



ENVIRONMENTAL MANAGEMENT PLAN

Simplicity Living – Te Putahi Ladies
Mile

Simplicity Living LTD Co

Revision C



MCKENZIE & CO.

DOCUMENT CONTROL RECORD

PROJECT: **Simplicity Living, Queenstown**

CLIENT: **Simplicity Living**

PROJECT LOCATION: **12 and 14 Lower Shotover Road, Frankton**

Revision	Date	Originator	Prepared by / Checker	Approver	Description
A	12/05/2026	Bill Shaw	Mac Stevenson	James Kitchen	For Consent Purposes
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1. INTRODUCTION

McKenzie & Co. Consultants have been engaged by Simplicity Living to provide an Environmental Management Plan (EMP) for the proposed development. The works primarily consist of the construction of approximately 1085 residential units comprising of 1, 2 and 3-bed apartments, a dedicated retail area along with 1139 car parking spaces, two car parking buildings and shared pathways and open park spaces at the Simplicity Living site.

The EMP addresses the requirements of both the Queenstown Lakes District Council (QLDC) Guidelines for Environmental Management Plan and the Otago Regional Council (ORC) Residential Earthworks Guide in Otago. Through this a framework is created that demonstrates how environmental requirements and best practice can be met, alongside the conditions of the Resource Consent.

A key element of the EMP is that it acts as a live document, and is regularly monitored and reviewed throughout physical works, and is updated as appropriate to best suit site conditions.

This EMP has been prepared for resource consent purposes and is intended to be updated, post consent, through detailed design and prior to construction, to enable collaboration with earthworks contractors and confirm final staging of the development through detailed design & development planning phases.

This EMP has been prepared by Mac Stevenson. Mac through his experience and as a Chartered Member of Engineering NZ (CMEngNZ) is considered a Suitably Qualified and Experienced Professional (SQEP) for the purposes of preparing this EMP and overseeing the environmental aspects of this project. As assessed by ORC & QLDC.

This EMP has also been reviewed & approved by James Kitchen. James as a Chartered Professional Engineer (CPEng) is considered a Suitably Qualified and Experienced Professional (SQEP). James has over 20 years' experience in design and project management in addition to experience in the management and implementation of Environmental Management Plans and Erosion and Sediment Control Plans (ESCPs) on high-risk sites.

2. SITE DESCRIPTION AND PROJECT OVERVIEW

The subject site covers an area of approximately 10.53 ha of rural land in the Wakatipu Basin, near Shotover between Frankton and Lake Hayes. Legally described as;

- Lot 3 DP 606744
- Lot 2 DP 617529
- Section 9 SO 485598

The site is considered flat making it suitable for infrastructure development. While there are no existing waterways through the site, there is a risk of overland flow from Slope Hill inundating the site in larger storm events (although minimised through suitable diversions described in this document). The proposed development masterplan can be seen in Figure 1 and the site location can be seen in Figure 3. To facilitate the development there is proposed external public infrastructure works to be done and the approximate extent is highlighted in Figure 2.

Key elements of the proposed earthworks, ground information and site are as follows:

- Total development Disturbed Area – 10.53 Ha.
- Approximate area extent of external public infrastructure works – 51,700m²
- Total overall Earthworks Volumes – 32,500m³ cut, 45,200 m³ fill. TBC in detailed design.
- Current Site Usage – General rural activities
- Maximum Cut and Fills Heights –3.9m (fill) and 3.3m (cut). TBC in detailed design.
- Maximum Temporary Stockpile Height – 3.0m. TBC with Contractor.
- Subgrade Type – Loess deposits of silt and sand, overlaying gravels with deposits of silt
- Sensitive Environmental Receivers – Shotover River
- Staging – TBC at detailed design
- Topsoil Depth – Approximately 400mm.
- Groundwater not encountered – ORC well data within sites vicinity indicates levels between 39 – 51 m depth below ground level
- No stormwater infrastructure in the site extents



Figure 1: Proposed Development Masterplan (Source: Brewer Davidson)



Figure 2: Approximate extent of proposed public infrastructure updates works



Figure 3: Proposed Development Location (QLDC GIS)

From the QLDC guidelines we believe this site should be categorised as High Risk due to the area of land exposed being larger than 1 hectare.

North and East of this site is considered general use rural land. To the North is Slope hill which sits at 625m RL and grades down to the site. Lower Shotover Road runs along the southern and western boundary of the site with earth bunding separating the site from the road.

The site general falls to two low points at the eastern and western ends of the proposed development with recontouring proposed to improve the lands topography for development and drainage purposes.

The prevailing wind direction for the site is North-West as shown in Figure 4.

QLDC GIS data for as-built stormwater shows reticulation at the intersection of Lower Shotover Road, SH6 and Stalker Road.

The existing soils and underlying subgrade materials are described and covered in detail in the ENGEO geotechnical interpretive report. In summary, topsoil between 0 and 0.4 m depth from ground level is underlain by Loess deposits of firm to stiff sandy silts up to 1m below ground level followed by and followed by loose to medium, dense silty sands to between 1m and 2.2m depth. The interpreted deposits are further underlain by a coarse-grained alluvium material logged as fine to coarse sands and distinctly different to those finer grained materials above.

Soakage capacity has been identified and tested during site investigation works, with factored infiltration rates ranging from 260 mm/hr to 600 mm/hr across the site. These results support the use of soakage based systems as the primary mechanism for permanent stormwater management, as detailed in the stormwater design and guiding principles of the wider Ladies Mile development area.

Temporary construction soakage ponds have been incorporated into the erosion and sediment control strategy. These ponds have been sized on a conservative basis to provide the required sediment management and treatment functions during construction. Detailed calculations and pond sizing information are provided in Appendix B.

Construction phase erosion and sediment control measures, including soakage pond sizing and discharge arrangements, may be refined during detailed design and prior to construction. Any refinement will be subject to confirmation of construction staging, final development layout,

site-specific ground conditions, and approval from the relevant regulatory authority.

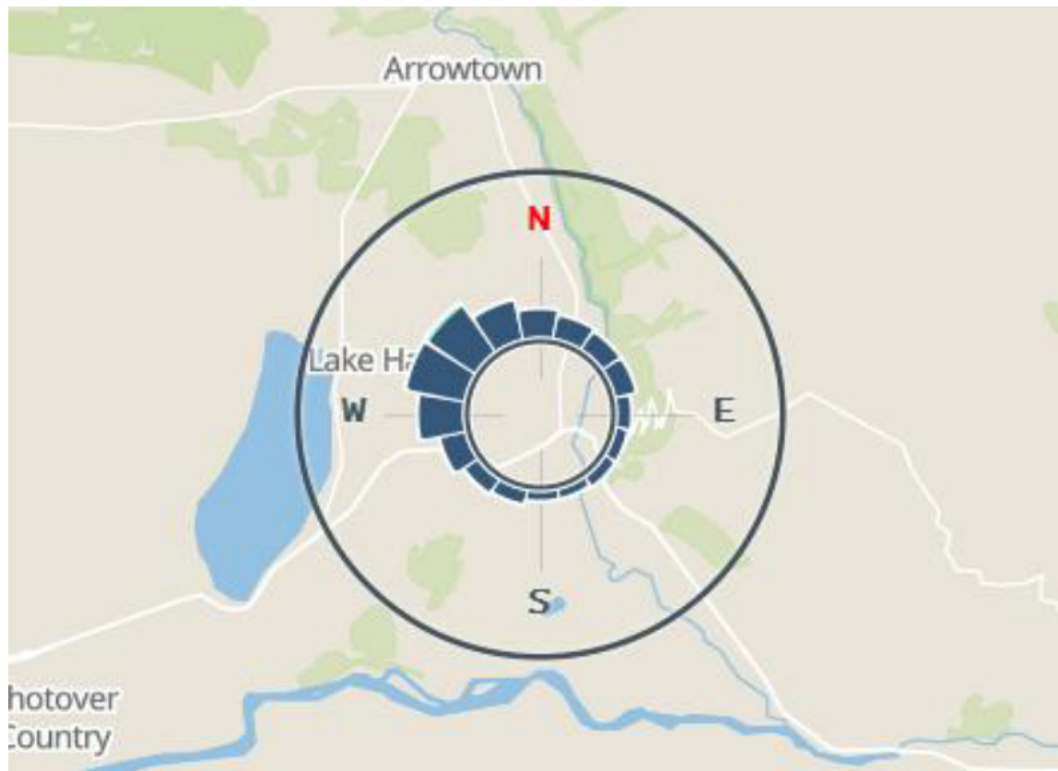


Figure 4: Prevailing winds (Location Hogan's Gully from windy.app)

3. NATURAL FLOOD HAZARD

A review of the Queenstown Lakes District Council (QLDC) Flood Maps indicates that the 12 & 14 Lower Shotover Road site is not identified as being at risk of flooding. These maps are prepared using historical flood data, hydrological modelling, and topographical information to identify areas susceptible to river or surface water flooding.

4. ASSOCIATED CONSENTS

This EMP has been prepared for the purposes of obtaining resource consent.

It is intended that this section will be updated and related consent conditions will be tabled and further addressed within this EMP where may be required, and updated as described above.

Table 1: Associated Development Consents

Consent Number	Authority	Activity Information	Date of issue
TBC			

Refer to **Appendix H** for a list of specific consent conditions.

5. CONSTRUCTION METHODOLOGY

5.1. Sequencing of works

Construction of the subdivision development will be undertaken in the order as outlined below to ensure that the works are done as efficiently as possible whilst achieving the environmental objectives as outlined in this EMP.

The following construction sequencing procedure and methodology may be subject to change based on site conditions upon commencement planning. This construction methodology should be read in conjunction with the Resource Consent and the Erosion and Sediment Control Plan (ESCP) .

Prior to establishing onsite and commencing works the project team is to be issued the EMP and ensure all relevant parties;

1. Have the latest EMP copy available onsite at all times.
2. Complete site & environmental inductions.
3. Ensure resources are available for installation of environmental controls & measures.

Construction Sequencing Procedure

Note:

- a) All imported earthworks fill to be structural hardfill aggregate (unless for landscaping)
- b) All dirty water diversion (DWD) & ESCP controls to be lined with Enviroforce Geotextile (or similar equivalent) as directed onsite and where applicable.
- c) Completed roadways & associated Stormwater (SW) systems to act as staged clean water diversions which are to reduce any upstream SW run off contributing to the SRP or basins.

Initial site set up & construction;

1. Erect silt fences where needed.
2. Construct stabilised construction entrance, laydown and haul roads.
3. Construct clean water diversions.
4. Construct temporary soakage pond and associated controls as directed by SQEP.
5. Construct and form DWD's and drop out pits.
6. As-built controls & document.
7. Deploy silt socks, cut off/contour drains & sump protection as required prior to rain events.
8. Commence stripping and undertake earthworks once all hold points are met and notice is given.

9. Strip topsoil progressively placing stockpiles clear of clean and dirty water diversion bunds.
10. Complete earthworks and civil infrastructure works.
11. Stabilise earth worked areas as completed.
12. Decommission under the direction of the SQEP, who will advise this sequence further.

General Decommission Sequence Guideline;

1. Ensure site & all earthworked areas are fully stabilised where there is no longer risk of erosion or sedimentation. This includes but not limited to 80% thick grass sward for grassed areas (or approved mulch alternative) or hardfill aggregate for roads & building platforms, where dust or sedimentation is low risk of occurring.
2. Remove CWD's and stabilise associated area.
3. Remove DWD's and stabilise associated area.
4. Decommission temporary soakage pond and stabilise associated area.
5. Reinstate construction entranceways where required.
6. Remove silt fences as directed by SQEP.
7. Remove sump and/or SW inlet protection measures.

Erosion & Sediment Control Sequencing Procedure

The following is to be read in conjunction with the contractors pre commencement construction documents. These are intended to be reviewed prior to works commencing.

The sequencing of these works are to be replicated for each stage of construction.

Pre-Construction Phase:

1. Establish site laydown and form stabilised accesses where appropriate.
2. Establish haul roads and form with hard road aggregate. All Haul roads to be co-ordinated onsite by Civil Engineer/SQEP.
3. Set out boundaries and control benchmarks and establish grid for machine control.
4. Install clean water diversion bunds (CWDB) as per attached plans to redirect flows with check dams installed where required as directed on-site by SQEP and rip rap installed at CWD end.
5. Install super silt fences around all natural water channels, ponds and wetlands and/or stabilised diversions as directed on site.
6. Install dirty water diversion bund (DWDB) with drop out pits installed within DWDB prior to any pond forebay.

7. Install temporary soakage ponds as required to enable bulk earthworks with emergency spillway outlet to be confirmed on-site with SQEP.

Stage 1 – Bulk Earthworks Phase:

1. Strip topsoil progressively placing stockpiles clear of clean and dirty water diversion bunds and compact the exposed subgrade where required.
2. Undertake excavation of internal road corridors, progressively applying a clean aggregate cap once subgrade is reached to reduce potential erosion. Progressively form DWDCs and associated drop-out pits, check dams and trafficable swales leading to the retention devices.
3. Stabilise earth worked areas as completed and replace topsoil in landscaped areas, install any planting, mulch and hydroseed as per landscape plan.

Stage 2 – Civil Infrastructure & Stabilisation Phase:

1. Once the contributing catchment for the temporary soakage pond has reached 80% stabilisation, this device may be decommissioned to facilitate the remaining bulk earthworks to form unit platforms and retaining walls. Apply aggregate cap to remaining unit footprints following decommissioning of SRP.

General Decommission Sequence Guideline;

1. Ensure site & all earthworked areas are fully stabilised where there is no longer risk of erosion or sedimentation. This includes but not limited to 80% thick grass sward for grassed areas (or approved mulch alternative) or hardfill aggregate for roads & building platforms, where dust or sedimentation is low risk of occurring.
2. Remove CWD's and stabilise associated area.
3. Remove DWD's and stabilise associated area.
4. Decommission temporary soakage pond and stabilise associated area.
5. Reinstate construction entranceways where required.
6. Remove silt fences as directed by SQEP.
7. Remove sump and/or SW inlet protection measures.

External infrastructure works procedure

Initial site set up & construction;

1. Erect silt fences where needed.
2. Construct stabilised construction entrance.
3. Construct clean water diversions.
4. As-built controls & document.

5. Deploy silt socks, cut off/contour drains & sump protection as required prior to rain events.
6. Commence segmental trenching and pipe laying works. To be undertaken, backfilled and reinstated daily to minimise ground disturbances.
7. Any small section of trench left open are to be safely fenced off and made secure from erosion.

General Decommission Sequence Guideline;

1. Ensure site & all earthworked areas are fully stabilised and reinstated where there is no longer risk of erosion or sedimentation.
2. Remove CWD's and stabilise associated area.
3. Remove silt fences as directed by SQEP.

6. ADMINISTRATIVE REQUIREMENTS

6.1. Working Hours

All construction activity will adhere strictly within the approved hours of work. These are as follows, or as otherwise stated as a specific consent condition.

- Quiet preparation work is permitted from 6.30am – 7.30am, and non-noisy work is permitted from 6pm – 8pm during Monday to Friday.
- Noisy construction work (including earthworks) is only permitted from Monday to Saturday between the hours of 7.30am to 6.00pm.
- No noisy construction works are to be undertaken on Sundays or Public Holidays.

Refer to Section 7.7.7 Noise below for further detail and guidelines on noise limits and management practices.

6.2. Suitably Qualified and Experienced Person

A Suitably Qualified and Experienced Person (SQEP) who has the abilities, formal qualifications, relevant experience, skills and competencies necessary to perform a particular job. The qualification and experience level required will be commensurate to the specific complexities, constraints and issues associated with the project (as defined in the QLDC & ORC Guidelines for Environmental Management).

This EMP has been prepared by Mac Stevenson. Mac through his experience and as a Chartered Member of Engineering NZ (CMEngNZ) is considered a Suitably Qualified and Experienced Professional (SQEP) for the purposes of preparing this EMP and overseeing the environmental aspects of this project. As assessed by ORC & QLDC.

This EMP has also been reviewed & approved by James Kitchen. James as a Chartered Professional Engineer (CPEng) is considered a Suitably Qualified and Experienced Professional (SQEP). James has over 20 years' experience in design and project management in addition to experience in the management and implementation of Environmental Management Plans and Erosion and Sediment Control Plans (ESCPs) on high-risk sites.

6.3. Environmental Roles and Responsibilities of Key Personnel

Detail on the environmental roles and responsibilities of key personnel can be seen below in the tables below. The Environmental Advisor (SQEP) can provide further clarification if required.

