Belmont Quarry Development – Part B

Substantive Application
Appendix B.4.1 – Erosion and Sediment Control Assessment Report – Part 1
Winstone Aggregates

16 August 2026

EROSION AND SEDIMENT CONTROL ASSESSMENT REPORT

Belmont Quarry – Substantive Application under the Fast Track Approvals Act 2025

Prepared for

Winstone Aggregates

Prepared by

MPD Environmental Limited

Date

August 2026

Project: **BELMONT QUARRY**

Prepared for: **Winstone Aggregates**
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Revision Details

Revision	Details
A	Draft for planner and Winstone review
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1	Document finalised
2	Comments addressed from Greater Wellington Regional Council technical expert.
3	Comments addressed from Winstone Aggregates legal team
4	Final comments addressed relating to winter works and rainfall triggers

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Contents

1 Report Release and Reliance

This report has been prepared by MPD Environmental Limited on the instructions of our client, in accordance with the agreed scope of work. If it is intended to support an application under the Fast-track Approvals Act 2024, it may be relied upon by the Expert Panel and relevant administering agencies for the purposes of assessing the application.

While MPD Environmental Limited has exercised due care in preparing this report, it does not accept liability for any use of the report beyond its intended purpose. Where information has been supplied by the Client or obtained from external sources, it has been assumed to be accurate unless otherwise stated.

2 Introduction

Winstone Aggregates (**"Winstone"**), a division of Fletcher Concrete and Infrastructure Limited, has engaged **MPD Environmental Limited** to assess the potential erosion and sediment control effects of the proposed new overburden disposal area (**"OBDA"**) for Belmont Quarry. Winstone is seeking approval to the project under the Fast-Track Approvals Act 2024 (FTAA).

3 Site Description

Belmont Quarry is located immediately adjacent to Belmont Regional Park, in the western hills of Lower Hutt, Wellington Region (Figure 1). The landscape is defined by steep ridgelines, rolling slopes, and incised gullies. Vegetation across the area reflects a mix of land-use histories, including regenerating native bush, exotic shrubland, grazed pasture, and previously modified slopes.

Figure 1: Belmont Quarry location (Source: Google Earth)

The quarry operations involve the extraction of rock by drill and blast, followed by digging and carting using heavy machinery to processing facilities. The extraction area is a designed cut face with a bench-and-batter configuration to ensure safety, stability, and operational efficiency. While the upper quarry faces are partially visible from urban locations such as Taita and Pomare, the majority of the site is visually screened by topography and vegetation. The Belmont Quarry is accessed via Hebden Crescent off the State Highway 2 and State Highway 58.

The proposed OBDA site is immediately north of the current operational area. The substantive application is being progressed on the basis that a land exchange will occur between Winstone and the Department of Conservation, as the owner of the proposed OBDA site. It is characterised by moderate to steep terrain, with surface flow paths following natural contours into intermittent and ephemeral watercourses. Vegetation cover includes mānuka and kānuka scrub, pastoral grasses, gorse, and regenerating native species. This land was originally a working farm that was acquired by DOC in 1989, having been taken by Hutt City Council under the Public Works Act for housing, and later deemed surplus to requirements. Ecological assessments confirm the presence of indigenous flora and fauna within the wider park, including lizard habitat and native bird species such as tūī, korimako, and riroriro. The OBDA footprint avoids the most sensitive habitats. Targeted relocation of native lizards will occur prior to any vegetation clearance.

Hydrologically, the site is located within the Te Awa Kairangi/Hutt River catchment. The OBDA will be developed and operated using a staged stormwater management framework that differentiates between construction, operational, and post-rehabilitation phases.

During construction and active overburden placement, each stage of the OBDA will operate as a self-contained stormwater catchment, with runoff directed internally to purpose-built sediment retention and fines containment facilities. As individual stages reach their final design profile, external faces will be progressively topsoiled, stabilised, and revegetated. Once stabilised, clean surface water runoff from rehabilitated slopes may be discharged in a controlled manner to downstream watercourses within the Te Awa Kairangi / Hutt River catchment, in accordance with approved erosion and sediment control measures and applicable regional consent conditions. Subsoil drainage will be installed beneath overburden fill to manage groundwater and pore water pressures. This is to maintain all existing subsurface preferential flow paths. These drains will discharge at controlled locations at the toe of the OBDA and will integrate with the staged surface water management system.

Belmont Regional Park offers a wide range of recreational activities, including walking, mountain biking, and horse riding. The wider Belmont hills and associated catchments form part of the ancestral landscape of Taranaki Whānui and Ngāti Toa Rangatira. Cultural values are acknowledged in the project design.

4 Purpose

This Erosion and Sediment Control Assessment Report (**'ESCAR'**) has been prepared to accompany the substantive application for approvals under the Fast track Approvals Act 2024 (**'FTAA'**). The purpose of this report is to support the substantive application. It incorporates a Draft Erosion and Sediment Control Plan (**'ESCP'**) that identifies the erosion and sediment control (**'ESC'**) measures proposed to manage site runoff associated with the earthworks required for the development of the OBDA and its ongoing operation. It then assesses the suitability of those measures to minimise the potential discharge of sediment to an acceptable level.

The ESCAR and Draft ESCP have been prepared in accordance with design principles of the **Erosion and Sediment Control Guideline for Land Disturbing Activities in the Wellington Region (2021) ('The Guidelines').** This document has been adapted for the Wellington Region from Auckland Council's GD05 document.

The technical report and the Draft ESCP address the following earthwork activities:

- Establishment of the erosion and sediment controls;
- Site establishment and enabling works; and
- General earthworks and OBDA activities

Additionally, the Draft ESCP will address the following matters:

- Overall staging details of earthworks activities and expected open areas during each stage.
- Specific erosion and sediment control measures which are to be utilised during general cut to fill earthworks for each stage (location dimensions, capacity), including works in and near wetlands, in accordance with The Guidelines;
- Supporting calculations and design drawings as necessary;
- Catchment boundaries and contour information as necessary;
- Details relating to the management of exposed areas (e.g. grassing, mulching, aggregate); and
- Monitoring and maintenance requirements.

This report should be read together with the other technical assessments prepared in support of the substantive application for approvals.

5 Basis of Assessment

Our assessment is based on site visits, desktop exercises, aerial surveys, operation and design information provided by the project team, and the application plans.

Our calculations and assessments comply with the following standards and guidance where relevant:

- Greater Wellington Regional Council Guideline Document: Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region (2021).

6 Author and Code of Conduct Statement

The author of this report, Megan Dredge, is a professional ESC Consultant and Director of MPD Environmental Limited. Megan has 10 years' experience in the ESC industry, is a Certified Environmental Practitioner (CEnVP #1704) and holds a Bachelor of Science and Technology. Megan and her team have been recognised in the ESC industry on several occasions, most recently receiving the International Erosion Control Association Global Environmental Excellence Award in 2025.

The respective curriculum vitae for Megan Dredge is included in Appendix F.

This report has been prepared and reviewed in accordance with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2023. Other than where it is stated that reliance is placed on the advice of another person, the author(s) confirm that the issues addressed in this report are within their area of expertise. The author(s) have not omitted consideration of any material facts known to them that might alter or detract from the opinions expressed.

7 Project Description

Belmont Quarry is a principal source of aggregates for the Wellington region. The quarry is essential for meeting ongoing demand for roading, housing, and development materials. Continued access to aggregate resources requires controlled removal and placement of overburden.

As the Quarry has progressed, available space within the current overburden disposal areas, particularly the Cottle Block has steadily reached capacity. The only remaining capacity at Cottle Block is the fines disposal and this is expected to last 7-10 years.

Without a new overburden disposal solution in place, the quarry will reach a critical constraint that will prevent further extraction, effectively halting operation and impacting the region's construction supply chain.

To ensure a long-term solution for overburden management, the proposed development of a new OBDA adjacent to the existing quarry footprint (Figure 2) represents a strategic response to this challenge. The selected OBDA location is situated within the Belmont Regional Park, adjacent to the existing operational area. This location has been identified as the most suitable due to its operational, environmental and logistical advantages. Its adjacency to the quarry operation allows for a direct haul route, minimising transport distances, fuel use and emissions, while also avoiding complex land tenure issues that would be associated with a more remote disposal option.

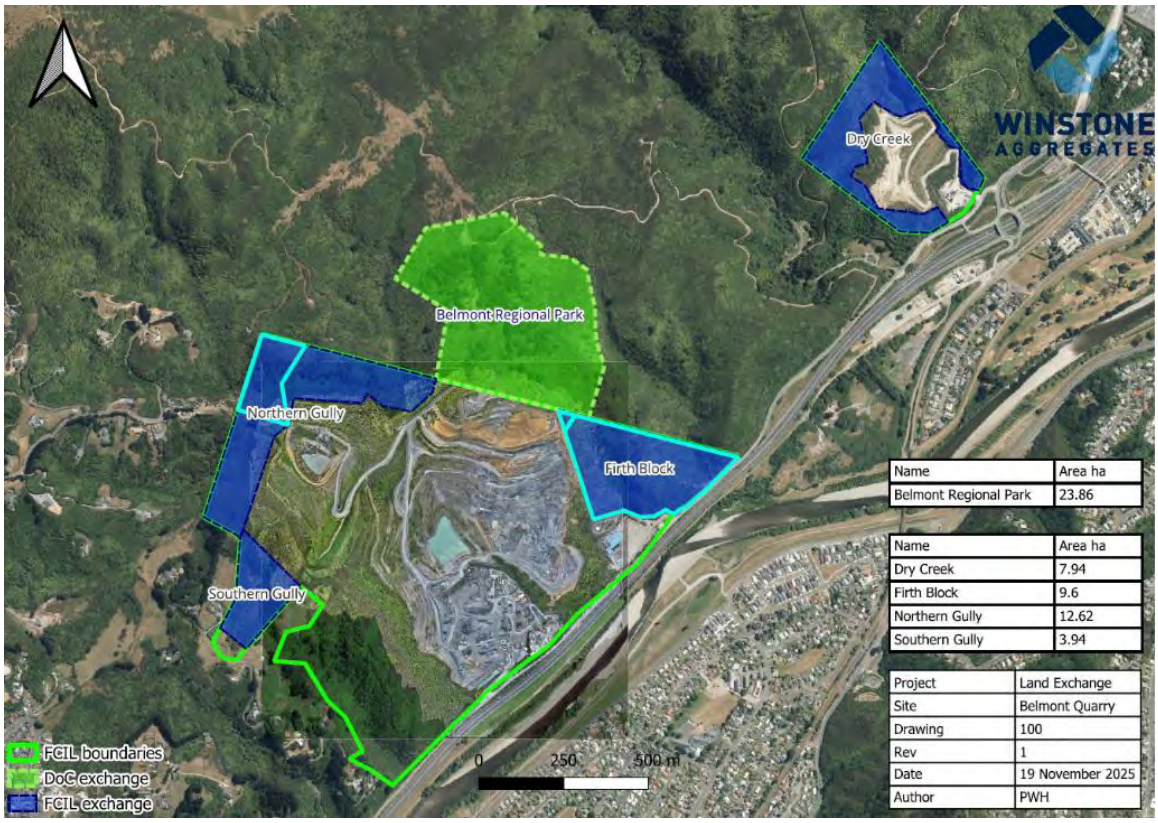


Figure 2: Land exchange parcels

Enabling this development requires a land exchange between Winstone Aggregates and the Department of Conservation. A Land Exchange application was lodged with the Department of Conservation in December 2025. The proposed OBDA will accommodate approximately 2.8 million cubic metres of overburden, including topsoil, subsoil, weathered greywacke, and process & pond fines over a 35-year operational period. The OBDA has been designed to function as a permanent engineered landform. It will be established and constructed across 10 stages, with supporting haulage infrastructure, drainage, fines containment, and progressive rehabilitation.

7.1 Current Operations at Belmont Quarry

The purpose of the mineral extraction operations at Belmont is to extract rock from the ground and process it to produce building, construction and roading aggregates. The transformation of rock from the ground into aggregate products firstly requires the removal of vegetation, then the stripping of overburden (soils and low-quality material) overlying the rock resource. The next step is to loosen and fragment the rock from the ground with the use of explosives and/or heavy machinery. The rock is then excavated by heavy machinery and either stockpiled or transported to the processing plant for further crushing and screening into various sizes and grades for sale.

Belmont Quarry operates as a vertically integrated aggregate facility comprising the following key components:

- **Quarry Pit:** Active extraction areas producing greywacke aggregate.
- **Processing Plants:** Three-stage crushing and screening circuit feeding multiple product stockpiles via fixed and mobile plant.
- **Haul Roads and Internal Accessways:** Connecting extraction zones with the processing area, product load-out and OBDA areas.
- **Water Management Infrastructure:** Sediment or fines retention ponds, surface water channels and water take bores.
- **Administrative and Maintenance Facilities:** Weighbridge, office buildings, workshops, and equipment service areas.
- **Power and Utilities:** 11 kV electricity supply, diesel fuel storage, and water pipelines.
- **Managed fill / cleanfill operations:** Existing consents allow the placement of fines in the Cottle OBDA.

The quarry operates under a comprehensive environmental management framework and is supported by an extensive monitoring network.

7.2 Nature of Overburden

The overburden material at the Belmont Quarry typically includes soil, and subsoil, weathered or decomposed rock and other non-suitable material, including process fines and silts from settlement ponds. Historically, this material has been placed within the Cottle Block, under existing consent WGN240139, which includes conditions for erosion control and rehabilitation.

7.3 Overburden Management Summary

The placement of overburden will take place over a number of campaigns (earthworks seasons) across several years. It is useful to think of the works in ten stages for the purposes of understanding the proposal. These stages generally correspond to a series of key milestones that would be achieved to ensure that the facility can continue to operate and provide ongoing storage capacity in conjunction with the quarry production. The development sequence has been designed to keep within discrete water sub-catchments, specifically stages 1, 2, 4 and 5.

While the OBDA is described in ten indicative stages for assessment purposes, the timing and duration of individual stages will respond to quarry production requirements and market demand. Regardless of timing, each stage will be developed as a discrete and stable unit, with progressive rehabilitation undertaken as soon as final design levels are achieved. Temporary stabilisation will also occur prior to final design being achieved. This approach limits the extent of exposed surfaces at any one time and enables areas adjoining Belmont Regional Park to be rehabilitated early in the programme.

The other stages are constructed on top of previously constructed stages. As an overall strategy, the OBDA is constructed to its final landform in the north before developing towards the south, with the final landform being 230m RL. The aim of this is to complete construction works and vegetation adjacent to the regional park first. After this is the majority of OBDA construction will be shielded from the regional park by the earlier stages and the proposed northern bund.

