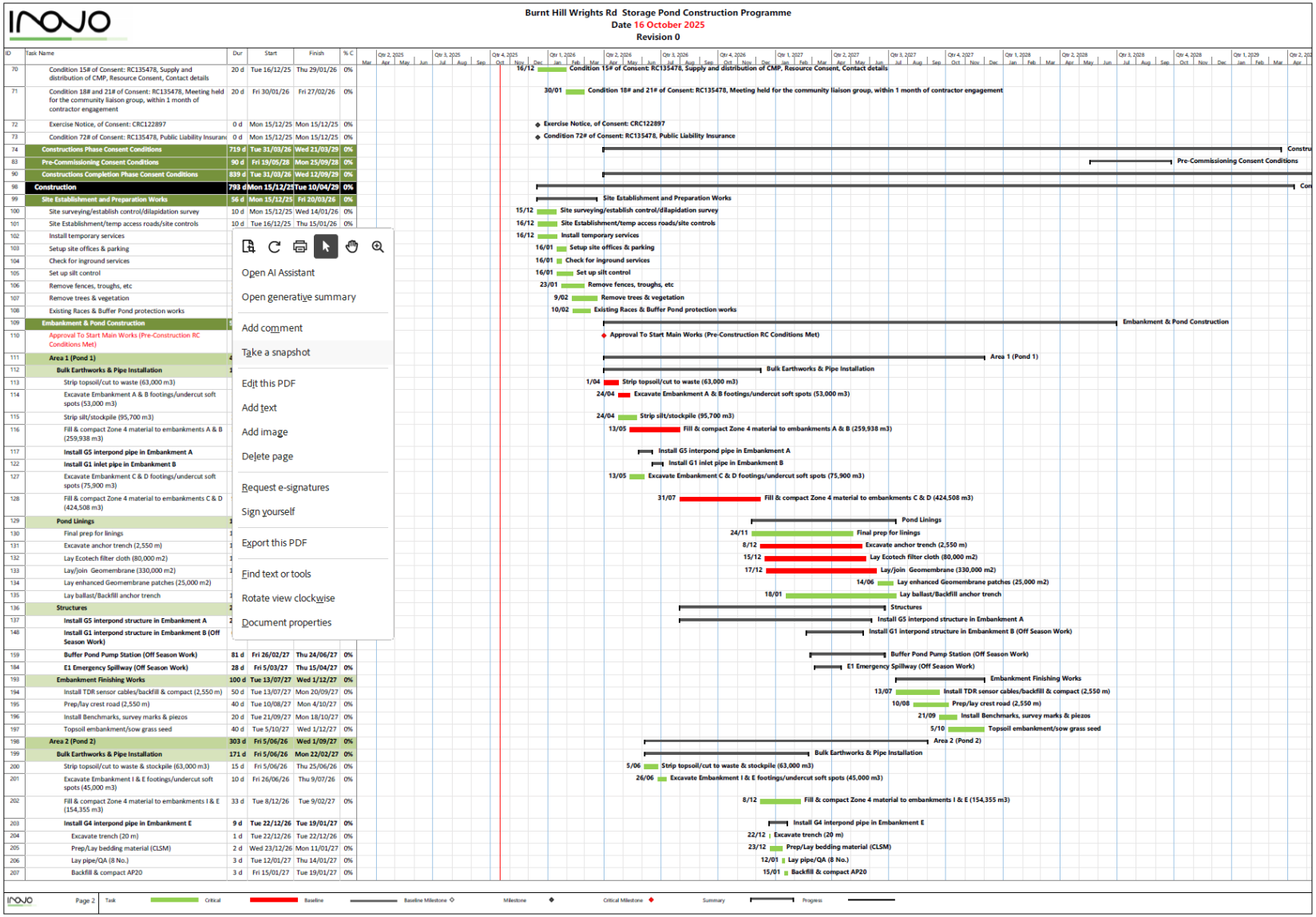
6.2 Accidental discovery of contaminated material

In the event of an unexpected discovery of potentially contaminated material, all work in the vicinity (within 5m) shall stop and the Project Manger notified. The area shall be isolated by fencing or other visual means. The Contaminated Land Specialist must be immediately informed. The Project Manager shall determine the appropriate course of action, which will include notifying ECan and CCC and the preparation of relevant Remediation Action Plan(s). Please refer to **Appendix D** which provides an accidental discovery protocol for contaminated material.