Table 2: Project Contact Summary

Role	Name	Contact Number	Email
Project Development Manager	Mitchell Holyoake		
Environmental Adviser	Mac Stevenson		

(SQEP)			
Site Supervisor	TBC		
Environmental Representative	TBC		
Regional Council	Otago Regional Council	0800 800033	pollution@orc.govt.nz compliance@orc.govt.nz
District Council	Queenstown Lakes District Council	03 4410499 (QT) 034430024 (WKA)	rcmonitoring@qldc.govt.nz
Emergency	Human discoveries, Serious injury, Fire	111	Phone 111

Table 3: Project Specific Roles

Role and Contact Details	Description
<u>Project Manager</u>	The Project Manager has responsibility for the effective implementation of the EMP and has overall responsibility for the environmental performance of the project. The Project Manager is primarily responsible for: • Ensuring adequate resources are in place to implement the EMP. • Appoint staff/personnel responsible for successful EMP implementation and ensure the staff operates within the standards set by the EMP. • Ensuring Project Managers, Supervisors, Subcontractors and other Employees operate within the guidelines of the EMP. • Ensuring that an EMP is prepared and that environmental standard, processes and procedures meet relevant resource consent

	conditions. • Overseeing the successful implementation, monitoring and review of the EMP. • Providing reporting of environmental incidents to the QLDC and other periodic environmental reports to QLDC as required by The Guidelines. • Ensuring that inspections and audits are carried out in accordance with the relevant EMP. • Restrict or stop work if the EMP is not appropriately implemented and the work undertaken has potential to cause harm to the environment. • Delegate authority of the above responsibilities.
<u>Site Supervisor</u> TBC once a contractor is engaged	The Site Supervisors report directly to the Project Manager and responsible for: • Ensuring they understand and comply with EMP. • Directly responsible of implementation of the EMP • Coordinating and identifying resources required for the implementation of the EMP. • Ensuring that site employees and subcontractors are working in compliance with environmental requirements and work activities are not impacting the environment. • Coordinating actions in emergency situations/rapid stabilisation of site and allocating appropriate resource for these activities. • Restrict or stop any activity on the Project that has the potential to or has caused environmental effects. • Ensuring that adequate instructions and information is provided to Operators which relate to environmental risks onsite.
<u>Environmental Representative</u> TBC once a contractor is engaged	The Environmental Representative is accountable to the Project Manager and supports the Project Manager and Site Supervisor in the day-to-day implementation of the EMP. This is a key environmental role for the Project and

	includes the following responsibilities: • Coordinate the Implementation of the EMP • Ensure installation of environmental controls as per the EMP. • Undertake environmental site inspections of the project including end-of-day inspections of controls. • Oversee the maintenance and improvement of defective environmental controls. • Undertake Environmental Incident reporting. <i>Communication</i> • Keep project leadership informed of environmental performance of the project. • Inform staff of procedures and constraints applicable to managing specific environmental issues. • May be responsible for providing environmental inductions to all staff and sub- Contractors. <i>Complaints and Incidents</i> • Assist the project leadership in attending to Environmental Incidents and Complaints. <i>Familiarity</i> The Environmental Representative will be familiar with: • Environmental aspects of the project. • Environmental Management Plan. • Best practice erosion and sediment control from: - Guidance Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GDOS); and/or, - Similar Regional Council guidelines from throughout New Zealand based on GD05 or internationally recognised best practice.
<u>Environmental Advisor/Consultant</u>	The Environmental Adviser/Consultant will oversee the environmental management of the site and provide technical environmental management advice as and

<u>(SOEP):</u> Mac Stevenson  <u>Secondary contact:</u> James Kitchen 	when required. The Environmental Adviser/Consultant will deliver the Site Environmental Induction to core staff and check the erosion and sediment controls around the dwelling site to ensure they have been correctly installed and provide QLDC & ORC with As-built confirmation of this where required. The Environmental Adviser/Consultant will undertake monthly monitoring of the site to ensure that the EMP continues to provide adequate environmental management for the Project. The Environmental Adviser/Consultant will also prepare and submit Monthly Environmental Reports to QLDC/ORC.
<u>All Staff</u>	All Project staff have responsibility for their own environmental performance and the impact they have on Project environmental performance. In particular, all staff are required to: • Undertake all activities in accordance with the requirements of the EMP. • Ensure they are aware of the contact person related to environmental matters. • Report to the Site Supervisor or Environmental Representative, any activity that has the potential to or has resulted in an Environmental Incident.
<u>Subcontractors</u>	All persons involved with the Project, including subcontractors/suppliers/consultants and their employees shall comply with relevant environmental requirements. All subcontractor personnel are considered equivalent to staff personnel. This includes all aspects of environmental management and control; their responsibilities will mirror that of staff. All subcontractors and their employees shall participate in the Site Environmental Induction prior to commencing works.

6.4. Environmental Site Induction

The purpose of the Environmental Site Induction (ESI) is to ensure that all staff, consultants, and subcontractors onsite are aware of their environmental responsibilities.

The ESI will be delivered to all key staff, including the Site Supervisor and Environmental Representative by the Environmental Advisor (SQEP).

Following this the Environmental Representative shall deliver the project specific ESI to persons upon entering the site. This includes at a minimum, all site management staff, employees, and subcontractors working on activities which disturb the ground surface. The Site Supervisor shall maintain a register signed by those inducted. Any new staff will also need to be inducted as the works progress.

The Site Supervisor shall maintain a register signed by all those inducted (including subcontractors). A copy of ESI document (including register) is found in Appendix C.

6.5. Management of Subcontractors

The Contractor must ensure that all subcontractors always comply with the EMP.

6.6. Inspection Summary

A summary of the required regular environmental inspections can be found in 4 below. These are done to confirm that the site controls are working to prevent negative environmental effects. These are to be undertaken by the Environmental Representative.

Table 4: Summary of Environmental Inspections

Inspection type and frequency	Details
Weekly inspection (every 7 days)	Done weekly and recorded in the form provided in Appendix D. Purpose of the inspection is to: • Verify management measures prescribed in EMP are present, functional and adequate. • Observe the site for actual, potential adverse environmental effects. • Identify maintenance requirements for implemented management measures.
Daily inspection (beginning of each working day)	This is quick a walkover of the site to ensure no new environmental issues have arisen or mitigation measures have been compromised from the previous day's work. Observations should be recorded (e.g.in a works diary).
Significant Rain	<i>Note: A 'Significant Rain Event' is defined as a rain event at an</i>

Event inspection	<i>intensity of 20mm or more within a 12-hour period.</i> This is done prior to, and immediately after a 'Significant Rain Event' The purpose of this is to: • Ensure all erosion and sediment controls are present, functional, and adequate to perform in the upcoming event based upon the forecast accumulation of rainfall • Check the performance of controls, check for any damage, and remediate and adjust if required These are to be recorded in the form provided in Appendix D.
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The Weekly and Significant Rain Event inspection records shall be made available to QLDC or ORC within 48 hours of a request being made online or immediately if the request is made on site by a Council officer.

The Contractor shall undertake corrective actions to rectify issues identified by Environmental Representative during the site inspections.

In some situations, such as High Risk sites, during sensitive phases in the construction methodology, or following Environmental Incidents, weekly inspections may need to be undertaken by a SQEP. The requirements and details for this are to be confirmed by Environmental Advisor as the project progresses.

6.7. Monthly Environmental Reporting by SQEP

A SQEP shall monitor the site monthly to ensure that the site is complying with its EMP, identify any new environmental risks arising that could cause an environmental effect and suggest alternative solutions that will result in more effective and efficient management. The SQEP will update the EMP accordingly if required and submit it to QLDC and ORC for acceptance.

The Environmental Advisor shall complete and submit exception reporting in the form of a monthly environmental report. Further, the monthly environmental report shall also be submitted by the Environmental Advisor to QLDC's and ORC's Regulatory Department within five (5) working days of the end of each month.

The monthly environmental report shall include exception reporting and statements actively addressing but not limited to the following that occurred during the reporting month:

1. Any updates to the sites ESC measures and/or overall EMP document.
2. Weekly and event inspections completed.
3. Outcomes and/or solutions from audits, inspections and monitoring will be summarised in the reporting.
4. Any maintenance corrections or non-conformance corrections undertaken.

5. Commentary on overall performance.

Where exception reporting demonstrates repeated or multiple non-conformances of the same issue, QLDC or ORC may instruct to undertake a review of the adequacy of management measures outlined in the EMP and provide a response back to QLDC or ORC within five (5) working days, either confirming and justifying the suitability of the existing EMP or notifying of updates to the EMP and the justification.

The Environmental Advisor who authored this report will be working closely with the site and is considered suitable to undertake this monthly monitoring is an SQEP. As a result, no independent environmental audits are considered required unless requested by QLDC or ORC.

6.8. Notification and Management of Environmental Incidents

Environmental incidents should be responded to immediately as soon as identified by anyone on site. This includes:

- Stopping the activity causing incident immediately.
- Notifying Project Manager, Site Supervisor and Environmental Representative of the incident.
- Investigating the cause of the incident.
- Implementing solutions to stop the incident, remediate damage, and take any learnings to prevent a similar incident from happening in future.
- Project Manager to engage Environmental Advisor for advice if required.

The Project Manager thereafter shall present all Environmental Incidents to the QLDC Monitoring and Enforcement team on RCMonitoring@qldc.govt.nz and ORC Pollution team on Pollution@orc.govt.nz and 0800 800 033 within 12 hours of becoming aware of the incident.

6.9. Environmental Incident Management

An environmental incident review is triggered when a complaint from the adjacent property owners, general public, Council, or other person or member of the project team is received.

The Contractor shall immediately undertake identified remedial actions to mitigate adverse environmental effects.

Environmental incidents shall be responded to immediately as the project team becomes aware of them. This will involve:

- Immediate cessation of the activity that caused the incident.
- Investigation into the cause of the incident.
- Contact the Environmental Advisor for advice where site staff are unsure of how to correct the issue
- Formulation of a solution to bring the incident under control or remediate any environmental damage.

- Implement any remediation works.
- Document incident for associated reporting.

Once the immediate risk from the Environmental Incident is alleviated, the Project Manager (on behalf on Consent Holder) shall investigate the cause of the breach and/or adverse environmental effects, then identify and implement corrective actions as soon as practicable. It is likely the Environmental Advisor will have input in this process.

The Project Manager shall provide an Environmental Incident Report to QLDC and ORC within 10 working days of the incident occurring. The template for this report is provided in Appendix D.

6.10. Records and registers

The following records will be collated onsite and shall be available to QLDC or ORC on request within 24 hours of a request being made by a QLDC or ORC official. These records will include the following:

- Environmental Induction attendance register.
- Environmental Incident reports and associated corrective actions undertaken.
- Complaints register and associated corrective actions undertaken.
- Daily diary entries (including pre-start inspection observations).
- Post-Rain event inspection observations and corrective actions.
- Weekly Site Inspection checklists.
- Monitoring results (e.g. water quality).
- EMP Non-conformance register (based on weekly inspection results or otherwise identified) and associated corrective actions are taken.

All records will be kept in an organised central location and will be managed by the Site Supervisor and/or Environmental Representative. All records will be uploaded or amended by the Environmental Representative as inspections, monitoring, corrective actions, etc are completed.

7. OPERATIONAL REQUIREMENTS

Operational requirements have been detailed to effectively mitigate or avoid adverse effects on the environment. These are to be followed by the Contractor and relate to both the physical environment and contract operations. They include the following:

- Erosion and Sediment Control
- Noise
- Contaminated sites
- Vibration
- Water Quality
- Waste
- Indigenous vegetation and protected trees
- Dust control
- Chemicals and fuels
- Cultural heritage

Refer to the following sections below.

7.1. Erosion and Sediment Control

Earthworks encompass a broad spectrum of activities, ranging from clean filling operations to those associated with road construction, park development, and maintenance. These activities have the potential to generate significant sediment, and if not managed effectively, can result in substantial sediment discharges.

7.1.1 *Earthworks Principles*

Key principles of the plan are as follows.

- Execute bulk earthworks during favourable weather conditions to minimize the risk of erosion and sediment runoff.
- Prioritize erosion control over sediment control, recognizing that preventing erosion is the most effective way to mitigate sediment discharge from earthworks sites.
- Implement appropriate controls in accordance with the approved Sediment and Erosion Control Plan, ensuring that the design specifications align with the operation's requirements.
- Implement roading and associated earthworks in manageable sections to expedite the stabilization of disturbed earth and minimize exposed catchment areas.
- Redirect clean water runoff from upstream catchments away from exposed earthworks whenever possible.

- Stabilize all works promptly after completion. Hydroseed, mulch, Ecomat Hessian, or similar products should be used to stabilize cut and fill slopes, considering runoff from these areas as clean. Water discharge from roads with clean aggregate is also deemed as clean runoff.
- Retain erosion and sediment control devices until the completed works are fully stabilized. Additional stabilization may be necessary in certain areas to ensure complete grass cover where required.

7.1.2 Responsibilities and Hold Points

The Contractor is responsible for temporary erosion and sediment control across the earthworks site and for ensuring that controls are adequately designed, installed, adapted, maintained, and decommissioned in accordance with the directions of the Engineer and in accordance with *Guidance Document 2016/05: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05)*, where applicable.

The Contractor shall:

- Implement ESCP measures as directed by the Engineer.
- Submit improvement proposals where the Contractor can see an improved environmental outcome or enhanced workflow on site.
- Monitor the continued effectiveness of the ESCP during the contract.
- Always maintain all erosion and sediment controls in effective working order.
- Prepare for a predicted rain and wind “event” by inspection, recommended pre-event ESCP maintenance and initiating a prompt inspection by the Environmental Representative.
- Update the ESCP where necessary in conjunction with the SQEP.
- Provide As-Built plans of the ESCP measures.

Bulk earthworks may not commence until the following has been completed to satisfy the conditions of the resource consent:

- The Contractor has been issued an approved copy of QLDC and ORC consents for the site.
- The updated ESCP is submitted and deemed acceptable by the QLDC and ORC in conjunction with the overarching EMP.
- The erosion and sediment control devices are installed correctly and approved by the SQEP.
- As-Built plans have been provided if requested by QLDC or ORC and are deemed acceptable.

7.1.3 Erosion and Sediment Control Overview

An Erosion and Sediment Control Plan (ESCP) has been produced and is shown in Appendix A. Additional detail on the sizing of devices is as in Appendix B. Key elements are as follows.

- Temporary soakage ponds will be utilised to capture and treat sediment-laden runoff from the site prior to infiltration. The ponds will be regularly inspected and maintained throughout the construction period to ensure ongoing treatment performance, including the removal of accumulated sediment where required to maintain storage capacity and infiltration performance.
- Silt fences as required to form a barrier to the sheet flow where there is the possibility of sediment-laden surface runoff leaving the site.
- A diversion bund will be installed around the earthworks area to divert the sediment-laden runoff to the DEBs.
- Clean water diversion bunds will be constructed to divert and collect upstream catchment runoff away from the earthwork areas.
- Establish stabilised construction entrances to the site.
- Topsoil will be stripped and stockpiled on site.
- Earthworks zones minimised to reduce risk wherever possible.
- Topsoil will be re-spread upon completion of earthworks.
- Keep topsoil stockpile away from the boundary.
- Cover and protect the topsoil to prevent spilling due to rain.
- Conduct daily inspections to ensure sediment control measures follow the designs.
- The erosion and sediment control measures will be removed, once the earthwork area stabilizes.
- Stabilising the building platforms, accessway, and carparking area (i.e. metal/concrete) as soon as practical to ensure safe and tidy access for the following building construction stage of the dwellings.
- Ensure any new catchpits on the proposed accessway and any existing catchpits in the road reserve are protected as described in this document.
- Monitor weather forecasts and check erosion and sediment measures are in place before leaving the site, especially on weekends.
- Monitor the site after any inclement weather events and repair and mitigation devices, as necessary.
- Daily inspections to ensure sediment control measures are operating efficiently.
- Regular maintenance of the devices will also be necessary to ensure their effectiveness during bulk earthworks operations.

Further details on the different devices are in Section 7.1.4 below.

To conserve water onsite, where possible stormwater that has been captured and treated within the sediment retention devices will be utilised for dust suppression purposes. The pH of water to be reused, should be tested to ensure it is in accordance with the water quality limits before being reused.

7.1.4 Erosion and Sediment Control Devices

(1) Stabilised Construction Entrance

Stabilised entranceways will be installed at the point of construction site entry and exit on Frankton Road.

The stabilised entranceways are to follow typical details, design parameters, installation and maintenance requirements outlined in the *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 65–69). A detail can be seen in Figure 5 below.

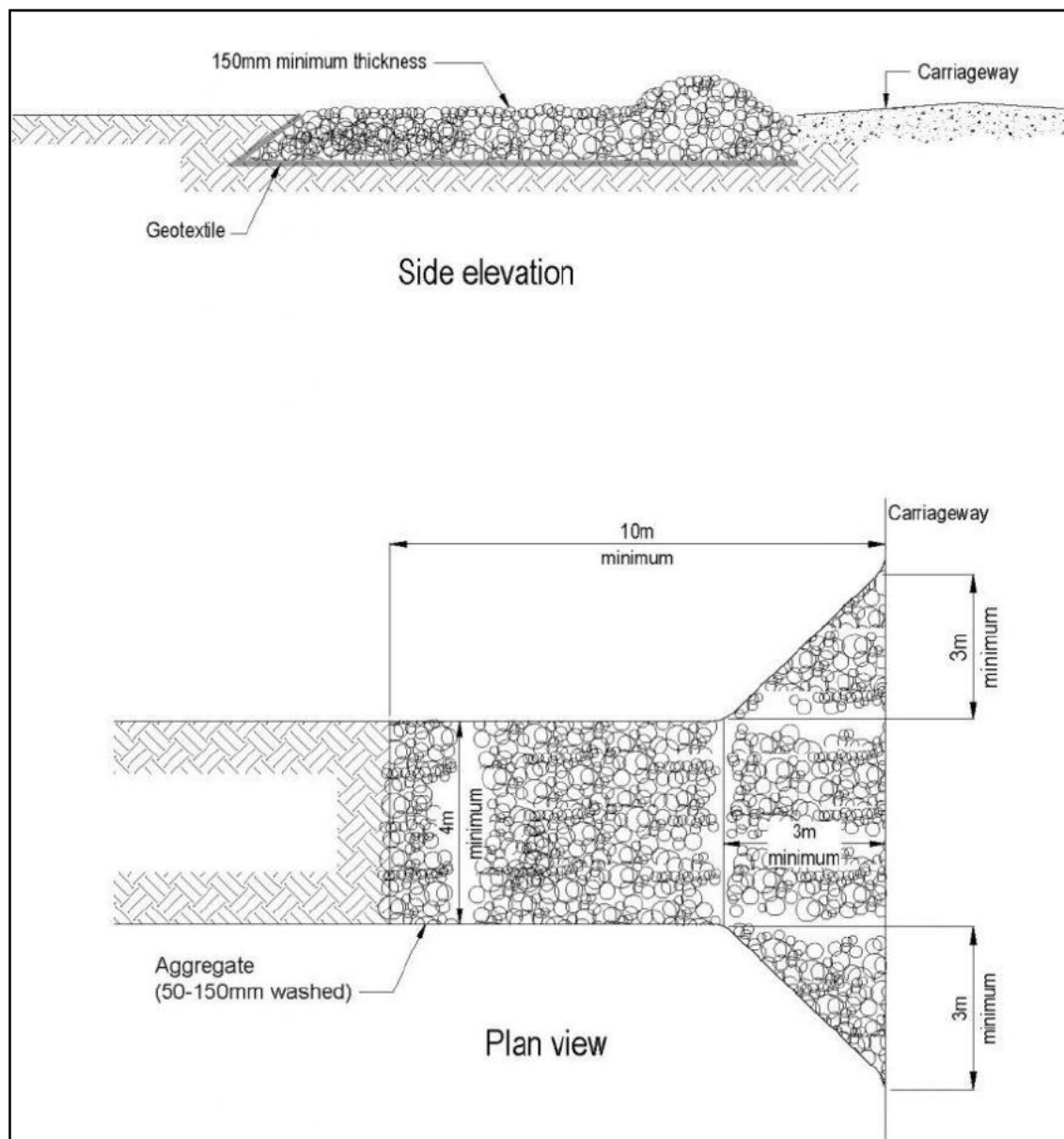


Figure 5: Stabilised Entrance Detail

(2) Clean Water Bunds and Diversion Channels

Clean water bunds (CWB's) will be installed at various locations across the site. These ensure runoff is diverted away from the site without entering the earthworks area.