Overburden is stripped from the quarry to access the rock resource below and will be placed in accordance with the OBDA's staged layout. While the staging is sequenced, the timing of the stages will depend on several factors, including market demand for the resource and the depth of overburden to be stripped to access the rock in the

quarried area. This may occur in small campaigns that run annually, taking 1-3 years to complete a stage, or less frequently, for example, in larger campaigns every 3-5 years. The stages and areas for placement will be either progressively stabilised or entirely rehabilitated (depending on whether they have reached their final form). For much of the year, outside of campaign periods, fines disposal will occur, along with any required maintenance works.

Earthworks associated with overburden placement are generally confined to the recognised earthworks season (approximately October to May) to minimise erosion and sediment risk. Limited out-of-season works may be required to respond to any secondary operational or unplanned circumstances. In such cases, the total volume of overburden placed outside the normal earthworks season will not exceed 50,000 cubic metres per calendar year, and appropriate erosion and sediment controls will be implemented in accordance with the approved ESCP.

The overburden material is transported from the active extraction zones to the north via a dedicated internal haul road. During peak earthworks campaigns, internal haulage activity is anticipated to generate up to approximately 25 one-way truck movements per hour. Actual movement rates will vary depending on campaign size, haul distances, and material type. All haulage associated with OBDA development will be contained within the quarry and land exchange area, with no interaction with the public road network. Once delivered to the OBDA, the material is placed in accordance with the indicative staging sequence that aligns with the broader quarry development plan. The overburden material is deposited in controlled lifts, with each lift compacted as required to achieve the necessary geotechnical parameters. The placement is supervised to ensure that materials are appropriately segregated based on their physical properties. The coarse, more stable materials may be used to construction perimeter bunds and embankments, while the finer more moisture-sensitive materials are placed in contained areas with appropriate drainage and capping.

Disposal of fines will continue at the Cottle Block fines containment cell during stages 0 & 1 while a new fines containment cell is being constructed within Stage 1. Consents related to the operation of Cottle fines ponds do not form part of this application and will continue under existing consents.

Rehabilitation of the outer faces will be carried out progressively and commence once final heights are reached in each stage.

The OBDA has been designed with an indicative placement volume of approximately 2.8 million cubic metres, with detailed staging and fill rates to be confirmed through detailed design.

7.4 Overburden Processes

The extraction of aggregate involves using heavy machinery to remove the overburden, which is then transported and placed in the OBDA. The operation typically follows the sequence outlined below:

Vegetation Clearance

Vegetation within the area designated for aggregate extraction will be removed using excavators and trucks. The removal of vegetation, topsoil and other unwanted surface materials will occur progressively throughout the life of the quarry, and only when each stage of extraction becomes active.

Vegetation clearance within the proposed OBDA will also be carried out in a controlled and progressive manner. Clearing will take place only when land is required for enabling works (including ESCs) site access or overburden placement. Most vegetation in these areas will be mulched in situ, reducing the risk of erosion prior to ESCs being installed.

Clearance activities will be completed in substages and limited to the areas needed for the next 6-12 months of works. This staged approach reduces the amount of exposed ground at any one time and allows land that is not immediately required to retain its existing ecological values until it is needed for the next stage of development.

In locations where machinery access is limited, vegetation will be cleared by hand to avoid unnecessary disturbance.

Topsoil Stripping and Stockpiling

Topsoil and organic materials will be stripped, transported, and removed using excavators and trucks after the installation of ESC devices has been completed. The initial topsoil stripped from the site will be used to form the cleanwater and dirty water diversion bunds. The remaining topsoil material will be stockpiled within a designated topsoil stockpile area (see Appendix A).

Removal of overburden within Belmont Quarry

Overburden will be stripped using excavators and transported by rigid dump trucks to the OBDA. Materials overlying the rock typically have little commercial value but have to be removed to facilitate extraction of the aggregate rock resource. The methods and equipment employed are similar to those used for soil/subsoil excavation.

The on-site effects of overburden removal include effects on water and soil resources and air quality, all of which are addressed in the context of the consents and permits required from the Greater Wellington Regional Council.

Fines Disposal

Process fines are very fine particles (silt, clay, ultra-fine sand) generated during aggregate washing and processing. They originate from rock breakdown during crushing and screening and are carried in water streams to sediment retention ponds (SRPs) or the water treatment facility on site. As these fines remain suspended in water, they must be managed to prevent discharge into waterways.

There are a number of methods that can be used to manage process fines. Currently, fines are dug and carted from the SRP or water treatment plant to a containment cell within the Cottle OBDA using an excavator and trucks. This is undertaken daily, and the process takes 2 – 10 hours. As the fines disposal cell is incorporated into the OBDA design, this process will continue for the foreseeable future until the proposed OBDA is ready to accept fines disposal.

The effective management of fines will minimise impacts on water quality. This also includes raising decants while removing fines from erosion and sediment control structures and only undertaking fines removal during low water retention in structures to prevent discharges during the fines removal process.

Discharges to water

It is proposed to manage runoff from the OBDA including haul roads and earthwork areas by discharging to sediment ponds and using progressive stabilisation. The maximum area of discharge to each sediment pond will be 5 hectares in accordance with the Guidelines.

The proposed discharge monitoring and trigger characteristics are included in Section 12.

8 Proposal

8.1 OBDA Design Rationale and Alternatives Assessment

The proposed OBDA is located within what is currently regional park land to the north of the existing quarry pit. The design is based on an OBDA concept originally developed in 2016 and has subsequently been refined to reflect updated site information, operational requirements, and environmental constraints.

As part of the design development process, the 2016 OBDA concept was reviewed alongside four additional OBDA options. These options considered alternative footprint extents, landform configurations, and development sequencing. The selected design was identified as the most appropriate option when assessed against operational efficiency, geotechnical performance, environmental effects, and compatibility with the surrounding regional park environment.

The OBDA footprint was further refined in 2025 using updated LiDAR topographic survey data. This refinement resulted in a reduction of the overall footprint in several locations to avoid a wetland area in the north-east, areas of higher ecological value in the south-west, and areas of increased geotechnical uncertainty. In other locations, the footprint was selectively extended to increase available overburden storage capacity while maintaining overall landform stability.

8.2 Key Aspects

The project comprises the following key aspects:

- **Location and extent:** The proposed OBDA is located directly to the north of the existing quarry and is approximately 15.7 ha in size. A main access road is initially developed from the south to north along the ridge through the centre of the OBDA. Secondary access roads are then developed for each stage to provide access for enabling works and the subsequent construction of the OBDA.
- **Temporary works:** For each stage of the OBDA development, enabling works are required. These include construction of temporary ESC, vegetation clearance, topsoil stripping and stockpiling. Temporary works may be required outside of the OBDA footprint but within the wider project area for maintenance access.
- **Foundation Preparation:** Foundation preparation will be undertaken in accordance with the geotechnical design framework described in Section 8.8 (Geotechnical Design and Stability).
- **Water management:** Stormwater and groundwater will be managed through a staged system of internal catchments, sediment retention, fines containment, subsoil drainage, and progressive stabilisation.
- **Capacity and duration:** It will accommodate approximately 2.8 million cubic metres of overburden over approximately 35 years.
- **Design and staging:** The OBDA will be designed as a permanent, engineered landform established with early preliminary works, followed by construction works in ten sequenced stages. The final stage will provide for formal closure and remaining rehabilitation.
- **Stability:** Engineered controls are included to ensure long-term stability and erosion control. The overburden will be progressively stabilised as the fill levels are lifted and completed.
- **Effects management:** Access to the OBDA will occur through a new haul road and reflects the planned north-to-south development of the OBDA. This approach allows the northern works adjoining the Belmont Regional Park to be completed and rehabilitated first, so that later stages are visually screened from public areas.
- **Rehabilitation:** The OBDA will be continuously revegetated as soon as the final landform is completed. All completed final landform will be revegetated during the next upcoming planting season.

8.3 Enabling Works

Preliminary works include establishing an access track along the alignment of the future central haul road. This track as shown in Figure 3 will provide access to the northern boundary of the site to enable installation of any

security fencing, signage, and construction of northern bund for amenity screening, prior to bulk earthworks commencing in Stage 1.

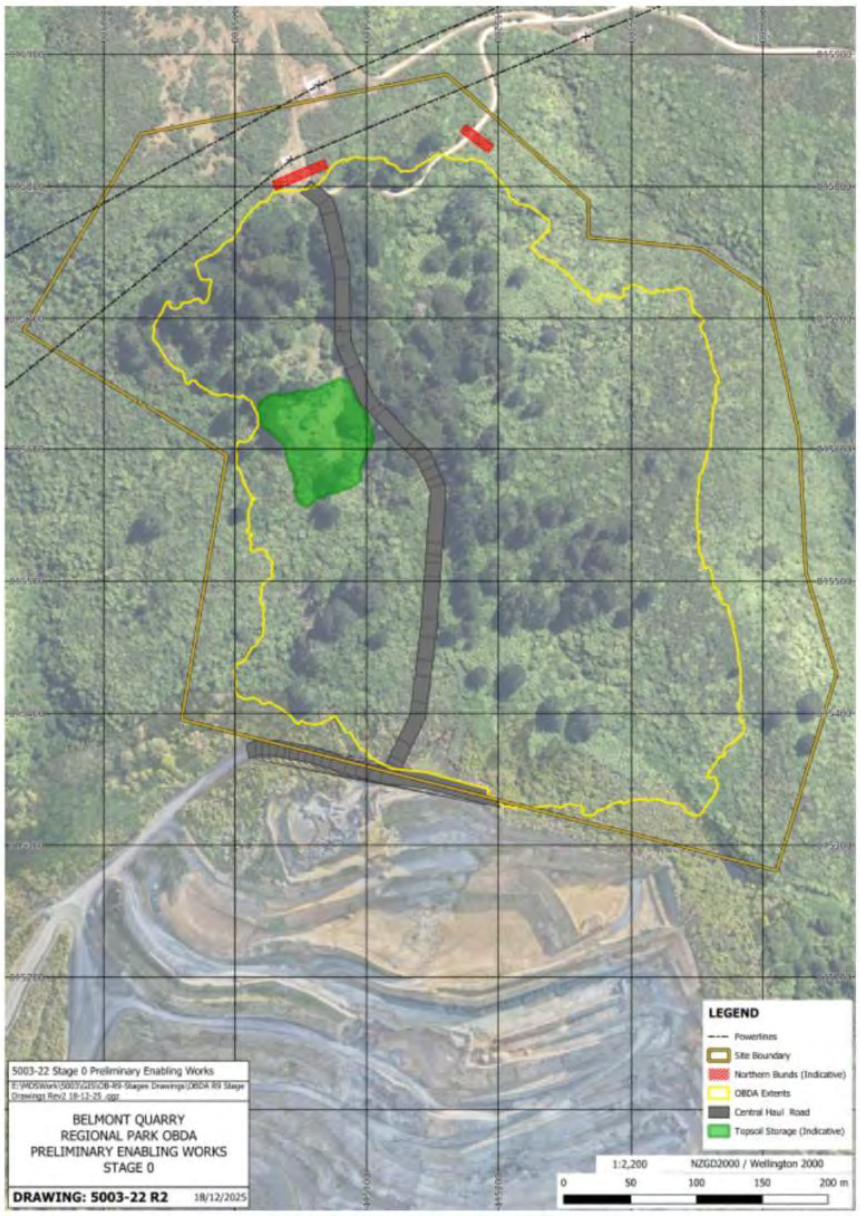


Figure 3: Initial enabling works required

The amenity bund will be 3–5 m high, approximately 7 m wide, and planted with native vegetation. Its purpose is to restrict public access to the land exchange area where heavy vehicles will be operating, while also providing a visual and physical buffer between park users and activities associated with OBDA development.

A stockpile area will be established within the OBDA footprint to store any topsoil removed from site. The stockpile will remain in place till Stage 5 and be used as the main stockpile area on site.

Enabling works occur at the start of each stage where new ground is cleared and prepared to received overburden fill. These works are required for Stages 1, 2, 3, 4, 5, 6, and 8. Stages 7 and 9 builds on the foundations established in preceding stages. Upon completion of final OBDA design and landform grading, in Stage 10 the area is prepared for final rehabilitation and closure.

As shown in the accompanying plans some, albeit limited, enabling works are required outside the OBDA design footprint but within the site. Such works will be limited in extent and confined to areas required for structural

stability, drainage, or maintenance access dependent on factors such as localised ground conditions, topography, and weather. Enabling works for each stage include the following phases:

- **Access Track Construction**
  Tracks are constructed to the toe of the OBDA design for each stage.
- **Installation of Temporary Erosion and Sediment Controls**
  These controls will remain in place during the earthworks campaign and will be decommissioned at the end of the campaign once external-facing slopes are topsoiled and stabilised.
- **Topsoil Stripping**
  Topsoil will be removed and stockpiled in a predetermined location on a flat area at the top of the ridge where it will remain stable. The stockpile will be added to at the start of each new stage and drawn down as soil is respread on final external-facing slopes.
- **Foundation Preparation**
  Includes removal of materials below topsoil that are unsuitable for forming the OBDA foundation, such as highly weathered rock, clay, or organic material. Foundation preparation may also involve construction of geotechnical features such as shear keys where required by ground conditions.
- **Subsoil Drainage**
  To manage pore water pressure at the interface between natural ground and overburden fill, subsoil drains will be installed. These drains will be positioned in existing low-lying areas and will discharge at the toe of the OBDA footprint.

8.4 Overlap between existing and new activities

The overburden generated from quarry operation is currently deposited in the Cottle Block Overburden Disposal Area (Cottle Block). Available capacity within the existing Cottle Block is now limited to the disposal of process fines. The use of the Cottle Block fines cell is expected to continue under existing consents, subject to production volumes and demand. Once the Cottle Block fines cell is filled and capped, a fines containment cell will be established within Stage 1 for on-going disposal of process fines and internal sediment catchment.

No changes are proposed to the operational consents of the quarry. These consents are separate to the OBDA operation and will be assessed as such.

8.5 Haul Roads

Access to the OBDA will be provided through an extension of the internal haul road network to connect the two sites. The extended haul road will connect the northern quarry area to the OBDA footprint, following the ridgeline to reduce earthworks and maintain workable gradients for heavy vehicles.

The route is entirely contained within the OBDA site and sits in the centre of the OBDA area. The route avoids interaction with public accessways or legal roads and will be signposted to ensure safety. Road gradients and widths will be designed to safely accommodate staged overburden placement, heavy vehicle manoeuvring, and ongoing maintenance access.