7 Appendix A: Programme of works

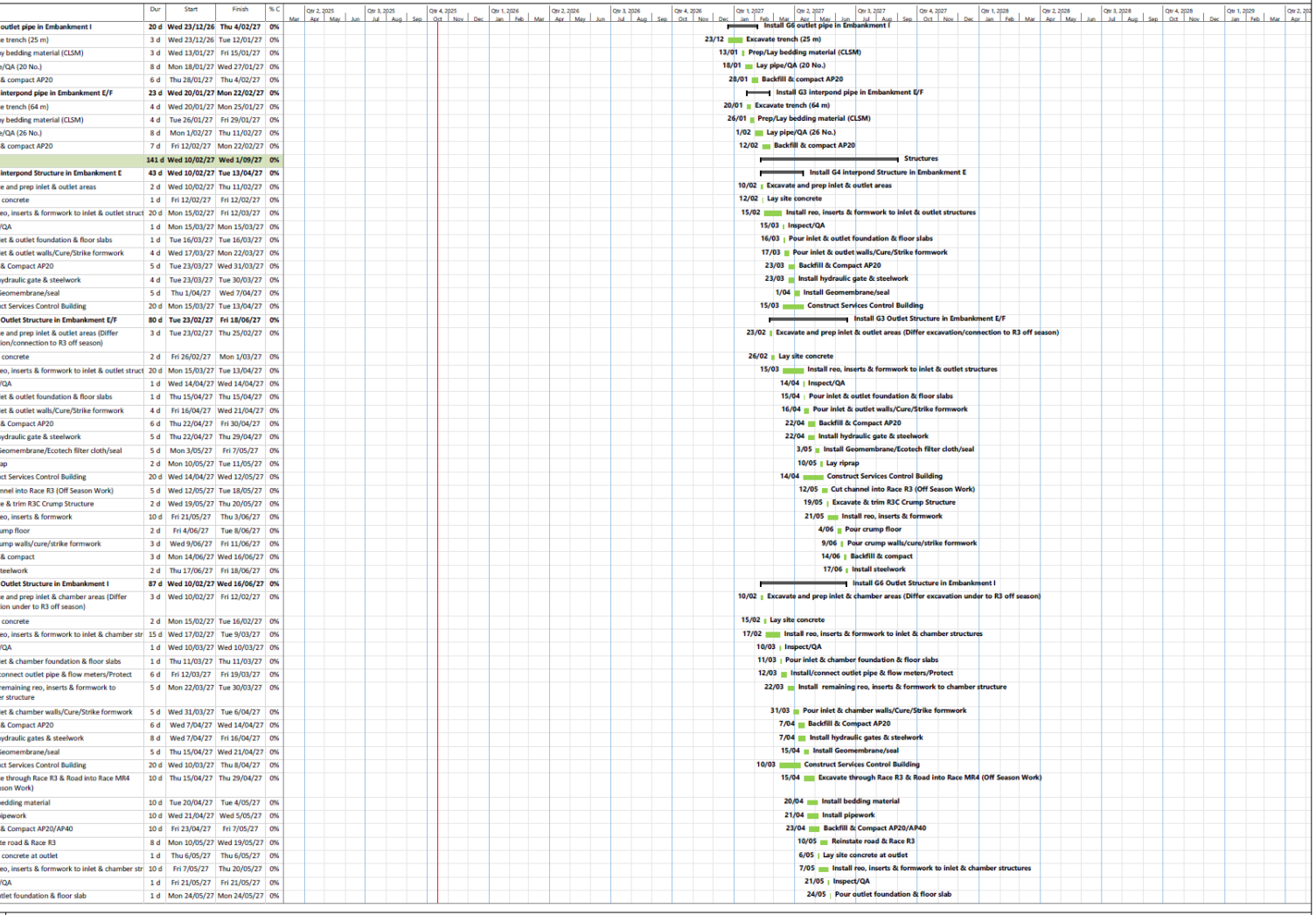


ID	Task Name	Dur	Start	Finish	% C
1	**Waimakariri Storage Pond Programme**	**1079 d**	**Mon 31/03/25**	**Wed 12/09/29**	**0%**
2	**Key Milestones**	**835 d**	**Mon 13/10/25**	**Tue 10/04/29**	**0%**
3	Contract Issued with Main Contractor	0 d	Mon 15/12/25	Mon 15/12/25	0%
4	Execution of Funding	0 d	Mon 15/12/25	Mon 15/12/25	0%
5	All pre-construction resource consent conditions met	0 d	Mon 30/03/26	Mon 30/03/26	0%
6	Practical Completion/Handover	0 d	Tue 10/04/29	Tue 10/04/29	0%
7	**Client Key Dates**	**43 d**	**Mon 13/10/25**	**Mon 15/12/25**	**0%**
8	**Key Dates for Shareholders**	**43 d**	**Mon 13/10/25**	**Mon 15/12/25**	**0%**
9	Issue PDS	0 d	Mon 13/10/25	Mon 13/10/25	0%
10	Confirm funding	0 d	Mon 15/12/25	Mon 15/12/25	0%
11	**Procurement**	**199 d**	**Mon 31/03/25**	**Thu 29/01/26**	**0%**
12	**Funding & Share Issue**	**179 d**	**Mon 31/03/25**	**Mon 15/12/25**	**0%**
32	**Key Contract Milestones**	**114 d**	**Mon 4/08/25**	**Thu 29/01/26**	**0%**
33	REL Update Pricing/Confirm contract clauses	25 d	Mon 4/08/25	Fri 5/09/25	0%
34	REL price- recheck/confirmation	0 d	Mon 29/09/25	Mon 29/09/25	0%
35	Pricing Validity Period	60 d	Mon 29/09/25	Tue 23/12/25	0%
36	Client review & Negotiations	15 d	Mon 8/09/25	Fri 26/09/25	0%
37	Conditional contract executed	1 d	Mon 29/09/25	Mon 29/09/25	0%
38	Execution of contract post shareholder meeting and Funding approval	0 d	Mon 15/12/25	Mon 15/12/25	0%
39	Instruct REL to prepare project plans	0 d	Mon 29/09/25	Mon 29/09/25	0%
40	Award Main D&B Contract/Mobilise	20 d	Tue 16/12/25	Thu 29/01/26	0%
41	**Resource Consents**	**991 d**	**Thu 7/08/25**	**Wed 12/09/29**	**0%**
42	**Pre-Constructions Consent Conditions**	**152 d**	**Thu 7/08/25**	**Mon 30/03/26**	**0%**
43	Prepare Construction Management Plan (CMP) & all other RC Information Requirements (First Draft)	15 d	Thu 7/08/25	Wed 27/08/25	0%
44	On-line call with Stantec to establish general requirements	1 d	Thu 14/08/25	Thu 14/08/25	0%
45	Client Review of CMP	20 d	Thu 28/08/25	Wed 24/09/25	0%
46	Stantec first review	30 d	Thu 28/08/25	Wed 8/10/25	0%
47	REL Finalise CMP documents	15 d	Thu 9/10/25	Thu 30/10/25	0%
48	Final Stantec review/close out with REL	13 d	Fri 31/10/25	Wed 19/11/25	0%
49	Submit to ECAN	1 d	Tue 16/12/25	Tue 16/12/25	0%
50	Condition 4# of Consent: CRC122897, Submission/Review of the CMP	60 d	Wed 17/12/25	Mon 30/03/26	0%
51	Condition 5# of Consent: CRC122897, Acceptance of the CMP	0 d	Mon 30/03/26	Mon 30/03/26	0%
52	Condition 5# of Consent: CRC122897, First meeting held with Community Liaison Group	1 d	Mon 30/03/26	Mon 30/03/26	0%
53	Condition 12# of Consent: CRC122897, Acceptance of the Quality Assurance and Quality Control Plan	10 d	Mon 16/03/26	Fri 27/03/26	0%
54	Condition 17# of Consent: CRC122897, Survey for maximum excavation depths	10 d	Mon 16/03/26	Fri 27/03/26	0%
55	Condition 21# of Consent: CRC122897, Erosion and Sediment Control Plan Acceptance	10 d	Mon 16/03/26	Fri 27/03/26	0%
56	Condition 26# of Consent: CRC122897, Notification of Commencement	60 d	Tue 16/12/25	Fri 27/03/26	0%
57	Condition 26# of Consent: CRC122897, Notification of Imminent work	7 d	Thu 19/03/26	Fri 27/03/26	0%
58	Condition 13# of Consent: CRC122898, Completion of leak testing programme prior to use or Store of Diesel and other Hazardous Substances	20 d	Tue 16/12/25	Thu 29/01/26	0%
59	Condition 21# of Consent: CRC122898, Submission of Spill Response Plan	20 d	Tue 16/12/25	Thu 29/01/26	0%
60	Condition 7# of Consent: CRC122899, Discharge fugitive dust to air Notice to exercise consent	30 d	Tue 16/12/25	Fri 13/02/26	0%
61	Condition 11# of Consent: CRC122900, Notice for Commencement of bulk earthworks on site	30 d	Tue 16/12/25	Fri 13/02/26	0%
62	Condition 12# of Consent: CRC1228900, Certification of Erosion and Sediment Control Plans	20 d	Tue 16/12/25	Thu 29/01/26	0%
63	Condition 6# of Consent: CRC120610, Relevant CMP Submiss	60 d	Tue 16/12/25	Fri 27/03/26	0%
64	Condition 14# of Consent: CRC120610, Approval granted of Pre-Construction Quality Assurance and Quality Control	1 d	Mon 30/03/26	Mon 30/03/26	0%
65	Condition 5# of Consent: RC135478, Intention to exercise consent 3 months prior to commencemen on site.	0 d	Mon 15/12/25	Mon 15/12/25	0%
66	Condition 5# of Consent: RC135478, Notification of imminent works starting on site	2 d	Tue 16/12/25	Wed 17/12/25	0%
67	Condition 8# of Consent: RC135478, Submission of the CMP	60 d	Tue 16/12/25	Fri 27/03/26	0%
68	Condition 10# of Consent: RC135478, Acceptance of the CMP	0 d	Fri 27/03/26	Fri 27/03/26	0%
69	Condition 9# of Consent: RC135478, Meeting with the Community Liaison Group	1 d	Mon 30/03/26	Mon 30/03/26	0%