The clean water bund is to follow typical details, installation and maintenance requirements outlined in the *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 38-41). A detail can be seen in Figure 6 below.

Refer to Appendix B for minimum swale dimensions.

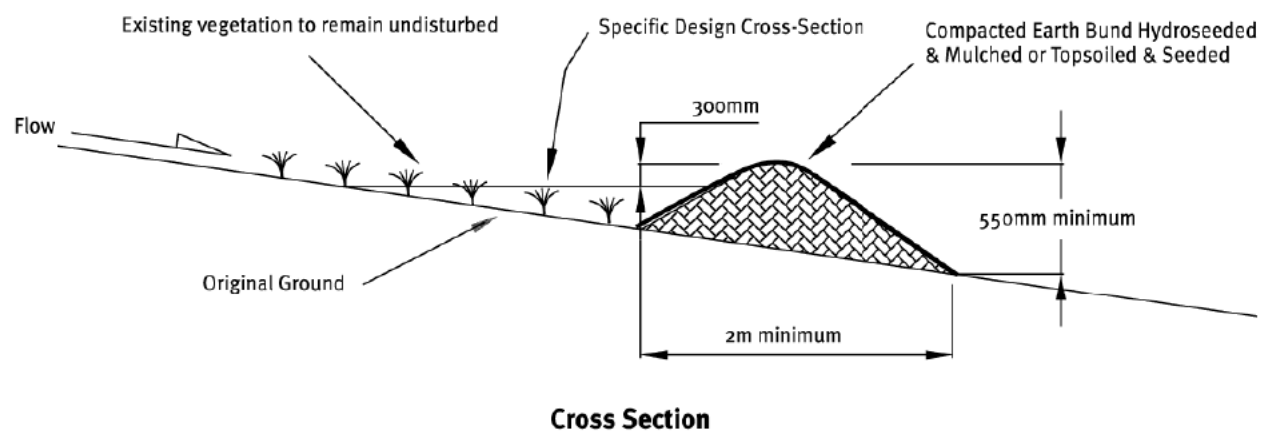


Figure 6: Clean Water Bund Detail

Other options for diverting clean water include dug diversion channels. For these when longitudinal grades are over 2% the drain is to be lined with erosion-resistant materials such as spray-on copolymer or needle-punched fabric.

An adequate outlet is required for each diversion. This may be a rip-rap, geotextile, vegetated or paved area or a stable watercourse.

Maintenance requirements are as follows:

- Conduct weekly inspections of the diversions, after each instance of rainfall, and during extended periods of rainfall to identify signs of scour and potential breaches. Swiftly address any issues to ensure the preservation of the design capacity.
- Regularly eliminate accumulated sediment in the diversion channel, especially in areas prone to overtopping due to insufficient freeboard.
- Examine inverts and outlets regularly to confirm their resistance to scour and erosion.
- Survey for low spots, water ponding areas, the development of tunnel gullies, sediment buildup, and debris blockage.
- Verify the presence of stabilization cover and perform necessary remedial work.
- Exercise caution to prevent damage from earthmoving operations and promptly reinstate the diversion if damage occurs.

Decommissioning requirements are as follows:

- Only remove diversions once the disturbed areas under the clean water diversion are stable.
- Fill, compact, and shape all disturbed areas to match the final landform.
- Stabilize all areas disturbed during the removal. Apply seed and fertilizer and use mulch or erosion-control blankets if needed for protection.

(3) Dirty Water Bunds and Diversion Channels

Dirty water diversions (DWD's) will be installed at various locations across the site. These ensure runoff from exposed earthworks areas is collected and can be treated before it leaves the site.

The dirty water diversions are to follow typical details, installation and maintenance requirements outlined in the *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 47–49). A detail can be seen in Figure 7 below.

The dirty water diversions are sized to convey a minimum of the 5% AEP event plus a 300mm freeboard. Sizing and calculations for these are in Appendix B.

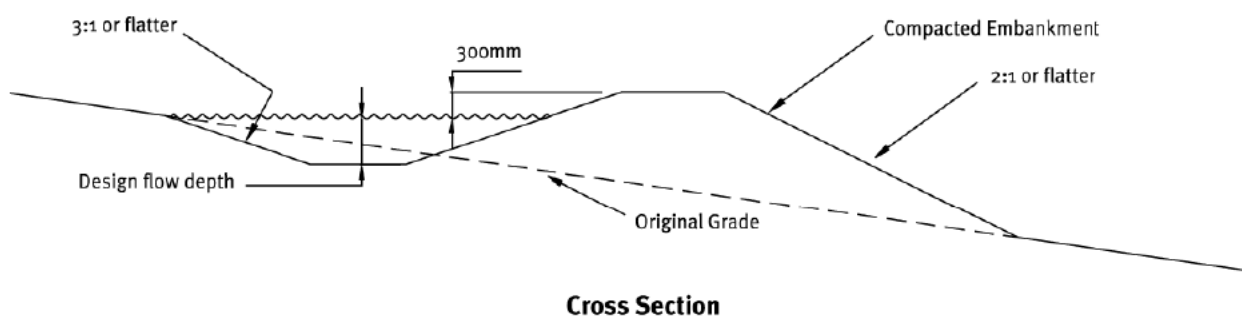


Figure 7: Dirty Water Diversion Detail

Where practicable, the route chosen for structures should avoid existing or proposed service infrastructure, existing or proposed fence lines, and other natural or built features.

Maintenance requirements are as follows:

- Inspect weekly, after rainfall, and during prolonged rain for scour and potential breaches in diversions. Repair promptly to maintain design capacity.
- Remove accumulated sediment in the diversion channel where overtopping risk exists due to insufficient freeboard.
- Check inverts and outlets for scour and erosion; consider geotextile lining if needed.
- Look for low spots, water ponding, tunnel gullies, sediment, and debris blockage.
- Check and maintain stabilization cover as required.
- Exercise caution with perimeter diversions to prevent damage during earthmoving, reinstate if damaged.

Decommissioning requirements are as follows:

- Remove diversions only when all disturbed areas above the dirty water diversion have been stabilised.
- Fill, compact, and shape all disturbed areas to match the final landform.

- Stabilize all areas disturbed during the removal. Apply seed and fertilizer and use mulch or erosion-control blankets if needed for protection.

(4) Soakage Ponds

Soakage capacity has been identified and tested during site investigation works, with factored infiltration rates ranging from 260 mm/hr to 600 mm/hr across the site. These results support the use of soakage-based systems as the primary mechanism for permanent stormwater management, consistent with the stormwater design and wider stormwater management approach for the Ladies Mile development area.

Temporary construction soakage ponds have been incorporated into the erosion and sediment control strategy. These ponds have been sized on a conservative basis to provide the required sediment management and treatment functions during construction. Detailed calculations and pond sizing information are provided in Appendix B. The ponds are to be regularly inspected and maintained throughout the construction period to ensure ongoing treatment performance, including the removal of accumulated sediment where required to maintain storage capacity and infiltration performance.

Sizing and emergency discharge arrangements may be refined during detailed design and prior to construction. Any refinement will be subject to confirmation of construction staging, final development layout, site-specific ground conditions, and approval from the relevant regulatory authority.

(5) Drop out pits

Drop out pits are an effective measure in the Otago region incorporating soakage where possible as well as allowing heavier coarse sediments to drop out minimising sediments entering the sediment ponds and/or primary soakage ponds.

Drop out pits are to be installed within the DWD's and prior to any pond.

Drop out pits are to be cleaned prior to and after any rain events.

(6) Super Silt Fence & Standard Silt fencing

Super Silt Fences may be used across various areas throughout the site as works progress (i.e. around significant stockpiles if present). Silt fences are used for sediment control for small catchment areas that cannot be effectively captured and treated with other methods.

The Super Silt Fence is to follow typical details, installation and maintenance requirements outlined in *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 112-119). A detail and sketch can be seen in Figure 8 and Figure 9 below.

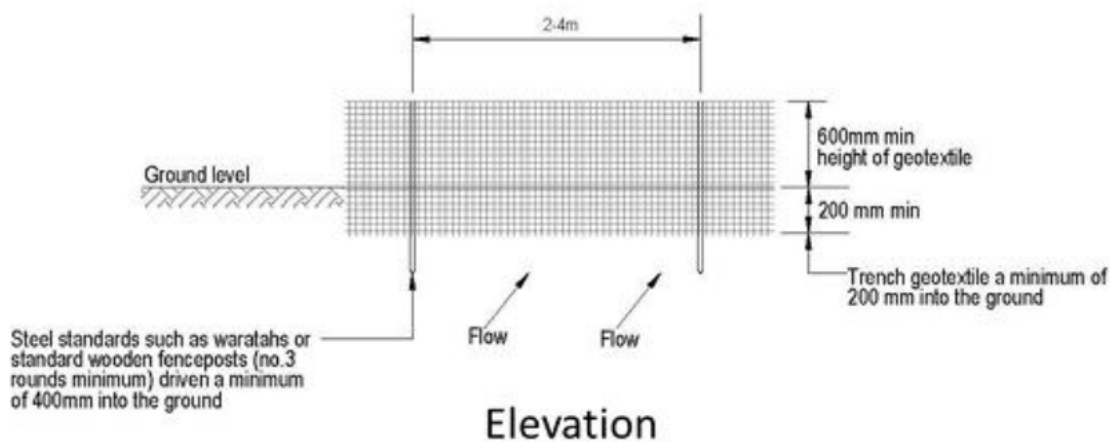
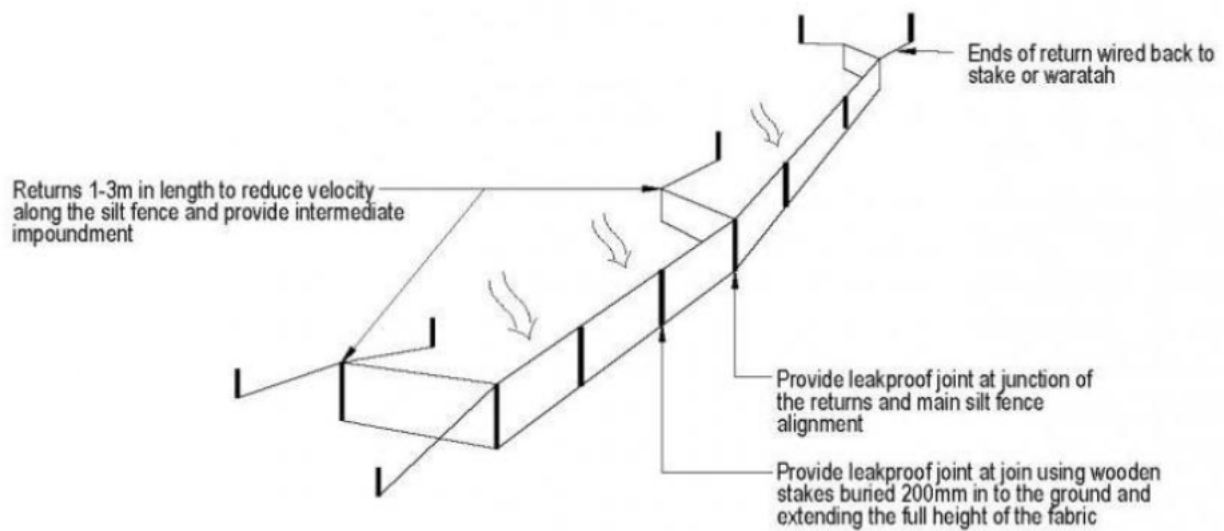
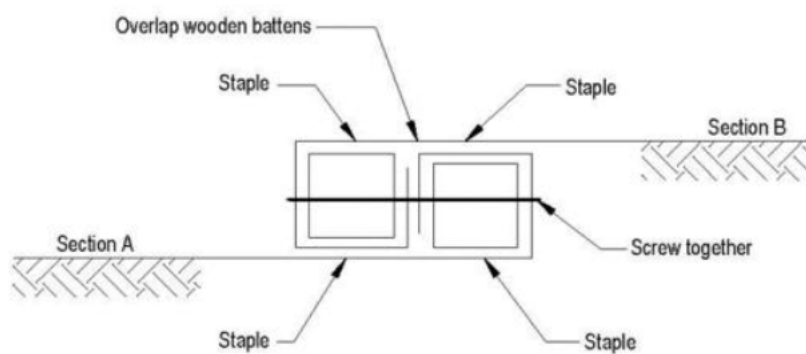


Figure 8: Super Silt Fence Elevation



Silt fence with returns and support wire



Standard fabric joint

Figure 9: Standard Silt Fence Drawing

Silt fence spacing requirements can be seen in table 4 below.

Table 4: Silt Fence Guidelines

Slope steepness	Slope length (m) (maximum)	Spacing of returns (m)	Silt fence length (m) (maximum)
Flatter than 2%	Unlimited	N/A	Unlimited
2-10%	40	60	300
10-20%	30	50	230

20–33%	20	40	150
33–50%	15	30	75
>50%	6	20	40

Maintenance requirements are as follows:

- Check for damage including rips, tears, bulges in the fabric, broken support wires, loose waratahs, overtopping, outflanking, undercutting, and leaking. Make any necessary repairs as soon as identified. Cleaning the geotextile with a light broom or brush may be required.
- Check at least once a week and after each rainfall.
- Remove sediment deposits as necessary (prior to reaching 20% of height)
- Dispose of sediment to a secure area to ensure it does not discharge to the receiving environment.

Decommissioning requirements are as follows:

- Do not remove silt fence until upstream catchment fully stabilised.
- Remove accumulated sediment prior to removing fence.
- Remove silt fence, backfill trench, regrade and stabilise the disturbed area.

(7) Contour Drains

Contour drains (CD's) will be installed as required to capture and carry water to the dirty water bunds, breaking up the catchment and reducing high velocity concentrated flows. These will be installed as part of response to forecast significant rainfall events. More detail is in *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 47–50). These are to have a simple 'u-shaped' profile. Refer to Figure 10 below.

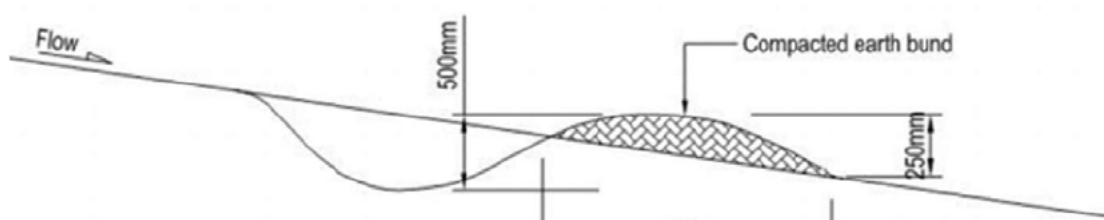


Figure 10: Example Contour Drain

Drop-out pits will be located at the intersections of several dirty water flow paths, and in the

dirty water channel.

Drop-out pits serve as a precautionary measure along dirty water diversion channels, serving two main purposes:

- Primarily, they function as velocity dissipaters, facilitating the smooth merging of two intersecting channels.
- Additionally, they allow the heavier coarse sediments to settle out, preventing them from entering sediment retention devices and reducing the burden on these devices. Moreover, they are easier to clean compared to sediment ponds.

These drop-out pits will ideally be up to 1 meter deep and have a minimum width of 1 meter. Adjustments in size are possible based on specific needs, and lining options are available to prevent scour of the pit.

(8) Existing Stormwater Pipe Removal and Management

Although not identified within the developments extents. Should any existing pipelines be identified and to ensure effective stormwater management during the earthworks phase and to address any concerns regarding the conveyance of clean stormwater, the following approach will be adopted:

The first step will be to install the proposed permanent stormwater management system including outlet, prior to any earthworks in the vicinity of the existing pipe. This will ensure that the new system is fully operational and capable of managing all stormwater flows before the existing infrastructure is disturbed.

Once the proposed system is in place, the existing stormwater pipe will be carefully diverted into the newly installed system. This will ensure a continuous and controlled conveyance of stormwater flows off-site, with no interruption or risk of water pooling within the development area during construction.

The new stormwater system is designed to effectively manage and direct all stormwater flows away from the site, complying with council standards. This permanent solution ensures that clean stormwater will be handled appropriately throughout the construction process and beyond.

The Erosion and Sediment Control plan supports this methodology and will mean earthworks on site can proceed unincumbered including the removal of the existing SW lines

By implementing this strategy, we can mitigate any potential risks related to stormwater during earthworks and provide a seamless transition from the existing system to the proposed stormwater management network.

(9) Temporary culverts

Culverts shall be used onsite to divert and convey stormwater through accessways, & crossing points. All temporary culverts are to be confirmed with the Engineer and Environmental Advisor.

As a minimum all temporary culverts should be sized as minimum 300mmØ, unless otherwise stated.

Rip-Rap rock laid on Geotextile apron, shall be included for outlet erosion control & prevent any scouring.

(10) Check Dams

Rock check dams will be strategically positioned primarily to diminish the water velocity within dirty water diversion channels. Additionally, they will serve to trap coarse sediment. Check dams will be situated at intervals of every 25 meters on slopes with less than a 7% grade and every 10 meters on channel sections where the slope exceeds 7%.

More detail is in *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region Guideline Document 2016/05 (GD05)* (pp. 50–54). Also, refer Figure 11 below.