The internal access routes will be developed at each stage to enable maintenance access to the toe of the overburden. Drainage controls and surface treatments will be applied to manage dust and sediment. No additional access from the public road network is proposed, as there is no need for vehicles working within the OBDA to access the roading network. Hence, all vehicle movements will be internalised.

8.6 Drainage and Stormwater Systems

Stormwater management for the OBDA is designed to reflect the staged nature of development and to manage effects during construction, operation, and rehabilitation. Each stage will function as a discrete stormwater catchment during earthworks, with runoff retained and treated internally through sediment retention and fines containment systems.

As stages are completed and external slopes are stabilised and re-vegetated, cleanwater runoff from rehabilitated areas will be discharged to downstream ephemeral, and later, intermittent watercourses. All clean

water will discharge to the original natural catchment. Discharge locations and treatment measures will be progressively established to ensure erosion and sediment effects are appropriately managed.

Subsoil drainage will be installed beneath overburden fill and fines containment areas to manage groundwater and pore water pressures. These drains will discharge at controlled outlets that form part of the OBDA stormwater management network.

Detailed stormwater design will be confirmed through the ESCP (draft ESCP in Appendix A), which will be prepared, reviewed, and certified prior to the commencement of earthworks for each stage. An adaptive management approach will be applied, with the ESCP updated as staging progresses.

8.7 Fines Containment and Dewatering

Process fines and silts generated by the quarry's crushing and washing operations will be managed within dedicated fines containment cells constructed as part of the OBDA staging. These cells are engineered to allow gradual dewatering and consolidation of fine material, with containment provided by surrounding overburden fill.

Dewatering will occur primarily through evaporation and controlled subsurface drainage. Subsoil drains beneath fines containment cells will be designed to manage pore water pressures and maintain stability. Any discharge from these drains will be routed through the OBDA's stormwater management system prior to entering the receiving environment and will comply with applicable regional consent requirements.

As OBDA development progresses, the settling pond (fines containment cell) location will migrate within the OBDA footprint, initially moving westward during construction of Stages1 and 2, and subsequently migrating southward as development continues.

This approach avoids the need to establish multiple discrete settling pond locations over the life of the OBDA and enables fines management to remain integrated within the active OBDA landform.

8.8 Geotechnical Design and Stability

The OBDA has been conceptually designed as a permanent engineered landform, informed by site investigations and established quarry overburden placement practices. Foundation preparation will include removal of unsuitable material, installation of subsoil drainage, and construction of engineered features such as toe bunds or shear keys where required to achieve long-term stability.

Overburden will be placed in controlled lifts and compacted in accordance with geotechnical specifications appropriate to the material type and location within the landform. Coarser materials will be preferentially used in structural zones such as outer embankments and toe areas, while finer or moisture-sensitive materials will be placed in contained zones with appropriate drainage and capping.

Detailed geotechnical design will be confirmed prior to the commencement of each stage and will be documented through construction records and certification by a suitably qualified geotechnical professional. Progressive stability assessments will inform staging, drainage installation, and rehabilitation timing.

9 Staging

The development of the OBDA at Belmont Quarry will occur through a progressive and flexible staging process designed to align with the quarry's long-term extraction programme. The total development is divided into ten stages (Figure 4), each representing an indicative phase of site establishment, foundation preparation, overburden placement, infrastructure installation, and environmental management. This modular approach provides both operational flexibility and environmental control, allowing the quarry operator to adapt to evolving conditions, manage cumulative effects, and ensure staged rehabilitation is undertaken as each portion of the OBDA is completed.

In each stage, work is managed to limit the extent of exposed surfaces at any one time. Where fill placement is temporarily suspended (e.g. between earthworks seasons), the area will be temporarily stabilised. This may include compaction, sealing with aggregates, hydroseeding, straw mulching, or geotextile covering.

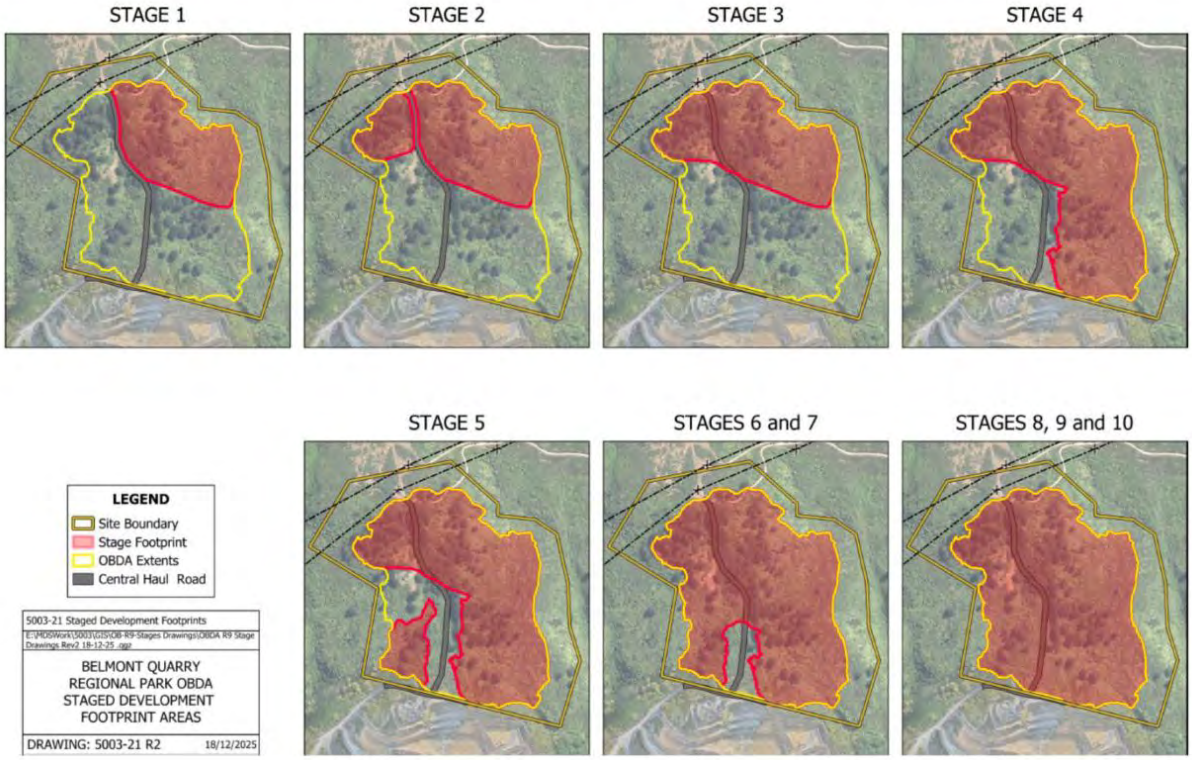


Figure 4: OBDA Staged Development

For the purposes of the ESC staging in this report, the main focus will be placed on Stage One which will provide 'Proof of Concept' for the following stages. Stage One will be divided up into subsequent smaller stages (e.g. Stage 1A, 1B, 1C etc.), due to the large area, sensitive downstream environments and because it provides the initial establishment of the OBDA. Stage One will:

- Lay the groundwork for how ESC will be approached on the site and show that the chosen ESC methods are practical for the site conditions.
- Give confidence that the proposed ESC methods will be fit for purpose and achievable.
- Provide performance evidence that can be used to improve or confirm the designs for later stages.
- Allow Winstone staff to test, demonstrate, and refine the ESC approach before the project scales up
- Allow for any improvements or adjustments which can be incorporated into later stages.

9.1 Stage 1

The initial stage of work includes establishing the main haul road approximately 20m wide along the central ridge of the OBDA, creating access tracks to the toe of the slope to allow for commencement of foundation

preparation, drainage and establishment of and installing temporary erosion and sediment controls. Approximately 5.3 ha of vegetation is progressively cleared within the working footprint, and topsoil is stripped and stored in a static stockpile area of approximately 0.6ha for later rehabilitation (Figure 5). Drainage controls, foundation preparation and groundwater management features are installed to prepare the area for bulk fill placement.

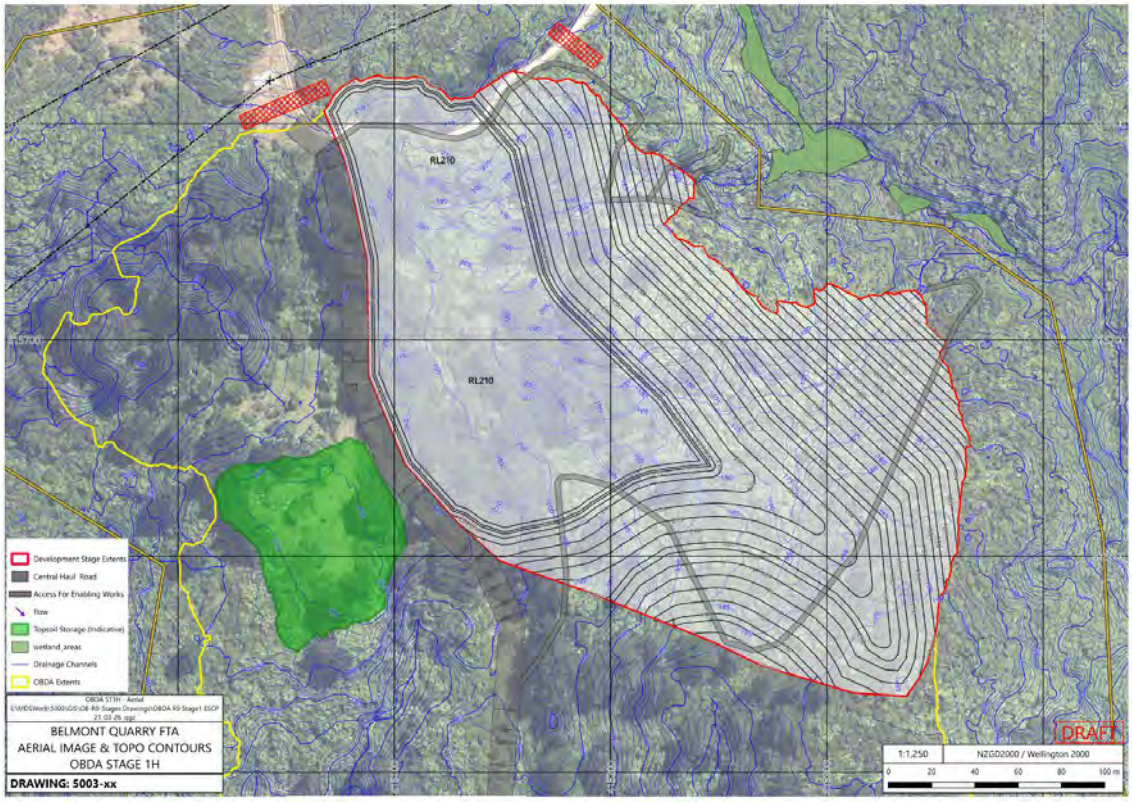


Figure 5: Stage One footprint and stockpile area (draft design only)

Upon completion of Stage 1, the OBDA is lifted to near-final height of 210m RL. This stage also prepares the footprint for the fines containment cell. The fines containment cell is established and commissioned to receive process fines from the quarry, replacing the existing Cottle Block facility.

9.2 Stage 2

Stage 2 extends development northward into the second catchment. Temporary works are required for site establishment and construction of additional toe bunds and drainage structures to manage stormwater within the stage footprint. Approximately 1.44 ha of vegetation is progressively cleared (Figure 7 and Figure 7).