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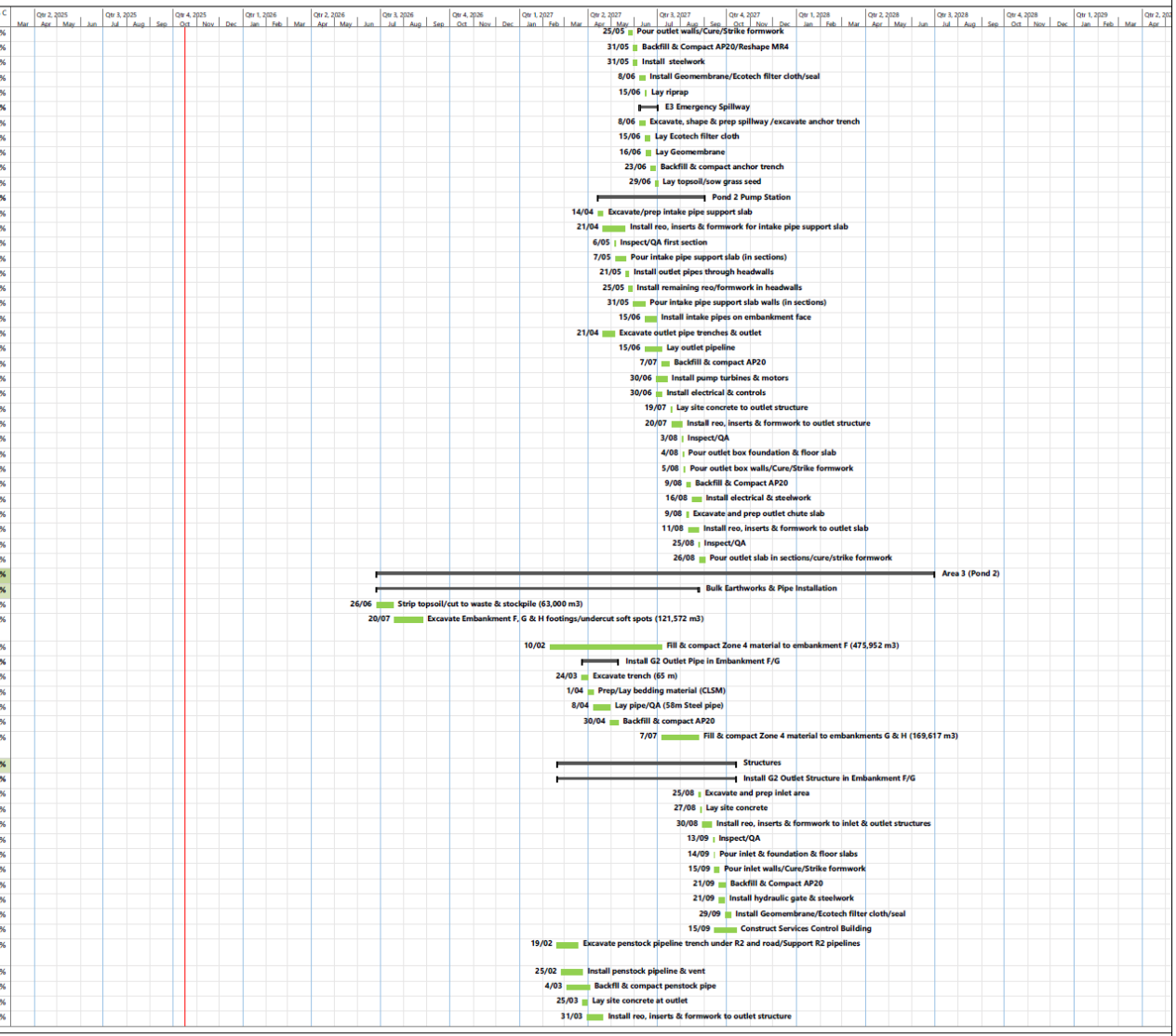
ID	Task Name	Dur	Start	Finish	% C
208	**Install G6 outlet pipe in Embankment I**	**20 d**	**Wed 23/12/26**	**Thu 4/02/27**	**0%**
209	Excavate trench (25 m)	3 d	Wed 23/12/26	Tue 12/01/27	0%
210	Prep/Lay bedding material (CLSM)	3 d	Wed 13/01/27	Fri 15/01/27	0%
211	Lay pipe/QA (20 No.)	8 d	Mon 18/01/27	Wed 27/01/27	0%
212	Backfill & compact AP20	6 d	Thu 28/01/27	Thu 4/02/27	0%
213	**Install G3 interpond pipe in Embankment E/F**	**23 d**	**Wed 20/01/27**	**Mon 22/02/27**	**0%**
214	Excavate trench (64 m)	4 d	Wed 20/01/27	Mon 25/01/27	0%
215	Prep/Lay bedding material (CLSM)	4 d	Tue 26/01/27	Fri 29/01/27	0%
216	Lay pipe/QA (26 No.)	8 d	Mon 1/02/27	Thu 11/02/27	0%
217	Backfill & compact AP20	7 d	Fri 12/02/27	Mon 22/02/27	0%
218	**Structures**	**141 d**	**Wed 10/02/27**	**Wed 1/09/27**	**0%**
219	**Install G4 interpond Structure in Embankment E**	**43 d**	**Wed 10/02/27**	**Tue 13/04/27**	**0%**
220	Excavate and prep inlet & outlet areas	2 d	Wed 10/02/27	Thu 11/02/27	0%
221	Lay site concrete	1 d	Fri 12/02/27	Fri 12/02/27	0%
222	Install reo, inserts & formwork to inlet & outlet struct	20 d	Mon 15/02/27	Fri 12/03/27	0%
223	Inspect/QA	1 d	Mon 15/03/27	Mon 15/03/27	0%
224	Pour inlet & outlet foundation & floor slabs	1 d	Tue 16/03/27	Tue 16/03/27	0%
225	Pour inlet & outlet walls/Cure/Strike formwork	4 d	Wed 17/03/27	Mon 22/03/27	0%
226	Backfill & Compact AP20	5 d	Tue 23/03/27	Wed 31/03/27	0%
227	Install hydraulic gate & steelwork	4 d	Tue 23/03/27	Tue 30/03/27	0%
228	Install Geomembrane/seal	5 d	Thu 1/04/27	Wed 7/04/27	0%
229	Construct Services Control Building	20 d	Mon 15/03/27	Tue 13/04/27	0%
230	**Install G3 Outlet Structure in Embankment E/F**	**80 d**	**Tue 23/02/27**	**Fri 18/06/27**	**0%**
231	Excavate and prep inlet & outlet areas (Differ excavation/connection to R3 off season)	3 d	Tue 23/02/27	Thu 25/02/27	0%
232	Lay site concrete	2 d	Fri 26/02/27	Mon 1/03/27	0%
233	Install reo, inserts & formwork to inlet & outlet struct	20 d	Mon 15/03/27	Tue 13/04/27	0%
234	Inspect/QA	1 d	Wed 14/04/27	Wed 14/04/27	0%
235	Pour inlet & outlet foundation & floor slabs	1 d	Thu 15/04/27	Thu 15/04/27	0%
236	Pour inlet & outlet walls/Cure/Strike formwork	4 d	Fri 16/04/27	Wed 21/04/27	0%
237	Backfill & Compact AP20	6 d	Thu 22/04/27	Fri 30/04/27	0%
238	Install hydraulic gate & steelwork	5 d	Thu 22/04/27	Thu 29/04/27	0%
239	Install Geomembrane/Ecotech filter cloth/seal	5 d	Mon 3/05/27	Fri 7/05/27	0%
240	Lay riprap	2 d	Mon 10/05/27	Tue 11/05/27	0%
241	Construct Services Control Building	20 d	Wed 14/04/27	Wed 12/05/27	0%
242	Cut channel into Race R3 (Off Season Work)	5 d	Wed 12/05/27	Tue 18/05/27	0%
243	Excavate & trim R3C Crump Structure	2 d	Wed 19/05/27	Thu 20/05/27	0%
244	Install reo, inserts & formwork	10 d	Fri 21/05/27	Thu 3/06/27	0%
245	Pour crump floor	2 d	Fri 4/06/27	Tue 8/06/27	0%
246	Pour crump walls/cure/strike formwork	3 d	Wed 9/06/27	Fri 11/06/27	0%
247	Backfill & compact	3 d	Mon 14/06/27	Wed 16/06/27	0%
248	Install steelwork	2 d	Thu 17/06/27	Fri 18/06/27	0%
249	**Install G6 Outlet Structure in Embankment I**	**87 d**	**Wed 10/02/27**	**Wed 16/06/27**	**0%**
250	Excavate and prep inlet & chamber areas (Differ excavation under to R3 off season)	3 d	Wed 10/02/27	Fri 12/02/27	0%
251	Lay site concrete	2 d	Mon 15/02/27	Tue 16/02/27	0%
252	Install reo, inserts & formwork to inlet & chamber str	15 d	Wed 17/02/27	Tue 9/03/27	0%
253	Inspect/QA	1 d	Wed 10/03/27	Wed 10/03/27	0%
254	Pour inlet & chamber foundation & floor slabs	1 d	Thu 11/03/27	Thu 11/03/27	0%
255	Install/connect outlet pipe & flow meters/Protect	6 d	Fri 12/03/27	Fri 19/03/27	0%
256	Install remaining reo, inserts & formwork to chamber structure	5 d	Mon 22/03/27	Tue 30/03/27	0%
257	Pour inlet & chamber walls/Cure/Strike formwork	5 d	Wed 31/03/27	Tue 6/04/27	0%
258	Backfill & Compact AP20	6 d	Wed 7/04/27	Wed 14/04/27	0%
259	Install hydraulic gates & steelwork	8 d	Wed 7/04/27	Fri 16/04/27	0%
260	Install Geomembrane/seal	5 d	Thu 15/04/27	Wed 21/04/27	0%
261	Construct Services Control Building	20 d	Wed 10/03/27	Thu 8/04/27	0%
262	Excavate through Race R3 & Road into Race MR4 (Off Season Work)	10 d	Thu 15/04/27	Thu 29/04/27	0%
263	Install bedding material	10 d	Tue 20/04/27	Tue 4/05/27	0%
264	Install pipework	10 d	Wed 21/04/27	Wed 5/05/27	0%
265	Backfill & Compact AP20/AP40	10 d	Fri 23/04/27	Fri 7/05/27	0%
266	Reinstate road & Race R3	8 d	Mon 10/05/27	Wed 19/05/27	0%
267	Lay site concrete at outlet	1 d	Thu 6/05/27	Thu 6/05/27	0%
268	Install reo, inserts & formwork to inlet & chamber str	10 d	Fri 7/05/27	Thu 20/05/27	0%
269	Inspect/QA	1 d	Fri 21/05/27	Fri 21/05/27	0%
270	Pour outlet foundation & floor slab	1 d	Mon 24/05/27	Mon 24/05/27	0%