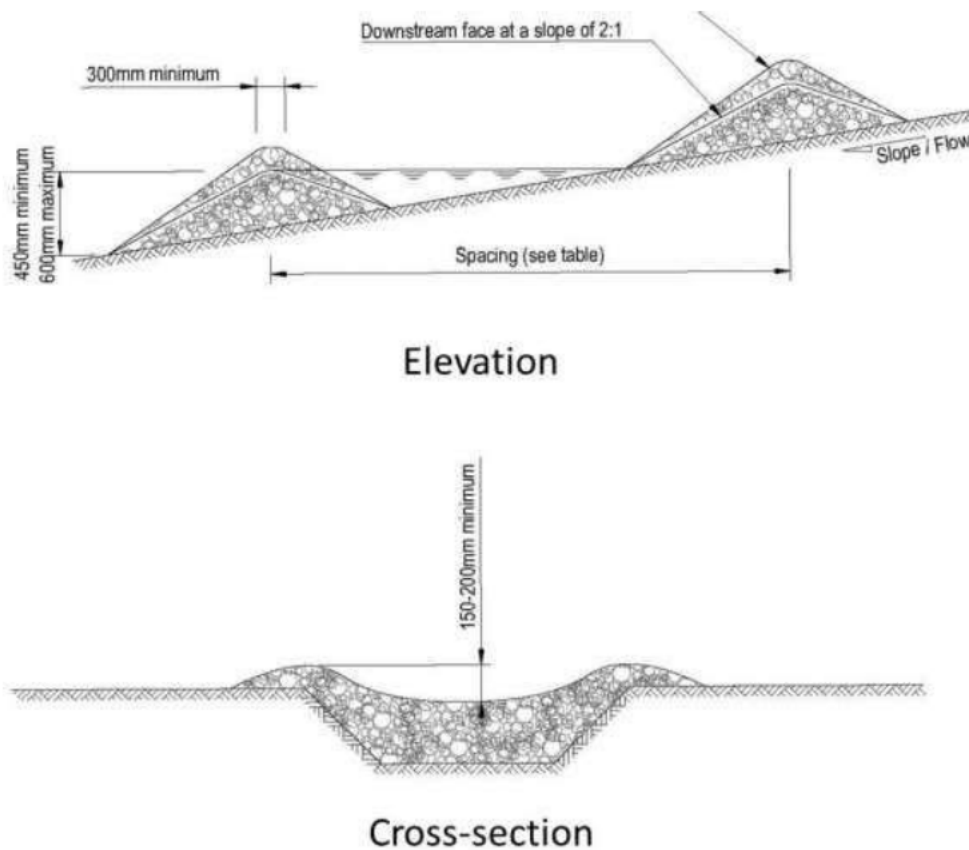


Figure 11: Check Dam Detail

(11) Stormwater catchpit & sump inlet protection

Adjacent stormwater (SW) network sump catch pits shall be protected via silt socks and a geotextile filter bag to protect the SW network from possible sedimentation.



Figure 12: SW sump catch pit protection example with filter bag & silt sock

7.2. Dust

Dust from construction can lead to health or ecological risks and create a nuisance for the public, neighbouring properties, and environment.

The Contractor shall be responsible for managing construction works to appropriately avoid and mitigate effects from dust. They must ensure all reasonable and practical measures are undertaken to avoid any dust moving beyond the site boundaries.

Activities that are likely to cause dust on-site include:

- Disturbance of soil particularly during bulk earthworks
- Vehicle movements (especially at higher speeds)
- Large areas of exposed soil without staging
- Lack of ground covers and temporary stabilisation
- Removal of vegetation, and slow revegetation

The predominant winds that the site experiences are from the West to South West.

To minimise and control dust the following measures are to be taken:

- Stripping and disturbance of ground will be limited when practical.
- On completion of cut/fill areas revegetation is to be carried out as early as possible to allow growth to establish.
- Grass-seed topsoil stockpiles where possible to establish growth until re-spreading.
- Reduce vehicle speeds onsite.

- Any temporary stockpiles on site to be regularly watered for dust suppression. Any longer-term stockpiles (8+weeks of storage) to be covered in geofabric, hydro seeded or covered in polymer film. All temporary stockpiles to be no higher than 3m without consultation with SQEP.
- Checking weather forecasts for future high wind, hot temperatures and dry days.

In the drier and windy conditions, watering of the site will be required on a regular basis throughout the day.

- Water will be obtained from a suitable source for the water cart until permanent water supply is established onsite.
- Sprinklers will be used to water revegetated areas once an onsite water supply is established. This is to be spread across the site and provide adequate cover.
- A water cart will be used onsite to dampen all haul roads, stockpiles, and disturbed ground regularly.

Application of a Polymer may also be used as an alternative to watering, depending on site constraints.

Dust formation will be monitored visually onsite during the periods of operation. In the event of high winds where cast dust is visible all works contributing to the dust must cease until dust suppression is implemented and deemed controlled.

Any complaints are to be dealt with in a pro-active manner and all practical steps taken to minimise disturbance, with an investigation future response to follow to prevent reoccurrence.

7.3. Vibration

The Contractor shall always take reasonable and practicable management measures to mitigate:

- Vibration effects associated with the project to minimise Environmental Nuisance effects on Sensitive Environmental Receptors outside of the site.
- Environmental effects to buildings, structures, services, and utilities within or beyond the boundary of the site in accordance with DIN 4150-3:1999 Effects of vibration on structures.

Some construction vibrations are inevitable, and the site currently is close to the existing residential area; however, the vibration generated from construction works will be managed properly under standard NZ6803 conditions. Therefore, any construction vibration reaching the residence will be in accordance with the permitted limit. Thus, at this stage no special Vibration Management Plan is required.

Vibration must be controlled and managed to reduce its impact and nuisance on the surrounding environment. Expected consent hours of work are in Section 6.1. As such, potential vibration generating activities will be limited to these time frames.

Compaction methods will be tested prior to the bulk fill works with a geotechnical engineer. If

alternate methods of compaction are practical which could limit vibration caused, these will be explored.

7.4. Contaminated Sites

Within the 12 Lower Shotover Road site there is no known contamination.

The Contractor shall be responsible for work to mitigate the risks of environmental effects from contaminated sites within the work site. The Contractor shall always take reasonable and practicable management measures to manage known contamination sites to avoid and prevent the spread of contaminants either within the site or beyond the boundary of the site. Management shall be in accordance with the Ministry for the Environment's User's Guide, National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health.

If possibly contaminated material is encountered on-site, the Contractor is required to notify the Project Manager, Environmental Advisor, QLDC and ORC within 24 hours of discovery. Works in the area affected by contamination can only recommence once any required consents are obtained.

7.5. Water Quality

The Contractor shall be responsible for the management of the water quality to ensure that there are no adverse environmental effects on the waterbodies into which the site discharges.

Waterbodies

- Lake Hayes (approx. 2200m east of the site boundary)
- Shotover River (approx. 700m west of the site boundary)

Effects on Waterbodies

Whilst the primary sediment ponds (SRPs) are proposed to be discharged to open stabilised ground or soakage, the concentration of the discharge from the SRPs varies throughout a rainfall event. It is likely that the TSS will exceed the threshold set by the QLDC EMP Guidelines at some stage during rainfall events, but will, on average, be within the range of acceptable effects anticipated for the activity. Turbidity and clarity are well-understood proxies for water quality within sediment control devices and can be easily measured in real time along with the other site inspection and management activities that will occur during or immediately after a storm event.

The SRPs should only discharge when at capacity, during or following significant rainfall events, and allow soakage & evaporation to occur in dry spells, being common in the summer months of central Otago.

The most important element of ensuring that sediment and other contaminant effects are acceptably minimised, is the diligent implementation of the ESCP, water quality management plan and supporting systems through staff inductions and device design, construction, maintenance and reporting.

Water Treatment

Apon further analysis of the subgrade materials, which vary from sandy silt to silty sand and gravels, further investigation and/or testing will be undertaken to determine if chemical treatment is required to treat sediment laden dirty water.

Chemical treatment may be required given the restricted area suitable for basins and the presence of glacial silt. Should chemical treatment be required, a chemical treatment plan will be produced and submitted as an update to this EMP, prior to construction.

Discharge Criteria and Monitoring

Water quality management measures are designed to achieve discharges from site that are compliant with the QLDC and ORC guidelines below in 5. This is an important part of protecting the environmental, cultural and recreational values of downstream water bodies.

The discharge criteria apply to any flows moving that could enter waterbodies, stormwater networks within or adjacent to the site, or leave the sites environmental management devices.

Table 5: Discharge Criteria and Testing Procedures

Parameter	Criteria	Testing Process
Total Suspended Solids	<50 mg/L suspended solids or 100 NTU	Laboratory analysis for suspended solids or using a turbidity meter for NTU. Using a turbidity meter is the preferred method of testing as results are instantaneous and immediate action can be undertaken, rather than laboratory analysis which can result in delays in getting information back to site.
pH	Stable pH reading between 5.5 and 8.5	Done through pH test meter or test strips. Testing is only done if chemical treatment is used.
Hydrocarbons, Tannins, Paint	No visible trace	Visual inspection by contractor and photos. Looking for any discolouration or darkening of water, odours and oily films on water.
Waste	No waste or litter visible	Visual inspection by contractor and photos

Since the site has been identified as a high-risk site the Contractors appointed Environmental Representative is to implement the following (but not limited to) monitoring programme:

- Taking the samples and undertaking testing. Proposed sampling locations are shown in Appendix A.

- Every sample must be kept on-site for 24 hours after the sample was taken in suitable conditions, and testing logged for reporting & compliance.
- The timing of the discharge monitoring should occur prior to dewatering sediment retention devices or during rain events when 'controlled' or 'uncontrolled' discharge crosses the boundary of the site.
- Sampling is to be done during the peak of rainfall event, or if this is outside of working hours, as soon as possible the following morning.
- Water quality monitoring results are to be recorded by the Contractors appointed Environmental Representative using the form provided in Appendix F. Results from the monitoring are to be kept on-site and provided to QLDC and ORC on a monthly basis if requested.

If there is any confusion on monitoring requirements or testing methodology the Environmental Representative is to contact the SQEP immediately.

Non-Conformance

For any monitoring result that does not conform to the water quality criteria, the Environmental Representative shall notify the SQEP immediately. The SQEP will then:

- Report the non-conformance to QLDC and ORC including the water quality parameter that exceeded the criteria and level that was recorded.
- Where the discharged water was as the result of the erosion and sediment controls failing or exceeding capacity the following should be reported:
 - The depth of rain recorded at the nearest meteorological station that collects daily rain data.
 - Size of the Rain Event Average Recurrence Interval (ARI6).
 - Duration of the Rain Event.
- Identify the cause and develop and instruct corrective actions such as improved work procedures or management measures to improve water quality and prevent re-occurrence of monitoring non-conformances.

Water Quality Risks and Actions

Erosion and Sediment Controls for the earthworks are implemented and maintained as in Section 7.1 above, which will act to mitigate these risks.

Other water quality risks and methodologies to mitigate these are as follows. These actions are always required.

Table 6: Additional Water Quality Risks and Mitigations

Risk	Mitigation
Fuels and Chemicals from works	As per section 0 belowabove. Plant and equipment on site are inspected regularly to ensure an acceptable standard with no leaks.
Washdown of vehicles and concrete trucks and mixes	Pits provided are to be provided for any runoff from washdown to travel to. These are to be located away from overland flow paths. These are to be used for any washdown activities. The Site Supervisor and Environmental Representative are to make sure these are in place and are to instruct all relevant staff on their location and use.
Runoff from stockpiles	Stockpiles of any organic, erodible, or hazardous material are to be located away from overland flow paths and are not to be placed within 30m of a watercourse or major drainage line. Silt fences are to be installed at the downstream slope of any stockpiles deemed to be a significant erodibility risk by the Environmental Representative or SQEP due to the materials or length of time to be exposed. Any stockpiles containing silts and clays are to be covered before significant rain events.
Flocculants/Coagulants	Flocculants & Coagulants are to be only used if required. If flocculation is undertaken on-site, the consent holder shall select, store, apply and monitor in accordance with best practice guidelines. Testing as per Section 7.5. Application to be as per the Chemical Treatment Plan Removal of sludge following manufacturer's advice and instructions.

Water Quality Sampling General Procedure

The procedure for collecting a water sample is to include collection of water at any water outlet location onsite or as directed by the SQEP. Water samples are to be carefully collected in a container with a clear label stating site name, location, date & time undertaken as a minimum. The container is to be filled with enough water for testing purposes. Water sample containers will be supplied, if containers are not readily available or if undertaken by the contractor a minimum of 1 litre is to be taken unless advised by the SQEP & clearly labelled for later testing.

Sampling within waterway (stream, creek, race, river, lakes & ponds):

Collection of a water sample within a water course should be taken at the upper middle/centre of the waterway, generally within the top 200mm or upper 1/3 depending on available depth.

Care must be taken as to not disturb the water way in the process of obtaining the sample, which may impact test readings. E.g. if taking sample in water way take sample upstream.

Sampling a discharge (at discharge point of spillway, SRP outlet or breach area):

Collection of a water sample at a discharge location at the specific outlet, generally at the upper water levels. In breach locations care must be taken as to not suck or scrape the ground whilst obtaining the sample which may impact test readings.

Measuring for key criteria:

The Environmental Rep & Advisor/SQEP will induct site staff on measuring results and specific turbidity testing, depending on the device type being used.

Measuring pH for site staff is recommended to be undertaken via litmus paper testing strips following the specific procedure & measurable chart.

Water Quality Contingency Plan & Incident Procedure

Should it be identified that the water quality criteria has not been met or concern is raised that water quality may or does exceed this criteria, the following procedure is to be followed;

1. Contact the Environmental Advisor & Project Manager as soon as possible and without delay.
2. Associated construction works to cease, and attention raised onsite with Environmental Rep & site staff to reduce any further environmental risks.
3. Water sample taken & tested against quality criteria.
4. ORC and QLDC to be notified & incident procedure followed and carried out.
5. If water sample is outside criteria range, then a sample may need to be sent to a local Laboratory for further analysis. Samples are to be kept in safe & secure manor. The Environmental Rep will collect and send to the lab upon following incident procedure & advising on conditions. This will be co-ordinated in conjunction with the Environmental Advisor.
6. Any corrections, remedial works and improvements implemented.
7. SQEP to review proposals and update documents as required
8. Formal reporting made available to appropriate project personal & relative council (ORC/QLDC).

9. Outcomes discussed in depth with site staff to reduce any further risks.

7.6. Chemicals and Fuels

The Contractor holds the responsibility for overseeing the handling of all chemicals and fuels on the site to prevent any detrimental environmental impact, including off-site environmental disturbances. Before commencing work, a Chemical and Fuel Management plan must be submitted to the SQEP and council for approval.

In cases where the nature of the work necessitates approval for chemical storage, it is the duty of the Consent Holder to secure and adhere to the necessary approval requirements.

Performance Requirements

The Contractor is required to guarantee the presence of spill response equipment on the site for emergency situations. The selection of spill response equipment shall take into account the site's location, topographical characteristics, and the nature and volume of chemicals and fuels stored on-site.

In the event of spills, leaks, or discharges, the Contractor must promptly address and remediate any contamination, restoring the affected area to a condition similar to its state before the contamination occurred.

Refuelling of machinery shall conform to the following requirements:

- Occur at least 30m from a waterway, ideally by the site entrance.
- To take place in a flat and stable area.
- Fuelling activity to be always supervised.
- Hoses to be fitted with a stop valve at the nozzle end.

Machinery shall be maintained to minimise the leakage of oil, fuel, hydraulic and other fluids.

The Contractor shall provide before commencing works on site:

- List of chemicals and fuels stored onsite in volumes greater than 2000L, the maximum quantity to be stored at any one time and the storage location.
- Type and number/size of spill response equipment stored onsite.
- Management measures, including containment, to avoid contamination or discharge to land or water.
- Details of any approvals held about fuel and chemical storage or use.
- Contingency plan in the event of a contamination or discharge.
- Confirmation of the performance requirements above.

This needs to be submitted and approved by the council before the commencement of any work on site.

Storage of Fuels and Chemicals

The Table 7 below is a list of chemicals and fuels anticipated to handled/stored on site.

Table 7: List of Fuels and Chemicals

Types of fuel or chemical	Use	Storage area on site	Amount
Fuel/Diesel	Construction equipment	Fuel trailer kept at site entrance	Maximum 2000L at any one time
Oil	Construction equipment	Only on site to top up construction equipment	Maximum 20L
Grease/Lubricant	Construction equipment	Grease gun in toolboxes in all machines	5L at any one time
Paint	Spot marking	In diggers and other equipment	2L at any one time

Except for the above list, no additional chemicals are expected to be stored on-site, and any storage of such chemicals requires approval from the SQEP.

Spill management

If anyone on site encounters a spill, they are to find out where it's coming from and check if it can be stopped safely. The Site Supervisor is to be notified immediately. Safeguard waterways by putting earth, sand, or absorbent material around stormwater entry points and along water bodies to prevent pollution until the spill kit is found. Utilize the spill kits to control and clean up the spill. Remove all contaminated soil to an approved facility. As soon as the spill kit equipment is used, it is to be replaced immediately with a new one.

Spill kit equipment suppliers' users' manuals are to be always kept on site and are to be reviewed during the ESI process.

Refer table 8 below for details on the standard spill kit to be maintained on-site.

Table 8: Spill Kit Required

Spill Kit Type	Quantity	Location
240L Oil and Hydrocarbon Spill Kit	1	Site storage yard
240L Chemical Spill Kit	1	Site storage yard
30L Mobile General Purpose Spill Kit	1	Plant Machinery

7.7. Noise

The Contractor shall always take reasonable and practicable management measures to avoid and mitigate effects from noise associated with construction works. The Contractor shall ensure that all works are undertaken in accordance with the noise limits specified in the Zone Standards and onsite noise management practices to be adhered and must comply with NZS 6803:1999.

Construction noise is inevitable, and the site currently is close to existing residential area; however, the noise generated from construction works will be managed properly under standard NZ6803 conditions. Therefore, any construction noise reaching the residence will be in accordance with the permitted limit. Thus, at this stage no special Noise Management Plan is required.

Below is a list of basic measures that will be taken to ensure minimal disturbance:

- No construction machinery will operate outside the hours of work stated on this Site Management Plan and described in Resource Consent Conditions.
- All noise affecting surrounding public or neighbours must be managed practicably.
- Stockpile bunds to be used as buffer where practicable.
- All construction machinery must have an adequate muffler installed and be regularly serviced.

Complaints will be dealt with first-hand by the site construction manager and pro-actively followed up on. There will be a complaint register of record detailing investigation and response.

7.8. Waste

The Contractor is responsible for the management of all wastes within the site so as not to cause adverse environmental effects (including environmental nuisance off site).

Performance Requirements

- The Contractor shall ensure that all construction waste has been removed from site. No waste shall be burnt onsite.
- The Contractor shall provide bins at common areas at all times. Bins shall be fitted with lids and serviced prior to being filled. During construction, the Contractor shall maintain the site free of litter and ensure that no litter leaves the boundary of the site or enters any waterway within the site.
- Vegetation waste from clearing and striping, that is free of noxious plants, may be used in conjunction with soil erosion and sediment measures such as brush matting or mulching.