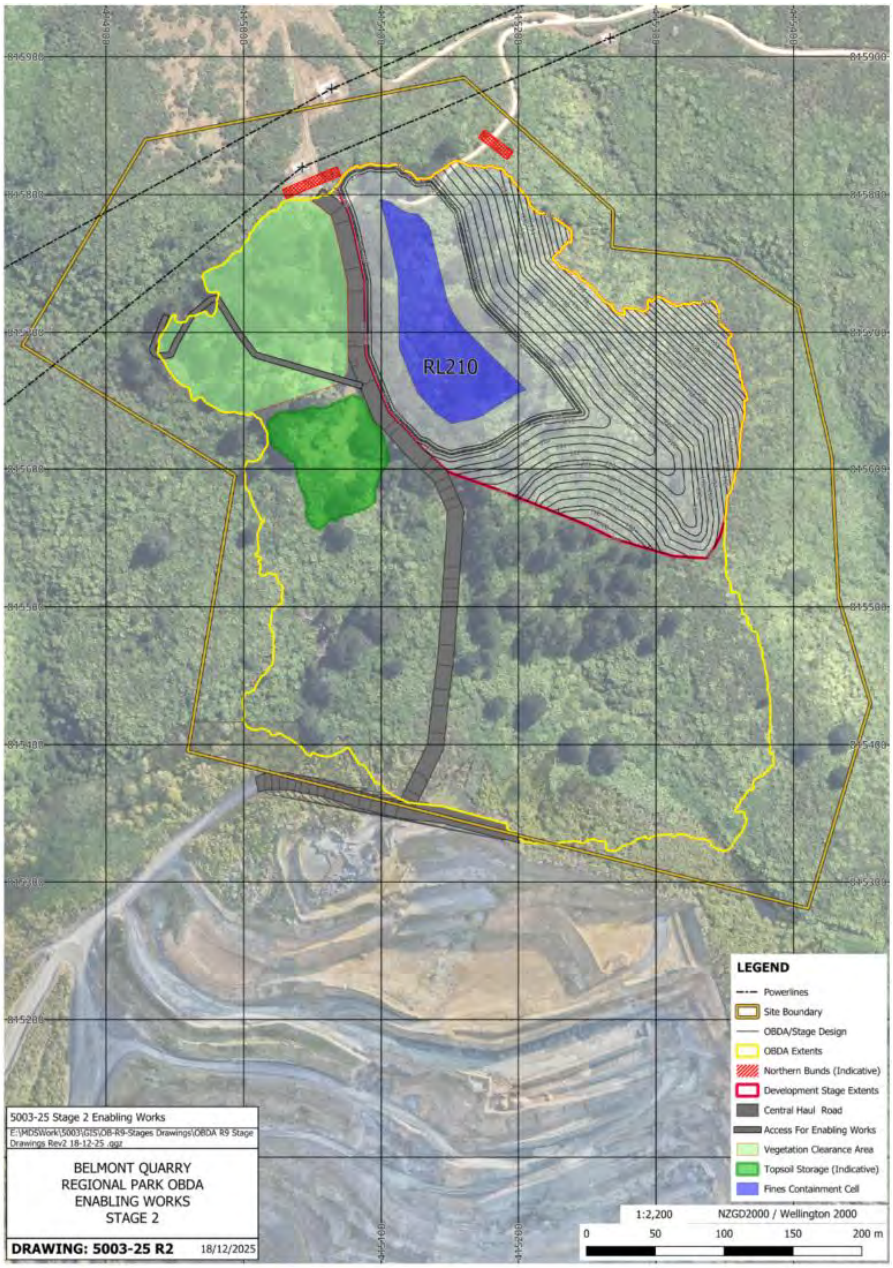


Figure 6: Stage 2 - Enabling works

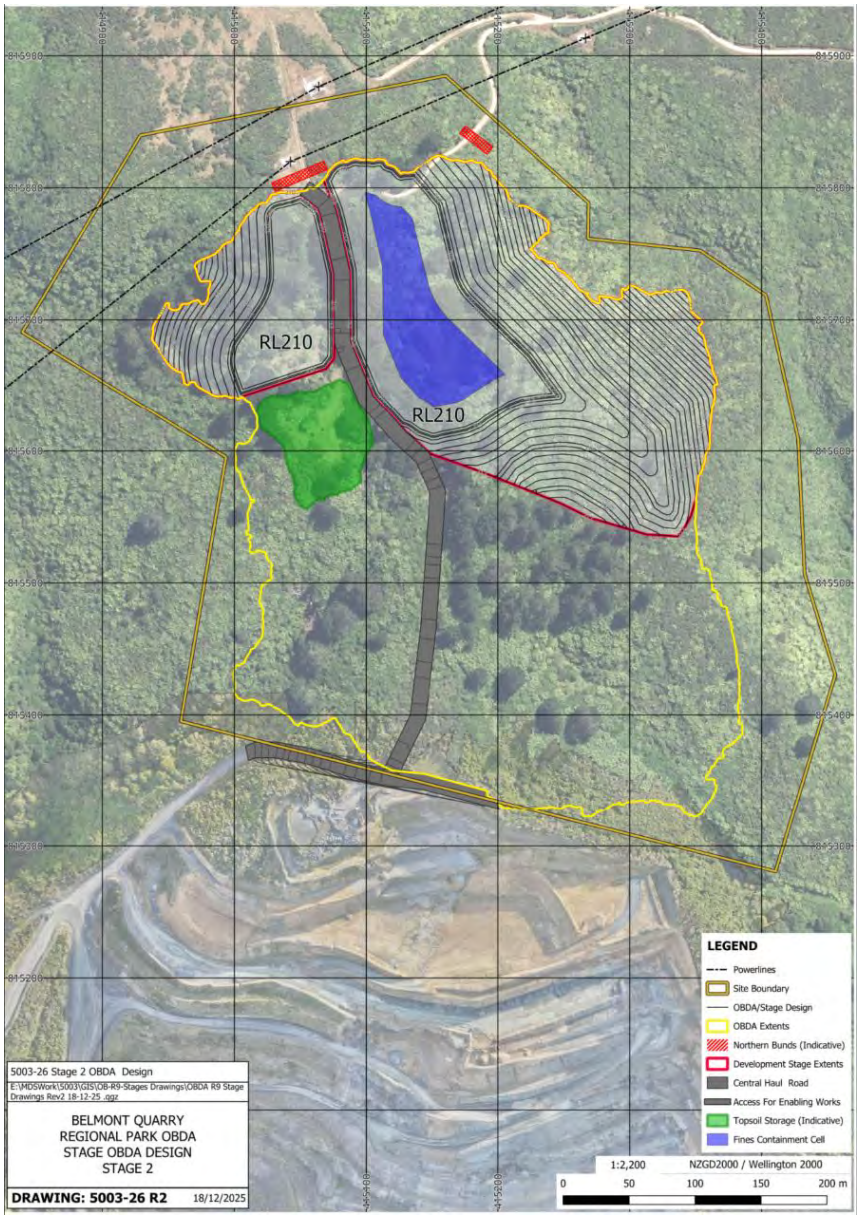


Figure 7: Stage 2 - OBDA Design

Progressive rehabilitation begins on northern faces that reach their design heights 210m RL, with topsoil spreading and hydroseeding to stabilise exposed slopes.

9.3 Stage 3

During Stage 3, the OBDA is raised vertically above the Stage 1 and Stage 2 foundations to achieve near-final height of 220m RL in the northern section. The fines containment cell will migrate to the west as it is lifted.

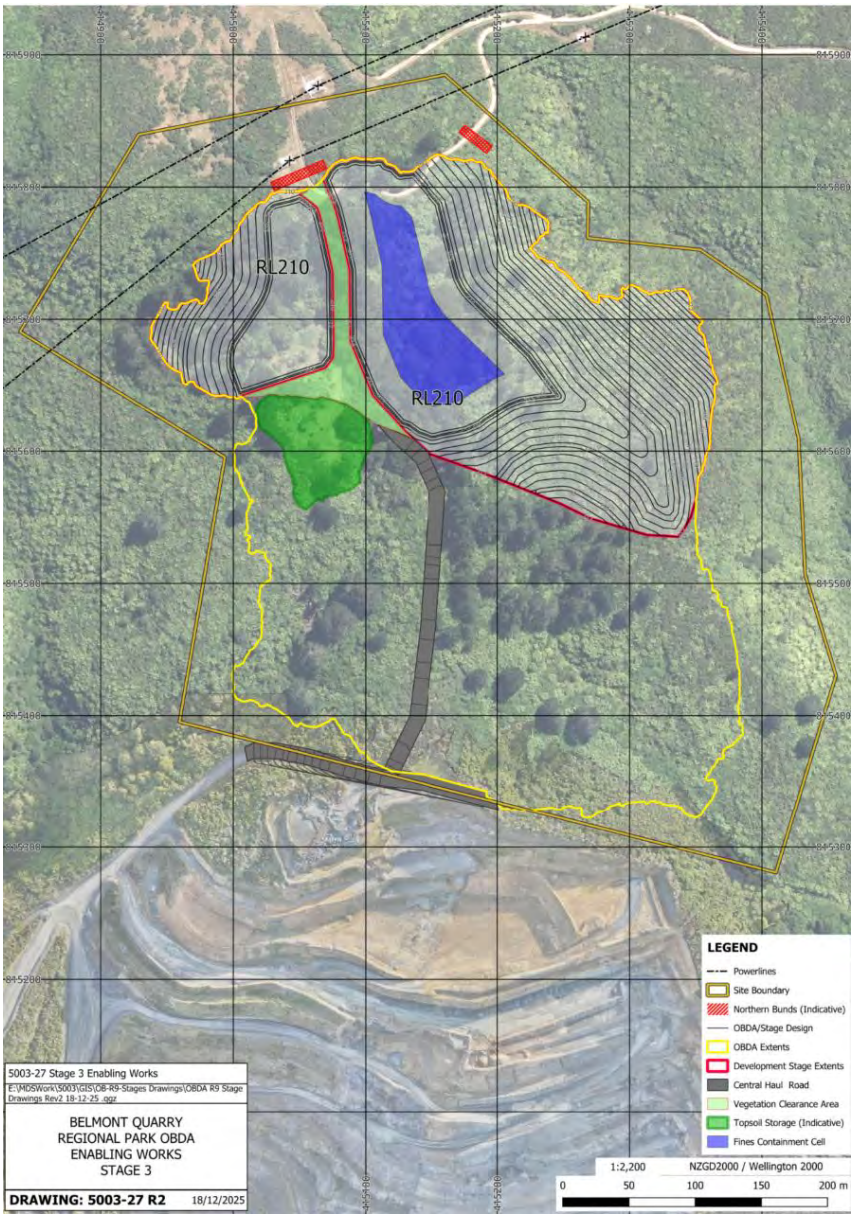


Figure 8 and Figure 8 show the enlargement of the fines containment cell. External slopes adjoining the park are shaped and profiled to final contours and stabilised with topsoil and seeding. This stage marks the first major integration of the OBDA with the surrounding park environment, with completed surfaces tying into adjacent regenerating bush and rehabilitation planting of lower slopes.

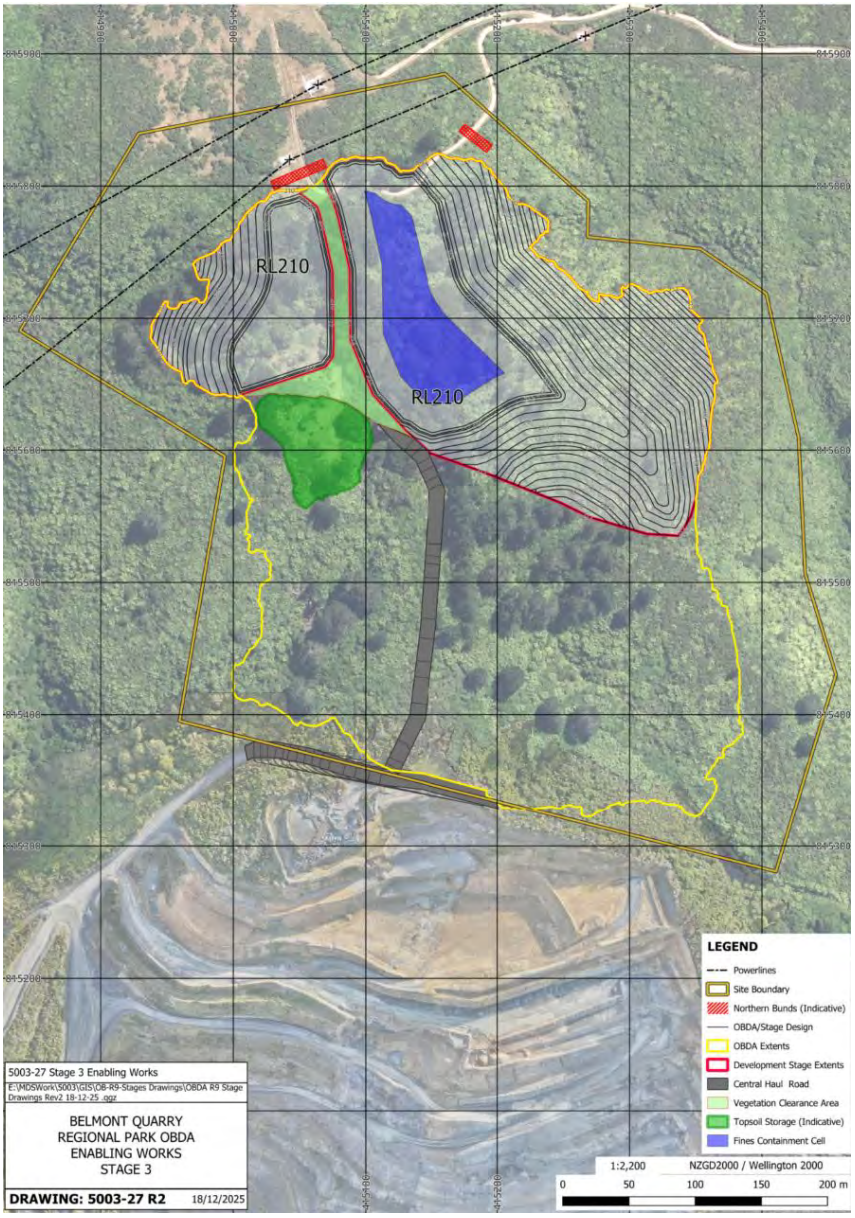


Figure 8: Stage 3 – Enabling Design

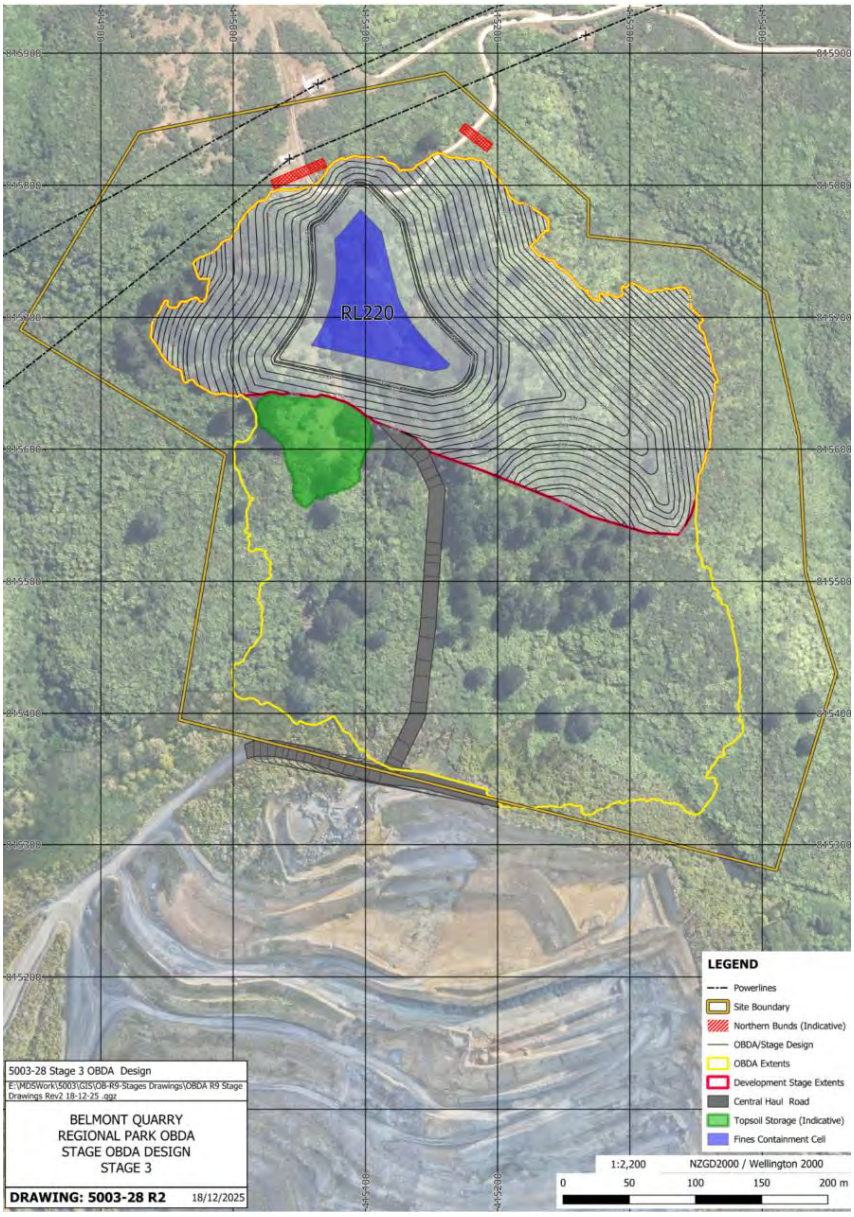


Figure 9: Stage 3 - OBDA Design

9.4 Stage 4

Stage 4 initiates construction within the central portion of the OBDA, forming the next foundation catchment to the south of the completed northern area, as shown in Figure 10 and Figure 11. Temporary works will be required for site establishment. Approximately 4.26 ha of vegetation will be progressively cleared. The internal haul road is aligned north-south from the southern extent, and new drainage structures are installed to connect with existing controls.