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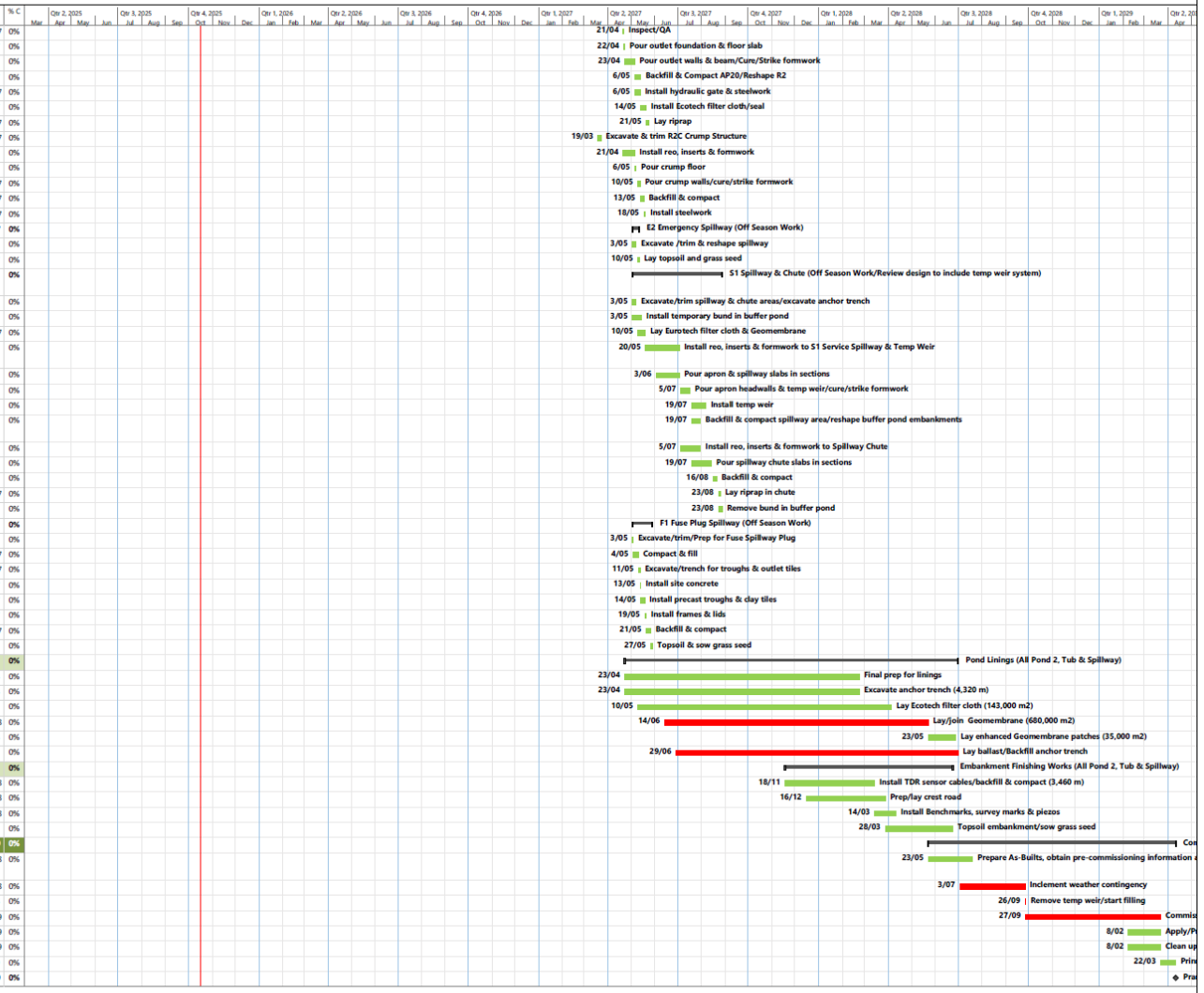
ID	Task Name	Dur	Start	Finish	% C
271	Pour outlet walls/Cure/Strike formwork	4 d	Tue 25/05/27	Fri 28/05/27	0%
272	Backfill & Compact AP20/Reshape MR4	5 d	Mon 31/05/27	Fri 4/06/27	0%
273	Install steelwork	5 d	Mon 31/05/27	Fri 4/06/27	0%
274	Install Geomembrane/Ecotech filter cloth/seal	5 d	Tue 8/06/27	Mon 14/06/27	0%
275	Lay riprap	2 d	Tue 15/06/27	Wed 16/06/27	0%
276	**E3 Emergency Spillway**	**17 d**	**Tue 8/06/27**	**Thu 1/07/27**	**0%**
277	Excavate, shape & prep spillway /excavate anchor tre	5 d	Tue 8/06/27	Mon 14/06/27	0%
278	Lay Ecotech filter cloth	5 d	Tue 15/06/27	Mon 21/06/27	0%
279	Lay Geomembrane	5 d	Wed 16/06/27	Tue 22/06/27	0%
280	Backfill & compact anchor trench	3 d	Wed 23/06/27	Mon 28/06/27	0%
281	Lay topsoil/sow grass seed	3 d	Tue 29/06/27	Thu 1/07/27	0%
282	**Pond 2 Pump Station**	**98 d**	**Wed 14/04/27**	**Wed 1/09/27**	**0%**
283	Excavate/prep intake pipe support slab	5 d	Wed 14/04/27	Tue 20/04/27	0%
284	Install reo, inserts & formwork for intake pipe suppor	20 d	Wed 21/04/27	Wed 19/05/27	0%
285	Inspect/QA first section	1 d	Thu 6/05/27	Thu 6/05/27	0%
286	Pour intake pipe support slab (in sections)	10 d	Fri 7/05/27	Thu 20/05/27	0%
287	Install outlet pipes through headwalls	2 d	Fri 21/05/27	Mon 24/05/27	0%
288	Install remaining reo/formwork in headwalls	4 d	Tue 25/05/27	Fri 28/05/27	0%
289	Pour intake pipe support slab walls (in sections)	10 d	Mon 31/05/27	Mon 14/06/27	0%
290	Install intake pipes on embankment face	10 d	Tue 15/06/27	Tue 29/06/27	0%
291	Excavate outlet pipe trenches & outlet	10 d	Wed 21/04/27	Wed 5/05/27	0%
292	Lay outlet pipeline	15 d	Tue 15/06/27	Tue 6/07/27	0%
293	Backfill & compact AP20	8 d	Wed 7/07/27	Fri 16/07/27	0%
294	Install pump turbines & motors	10 d	Wed 30/06/27	Tue 13/07/27	0%
295	Install electrical & controls	5 d	Wed 30/06/27	Tue 6/07/27	0%
296	Lay site concrete to outlet structure	1 d	Mon 19/07/27	Mon 19/07/27	0%
297	Install reo, inserts & formwork to outlet structure	10 d	Tue 20/07/27	Mon 2/08/27	0%
298	Inspect/QA	1 d	Tue 3/08/27	Tue 3/08/27	0%
299	Pour outlet box foundation & floor slab	1 d	Wed 4/08/27	Wed 4/08/27	0%
300	Pour outlet box walls/Cure/Strike formwork	2 d	Thu 5/08/27	Fri 6/08/27	0%
301	Backfill & Compact AP20	5 d	Mon 9/08/27	Fri 13/08/27	0%
302	Install electrical & steelwork	10 d	Mon 16/08/27	Fri 27/08/27	0%
303	Excavate and prep outlet chute slab	2 d	Mon 9/08/27	Tue 10/08/27	0%