If any waste or rubbish leaves the sites extents, then this will be assessed by the Environmental Representative and Environmental Manager/Advisor whom will assess the situation and after assessing the situation, environmental incident procedures will follow. Site staff will also be advised on the incident to ensure any future risk is minimised.

7.9. Indigenous Vegetation and Protected Trees

The Contractor shall adhere to any limit of clearing specified within relevant resource consents.

Areas of trees and bush contribute to the amenity values in rural and urban areas. They also contribute to landscape quality and are important as habitats for indigenous fauna. Trees and bush also have a function in maintaining and enhancing the quality of the environment by preventing non-point source erosion and retaining soils in place.

The Contractor shall always take reasonable and practicable management measures to avoid disturbance to vegetation or ground surface outside the limits of clearing and to minimise disturbance to vegetation or ground surface outside of the limits of clearing.

The Contractor shall install identification markers along the limits of clearing prior to commencing vegetation clearing and ground disturbance. Identification markers shall be maintained for the duration of the works or at least until works are complete in the adjacent area.

Where works encroach on individual trees or vegetation to be protected/retained, ground disturbance or other works including stockpiling, shall not encroach within the dripline of the tree unless otherwise deemed suitable under the relevant resource consent.

7.10. Cultural Heritage

The Contractor is responsible for appropriate management and protection of Cultural Heritage within and adjacent to the site to avoid any damage or adverse effects to Cultural Heritage from construction works. The works shall be undertaken, and the protection of the Cultural Heritages is to be managed in accordance with the guidelines set by Heritage New Zealand Puohere Tāonga Act, 2014 (HNZPTA).

According to QLDC Archaeological & Cultural Site database the site has not been identified to have any significant Cultural Heritage.

It is required that during the daily site walkover, a visual assessment is undertaken to cover the Cultural Heritage aspects and ensure that any accidental items are found.

In the event of accidental discovery, the Environmental Representative is to inform the Site Supervisor and appropriate actions outlined in the Resource Consent Conditions and HNZPTA must be followed.

8. DECOMMISSIONING

Decommissioning of site and environmental controls is not to be undertaken without acceptance by the SQEP who will advise on the proposed change and confirm that the site is safe for decommissioning.

The SQEP will confirm to the contractor that it is suitable to decommission. The contractor is not to proceed without this confirmation.

Generally decommissioning criteria is as outlined within GD05, specifically when all exposed areas are fully stabilised with no erosion risks and grassed areas have achieved 'thick grass sward' or 80% thick grass coverage.

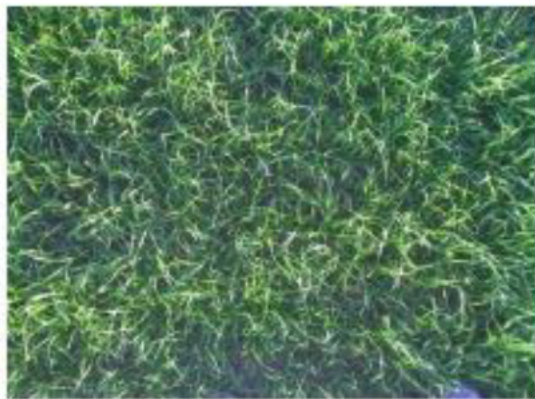


Figure 13: Stabilised grass cover example (GD05 fig.45)

Silt fences (where installed) are to stay intact for the full duration of construction until there is no longer erosion or sedimentation risk. The final removal of silt fences and structures will also include mechanical removal of the waratahs or support posts used for the fences.

Any vehicle tracking externally as a result of decommissioning activities will be cleaned immediately.

9. CONCLUSION

In summary, the EMP proposed for this development serves as a practical guide for environmental responsibility during construction of the project.

It systematically addresses the requirements set by both the Queenstown Lakes District Council (QLDC) and the Otago Regional Council (ORC), providing a solid framework to meet environmental standards and adhere to Resource Consent conditions.

The administrative requirements, including working hours, qualifications of personnel, environmental site induction, and thorough inspection and reporting mechanisms, establish a solid foundation for effective environmental management. The emphasis on immediate response and incident management reflects a commitment to proactive environmental protection and rapid resolution of any unforeseen issues.

The operational requirements outlined in Section 7 delineate specific measures for erosion and sediment control, dust management, vibration control, handling contaminated sites, and maintaining water quality standards. These operational guidelines, coupled with the detailed considerations for chemicals, fuels, noise, waste, indigenous vegetation, and cultural heritage, underscore the EMP's holistic approach.

Acknowledging the ongoing nature of the project, the EMP is designed as a living document, ready for continuous monitoring, regular review, and updates as needed during construction.

REFERENCES

Auckland Council. (2016). *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*. pp. 1-188

<http://content.aucklanddesignmanual.co.nz/regulations/technical-guidance/Documents/GD05%20Erosion%20and%20Sediment%20Control.pdf>

Queenstown Lakes District Council. (2019). *Queenstown Lakes District Council Guidelines for Environmental Management Plans*. pp. 1-42. <https://www.qldc.govt.nz/media/pf5ez5gf/6a-emp-guidelines-c.pdf>

Otago Regional Council. (2023). *Residential Earthworks in Otago: A guide for developers, landowners, Contractors, and service providers*. pp. 1-55.

<https://www.orc.govt.nz/media/14398/residential-earthworks-in-otago-3-2023.pdf>

APPENDIX A – DRAWINGS



MCKENZIE & CO.

SIMPLICITY LIVING TE PŪTAHI LADIES MILE ENVIRONMENT MANAGEMENT PLAN DRAWINGS

Prepared for: SIMPLICITY LIVING LTD

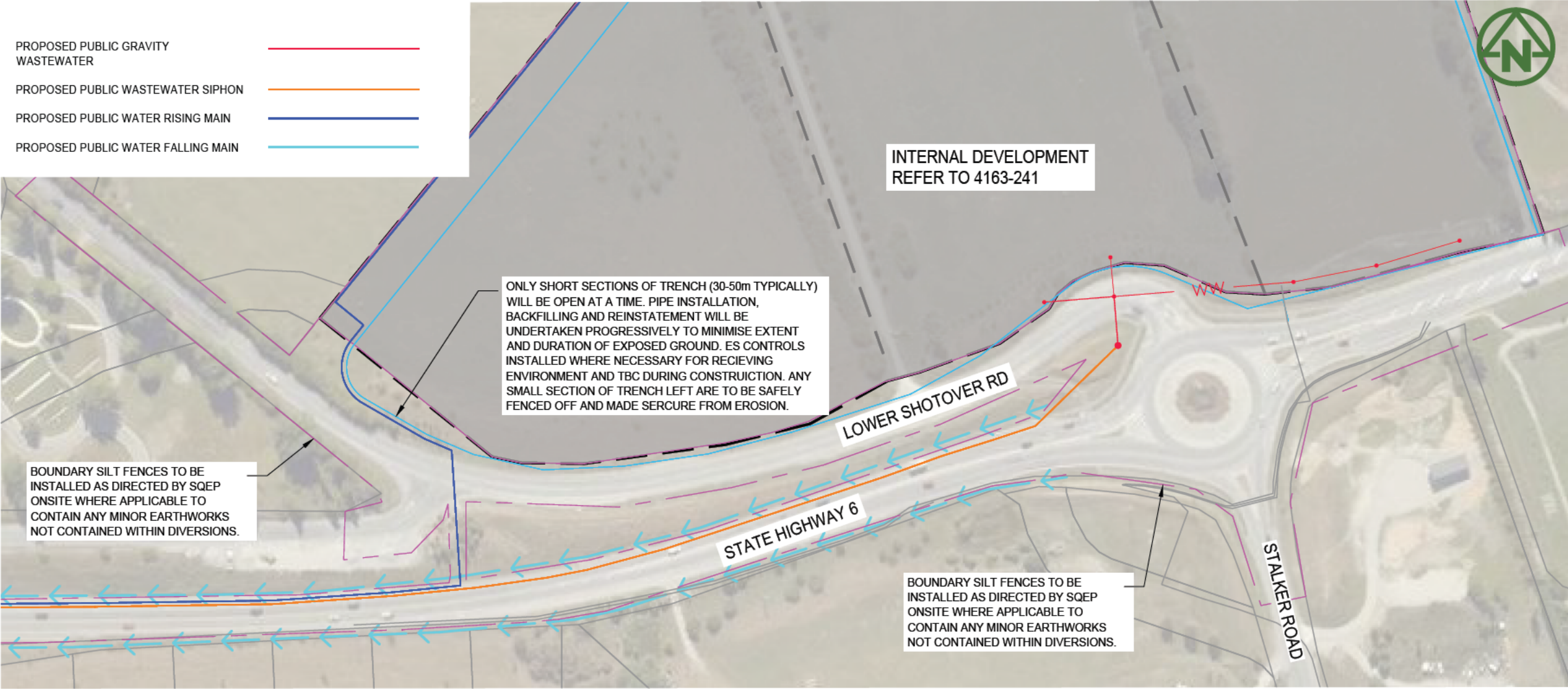
Date: July 2026

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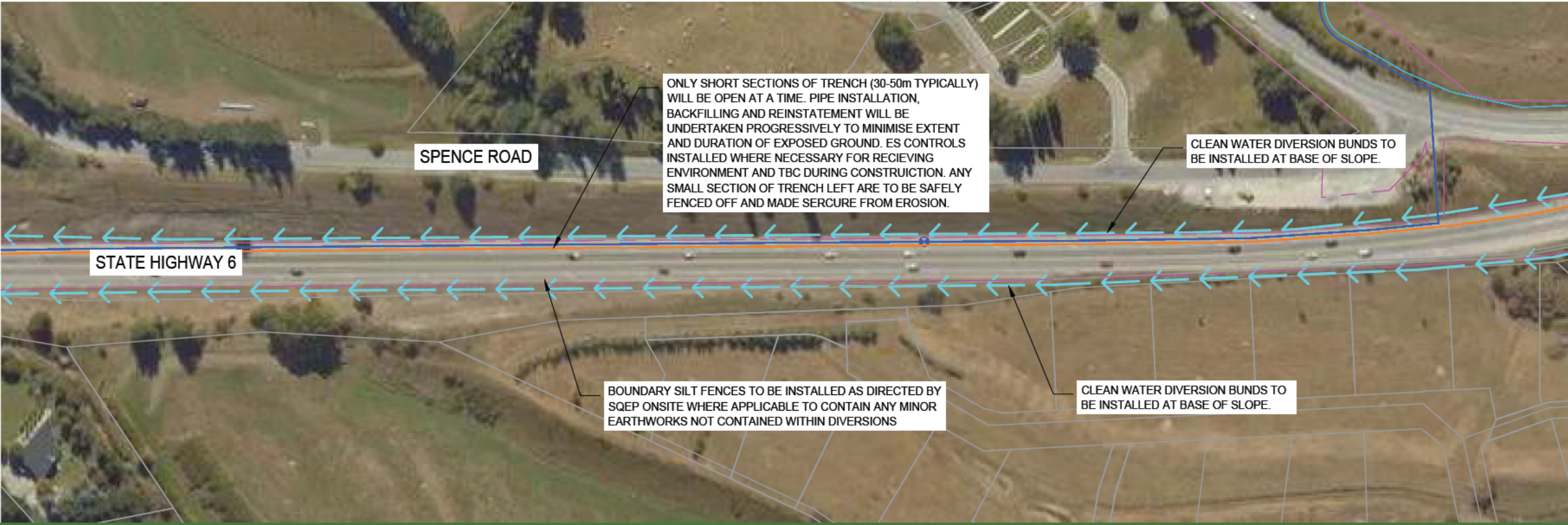
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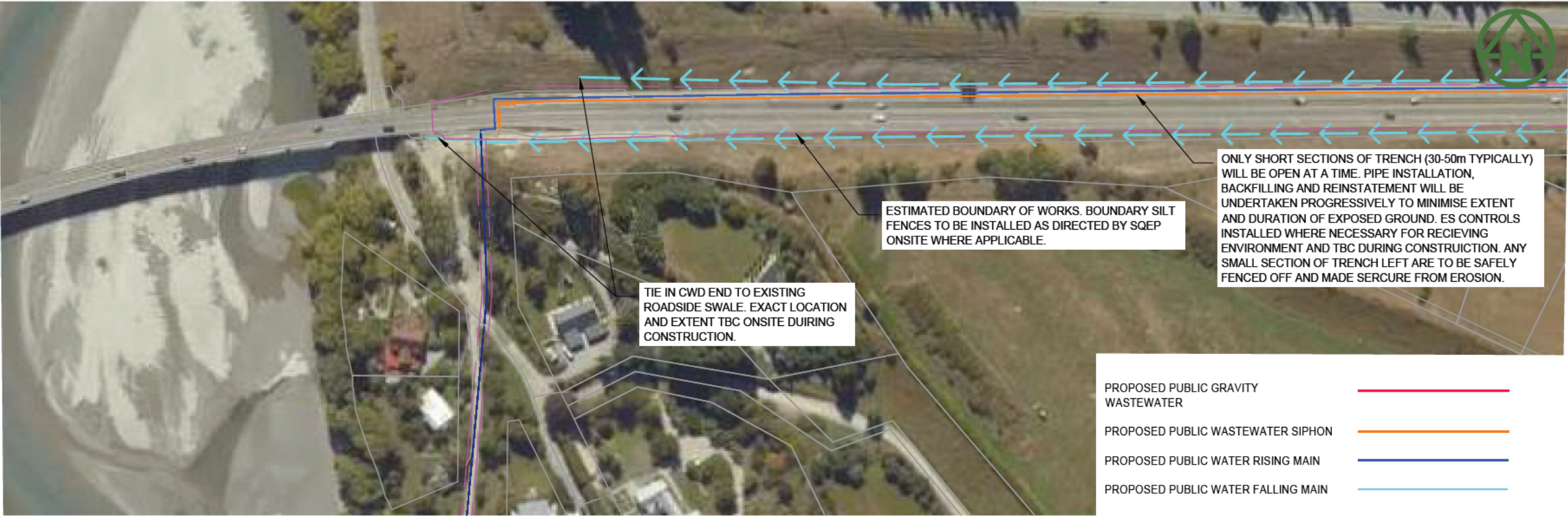
- NOTES:**
1. LEVELS ARE IN TERMS OF NEW ZEALAND VERTICAL DATUM 2016 (MSL).
 2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL COMPLY WITH AUCKLAND COUNCIL GD05 STANDARDS AS A GUIDANCE DOCUMENT WITH FURTHER LOCAL SITE SPECIFIC MEASURES DESCRIBED IN THE ENVIRONMENTAL MANAGEMENT PLAN, AS WELL AS COMPLIANCE WITH QLDC AND ORC EARTHWORKS AND ENVIRONMENTAL MANAGEMENT GUIDELINES.
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 4. A COPY OF THE SEDIMENT CONTROL PLAN SHALL BE AVAILABLE ON SITE DURING WORK HOURS. ALL PERSONNEL INVOLVED IN EARTHWORK ACTIVITIES ON THE SITE (INCLUSIVE OF SUB-CONTRACTORS) SHALL BE FAMILIAR WITH THE PLANS REQUIREMENTS.
 5. ALL "CLEAN WATER" RUNOFF FROM STABILIZED SURFACES INCLUDING CATCHMENT AREAS ABOVE THE SITE SHALL BE DIVERTED AWAY FROM THE EARTHWORK AREAS VIA A STABILIZED SYSTEM TO PREVENT EROSION.
 6. FURTHER SITE & ENVIRONMENTAL CONTROL MEASURES MAY BE REQUIRED BY THE ENGINEER AS THE PROJECT ADVANCES. THESE WILL BE INSTALLED AS AND WHERE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE SITE HAS EFFECTIVE MEASURES OPERATING AT ALL TIMES.
 7. REFER TO THE EMP DOCUMENT FOR CONSTRUCTION SEQUENCING AND DECOMMISSIONING, IN CONJUNCTION WITH THE PROJECTS ENVIRONMENTAL ADVISOR AND SQEP.
 8. ALL SILT FENCES ARE TO BE CO-ORDINATED ONSITE IN CONJUNCTION WITH THE PROJECTS ENVIRONMENTAL ADVISOR/SQEP AND CONTRACTOR AND WILL BE ADDED TO THE AS-BUILT PLANS AND ESCP AS LIVE UPDATES ARE MADE TO THE ESCP/EMP. SILT FENCES ARE PROPOSED TO CONTAIN LARGE STOCKPILES, THE SITES BOUNDARIES WHERE ON SLOPING GRADES, ISOLATE THE SITES WETLANDS AND WATERCHANNELS AND ANY OTHER SENSITIVE AREAS AS REQUIRED AND CO-ORDINATED ONSITE. SILT FENCES MUST NOT BE DISMANTLED WITHOUT CONSULTATION WITH THE PROJECTS ENVIRONMENTAL ADVISOR/SQEP.
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 10. HAUL ROADS ARE TO BE CONFIRMED ONSITE IN CONJUNCTION WITH THE CONTRACTOR, AS A MINIMUM HAUL ROADS ARE TO BE CONSTRUCTION ON FUTURE ROADS WHEREVER POSSIBLE AND ARE TO BE STABILISED SUITABLE FOR THE SITE MACHINERY. SHOULD AND SEDIMENT TRACKING OCCUR EXTERNAL TO SITE ON ROADWAYS CLEANING OF ANY TRACKING IS TO BE UNDERTAKEN IMMEDIATELY. STABILISED ENTRANCES ARE TO BE INSTALLED AT THE MAIN ENTRANCE TO SITE AND THE ENTRY/EXIT POINTS OF EACH EARTHWORKS STAGE AS DIRECTED ONSITE. ENTRANCES TO/FROM EARTHWORKS ZONES THAT CROSS ANY DIVERSION DRAIN MUST BE INSTALLED WITH A TEMPORARY CULVERT TO MAINTAIN CHANNEL FLOWS.
 11. EARTHWORKS STOCKPILE LOCATIONS ARE TO BE CO-ORDINATED ONSITE STAGE BY STAGE BUT ARE TO ALWAYS BE CONTAINED AND STABILISED TO MINIMISE DUST AND POSSIBLE EROSION.
 12. FINAL END EXTENTS OF THE DWD'S ARE TO BE MARKED ONSITE IN CONJUNCTION WITH SQEP



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REFER TO 4163-241 FOR LEGEND



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MCKENZIE & CO.