Overburden placement continues to build the landform and maintain capacity for fines storage. Sediment controls remain in place throughout construction to ensure runoff is contained within the OBDA. Stage 4 OBDA is lifted to near-final height 200m RL. Provision for a secondary stockpile is made on site for Stage 5 enabling works.

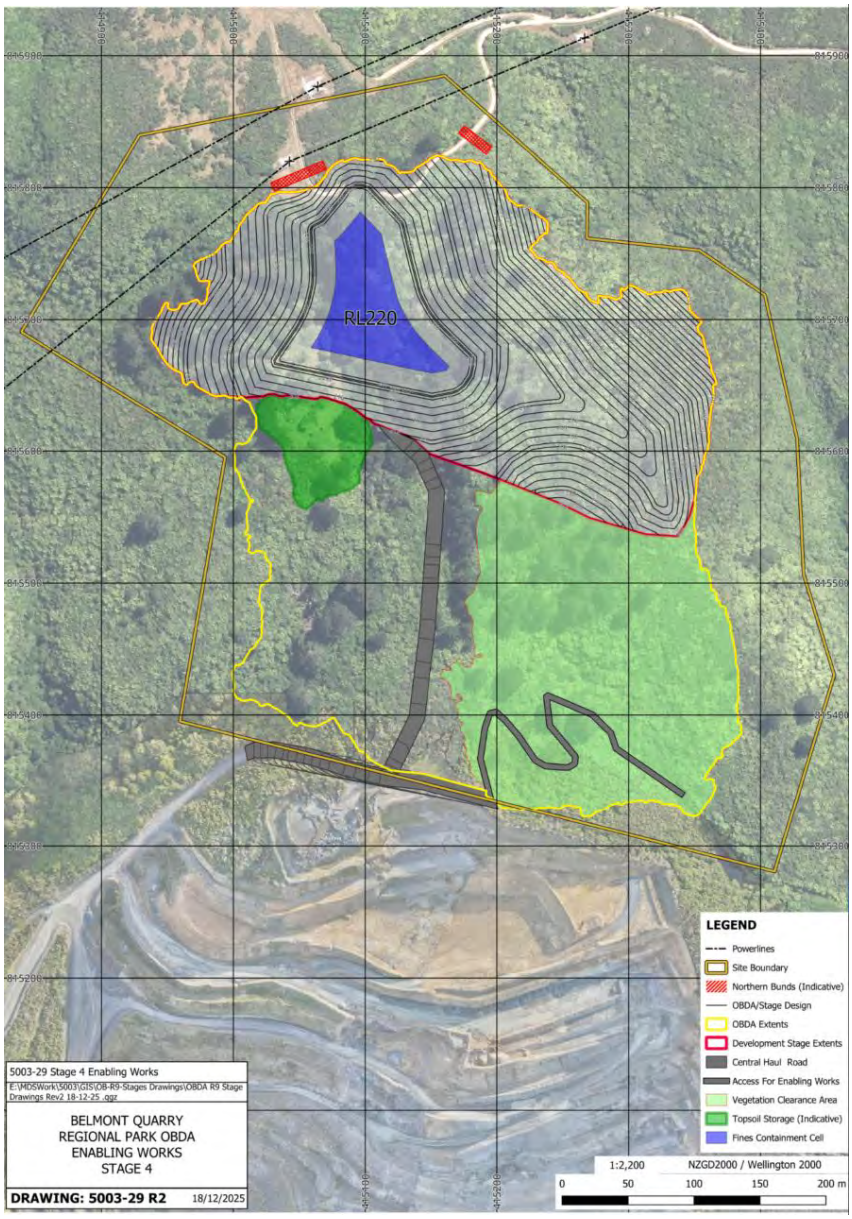


Figure 10: Stage 4 – Enabling and OBDA Design

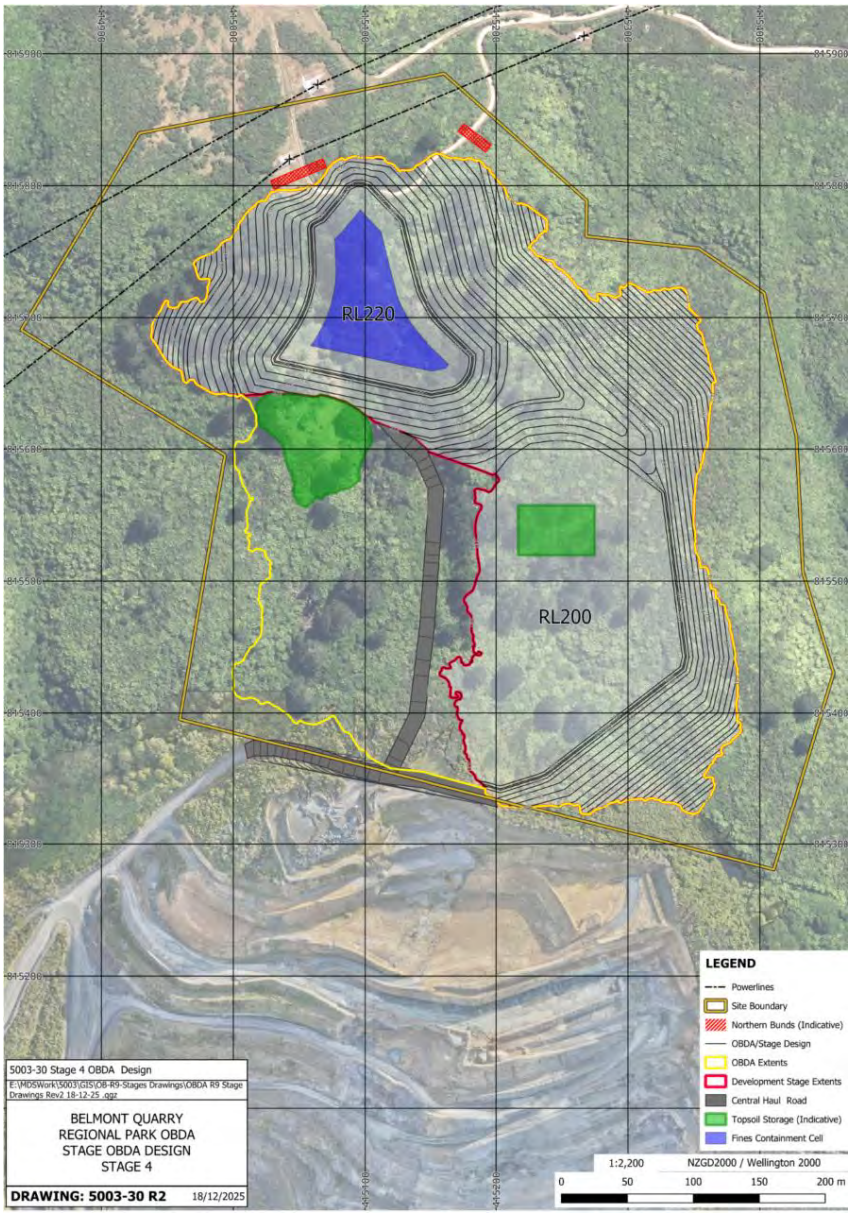


Figure 11: Stage 4 –OBDA Design

9.5 Stage 5

Stage 5, as shown in Figure 12 and Figure 13 integrates earlier northern and central works to create the mid-section of the OBDA landform. Temporary works will be required for site establishment focuses on achieving the central contours and consolidating internal drainage connections. Two designated stockpile areas have been provided on-site for the storage of topsoil.

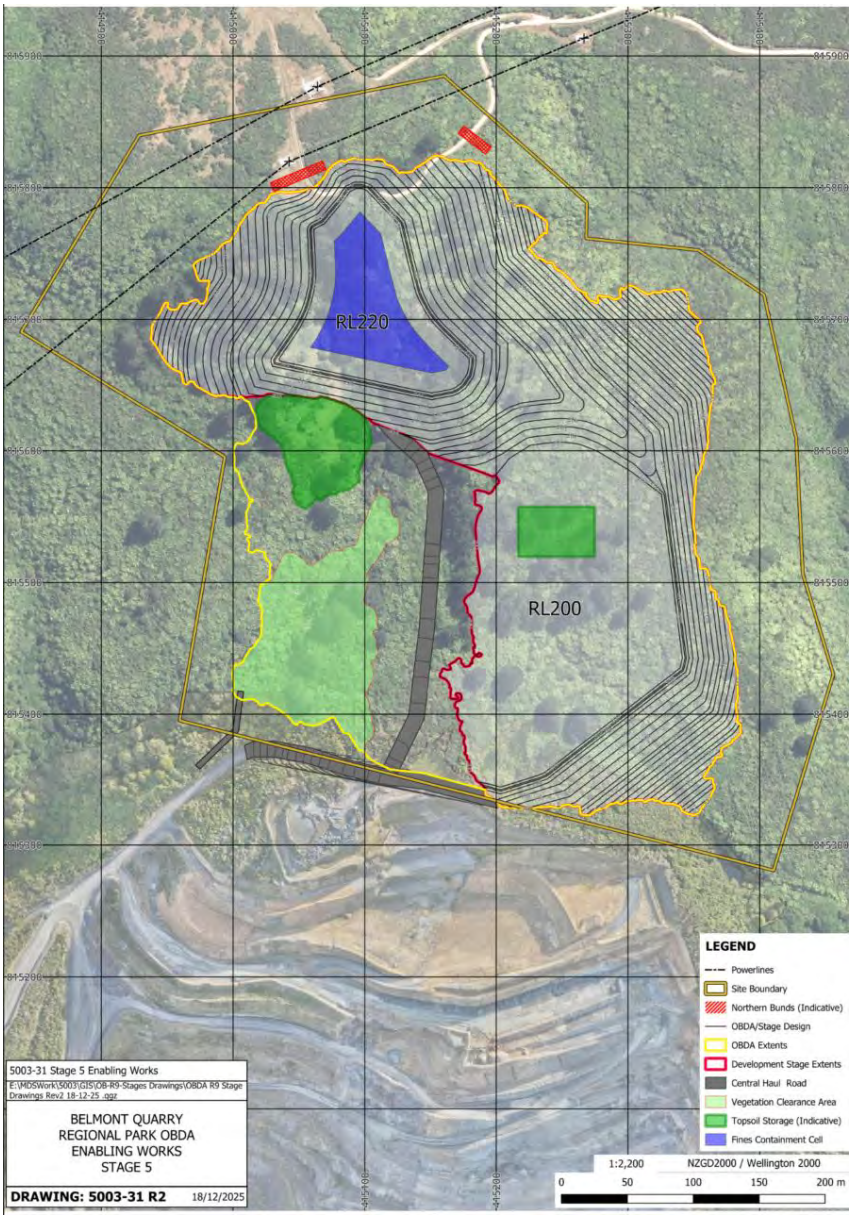


Figure 12: Stage 5 – Enabling Design

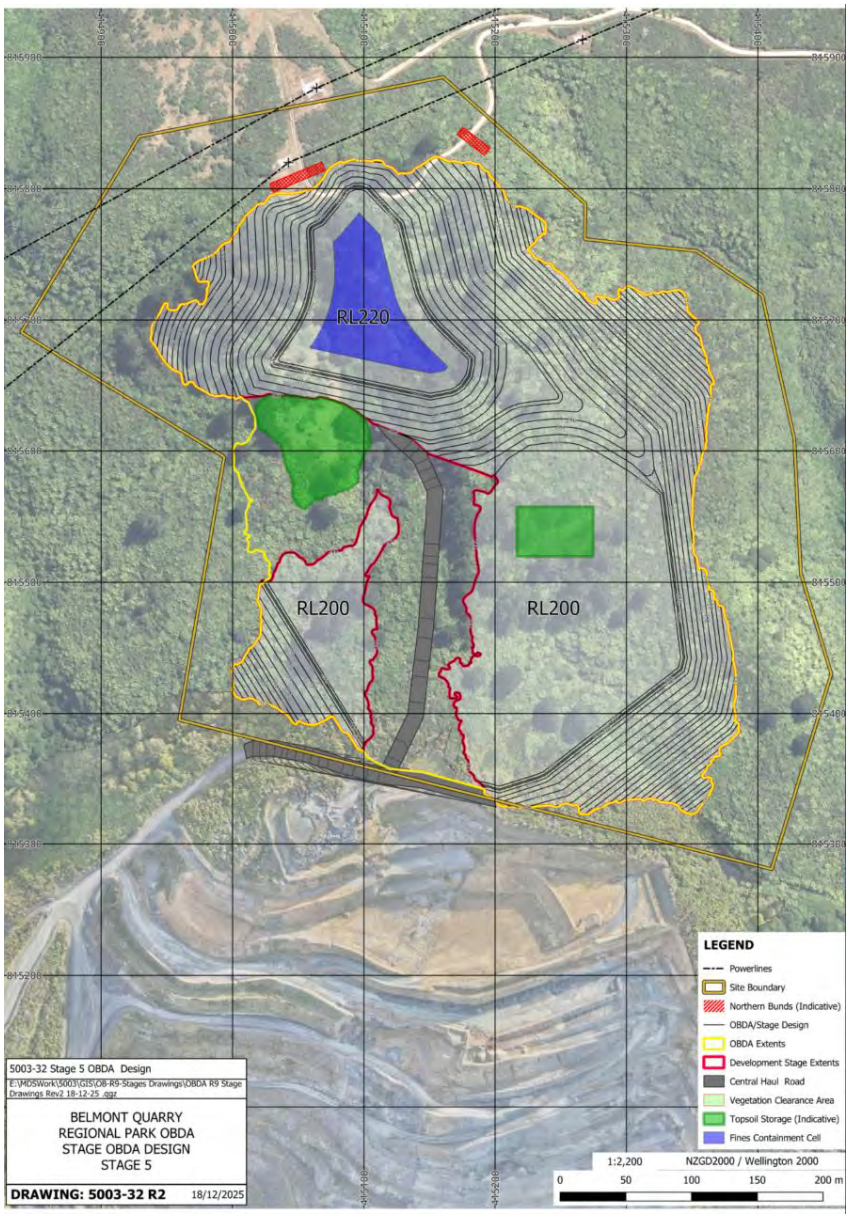


Figure 13: Stage 5 – OBDA Design

The fines containment cell maintains sufficient volume for ongoing fines disposal. OBDA is lifted to near-final height 200m RL. Rehabilitation advances progressively across stabilised faces, with topsoil replacement and native planting contributing to long-term slope stability and landscape integration.