304	Install reo, inserts & formwork to outlet slab	10 d	Wed 11/08/27	Tue 24/08/27	0%
305	Inspect/QA	1 d	Wed 25/08/27	Wed 25/08/27	0%
306	Pour outlet slab in sections/cure/strike formwork	5 d	Thu 26/08/27	Wed 1/09/27	0%
307	**Area 3 (Pond 2)**	**486 d**	**Fri 26/06/26**	**Fri 30/06/28**	**0%**
308	**Bulk Earthworks & Pipe Installation**	**282 d**	**Fri 26/06/26**	**Tue 24/08/27**	**0%**
309	Strip topsoil/cut to waste & stockpile (63,000 m3)	15 d	Fri 26/06/26	Fri 17/07/26	0%
310	Excavate Embankment F, G & H footings/undercut soft spots (121,572 m3)	27 d	Mon 20/07/26	Tue 25/08/26	0%
311	Fill & compact Zone 4 material to embankment F (475,9	100 d	Wed 10/02/27	Tue 6/07/27	0%
312	**Install G2 Outlet Pipe in Embankment F/G**	**31 d**	**Wed 24/03/27**	**Mon 10/05/27**	**0%**
313	Excavate trench (65 m)	4 d	Wed 24/03/27	Wed 31/03/27	0%
314	Prep/Lay bedding material (CLSM)	5 d	Thu 1/04/27	Wed 7/04/27	0%
315	Lay pipe/QA (58m Steel pipe)	15 d	Thu 8/04/27	Thu 29/04/27	0%
316	Backfill & compact AP20	7 d	Fri 30/04/27	Mon 10/05/27	0%
317	Fill & compact Zone 4 material to embankments G & H (169,617 m3)	35 d	Wed 7/07/27	Tue 24/08/27	0%
318	**Structures**	**163 d**	**Fri 19/02/27**	**Tue 12/10/27**	**0%**
319	**Install G2 Outlet Structure in Embankment F/G**	**163 d**	**Fri 19/02/27**	**Tue 12/10/27**	**0%**
320	Excavate and prep inlet area	2 d	Wed 25/08/27	Thu 26/08/27	0%
321	Lay site concrete	1 d	Fri 27/08/27	Fri 27/08/27	0%
322	Install reo, inserts & formwork to inlet & outlet struct	10 d	Mon 30/08/27	Fri 10/09/27	0%
323	Inspect/QA	1 d	Mon 13/09/27	Mon 13/09/27	0%
324	Pour inlet & foundation & floor slabs	1 d	Tue 14/09/27	Tue 14/09/27	0%
325	Pour inlet walls/Cure/Strike formwork	4 d	Wed 15/09/27	Mon 20/09/27	0%
326	Backfill & Compact AP20	6 d	Tue 21/09/27	Tue 28/09/27	0%
327	Install hydraulic gate & steelwork	5 d	Tue 21/09/27	Mon 27/09/27	0%
328	Install Geomembrane/Ecotech filter cloth/seal	5 d	Wed 29/09/27	Tue 5/10/27	0%
329	Construct Services Control Building	20 d	Wed 15/09/27	Tue 12/10/27	0%
330	Excavate penstock pipeline trench under R2 and road/Support R2 pipelines	20 d	Fri 19/02/27	Thu 18/03/27	0%
331	Install penstock pipeline & vent	20 d	Thu 25/02/27	Wed 24/03/27	0%
332	Backfil & compact penstock pipe	20 d	Thu 4/03/27	Fri 2/04/27	0%
333	Lay site concrete at outlet	2 d	Thu 25/03/27	Tue 30/03/27	0%
334	Install reo, inserts & formwork to outlet structure	15 d	Wed 31/03/27	Tue 20/04/27	0%