SIMPLICITY LIVING
LIMITED

SIMPLICITY LIVING
TE PUTAHI LADIES MILE
QUEENSTOWN

EARTHWORKS
EROSION AND SEDIMENT CONTROL
EXTERNAL INFRASTRCTURE PLAN
SHEET 2

PURPOSE OF ISSUE
FOR APPROVAL

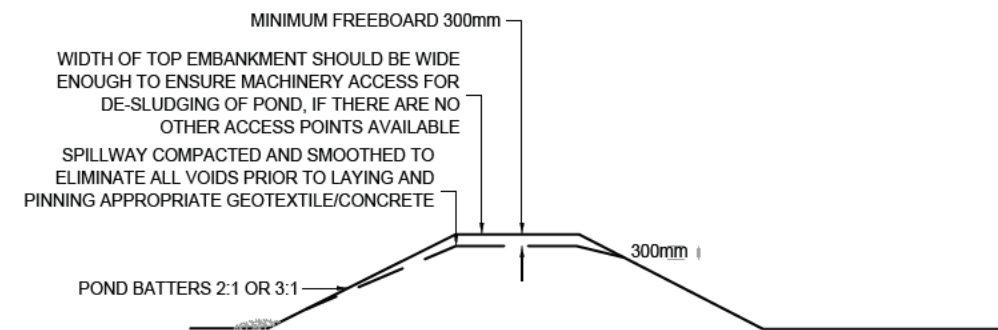
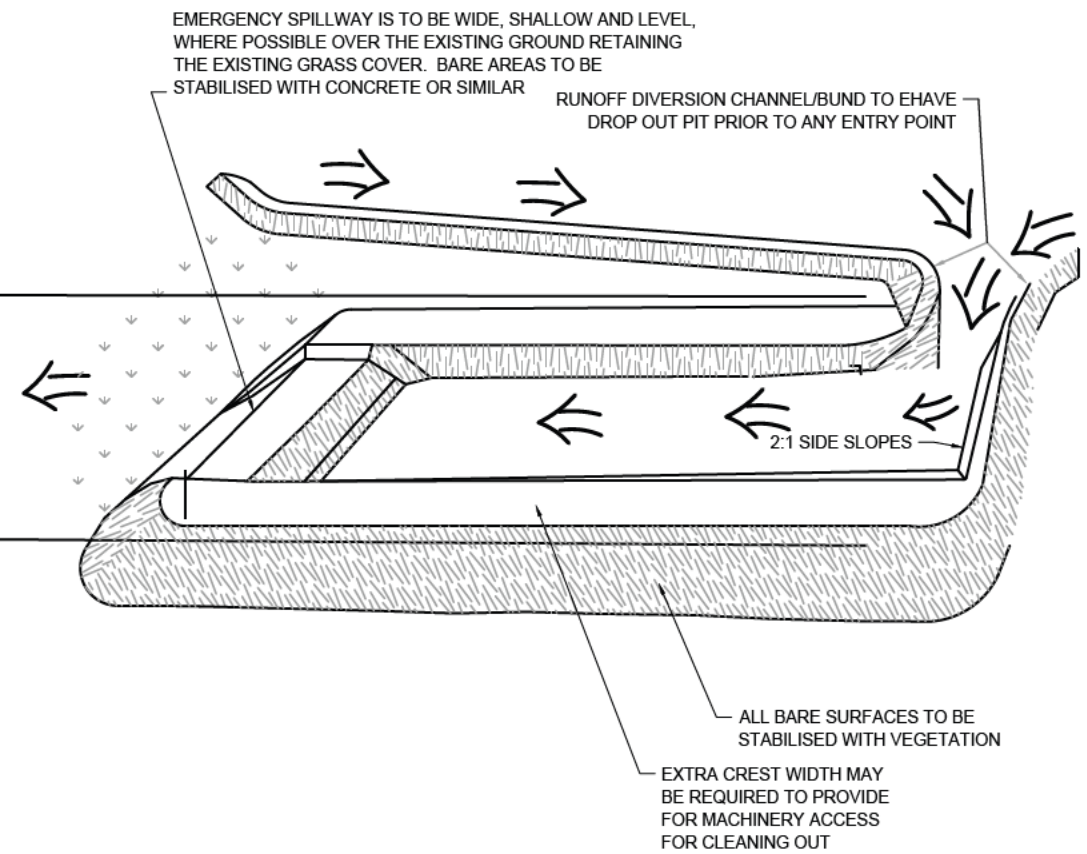
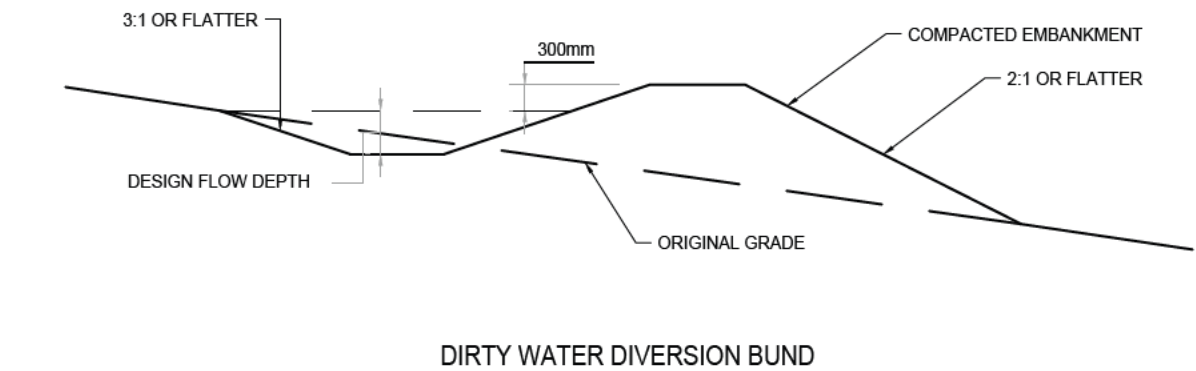
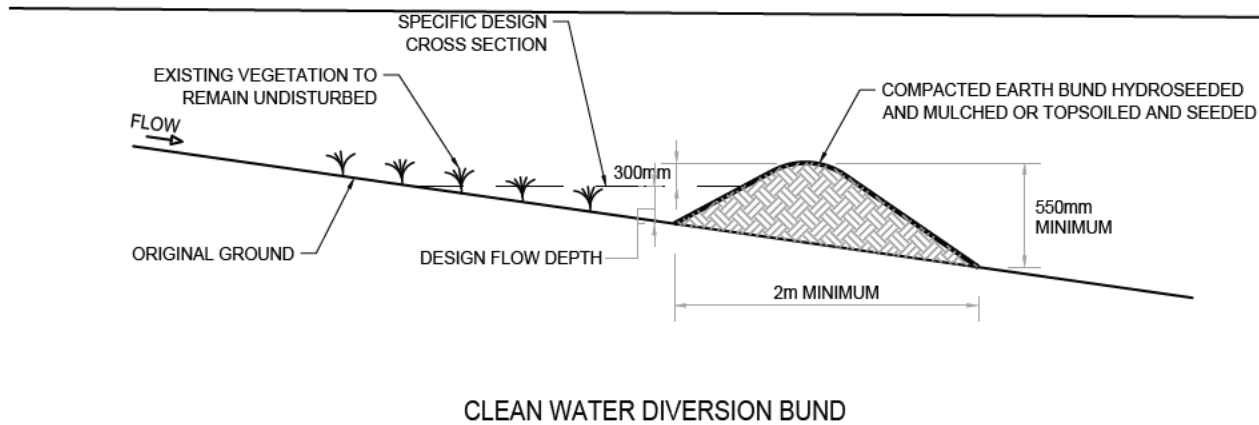
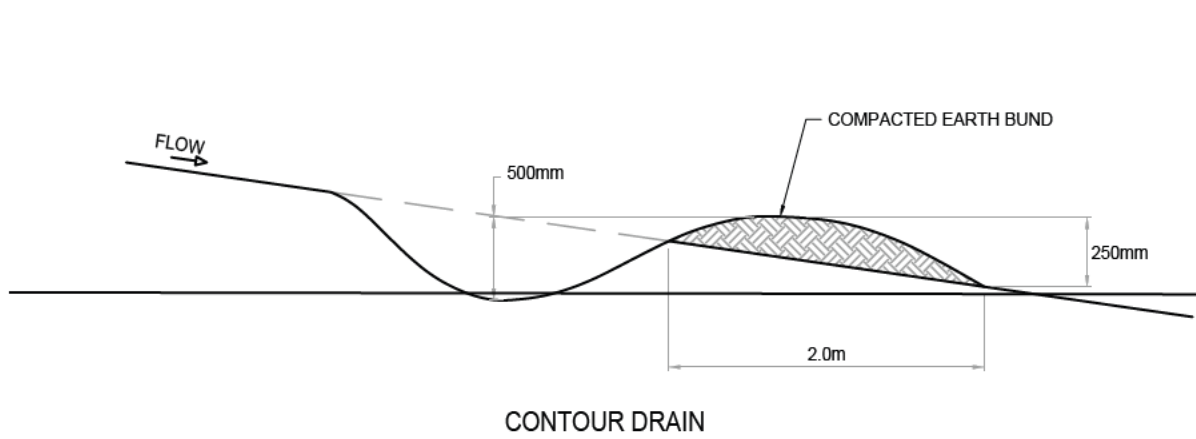
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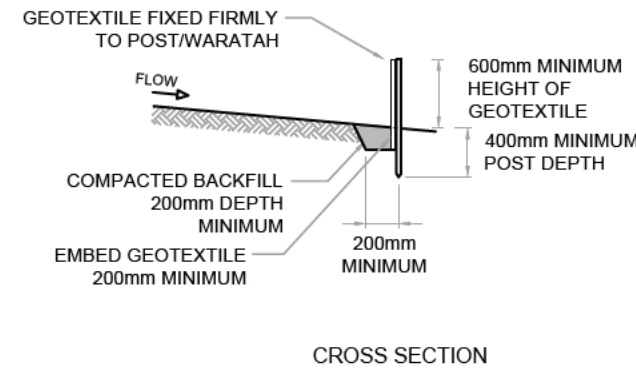
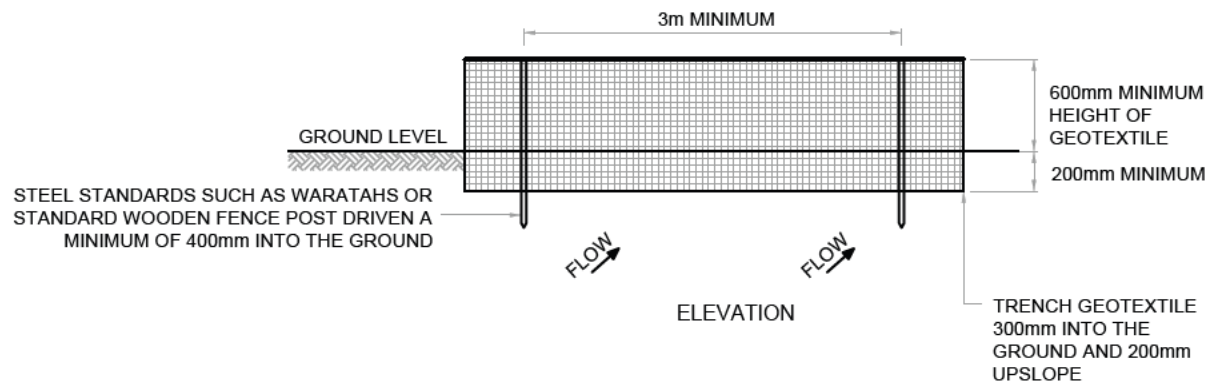
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DRAWING NO:
4163-243

REV:
A

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	SUBSTANTIVE APPLICATION	BS	RS	MS	29/07/26





SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAXIMUM)	SPACING OF RETURNS (m)
flatter than 2%	Unlimited	N/A
2-10%	40	300
10-20%	30	230
20-33%	20	150
33-50%	15	75
>50%	6	40

SILT FENCE CONSTRUCTION

STABILISED CONSTRUCTION ENTRANCE

SPECIFICATIONS: APPLICATION

USE A STABILISED CONSTRUCTION ENTRANCE AT ALL POINTS OF CONSTRUCTION SITE INGRESS AND EGRESS WITH A CONSTRUCTION PLAN LIMITING TRAFFIC TO THESE ENTRANCES ONLY. THEY ARE PARTICULARLY USEFUL ON SMALL CONSTRUCTION SITES BUT CAN BE UTILISED FOR ALL PROJECTS.

DESIGN:

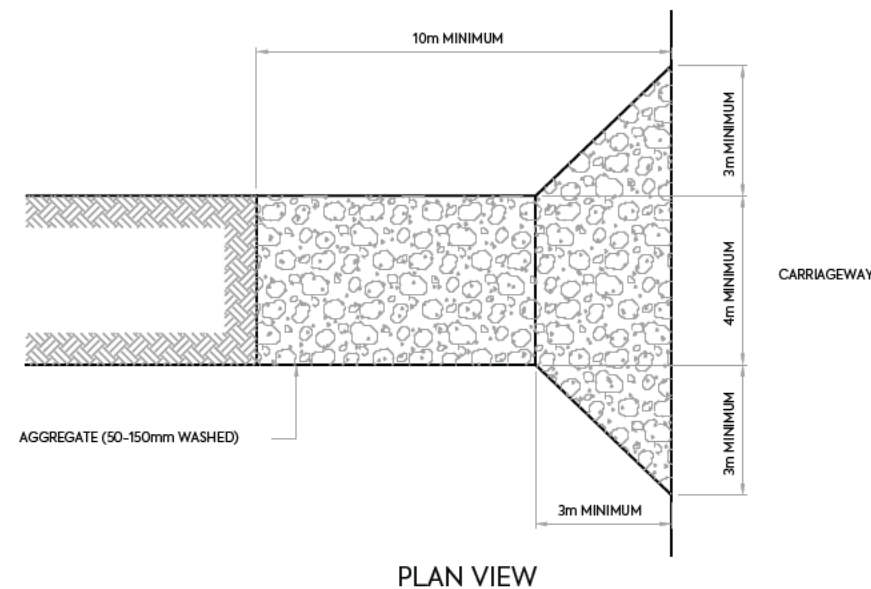
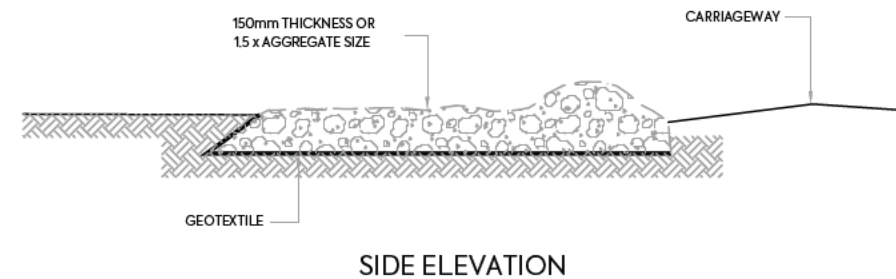
1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER UNSUITABLE MATERIAL AND PROPERLY GRADE IT.
2. LAY WOVEN GEOTEXTILE; PIN DOWN EDGES AND OVERLAP JOINTS.
3. PROVIDE DRAINAGE TO CARRY RUNOFF FROM THE STABILISED CONSTRUCTION ENTRANCE TO A SEDIMENT CONTROL MEASURE.
4. PLACE AGGREGATE TO THE SPECIFICATIONS BELOW AND SMOOTH IT.

STABILISED CONSTRUCTION ENTRANCE AGGREGATE SPECIFICATIONS:

AGGREGATE SIZE	5-150mm WASHED AGGREGATE
THICKNESS	150mm MINIMUM OR 1.5 X AGGREGATE SIZE
LENGTH	10m MINIMUM LENGTH RECOMMENDED
WIDTH	4m MINIMUM

MAINTENANCE

1. MAINTAIN THE STABILISED CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. AFTER EACH RAINFALL INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT FROM THE STABILISED CONSTRUCTION ENTRANCE AND CLEAN OUT AS NECESSARY.
2. WHEN WHEEL WASHING IS ALSO REQUIRED ENSURE THIS IS DONE ON AN AREA STABILISED WITH AGGREGATE WHICH DRAINS TO AN APPROVED SEDIMENT RETENTION FACILITY.