9.6 Stage 6

Development shifts to the western extent of the OBDA during Stage 6 (Figure 14 and Figure 15). Foundation preparation includes temporary works for site establishment and the formation of southern toe bunds, subsurface drainage, and access road extensions to connect the haul route to the final working area. Approximately 1.95 ha of vegetation is progressively cleared. Overburden placement continues following the established methodology, with close monitoring of drainage and stability. The OBDA is lifted to near-final height of 200m RL. This stage establishes the structural base required for the final western and southern profiling works.

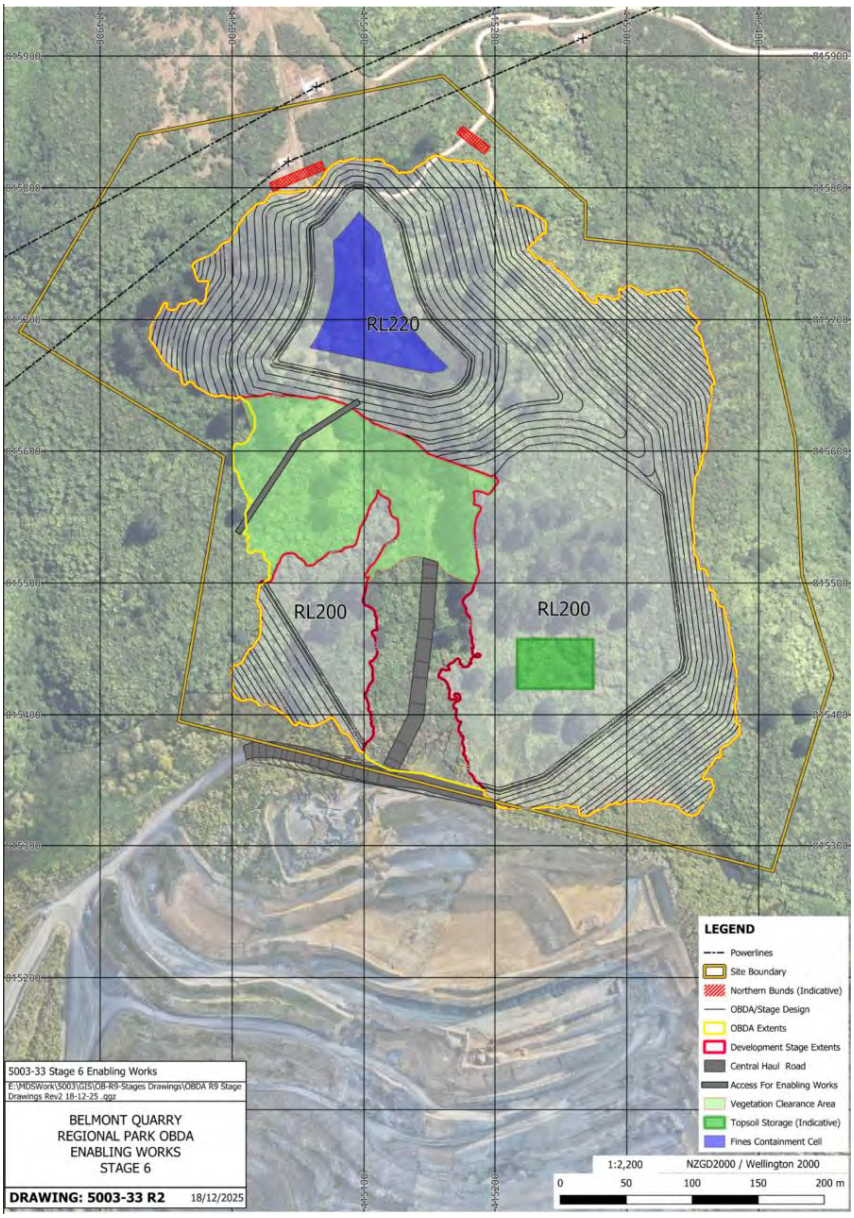


Figure 14: Stage 6 – Enabling Design

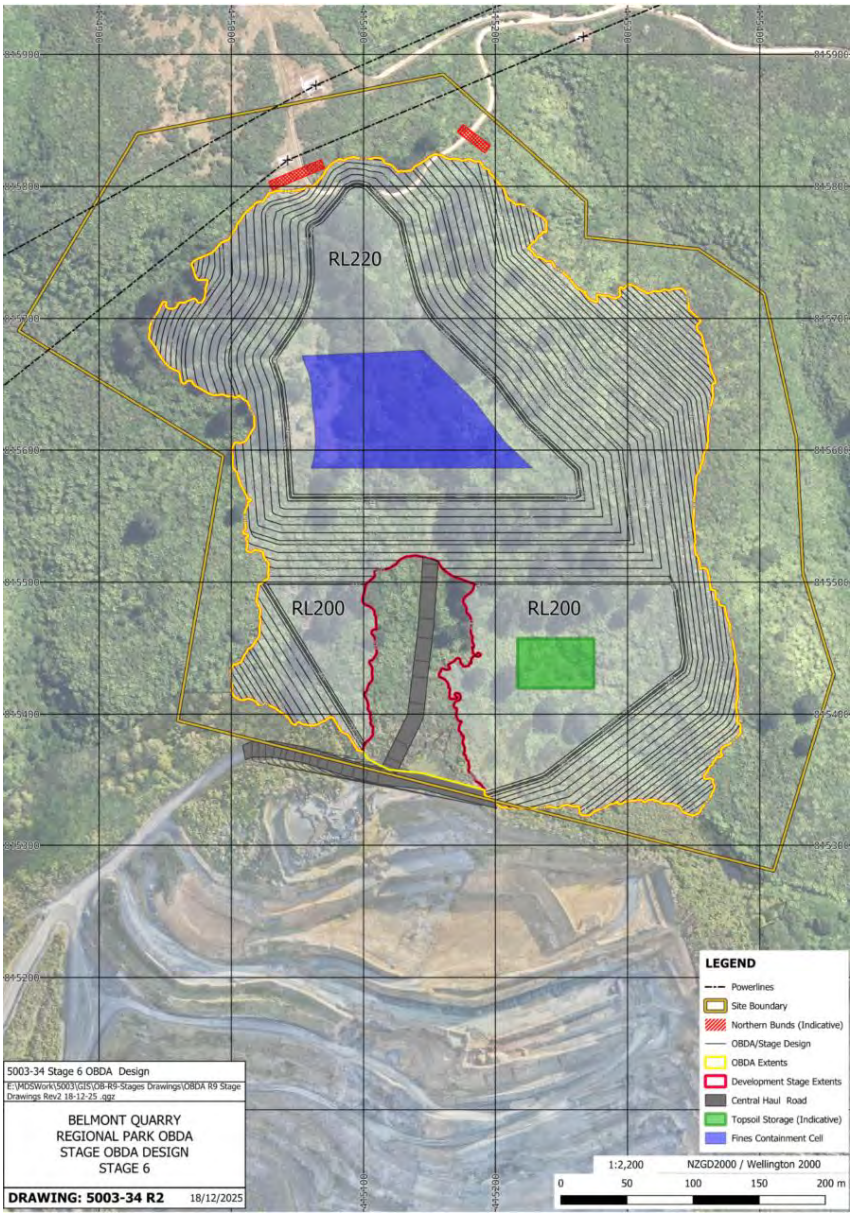


Figure 15: Stage 6 – OBDA Design

9.7 Stage 7

Stage 7 builds upon the southern foundations, completing the bulk fill to achieve design elevations (Figure 16). The fines containment cell migrates further southward as filling progresses. Outer faces are graded to merge with the existing topography and are progressively topsoiled, hydroseeded, and planted. Northern face of OBDA raises to 230m RL. Rehabilitation extends to connect with earlier planted areas, linking the entire northern and central zones into a continuous vegetated corridor.

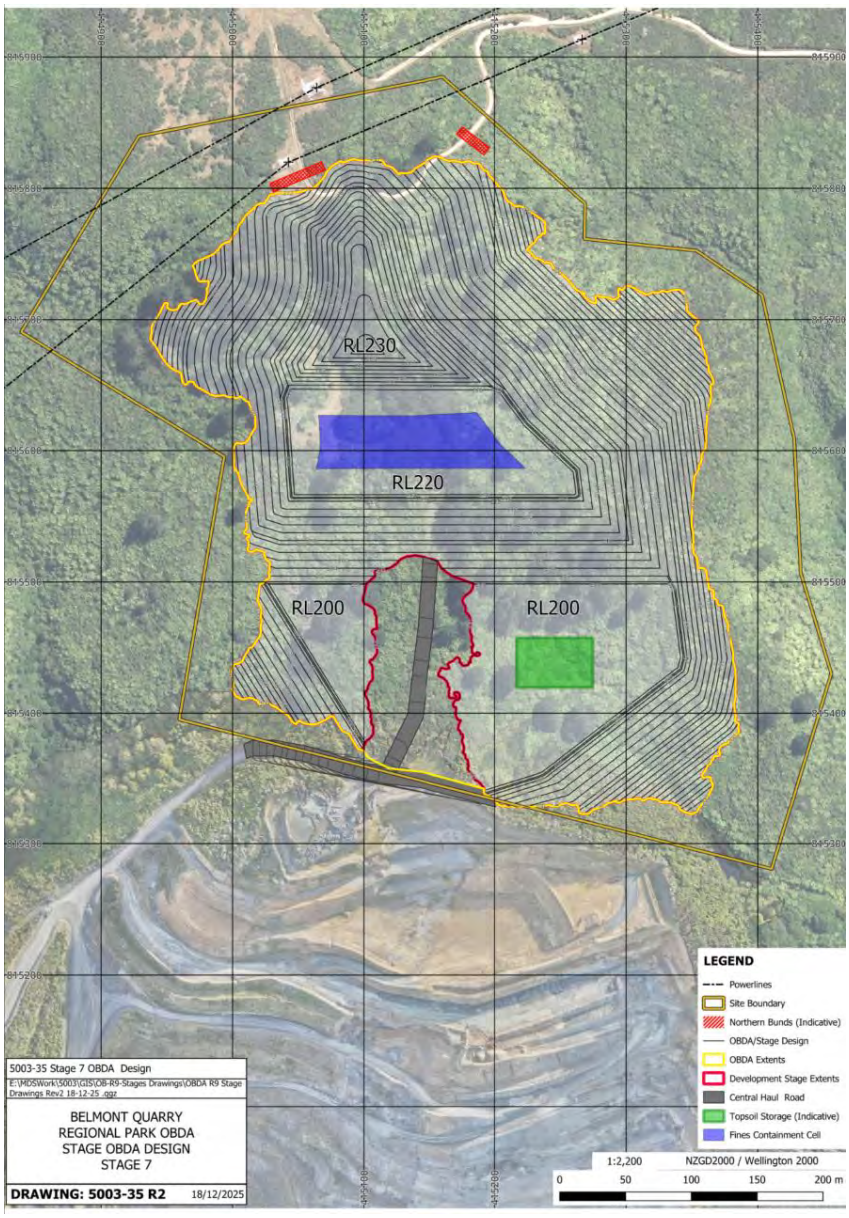


Figure 16: Stage 7 – Enabling and OBDA Design

9.8 Stage 8

In Stage 8, final shaping and slope trimming occur across the central and southern sections of the OBDA. Approximately 1.12 ha of vegetation will be progressively cleared (Figure 17 and Figure 18).

Drainage tie-ins are completed, and permanent surface water channels are established. Topsoil placement and native revegetation continue to stabilise finished areas. Monitoring slope performance and vegetation establishment ensures long-term stability before final sign-off of active construction areas.