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ID	Task Name	Dur	Start	Finish	% C
335	Inspect/QA	1 d	Wed 21/04/27	Wed 21/04/27	0%
336	Pour outlet foundation & floor slab	1 d	Thu 22/04/27	Thu 22/04/27	0%
337	Pour outlet walls & beam/Cure/Strike formwork	8 d	Fri 23/04/27	Wed 5/05/27	0%
338	Backfill & Compact AP20/Reshape R2	6 d	Thu 6/05/27	Thu 13/05/27	0%
339	Install hydraulic gate & steelwork	5 d	Thu 6/05/27	Wed 12/05/27	0%
340	Install Ecotech filter cloth/seal	5 d	Fri 14/05/27	Thu 20/05/27	0%
341	Lay riprap	2 d	Fri 21/05/27	Mon 24/05/27	0%
342	Excavate & trim R2C Crump Structure	2 d	Fri 19/03/27	Mon 22/03/27	0%
343	Install reo, inserts & formwork	10 d	Wed 21/04/27	Wed 5/05/27	0%
344	Pour crump floor	2 d	Thu 6/05/27	Fri 7/05/27	0%
345	Pour crump walls/cure/strike formwork	3 d	Mon 10/05/27	Wed 12/05/27	0%
346	Backfill & compact	3 d	Thu 13/05/27	Mon 17/05/27	0%
347	Install steelwork	2 d	Tue 18/05/27	Wed 19/05/27	0%
348	**E2 Emergency Spillway (Off Season Work)**	**7 d**	**Mon 3/05/27**	**Tue 11/05/27**	**0%**
349	Excavate /trim & reshape spillway	5 d	Mon 3/05/27	Fri 7/05/27	0%
350	Lay topsoil and grass seed	2 d	Mon 10/05/27	Tue 11/05/27	0%
351	**S1 Spillway & Chute (Off Season Work/Review design to include temp weir system)**	**83 d**	**Mon 3/05/27**	**Fri 27/08/27**	**0%**
352	Excavate/trim spillway & chute areas/excavate ancho	5 d	Mon 3/05/27	Fri 7/05/27	0%
353	Install temporary bund in buffer pond	10 d	Mon 3/05/27	Fri 14/05/27	0%
354	Lay Eurotech filter cloth & Geomembrane	8 d	Mon 10/05/27	Wed 19/05/27	0%
355	Install reo, inserts & formwork to S1 Service Spillway & Temp Weir	30 d	Thu 20/05/27	Fri 2/07/27	0%
356	Pour apron & spillway slabs in sections	20 d	Thu 3/06/27	Fri 2/07/27	0%
357	Pour apron headwalls & temp weir/cure/strike formw	10 d	Mon 5/07/27	Fri 16/07/27	0%
358	Install temp weir	15 d	Mon 19/07/27	Fri 6/08/27	0%
359	Backfill & compact spillway area/reshape buffer pond embankments	10 d	Mon 19/07/27	Fri 30/07/27	0%
360	Install reo, inserts & formwork to Spillway Chute	20 d	Mon 5/07/27	Fri 30/07/27	0%
361	Pour spillway chute slabs in sections	20 d	Mon 19/07/27	Fri 13/08/27	0%
362	Backfill & compact	5 d	Mon 16/08/27	Fri 20/08/27	0%
363	Lay riprap in chute	3 d	Mon 23/08/27	Wed 25/08/27	0%
364	Remove bund in buffer pond	5 d	Mon 23/08/27	Fri 27/08/27	0%
365	**F1 Fuse Plug Spillway (Off Season Work)**	**20 d**	**Mon 3/05/27**	**Fri 28/05/27**	**0%**
366	Excavate/trim/Prep for Fuse Spillway Plug	1 d	Mon 3/05/27	Mon 3/05/27	0%
367	Compact & fill	5 d	Tue 4/05/27	Mon 10/05/27	0%
368	Excavate/trench for troughs & outlet tiles	2 d	Tue 11/05/27	Wed 12/05/27	0%
369	Install site concrete	1 d	Thu 13/05/27	Thu 13/05/27	0%
370	Install precast troughs & clay tiles	3 d	Fri 14/05/27	Tue 18/05/27	0%
371	Install frames & lids	2 d	Wed 19/05/27	Thu 20/05/27	0%
372	Backfill & compact	4 d	Fri 21/05/27	Wed 26/05/27	0%
373	Topsoil & sow grass seed	2 d	Thu 27/05/27	Fri 28/05/27	0%
374	**Pond Linings (All Pond 2, Tub & Spillway)**	**289 d**	**Fri 23/04/27**	**Fri 30/06/28**	**0%**
375	Final prep for linings	200 d	Fri 23/04/27	Tue 22/02/28	0%
376	Excavate anchor trench (4,320 m)	200 d	Fri 23/04/27	Tue 22/02/28	0%
377	Lay Ecotech filter cloth (143,000 m2)	220 d	Mon 10/05/27	Tue 4/04/28	0%
378	Lay/join Geomembrane (680,000 m2)	227 d	Mon 14/06/27	Mon 22/05/28	0%
379	Lay enhanced Geomembrane patches (35,000 m2)	25 d	Tue 23/05/28	Tue 27/06/28	0%
380	Lay ballast/Backfill anchor trench	245 d	Tue 29/06/27	Fri 30/06/28	0%
381	**Embankment Finishing Works (All Pond 2, Tub & Spillway**	**140 d**	**Thu 18/11/27**	**Fri 23/06/28**	**0%**
382	Install TDR sensor cables/backfill & compact (3,460 m)	70 d	Thu 18/11/27	Mon 13/03/28	0%
383	Prep/lay crest road	60 d	Thu 16/12/27	Mon 27/03/28	0%
384	Install Benchmarks, survey marks & piezos	20 d	Tue 14/03/28	Mon 10/04/28	0%
385	Topsoil embankment/sow grass seed	60 d	Tue 28/03/28	Fri 23/06/28	0%
386	**Commissioning, Filling & Handover**	**214 d**	**Tue 23/05/28**	**Tue 10/04/29**	**0%**
387	Prepare As-Builts, obtain pre-commissioning information as per RC Conditions	40 d	Tue 23/05/28	Wed 19/07/28	0%
388	Inclement weather contingency	60 d	Mon 3/07/28	Mon 25/09/28	0%
389	Remove temp weir/start filling	1 d	Tue 26/09/28	Tue 26/09/28	0%
390	Commission placeholder (need to review commission proces	113 d	Wed 27/09/28	Wed 21/03/29	0%
391	Apply/Process & Obtain CCC	30 d	Thu 8/02/29	Wed 21/03/29	0%
392	Clean up/remove site facilities	30 d	Thu 8/02/29	Wed 21/03/29	0%
393	Principals Contingency	12 d	Thu 22/03/29	Tue 10/04/29	0%
394	**Practical Completion/Handover**	**0 d**	**Tue 10/04/29**	**Tue 10/04/29**	**0%**