STABILISED CONSTRUCTION ENTRANCE



CLIENT:

SIMPLICITY LIVING

PROJECT:

SIMPLICITY LIVING
TE PUTAHI LADIES MILE
QUEENSTOWN

TITLE:

EARTHWORKS
EROSION AND SEDIMENT CONTROL
STANDARD DETAILS
SHEET 2

PURPOSE OF ISSUE:

FOR APPROVAL

SCALE:
N.T.S
DO NOT SCALE

DRAWING NO:

4163-245

REV:

A

A SUBSTANTIVE APPLICATION BS RS MS 29/07/26

REV DESCRIPTION DRN BY CHK BY APP BY DATE

PLOT DATE 2026-08-04 13:55:43 WWW.MCKENZIEANDCO.CO.NZ THIS DRAWING IS SOLELY FOR USE BY THE CLIENT ON THIS PROJECT ONLY. NO LIABILITY IS ACCEPTED IN ITS USE BY ANY OTHER ENTITY OR FOR ANY OTHER PURPOSE

C:\12DS\DATA\MCKFS01\4163 SIMPLICITY LIVING - 12 LOWER SHOTOVER ROAD_5861\06000. ENGINEERING DESIGN\6500. DRAWINGS\6570. EMP\4163-240.DWG

APPENDIX B – CALCULATIONS



SOAKPIT CALCULATIONS FOR - TEMPORARY SOAKAGE BASIN 1

Project Name:	SLL Ladies Mile ESCP Soakage Basin 1	Testing By:	GEOTAGO
Project No:	4163		TEMPORARY SOAKAGE BASIN 1
Local Authority:	Queenstown Lakes District Council		
Design Storm:	20-YR ARI 24hr	Designed By:	BS Date: 20/07/26 Rev: A
Rainfall Information:	HIRDS NIWA, OR REGIONAL CODE OF PRACTICE	Checked By:	RS Date: 27/07/26 PAGE NO: 1 OF 1

SOAKAGE PIT CALCULATIONS FOR THE 20-YR ARI 24hr DESIGN STORM

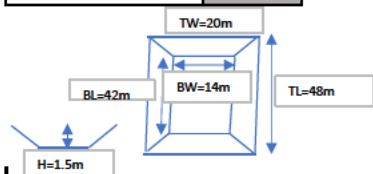
Falling Head Soakage Test Summary Results From GEOTAGO				Catchment Summary	
Test	Test Hole Depth (m)	Average		Area 1	0 m ²
		m ³ /m ² /sec	l/m ² /hr	Surface Description	Fully Roofed
TP202	2.4		1079	Run-Off Coefficient	0.9
TP203 - SK1	2.3		1640	Area 2	0 m ²
TP203 - SK2	2.2		1000	Surface Description	Hardstand
				Run-Off Coefficient	0.85
				Area 3	285100 m ²
				Surface Description	Natural existing surface
				Run-Off Coefficient	0.4
				Total Catchment Area	285100 m ²
Adopted Soakage Rate, Sr	620	L/m ² /hr		Cumulative Run-off	0.40

Partial factor of safety from Table 4-5 = 1.5 (Consequence Level 2) Partial factor of safety from Table 4-6 = 1.8 (Quality Level 3)

Total factor of safety applied = 1.5 x 1.8 = 2.7 (INCLUDED IN ABOVE VALUES)

ADOPTED SOAKAGE BASIN GEOMETRY

Basin Geometry	
Base Length	42 m
Base Width	14 m
Height	1.5 m
Top Length	48.0 2:1 slope
Top Width	20.0 2:1 slope
Base Area	588 m ²
Top Area	960 m ²
Basin Volume	785.7 m ³



20-YR ARI 24hr SOAKAGE PIT DESIGN

Building Code Clause E1 Calculations	
Duration (minutes)	1440
Area (ha)	28.51
Cumulative Run-off Coefficient	0.40
20-YR ARI 24hr (mm/hr)	3.36 mm/hr
RC	9196.19 m ³
Basin Volume	785.74 m ³
Base Area	588.00 m ²
Total Surface Area (conservatively assumed to be equal to base area)	588.00 m ²
Volume Disposed by Soakage	8747.09 m ³
Volume of Storage required in Soak Pit	449.10 m ³
Volume Check	OK
Storage Utilised	57%

24 HOUR DRAINAGE ASSESSMENT:

Adopted soakage rate =	619.83 L/m ² /hr	Drainage over 24 hours =	8747.09 m ³
Total surface area of soakage system =	588.00 m ²	Maximum volume of water stored in system =	785.74 m ³
Therefore maximum loss per hour =	364462.00 L/hr	Therefore, time for system to empty =	0.09 days SIZE OK

SOAKAGE PIT SUMMARY:

The proposed soakage basin has been designed to accommodate the 20-YR ARI 24hr storm event. It is shown that the 20-YR ARI 24hr will require the largest basin and will utilise 57% of the available basin storage.



SOAKPIT CALCULATIONS FOR - TEMPORARY SOAKAGE BASIN STG 1

Project Name:	SLL Ladies Mile ESCP Soakage Basin 1	Testing By:	ENGEO
Project No:	4163		TEMPORARY SOAKAGE BASIN STG 1
Local Authority:	Queenstown Lakes District Council		
Design Storm:	20-YR ARI 24hr	Designed By:	BS Date: 20/07/26 Rev: A
Rainfall Information:	HIRDS NIWA, OR REGIONAL CODE OF PRACTICE	Checked By:	RS Date: 27/07/26 PAGE NO: 1 OF 1

SOAKAGE PIT CALCULATIONS FOR THE 20-YR ARI 24hr DESIGN STORM

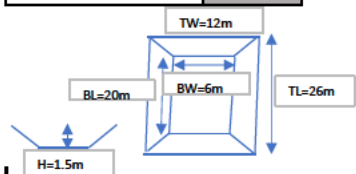
Constant Head Soakage Test Summary Results From ENGEO				Catchment Summary	
Test	Test Hole Depth (m)	Average		Area 1	0 m ²
		m ³ /m ² /sec	l/m ² /hr	Surface Description	Fully Roofed
SP02	2.5		600	Run-Off Coefficient	0.9
SP03	3.1		360	Area 2	0 m ²
SP04	3		390	Surface Description	Hardstand
SP05C	3.7		260	Run-Off Coefficient	0.85
SP06	3		330	Area 3	30700 m ²
SP08	2.6		370	Surface Description	Stripped surface
				Run-Off Coefficient	0.6
				Total Catchment Area	30700 m ²
Adopted Soakage Rate, Sr	450	L/m ² /hr		Cumulative Run-off	0.60

Partial factor of safety from Table 4-5 = 1.0 (Consequence Level 1) Partial factor of safety from Table 4-6 = 1.5 (Quality Level 3)

Total factor of safety applied = 1.0 x 1.5 = 1.5 (Incorporated into above values)

ADOPTED SOAKAGE BASIN GEOMETRY

Basin Geometry	
Base Length	20 m
Base Width	6 m
Height	1.5 m
Top Length	26.0 2:1 slope
Top Width	12.0 2:1 slope
Base Area	120 m ²
Top Area	312 m ²
Basin Volume	224.1 m ³



20-YR ARI 24hr SOAKAGE PIT DESIGN

Building Code Clause E1 Calculations	
Duration (minutes)	1440
Area (ha)	3.07
Cumulative Run-off Coefficient	0.60
20-YR ARI 24hr (mm/hr)	3.36 mm/hr
RC	1485.39 m ³
Basin Volume	224.13 m ³
Base Area	120.00 m ²
Total Surface Area (conservatively assumed to be equal to base area)	120.00 m ²
Volume Disposed by Soakage	1296.00 m ³
Volume of Storage required in Soak Pit	189.39 m ³
Volume Check	OK
Storage Utilised	84%

24 HOUR DRAINAGE ASSESSMENT:

Adopted soakage rate =	450.00 L/m ² /hr	Drainage over 24 hours =	1296.00 m ³
Total surface area of soakage system =	120.00 m ²	Maximum volume of water stored in system =	224.13 m ³
Therefore maximum loss per hour =	54000.00 L/hr	Therefore, time for system to empty =	0.17 days SIZE OK

SOAKAGE PIT SUMMARY:

The proposed soakage basin has been designed to accommodate the 20-YR ARI 24hr storm event. It is shown that the 20-YR ARI 24hr will require the largest basin and will utilise 84% of the available basin storage.



SOAKPIT CALCULATIONS FOR - TEMPORARY SOAKAGE BASIN STG 2

Project Name:	SLL Ladies Mile ESCP Soakage Basin 1	Testing By:	ENGEO
Project No:	4163		TEMPORARY SOAKAGE BASIN STG 2
Local Authority:	Queenstown Lakes District Council		
Design Storm:	20-YR ARI 24hr	Designed By:	BS Date: 20/07/26 Rev: A
Rainfall Information:	HIRDS NIWA, OR REGIONAL CODE OF PRACTICE	Checked By:	RS Date: 27/07/26 PAGE NO: 1 OF 1

SOAKAGE PIT CALCULATIONS FOR THE 20-YR ARI 24hr DESIGN STORM

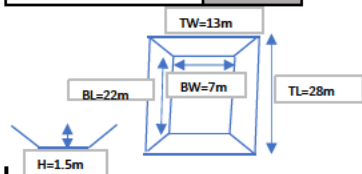
Constant Head Soakage Test Summary Results From ENGEO				Catchment Summary	
Test	Test Hole Depth (m)	Average		Area 1	0 m ²
		m ³ /m ² /sec	l/m ² /hr	Surface Description	Fully Roofed
SPO2	3		390	Run-Off Coefficient	0.9
				Area 2	0 m ²
				Surface Description	Hardstand
				Run-Off Coefficient	0.85
				Area 3	34000 m ²
				Surface Description	Stripped surface
				Run-Off Coefficient	0.6
				Total Catchment Area	34000 m ²
Adopted Soakage Rate, Sr	390	L/m ² /hr		Cumulative Run-off	0.60

Partial factor of safety from Table 4-5 = 1.0 (Consequence Level 1) Partial factor of safety from Table 4-6 = 1.5 (Quality Level 3)

Total factor of safety applied = 1.0 x 1.5 = 1.5 (Incorporated into above value)

ADOPTED SOAKAGE BASIN GEOMETRY

Basin Geometry	
Base Length	22 m
Base Width	7 m
Height	1.5 m
Top Length	28.0 2:1 slope
Top Width	13.0 2:1 slope
Base Area	154 m ²
Top Area	364 m ²
Basin Volume	267.7 m ³



20-YR ARI 24hr SOAKAGE PIT DESIGN

Building Code Clause E1 Calculations	
Duration (minutes)	1440
Area (ha)	3.4
Cumulative Run-off Coefficient	0.60
20-YR ARI 24hr (mm/hr)	3.36 mm/hr
RC	1645.06 m ³
Basin Volume	267.68 m ³
Base Area	154.00 m ²
Total Surface Area (conservatively assumed to be equal to base area)	154.00 m ²
Volume Disposed by Soakage	1441.44 m ³
Volume of Storage required in Soak Pit	203.62 m ³
Volume Check	OK
Storage Utilised	76%

24 HOUR DRAINAGE ASSESSMENT:

Adopted soakage rate =	390.00 L/m ² /hr	Drainage over 24 hours =	1441.44 m ³
Total surface area of soakage system =	154.00 m ²	Maximum volume of water stored in system =	267.68 m ³
Therefore maximum loss per hour =	60060.00 L/hr	Therefore, time for system to empty =	0.19 days SIZE OK

SOAKAGE PIT SUMMARY:

The proposed soakage basin has been designed to accommodate the 20-YR ARI 24hr storm event. It is shown that the 20-YR ARI 24hr will require the largest basin and will utilise 76% of the available basin storage.



SOAKPIT CALCULATIONS FOR - TEMPORARY SOAKAGE BASIN STG 3

Project Name:	SLL Ladies Mile ESCP Soakage Basin Stage 3	Testing By:	Engeo
Project No:	4163		TEMPORARY SOAKAGE BASIN STG 3
Local Authority:	Queenstown Lakes District Council		
Design Storm:	20-YR ARI 24hr	Designed By:	BS Date: 20/07/26 Rev: A
Rainfall Information:	HIRDS NIWA, OR REGIONAL CODE OF PRACTICE	Checked By:	RS Date: 27/07/26 PAGE NO: 1 OF 1

SOAKAGE PIT CALCULATIONS FOR THE 20-YR ARI 24hr DESIGN STORM

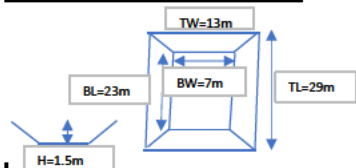
Falling Head Soakage Test Summary Results From Engeo				Catchment Summary	
Test	Test Hole Depth (m)	Average		Area 1	0 m ²
		m ³ /m ² /sec	l/m ² /hr	Surface Description	Fully Roofed
SP03	3.1		360	Run-Off Coefficient	0.9
SP05C	3.7		260	Area 2	0 m ²
SP06	3		330	Surface Description	Hardstand
SP08	2.6		370	Run-Off Coefficient	0.85
				Area 3	31500 m ²
				Surface Description	Stripped surface
				Run-Off Coefficient	0.6
				Total Catchment Area	31500 m ²
Adopted Soakage Rate, Sr	330	L/m ² /hr		Cumulative Run-off	0.60

Partial factor of safety from Table 4-5 = 1.0 (Consequence Level 1) Partial factor of safety from Table 4-6 = 1.5 (Quality Level 3)

Total factor of safety applied = 1.0 x 1.5 = 1.5 (Incorporated into above values)

ADOPTED SOAKAGE BASIN GEOMETRY

Basin Geometry	
Base Length	23 m
Base Width	7 m
Height	1.5 m
Top Length	29.0 2:1 slope
Top Width	13.0 2:1 slope
Base Area	161 m ²
Top Area	377 m ²
Basin Volume	277.8 m ³



20-YR ARI 24hr SOAKAGE PIT DESIGN

Building Code Clause E1 Calculations	
Duration (minutes)	1440
Area (ha)	3.15
Cumulative Run-off Coefficient	0.60
20-YR ARI 24hr (mm/hr)	3.36 mm/hr
RC	1524.10 m ³
Basin Volume	277.80 m ³
Base Area	161.00 m ²
Total Surface Area (conservatively assumed to be equal to base area)	161.00 m ²
Volume Disposed by Soakage	1275.12 m ³
Volume of Storage required in Soak Pit	248.98 m ³
Volume Check	OK
Storage Utilised	89%

24 HOUR DRAINAGE ASSESSMENT:

Adopted soakage rate =	330.00 L/m ² /hr	Drainage over 24 hours =	1275.12 m ³
Total surface area of soakage system =	161.00 m ²	Maximum volume of water stored in system =	277.80 m ³
Therefore maximum loss per hour =	53130.00 L/hr	Therefore, time for system to empty =	0.22 days SIZE OK

SOAKAGE PIT SUMMARY:

The proposed soakage basin has been designed to accommodate the 20-YR ARI 24hr storm event. It is shown that the 20-YR ARI 24hr will require the largest basin and will utilise 89% of the available basin storage.



SOAKPIT CALCULATIONS FOR - TEMPORARY SOAKAGE BASIN STG 4

Project Name:	SLL Ladies Mile ESCP Soakage Basin Stage 4	Testing By:	ENGEO
Project No:	4163		TEMPORARY SOAKAGE BASIN STG 4
Local Authority:	Queenstown Lakes District Council		
Design Storm:	20-YR ARI 24hr	Designed By:	BS Date: 20/07/26 Rev: A
Rainfall Information:	HIRDS NIWA, OR REGIONAL CODE OF PRACTICE	Checked By:	RS Date: 27/07/26 PAGE NO: 1 OF 1

SOAKAGE PIT CALCULATIONS FOR THE 20-YR ARI 24hr DESIGN STORM

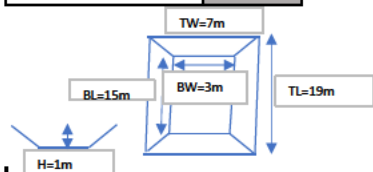
Falling Head Soakage Test Summary Results From ENGEO				Catchment Summary	
Test	Test Hole Depth (m)	Average		Area 1	0 m ²
		m ³ /m ² /sec	l/m ² /hr	Surface Description	Fully Roofed
SPO3	3.1		360	Run-Off Coefficient	0.9
				Area 2	0 m ²
				Surface Description	Hardstand
				Run-Off Coefficient	0.85
				Area 3	9200 m ²
				Surface Description	Stripped surface
				Run-Off Coefficient	0.6
				Total Catchment Area	9200 m ²
Adopted Soakage Rate, Sr	360	L/m ² /hr		Cumulative Run-off	0.60

Partial factor of safety from Table 4-5 = 1.0 (Consequence Level 1) Partial factor of safety from Table 4-6 = 1.5 (Quality Level 3)

Total factor of safety applied = 1.0 x 1.5 = 1.5 (Incorporated into above values)

ADOPTED SOAKAGE BASIN GEOMETRY

Basin Geometry	
Base Length	15 m
Base Width	3 m
Height	1 m
Top Length	19.0 2:1 slope
Top Width	7.0 2:1 slope
Base Area	45 m ²
Top Area	133 m ²
Basin Volume	63.2 m ³



20-YR ARI 24hr SOAKAGE PIT DESIGN

Building Code Clause E1 Calculations	
Duration (minutes)	1440
Area (ha)	0.92
Cumulative Run-off Coefficient	0.60
20-YR ARI 24hr (mm/hr)	3.36 mm/hr
RC	445.13 m ³
Basin Volume	63.15 m ³
Base Area	45.00 m ²
Total Surface Area (conservatively assumed to be equal to base area)	45.00 m ²
Volume Disposed by Soakage	388.80 m ³
Volume of Storage required in Soak Pit	56.33 m ³
Volume Check	OK
Storage Utilised	89%

24 HOUR DRAINAGE ASSESSMENT:

Adopted soakage rate =	360.00 L/m ² /hr	Drainage over 24 hours =	388.80 m ³
Total surface area of soakage system =	45.00 m ²	Maximum volume of water stored in system =	63.15 m ³
Therefore maximum loss per hour =	16200.00 L/hr	Therefore, time for system to empty =	0.16 days SIZE OK

SOAKAGE PIT SUMMARY:

The proposed soakage basin has been designed to accommodate the 20-YR ARI 24hr storm event. It is shown that the 20-YR ARI 24hr will require the largest basin and will utilise 89% of the available basin storage.

APPENDIX C – ENVIRONMENTAL SITE INDUCTION



ENVIRONMENTAL SITE INDUCTION

Simplicity Living – Te Putahi Ladies
Mile, Queenstown

Revision A



MCKENZIE & CO.

DOCUMENT CONTROL RECORD

PROJECT: **Simplicity Living – Te Putahi Ladies Mile, Queenstown**

CLIENT: **Simplicity Living**

PROJECT LOCATION: **12 Lower Shotover Road, Ladies Mile, Queenstown**

FILE PATH: **12dSynergy\4163 Simplicity Living - Ladies Mile_5861\06000. Engineering Design\6300. Reports and Memos\EMP\01 Appendix's**

Revision	Date	Originator	Checker	Approver	Description
A	11/05/2026	Mac Stevenson	Mac Stevenson	James Kitchen	Issue to Council

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- 3. WORKS OVERVIEW5
- 4. KEY ENVIRONMENTAL MEASURES5
- 5. INSPECTIONS AND MAINTENANCE 8
- 6. ENVIRONMENTAL INCIDENTS 9
- 7. RESOURCE CONSENT REQUIREMENTS..... 9
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1. KEY ROLES AND RESPONSIBILITIES

Key roles and responsibilities are as below.