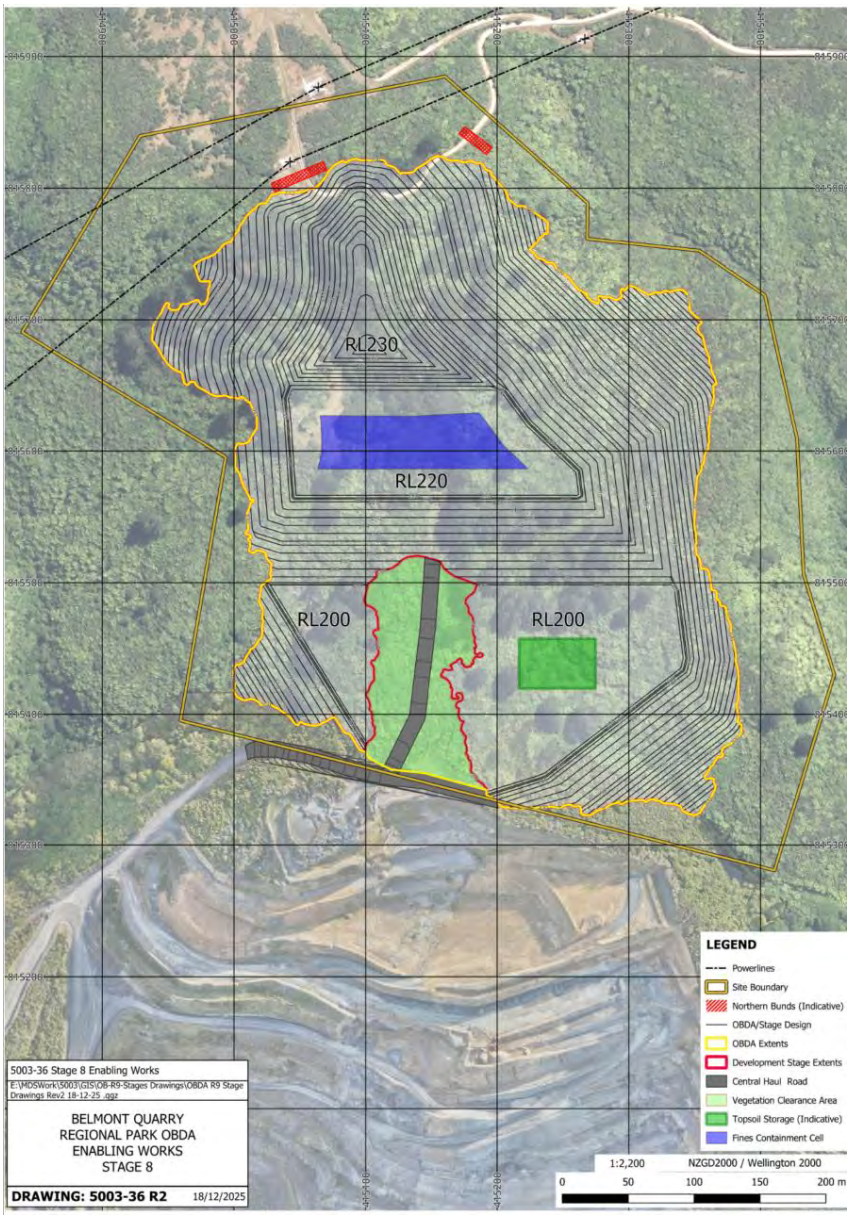


Figure 17: Stage 8 – Enabling and OBDA Design

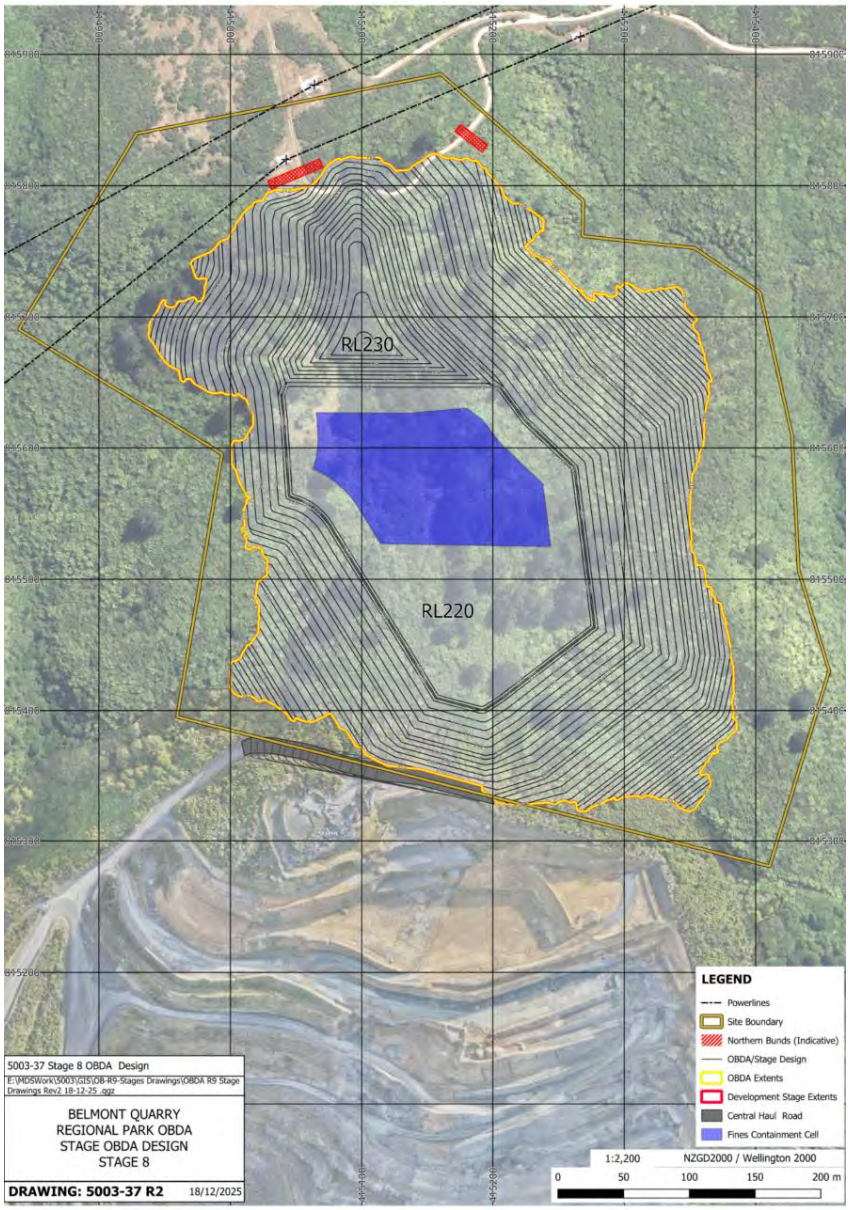


Figure 18: Stage 8 –OBDA Design

9.9 Stage 9

Stage 9 completes the overall landform, with final surface drainage connections established to permanent outlets and sediment ponds (Figure 19). Remaining areas of the fines containment cell are capped, migrated south and shaped in preparation for closure. Final contour adjustments are carried out where required to meet design levels, and planting of any remaining bare surfaces is completed.

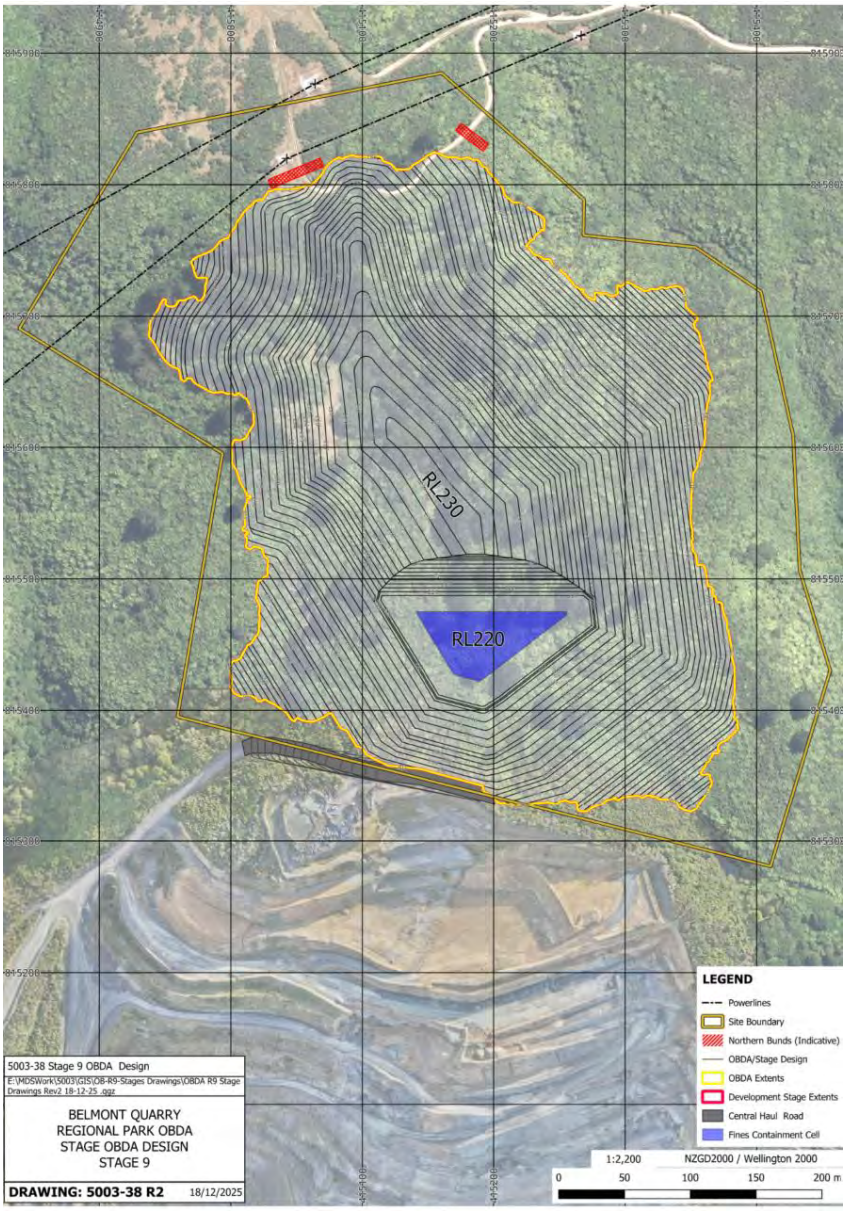


Figure 19: Stage 9 – Enabling and OBDA Design

9.10 Stage 10 – Rehabilitation and Closure

In the final stage as Figure 20, when all surface treatment across the OBDA is completed. The fines containment cell is fully capped and incorporated into the landform. The OBDA is topsoiled, planted and placed into a long-term maintenance and monitoring under a Rehabilitation Plan.

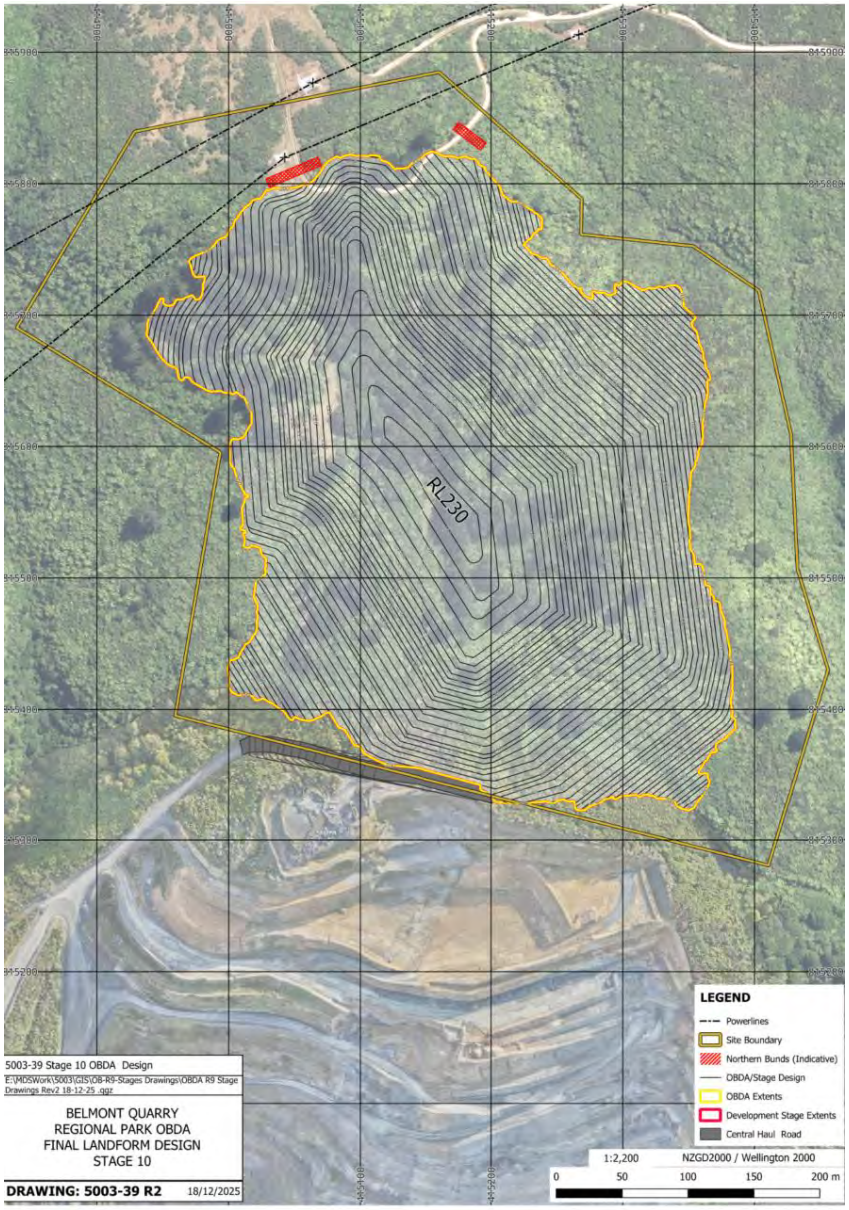


Figure 20: Stage 10 - Rehabilitation

The long-term Rehabilitation Plan prepared prior to commencement of this stage will seek to integrate the final landform into the broader landscape and will be developed in partnership with mana whenua. Key considerations of this plan are geotechnical stability, restoration of ecological values, enabling future land use where practicable, and removing construction infrastructure. Works include regrading final contours, applying topsoil to planting areas, and implementing indigenous planting suited to the ecological zone.

The Rehabilitation Plan provides for groundcovers, shrubs, trees, and canopy species to support slope stability and ecological connectivity. Targeted pest plant and animal control will assist vegetation establishment. Erosion and sediment controls will be removed once vegetation is established, and the surface is certified stable by a suitably qualified professional, with notification to Greater Wellington Regional Council. All health and safety fencing, signage, and access controls will be removed unless required for ongoing safety or property boundaries

10 Principles and Processes of Erosion and Sediment Control

10.1 Principles

The key principles to be employed for an ESCP are to undertake land disturbing activities in a manner that reduces the potential for erosion of bare soils to occur (erosion control) and to employ treatment devices to treat sediment laden water prior to discharging runoff from the site (sediment controls). These principles have been incorporated into the ESCP. The 10 basic principles of erosion and sediment control taken from the Guidelines will be applied to each of the defined scenarios (as applicable) and outlined for completeness as follows;

- **Minimise disturbance:** only work areas required for construction to take place.
- **Stage construction:** carefully plan works to minimise the area of disturbance at any one time.
- **Protect steep slopes:** where steep slopes existing within the works area, ensure that these are protected as steep slopes are prone to erosion.
- **Protect watercourses:** Map all water bodies as they relate to the relevant stage before works commence.
- **Stabilise exposed areas rapidly** by sowing new seed or mulch cover, or as appropriate to achieve stabilisation where possible.
- **Install perimeter controls:** divert clean water away from areas of disturbance and divert runoff from areas disturbed to sediment control devices.
- **Employ detention devices:** treat runoff by methods that allow sediment to settle out.
- **Use trained and experienced operators** and ensure site staff are aware of the requirements of the ESCP and the relevant resource consent conditions.
- **Make sure the ESCP evolves** as construction progresses and the nature of land disturbing activities change, the ESCP needs to be modified to reflect the changing conditions on the site.
- **Assess and adjust** inspect, monitor and maintain control measures.

10.2 Design

ESC devices for the enabling, and establishment works have been designed in accordance with the design principles of the Guidelines to ensure that the site is managed in a way that achieves the conditions of consent as a minimum. The ESCP has been designed to accommodate work operations being undertaken over the expected duration of the Quarry. This will provide flexibility in the management of the Quarry to meet the possible fluctuation of the demand of aggregate. It is expected that any updated ESCPs will be prepared and submitted to Greater Wellington Regional Council for certification in advance of any changes being made on site.

A set of ESC drawings with sizing specific to the enabling works are provided in Appendix B with a focus on Stage One to demonstrate 'proof of concept'. Actual timing of the OBDA development will be determined by the overall quarry management and demand for aggregate. The controls and methodologies have been designed to meet the site requirements and to meet the design philosophy of The Guidelines.

Once the OBDA operations commence, upper catchment cleanwater will be directed around the work area, while all site water will discharge to sediment retention devices until stabilised.

Sizing and design information for the ESC measures are included in Appendix B.