Page 5 | Task | Critical | Baseline | Baseline Milestone | Milestone | Critical Milestone | Summary | Progress

8 Appendix B: Erosion and Sediment Control Plan Drawings

ESCP Drawing 01 – PRE BULK EARTHWORKS AND POND 1 (AREA 1 CONSTRUCTION) Wrights Road water Storage Ponds



Notes:

- Suitable means for dust control must be available.
- Images of controls are not to scale and are approximate locations.
- Ensure that the existing vegetated strip is maintained either side of existing farm access tracks; to minimise the potential for sediment runoff from the tracks surface.
- Exit road (Wrights Road) is gravel; however, care must be taken by the contractor to minimise sediment tracking. Improvements to the road surface may be required during the project due to truck movements to and from the site.

	Site offices / compound (inc. spill kit) – site offices to be installed after Stantec certification but before bulk earthworks.
	Fuel/Hazardous goods storage container
	Drainage channel installed at toe of embankment – compacted continuous bund.
	Existing tree line
	Representation of local topography
	Earthbund
	Informal soak pit (in low points)
	Silt fence – 3 meters either side of informal soak pit – when the soak pit location is adjacent to the water races.
	Storage container with a selection of lay flat hoses and pumps available to transfer water to soak pits during later development stages
	Sump protection –use of fabric/witch's hats & sediment socks
	Project perimeter
	Water carts
	Stockpile of silt logs (Bark & 48m silt sock) & soil polymer (Dust Top)
	Stockpiles
	Refuelling area – consists of fuel bowser, bunded excavation, lined with polythene and sand over the surface.
	Stabilised entrance – consists of large diameter ballast over fabric.
	Dust / weather stations (Dust station; installation date after Stantec certification but before bulk earthworks)
	No bulk earthworks in this area until esc established
	Haul road / site compound (AP65 or equivalent)

EnviroCo | ROONEY Earthmoving | **Erosion and Sediment Control Drawing 01** **Pre bulk earthworks and Pond 1 construction (area 1)** | **ESCP Drawing Rev 6 (August 2026)** | **Prepared by:** Richard Ablitt (CEnvP, MSc.) **Reviewed by:** Blair Gray (CPESC, MSc.)