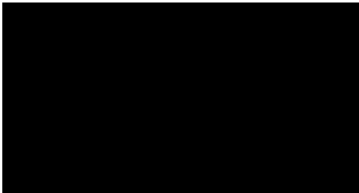
Role	Name	Contact Number	Email
Project Manager	TBC		
Environmental Adviser (SQEP)	Mac Stevenson		
Environmental Adviser (SQEP)	James Kitchen		
Site Supervisor	TBC		
Environmental Representative	TBC		
Regional Council	Otago Regional Council	0800 800033	pollution@orc.govt.nz compliance@orc.govt.nz
District Council	Queenstown Lakes District Council	03 4410499 (QT) 034430024 (WKA)	rcmonitoring@qldc.govt.nz
Emergency	Human discoveries, Serious injury, Fire	111	Phone 111

Table 2: Project Specific Roles

Role and Contact Details	Description
<u>Project Manager</u> TBC	The Project Manager has responsibility for the effective implementation of the EMP and has overall responsibility for the environmental performance of the project. The Project Manager is primarily responsible for: - Ensuring adequate resources are in place to implement the EMP. - Appoint staff/personnel responsible for successful EMP implementation and ensure the staff operates within the standards set by the EMP. - Ensuring Project Managers, Supervisors, Subcontractors and other Employees operate

	within the guidelines of the EMP. • Ensuring that an EMP is prepared and that environmental standard, processes and procedures meet relevant resource consent conditions. • Overseeing the successful implementation, monitoring and review of the EMP. • Providing reporting of environmental incidents to the QLDC and other periodic environmental reports to QLDC as required by The Guidelines. • Ensuring that inspections and audits are carried out in accordance with the relevant EMP. • Restrict or stop work if the EMP is not appropriately implemented and the work undertaken has potential to cause harm to the environment. • Delegate authority of the above responsibilities.
<u>Site Supervisor</u> TBC once a contractor is engaged	The Site Supervisors report directly to the Project Manager and responsible for: • Ensuring they understand and comply with EMP. • Directly responsible of implementation of the EMP • Coordinating and identifying resources required for the implementation of the EMP. • Ensuring that site employees and subcontractors are working in compliance with environmental requirements and work activities are not impacting the environment. • Coordinating actions in emergency situations/rapid stabilisation of site and allocating appropriate resource for these activities. • Restrict or stop any activity on the Project that has the potential to or has caused environmental effects. • Ensuring that adequate instructions and information is provided to Operators which relate to environmental risks onsite.
<u>Environmental</u>	The Environmental Representative is accountable to the

<u>Representative</u> TBC once a contractor is engaged	Project Manager and supports the Project Manager and Site Supervisor in the day-to-day implementation of the EMP. This is a key environmental role for the Project and includes the following responsibilities: • Coordinate the Implementation of the EMP • Ensure installation of environmental controls as per the EMP. • Undertake environmental site inspections of the project including end-of-day inspections of controls. • Oversee the maintenance and improvement of defective environmental controls. • Undertake Environmental Incident reporting. <i>Communication</i> • Keep project leadership informed of environmental performance of the project. • Inform staff of procedures and constraints applicable to managing specific environmental issues. • May be responsible for providing environmental inductions to all staff and sub- Contractors. <i>Complaints and Incidents</i> • Assist the project leadership in attending to Environmental Incidents and Complaints. <i>Familiarity</i> The Environmental Representative will be familiar with: • Environmental aspects of the project. • Environmental Management Plan. • Best practice erosion and sediment control from: - Guidance Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GDOS); and/or, - Similar Regional Council guidelines from throughout New Zealand based on GD05 or internationally recognised best practice.
<u>Environmental</u>	The Environmental Adviser/Consultant will oversee the

<u>Advisor/Consultant (SOEP):</u> Mac Stevenson 	environmental management of the site and provide technical environmental management advice as and when required. The Environmental Adviser/Consultant will deliver the Site Environmental Induction to core staff and check the erosion and sediment controls around the dwelling site to ensure they have been correctly installed and provide QLDC & ORC with As-built confirmation of this where required. The Environmental Adviser/Consultant will undertake monthly monitoring of the site to ensure that the EMP continues to provide adequate environmental management for the Project. The Environmental Adviser/Consultant will also prepare and submit Monthly Environmental Reports to QLDC/ORC.
<u>All Staff</u>	All Project staff have responsibility for their own environmental performance and the impact they have on Project environmental performance. In particular, all staff are required to: • Undertake all activities in accordance with the requirements of the EMP. • Ensure they are aware of the contact person related to environmental matters. • Report to the Site Supervisor or Environmental Representative, any activity that has the potential to or has resulted in an Environmental Incident.
<u>Subcontractors</u>	All persons involved with the Project, including subcontractors/suppliers/consultants and their employees shall comply with relevant environmental requirements. All subcontractor personnel are considered equivalent to staff personnel. This includes all aspects of environmental management and control; their responsibilities will mirror that of staff. All subcontractors and their employees shall participate in the Site Environmental Induction prior to commencing works.

2. SENSITIVE LOCATIONS

Key sensitive environmental receivers nearby include:

- Neighbouring properties
- Streams and wetlands local to the site

These sensitive environmental receivers mean that it is key that all elements of the Environmental Management Plan are followed. Water discharges and dust from the site have the potential to cause significant harm to the receiving environment if not correctly managed.

3. WORKS OVERVIEW

A wider Environmental Management Plan (EMP) has been prepared, which covers many processes in detail, and should be referred to when required. The EMP should always be available on-site.

All construction activity will adhere strictly to the approved hours of work. These are as follows.

- Quiet preparation work is permitted from 6.30 am – 7.30 pm, and non-noisy work is permitted from 6 pm – 8 pm during Monday to Friday.
- Noisy construction work (including earthworks) is only permitted from Monday to Saturday between the hours of 7.30 am to 6.00 pm.
- No noisy construction works are to be undertaken on Sundays or Public Holidays.

4. KEY ENVIRONMENTAL MEASURES

Erosion and Sediment Control

- Implement appropriate controls in accordance with the approved Erosion and Sediment Control Plan (ESCP). Be familiar with this. ESCP is to serve as a live document.
- Monitor the effectiveness of ESCP throughout the project, and make sure things are in working order.
- If there are areas where things can be improved, speak up.
- Execute earthworks in favourable weather conditions where possible and prepare for rain events.
- Redirect clean water runoff from the site, and collect, capture and treat any dirty water from the site.
- Further detail and design requirements of erosion and sediment control devices in the EMP. This includes silt fences, clean water and dirty water bunds, sediment ponds and/or decanting earth bunds, drop-out pits, stabilised entranceways etc.
- Sizing of devices is important and is in the calculations of EMP and/or ESCP.
- Stabilisation and/or revegetation to be done as soon as possible. Erosion and sediment control devices are to remain in place until the site is stabilised (defined as 80%

vegetative cover).

Dust Management

- Dust can be harmful and a nuisance for nearby properties, the public and the receiving environment.
- Contractor is responsible for managing construction to avoid and mitigate the effects of dust
- Winds from the W and N often have the strongest potential for dust transport, especially during the spring and summer months.
- Contractor to be checking weather forecasts for wind, hot and dry days and also acting proactively for these, as well as acting quickly for unforecasted events.
- Stripping and disturbance limited where practical, and stabilisation as soon as possible.
- Reduce vehicle speeds on site.
- Regular watering of site required and/or polymer stabilisation.

Water Quality Management

- The Contractor shall be responsible for the management of the water quality to ensure that there are no adverse environmental effects on the waterbodies into which the site discharges.
- Water discharge criteria are in the EMP and water quality monitoring form.
- Water quality monitoring results are to be recorded by the Contractor's appointed Environmental Representative using the form provided in Appendix F. Results from the monitoring are to be kept on-site and provided to QLDC and ORC on a monthly basis if requested.
- The discharge criteria applies to any flows moving that could enter waterbodies or stormwater networks within or adjacent to the site.
- The timing of the discharge monitoring should occur prior to dewatering sediment retention devices or during rain events when 'controlled' or 'uncontrolled' discharge crosses the boundary of the site.

Noise and Vibration

- The Contractor shall always take reasonable and practicable management measures to avoid and mitigate effects from noise and vibrations associated with construction works. The Contractor shall ensure that all works are undertaken in accordance with the noise limits specified in the Zone Standards and onsite noise management practices to be adhered and must comply with NZS 6803:1999.
- Work within the approved hours.
- Complaints will be dealt with first-hand by the site construction manager and proactively followed up on. There will be a complaint register of record detailing the

investigation and response.

Chemicals and Fuels

- The Contractor holds the responsibility for overseeing the handling of all chemicals and fuels on the site to prevent any detrimental environmental impact, including off-site environmental disturbances.
- There is a list of approved chemicals and fuels, be familiar with this. If this changes notify the Environmental Representative who will notify the SQEP and Council
- Spill kits on site, be aware of these and where they are
- If anyone on site encounters a spill, they are to find out where it's coming from and check if it can be stopped safely. The Site Supervisor is to be notified immediately. Safeguard waterways by putting earth, sand, or absorbent material around stormwater entry points and along water bodies to prevent pollution until the spill kit is found. Utilize the spill kits to control and clean up the spill. Remove all contaminated soil to an approved facility. As soon as the spill kit equipment is used, it is to be replaced immediately with a new one.

Waste Management

- The Contractor shall ensure that all wastes have been removed from the site. No waste shall be burnt onsite.
- The Contractor shall provide bins in common areas at all times. Bins shall be fitted with lids and serviced before being filled. During construction, the Contractor shall maintain the site free of litter and ensure that no litter leaves the boundary of the site or enters any waterway within the site.
- Vegetation waste from clearing and striping, that is free of noxious plants, may be used in conjunction with soil erosion and sediment measures such as brush matting or mulching.

Vegetation Management

- The Contractor shall adhere to any limit of clearing specified within relevant resource consents.
- The Contractor always takes reasonable and practicable management measures to avoid disturbance to vegetation or ground surface outside the limits of clearing and to minimise disturbance to vegetation or ground surface outside of the limits of clearing.
- The Contractor shall install identification markers along the limits of clearing prior to commencing vegetation clearing and ground disturbance.

Historic and Cultural Heritage

- The Contractor is responsible for appropriate management and protection of Cultural Heritage within and adjacent to the site to avoid any damage or adverse effects to Cultural Heritage from construction works.
- The works shall be undertaken, and the protection of the Cultural Heritages is to be

managed in accordance with the guidelines set by Heritage New Zealand Pouhere Tāonga Act, 2014 (HNZPTA).

- If any artefacts are found works must stop within 20 meters of the discovery and the site manager notified immediately.
- Any discoveries are to be notified to site supervisor and appropriate actions outlined in the Resource Consent Conditions and HNZPTA must be followed.

5. INSPECTIONS AND MAINTENANCE

Daily inspections (by Environmental Representative)

- Quick walkover each day to ensure no new issues have arisen, record in works diary.

Weekly inspections (by Environmental Representative)

- More comprehensive. Verify everything is in place in EMP, check for any environmental effects and identify maintenance requirements. Record in a standard form.

Significant Rain Event Inspection (by Environmental Representative)

- Check pre and post significant rain events to make sure everything is in place and operating correctly. These are also recorded in standard form. A 'Significant Rain Event' is defined as a rain event at an intensity of 20mm or more within a 12-hour period.

Monthly inspections

- Done by the SQEP and sent to QLDC and ORC

Regular Inspection Requirements for ESCP devices (excluding rain events)

Device	Frequency
Clean and Dirty Water Bunds	Weekly
Decanting Earth Bund	Daily
Erosion and Sediment Control Pond	Daily
Stabilised Entrance Way	Weekly
Silt and Super Silt Fences	Weekly
Drop Out Pits and Check Dams	Weekly

Refer EMP for further details.

6. ENVIRONMENTAL INCIDENTS

If an environmental incident occurs, the Contractor shall immediately undertake identified remedial actions to mitigate adverse environmental effects.

The Site Supervisor is to be immediately notified, who will then notify QLDC and ORC within 12 hours of the incident occurring.

Once the immediate risk from the Environmental Incident is alleviated, the Project Manager (on behalf of Consent Holder) shall investigate the cause of the breach and/or adverse environmental effects, then identify and implement corrective actions as soon as practicable. The Environmental Advisor and SQEP will likely have input in this process.

The Project Manager shall provide an Environmental Incident Report to QLDC and ORC within 10 working days of the incident occurring.

7. RESOURCE CONSENT REQUIREMENTS

The contractor is responsible for ensuring the site complies with all earthworks consent conditions. Refer to the approved Resource Consent decision.

8. SITE INDUCTION REGISTER

[illegible]

APPENDIX D – ENVIRONMENTAL INCIDENT FORM

Environmental Incident Report Form

Address	
ORC Consent Number (if applicable):	RM
District or City Council Consent Number (if applicable):	RM
Brief Project/Site Description	

Instructions

This form may be used for all environmental incidents that result in contaminants (including sediment, odour, smoke or dust) either 1) leaving the site's boundary and/or 2) entering a waterbody (groundwater or surface water) on site and/or 3) onto or into land or water (in a manner not provided for in the resource consent(s)). Please be factual and do not make assumptions.

Once completed, submit to the **Compliance team** at Otago Regional Council at pollution@orc.govt.nz

Call the Compliance team and the pollution hotline **immediately** on 0800 800 033 for any incidents that cannot be brought under control, or for discharges of sediment, oil or chemicals to a waterbody, race or drain.

Incident Details					
Incident Date and Time	Date / /	Time :	am ☐	pm ☐	Duration hr m
Response Date and Time	Date / /	Time :	am ☐	pm ☐	Duration hr m
Description of Incident					
Provide a factual description of what happened, how it happened, factors leading to event & response. Sketches/diagrams/photos may be referred to and appended to this report.					
EXACT location of the incident/discharge Include address, landmarks, features, nearest cross street, etc. Maps, sketches and plans can be attached to the incident report if appropriate.					
Material(s) discharged/released	☐ Oil/Fuel	☐ Sediment	☐ Dust	☐ Cement	
	☐ Waste	☐ Effluent	☐ Odour	☐ Noise	
	☐ Other:				

Estimated distance to nearest waterbody such as a river, stream, wetland or lake (include stormwater, dry watercourses, drains and races)		m km
Estimated distance to nearest private property (i.e. property boundary)		m km
Activity being undertaken when the incident occurred (e.g. refueling)		
Was material discharged/released off site? If yes, where to?		
Quantity or volume of material discharged beyond the boundary or causing an incident within the site (provide an estimate if quantity unknown)		
Cause of the discharge/release. Was it controlled or uncontrolled?		
Who identified the incident?	☐ Contractor ☐ Council staff ☐ Community ☐ Other (please specify)	
What immediate actions/control measures were taken to rectify or contain the incident?		
What corrective actions will be taken to prevent similar incidents recurring? (e.g. procedural changes, staff training, increase in monitoring, improved storage).		

Advice Note:

By submitting this form, please note that:

1. The form will become official information and be subject to the Local Government Official Information and Meetings Act 1987; and
2. ORC may charge the consent holder for carrying out its resource consent functions under the Resource Management Act 1991; and
3. The incident may give rise to an offence under the Resource Management Act 1991, which may result in enforcement action.

Has the Otago Regional Council been notified?	☐ Yes	☐ No
Has the District/City Council been notified?	☐ Yes	☐ No

Approvals:

Environmental Representative/Person making report

Name

Signature

Organisation

Date

/ /

Mobile phone number

Email address

Site Supervisor

Name

Signature

Organisation

Date

/ /

Mobile phone number

Email address



Photographs (please provide description for each photo)

Project Address:	QLDC Consent Number (if applicable): RM BC123456
Brief Project Description:	

Instructions

Complete this form for all environmental incident that cause contaminants (including sediment) or environmental nuisance to leave the site. Please be succinct, stick to known facts and do not make assumptions.

Once completed submit to the Regulatory team at Queenstown Lakes District Council at RCMonitoring@qldc.govt.nz Call the Regulatory team immediately on [03 441 0499](tel:034410499) for any serious or ongoing incidents that cannot be brought under control.

Incident details

Date and Time	Date: XX/XX/XX Time: XX:XX am ☐ pm ☐
Description Provide a brief and factual description of what happened during the incident, include relevant details such as: > The estimated distance to the nearest waterway (include storm water and dry courses) > The estimated distance to the nearest sensitive receiver > The activity being undertaken when the incident occurred Sketches/diagrams/photos may be reference and appended to this report to aid in the description of the incident.	
EXACT location of the incident Include address, landmarks, features, nearest cross street, etc. Maps and plans can be attached to the incident report if appropriate	
Quantity or volume of material escaped or causing incident (provide and estimate if quantity unknown)	
Who identified the incident?	☐ Contractor ☐ Council ☐ Community ☐ Other

What immediate actions/control measures were taken to rectify or contain the incident?

What initial corrective action will be taken to prevent similar incidents recurring in the near future?

Has the Otago Regional Council been notified? ☐ Yes ☐ No

Approvals:

Environmental Representative/Person making report

Name..... Signature.....

Organisation..... Date.....

Mobile phone number.....

Site Supervisor

Name..... Signature.....

Organisation..... Date.....

Mobile phone number.....

APPENDIX E – INSPECTION CHECKLISTS

Weekly Environmental Inspection Form

Note: Also to be used pre/post significant rain events

Site and Address:	
Date and Time:	
Environmental Representative:	
Site Supervisor:	
Weather:	

Item	Response (Y, N or N/A)	Comments and Observations	Action to be taken (and timeframes)
Always Checked			
Is EMP on-site? Provide details of where.			
Have all staff been inducted?			
Have there been any dust, noise, water quality or any other complaints in past week? If so have these been reported?			
Any visual evidence of sediment from construction site leaving the site controls?			
Are daily inspections recorded in works diary?			
Vehicle crossing present and in good condition?			
Clean water bunds present and in good condition?			
Dirty water bunds present and in good condition?			
Silt fences present and in good condition?			
Are there any bunds requiring hydroseeding or mulching?			
Decanting Earth Bunds present and in good condition?			
Is complaints and non-conformance register up to date?			
Dust suppression in place?			

Item	Response (Y, N or N/A)	Comments and Observations	Action to be taken (and timeframes)
Are all stockpiles more than 30m away from waterbodies/watercourse?			
Are chemicals and fuels stored in accordance with plan?			
Are chemical spill kits on site, clearly labeled and any used material replaced?			
Is any flocculant being used? And if so is pH monitored, and flocculant safely applied and stored.			
Are completed areas being progressively stabilised?			
If any discharge of site observed			
Water quality monitoring undertaken and form completed (as per Appendix F form)			
Any other items to note/check?			

Signature and Name of Inspector:

APPENDIX F – WATER QUALITY CRITERIA

Water Quality Monitoring Form

[illegible]

APPENDIX G – NON-CONFORMANCE AND COMPLAINTS REGISTER

Complaints Register

[illegible]

Non-Conformance Register

[illegible]

**APPENDIX H –SPECIFIC CONSENT CONDITIONS
(UPDATED ONCE RECEIVED)**