ESCP Drawing 02 – POND 1 CONSTRUCTION (area 2) Wrights Road Storage Ponds



Notes:

- Suitable means for dust control must be available.
- Images of controls are not to scale and are approximate locations.
- Ensure that the existing vegetated strip is maintained either side of existing farm access tracks; to minimise the potential for sediment runoff from the tracks surface.
- Exit road (Wrights Road) is gravel; however, care must be taken by the contractor to minimise sediment tracking. Improvements to the road surface may be required during the project due to truck movements to and from the site.

	Site offices / compound (inc. spill kit)
	Fuel/Hazardous goods storage container
	Drainage channel installed at toe of embankment – compacted continuous bund.
	Existing tree line
	Representation of local topography
	Earthbund
	Informal soak pit (in low points)
	Silt fence – 3 meters either side of informal soak pit – when the soak pit location is adjacent to the water races.
	Storage container with a selection of lay flat hoses and pumps available to transfer water to soak pits during later development stages
	Sump protection –use of fabric/witch's hats & sediment socks
	Project perimeter
	Water carts
	Stockpile of silt logs (Bark & 48m silt sock) & soil polymer (Dust Top)
	Stockpiles
	Refuelling area – consists of fuel bowser, bunded excavation, lined with polythene and sand over the surface.
	Stabilised entrance – consists of large diameter ballast over fabric.
	Dust / weather stations
	No bulk earthworks in this area until esc established
	Haul road / site compound (AP65 or equivalent)

EnviroCo | ROONEY Earthmoving | **Erosion and Sediment Control Drawing 01**
Pond 1 construction (area 2) | **ESCP Drawing Rev 6 (August 2026)** | **Prepared by:** Richard Ablitt (CEnvP, MSc.) **Reviewed by:** Blair Gray (CPESC, MSc.)

ESCP Drawing 03 – POND 2 CONSTRUCTION Wights Road water storage ponds



Notes:

- Suitable means for dust control must be available.
- Images of controls are not to scale and are approximate locations.
- Ensure that the existing vegetated strip is maintained either side of existing farm access tracks; to minimise the potential for sediment runoff from the tracks surface.
- Exit road (Wrights Road) is gravel; however, care must be taken by the contractor to minimise sediment tracking. Improvements to the road surface may be required during the project due to truck movements to and from the site.

	Site offices / compound (inc. spill kit)
	Fuel/Hazardous goods storage container
	Drainage channel installed at toe of embankment – compacted continuous bund.
	Existing tree line
	Representation of local topography
	Earthbund
	Informal soak pit (in low points)
	Silt fence – 3 meters either side of informal soak pit – when the soak pit location is adjacent to the water races.
	Storage container with a selection of lay flat hoses and pumps available to transfer water to soak pits during later development stages
	Sump protection –use of fabric/witch's hats & sediment socks
	Project perimeter
	Water carts
	Stockpile of silt logs (Bark & 48m silt sock) & soil polymer (Dust Top)
	Stockpiles
	Refuelling area – consists of fuel bowser, bunded excavation, lined with polythene and sand over the surface.
	Stabilised entrance – consists of large diameter ballast over fabric.
	Dust / weather stations
	No bulk earthworks in this area until esc established
	Haul road / site compound (AP65 or equivalent)

EnviroCo	ROONEY Earthmoving	**Erosion and Sediment Control Drawing 03** **Pond 2 construction**	**ESCP Drawing Rev 6 (August 2026)**	**Prepared by:** Richard Ablitt (CEnvP, MSc.) **Reviewed by:** Blair Gray (CPESC, MSc.)

9 Appendix C: Archaeological Discovery Protocol. Heritage New Zealand

In the event that an unidentified archaeological site is located during works, the following applies:

1. Work shall cease immediately at that place and within 20m around the site.
2. The contractor must shut down all machinery, secure the area, and advise the Site Manager.
3. The Site Manager shall secure the site and notify the Heritage New Zealand Regional Archaeologist. Further assessment by an archaeologist may be required.
4. If the site is of Maori origin, the Site Manager shall notify the Heritage New Zealand Regional Archaeologist and the appropriate iwi groups or kaitiaki representative of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (*Heritage New Zealand Protected Objects Act*).
5. If human remains are uncovered the Site Manager shall advise the Heritage New Zealand Regional Archaeologist, NZ Police and the appropriate iwi groups or kaitiaki representative and the above process under 4 shall apply. Remains are not to be moved until such time as iwi and Heritage New Zealand have responded.
6. Works affecting the archaeological site and any human remains shall not resume until Heritage New Zealand gives written approval for work to continue. Further assessment by an archaeologist may be required.
7. Where iwi so request, any information recorded as the result of the find such as a description of location and content, is to be provided for their records.
8. Heritage New Zealand will determine if an archaeological authority under the *Heritage New Zealand Act* 2014 is required for works to continue.

It is an offence under S87 of the *Heritage New Zealand Act 2014* to modify or destroy an archaeological site without an authority from Heritage New Zealand irrespective of whether the works are permitted or a consent has been issued under the Resource Management Act.

Heritage New Zealand Regional Office contact details:

Tel: + 64 4 494 8320
email: infocentral@heritage.org.nz

10 Appendix D: Contaminated Materials Discovery Protocol

- **CEASE EXCAVATION** works in that area.
- **CONTACT** the Site Supervisor immediately.
- Any **UNCONTROLLED DISCHARGE** of contaminants (e.g. ruptured drum) should be contained where practical to prevent further discharge.
- **ISOLATE**/fence/barricade the area of concern to prevent other site workers from entering the area.
- **STOP ALL WORKS** as soon as suspected asbestos is encountered. This may be in the form of soils or fragments of Asbestos Containing Materials (ACM) such as cement sheeting or pipes. Implement. Implement dust suppression methods such as spraying water on the area.
- **CONTACT** the Contaminated Land Specialist immediately to determine the appropriate course of action in relation to the environmental and human health requirements and the need to characterise the soils to assess the risk to site workers.
- **DO NOT ENTER** excavations or subsurface confined spaces where volatile compounds are present (i.e., possible toxic or hazardous atmospheric zones) without approval/permission by a person qualified to issue permits.
- If **PETROLEUM HYDROCARBON**/solvent contaminated or unusually coloured soils are encountered during excavation, seek advice from the Contaminated Land Specialist to assess whether any extra precautions are necessary with regard to the protection of human health or explosion risks.