As-builts and an audit programme ensure compliance with the design requirements and guidelines. Catchment areas (both clean and dirty) will adjust during the life of the OBDA and regular audits, and as-built revisions will be undertaken.

10.3 ESCP Revision/Updates

It is anticipated that the ESCP will evolve over time, as erosion and sediment control methodologies develop alongside legislation and consent requirements. The ESCP will be a working document and will be updated regularly as required, with all changes submitted for certification to Greater Wellington Regional Council prior to works commencing.

Reasons for making changes to the ESCP will be documented. Any new/updated version of the ESCP documentation will be issued with an updated version number and dated. A copy of the current ESCP document and subsequent versions will be kept for the Project records. Superseded versions will be marked as obsolete.

Any relevant revisions to the ESCP will be submitted to the Greater Wellington Regional Council for review and certification at least 10 days before becoming operational.

11 Sediment Risk

The deposition of overburden and process water fines has the potential to generate sediment which when discharged to water may lead to a reduction in water clarity and an increase in sediment deposition in the smaller unnamed tributary to the Hutt River, and if the discharge is significant, the Hutt River itself. Suspended sediment in freshwater waterways, particularly fine sediment, has several detrimental effects on water quality and aquatic life. It reduces water clarity (increases turbidity), limits light penetration, and can release nutrients, impacting plant and algae growth and fish populations. Additionally, sediment can smother habitats, clog fish gills, and impact the food web.

The OBDA is essentially on the interfluve between 3 streams. The 'western side' of the OBDA drains into the Waikoropupu catchment which discharges into the Hutt River adjacent to the Belmont Quarry Office. The 'eastern side' of the OBDA drains into two smaller streams which drain the Wellington Fault Scarp. Both these tributaries are unnamed but they each discharge into the Hutt River, slightly upstream of the Waikoropupu Stream. The catchment area upstream of the Waikoropupu Stream confluence is ~582km^2 (58,200ha). See Figure 21. The suspended sediment load of the Hutt River upstream of the Waikoropupu Stream is 127,994 tonnes/year[1].

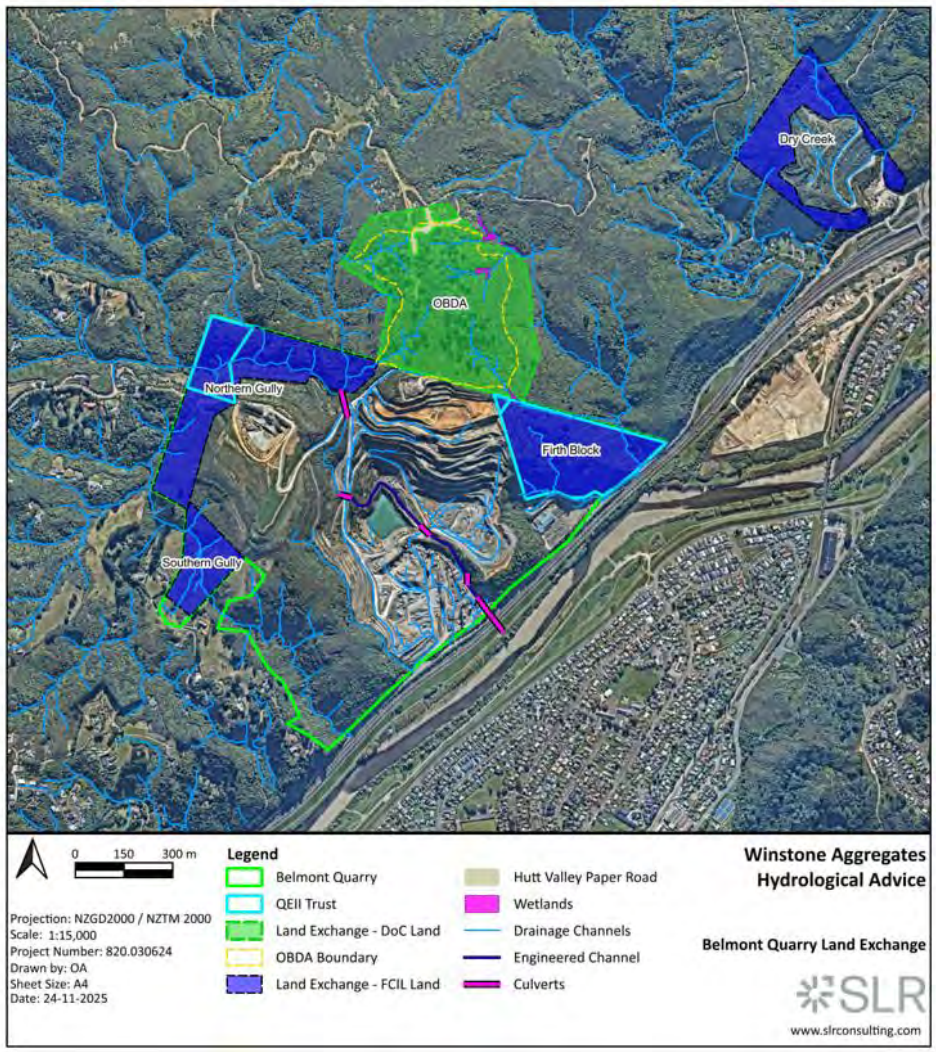


Figure 21: Hydrological map of the proposed quarry and receiving waterways

The OBDA is generally circular in shape, which has been divided up into 10 main stages, with sub-stages within these. It is unlikely that there will be concurrent works occurring between stages. Regardless of this, earthworks

[1] Provided by NZ River Maps - NIWA

areas will still be subject to deliberate timing of works and ongoing stabilisation as works progress to minimise the potential for erosion.

Construction-related environmental risk for projects of this nature are typically the exposure of bare land from earthworks to rainfall (particularly within steep topography) and works within or adjacent to watercourses. To assist with understanding the nature and magnitude of this risk, the existing topography has been measured, and there are some steep slopes which exist within gully systems, but over much of the existing ground, slopes are on average 24%. All areas will be subject to a high level of detailed erosion and sediment control planning design and ongoing monitoring programme as described in Appendix A. The monitoring programme will have particular focus on ensuring all controls are working as intended and are achieving the required outcomes.

It also recognised that wetter periods (e.g. June to August) may pose a higher risk for sediment discharges. Construction activity within this period will be assessed closely, and stabilisation plans developed to ensure progressive stabilisation is occurring. See Section 13 for proposed consent conditions relating to winter works.

The greatest area of potential sediment generation and yield for this Project relates to:

- Works adjacent to overland flow paths or streams; and
- Overburden placement on steep slope areas.

These areas do not comprise a large portion of the overall OBDA works. Within these areas, both erosion and sediment controls will be installed to minimise, capture and treat sediment laden runoff that may enter the receiving environments. Chemical treatment within SRPs and DEBs will allow for improved treatment efficiencies of these devices and is another critical element of reducing potential risk of sediment yields. Additionally, the duration and timing of works will be minimised as far as practical to minimise disturbed soils exposed to heavy rainfall.

11.1 Potential Sediment Yields

This section discusses the potential sediment yields from the OBDA earthworks and places this in the context of the catchment and current state. Visual assessments indicate that the catchment areas are currently not subject to significant "natural" sediment yields in the absence of the Project unless high intensity rainfall is occurring.

The sediment yields additional to that which 'naturally' occurs will be proportional to the area of bulk earthworks. For the purpose of this assessment, the catchment analysed is the Hutt River Catchment, due to this being the receiving environment for all of the OBDA via small streams or overland flow paths. The sediment yield resulting from the OBDA is considered to have only a small increase overall on a catchment basis. The large size of the wider catchment demonstrates the very small footprint of the OBDA within the context of the overall marine environment, as illustrated in Table 1. The OBDA earthworks also comprise a small percentage (less than 0.04%) of catchment area immediately above the earthwork (Table 2).

Table 1: OBDA earthwork catchment areas

Catchment	Project Earthworks (ha)[2]	Catchment Area at coast (ha)	Project % Catchment Area
Hutt River	21.44	65,500	0.03%

[2] Earthwork areas include the OBDA footprint

Table 2: OBDA earthwork catchment areas

Catchment	Project Earthworks (ha)	Catchment Area above Earthworks (ha)	Project % of Upstream Catchment Area
Hutt River	21.11	58,200	0.04%

To allow comparison of Project yields to baseline or existing sediment yields, a baseline sediment yield from the existing catchment is estimated. This equates to 1.12 tonnes per ha per year for the entire OBDA catchment. The potential OBDA annual sediment yield on a catchment wide basis is set out in Table 3. This estimate does not include any applied erosion and sediment control measures for treatment of sediment runoff or erosion control.

Table 3: Comparative Sediment Yield - Full Catchment

Catchment	Project Earthworks (ha)	Potential Sediment Yield from Earthworks without erosion or sediment controls (tonnes/year)	Potential Background Sediment Yield from Full Catchment (tonnes/year)	Potential % increase in Sediment Yields from Project
OBDA Project	21.44	347	132,038[3]	0.3%

Table 4: Comparative Sediment Yield – Sub-catchment

Catchment	Project Earthworks (ha)	Potential Sediment Yield from Earthworks without erosion or sediment controls (tonnes/year)	Potential Background Sediment Yield from Catchment above Works Extent (tonnes/year)	Potential % increase in Sediment Yields from Project
OBDA Project	21.44	347	127,994[4]	0.27%

On a wider catchment basis, the proposed OBDA is likely to result in an insignificant increase in potential sediment yields to the marine environment, equating to less than 0.5% on an annual basis, even without taking into account erosion and sediment control reductions.

Further results from the USLE analysis can be found in Appendix C. In summary:

- An estimate of sediment yield for the works that are to be treated via erosion and sediment control devices has been developed using the Universal Soil Loss Equation (USLE). The USLE estimates are based on conservative assumptions:
    - The open areas are taken as maximums. It is likely that they will be staged down to smaller areas at any given time. For example, there will be multiple sub-stages of Stage 1, and so a maximum open catchment of 2.5ha has been used.
    - The length-slope ratio is based on assumed slope lengths that exceed the likely bench spacing, and do not take account of the low gradients of the benches.
    - The soil type is based on a typical breakdown of particle sizes for the upper layers of topsoil that would need to be initially stripped, however the overburden material is determined using a sieve analysis.
    - A time period of 6 months has been used, since bulk earthworks will be timed around typical construction seasons and quarry campaigns
    - SRPs and DEBs will be installed to treat runoff from the construction of the stripped areas. The SRP's and DEBs discharge to bush via stabilised overland flow paths or pipes to areas outside the OBDA and will be chemically treated, which influences the high rate of efficiency.

[3] From NIWA (NZ River Maps) – based on the Suspended sediment load for the Hutt River which may not reflect the total sediment yield of the catchment due to deposition.
[4] From NIWA (NZ River Maps) – based on the Suspended sediment load for the Hutt River which may not reflect the total sediment yield of the catchment due to deposition.

    - It is important that these yields are not considered in absolute terms and are instead utilised in a comparative manner to provide an indication of the potential quantum of sediment that may result.
- The OBDA will be strictly staged (with sub-stages) since there is no need for multiple stages to be open at any one time.
- Several SRPs will be installed to treat runoff from the construction of the OBDA. The SRPs discharge to bush at various locations, within the same original gully or catchment area. The overburden bund batters will be progressively stabilised as the fill levels are lifted and prior to moving on to any subsequent stage. A USLE based on an open area of 2.5ha is estimated to generate approximately 1.311 tonnes per year, at 95% efficiency.

11.2 Sediment Risk Assessment

The erosion and sedimentation controls proposed during construction, are designed to protect the downstream freshwater receiving environments and therefore, also provide protection to the ultimate marine receiving environment via the Hutt River. To ensure the ESCP is sufficient, recommended conditions require water quality monitoring and a revision of the ESCP in the event that standards are not being met or due to an incident. Dry weather monitoring has been included to ensure there is no seepage of fines out the bottom of the OBDA. Additional erosion and sediment controls have been proposed in areas where there are known sensitive receiving environments.

Erosion and sediment controls for the OBDA development outlined in this report will involve the interception and treatment of sediment-laden runoff from the various construction areas. The erosion and sediment control measures proposed will be designed to minimise (to the extent practicable, and in accordance with the Guidelines) the extent of soil erosion and manage any resultant sediment yield. Erosion control will be the highest priority in the design of the erosion and sediment control measures as it prevents sediment generation in the first instance.

For this proposal, all stages will use traditional earthworks practices consistent with the Guidelines' ESC requirements. Some elements within these stages will require adaptive management approaches, particularly during Stage 1, where access requirements may involve a cut and cover methodology. These establishment activities are limited in both area and duration relative to the overall life of the quarry. The OBDA is located within areas which are erosion-prone, however, the gradient of the land will flatten over time as the gullies are filled with overburden material and slopes are stabilised.

Assessing sediment yield for a project of this scale inevitably involves uncertainty and relies on multiple assumptions. Any change to those assumptions can significantly influence the predicted yields. Sediment yield estimates indicate that the Stage 1A works may increase sediment yield at the downstream extent of the site by 2.17% and over the life of the OBDA it may result in a 5.23% increase in sediment yield when compared to the pre-commencement sediment yield, estimated at the downstream point. These estimates are intentionally conservative. In practice, site characteristics, staging, and reductions in open areas are likely to result in lower actual yields. It is also important to recognise that USLE outputs are not direct predictions of sediment loads. Instead, they provide a comparative tool and help refine ESC plans to minimise sediment generation as far as practicable.

The ESC strategy focuses on minimising exposed areas at any one time, applying best practice control measures, and progressively stabilising completed areas to reduce contributing catchment sizes. The proposed ESC methodology represents the best practicable option for this project. It incorporates best practice controls, staged establishment, effective OBDA management, and progressive stabilisation. This approach aligns with industry leading practices that have successfully minimised sediment discharges and downstream effects on numerous projects across the Wellington region and nationally.

The proposed approach to ESC as described in this report, and the assessment of potential effects therein, is provided by myself as technical expert. I am satisfied that the proposed ESC management will effectively minimise potential sediment effects to the extent practicable, due to:

- Comprehensive on-site monitoring to successfully implement effective erosion and sediment controls that respond to the project constraints and continuously improve the management approach.
- Implementation of erosion and sediment control measures during construction, including structural (physical) and non-structural (site management and staging of the works) measures to meet requirements of the Guidelines.
- Introduction of construction techniques to reduce ecological effects. For example, additional 'secondary' controls (Section 11.3) where swamp maire is known to exist downstream of the works area.

I conclude that, provided best practice erosion and sediment controls are in place during land disturbing activities as described above, any adverse effects on receiving environments can be appropriately minimised. Some sediment is likely to be discharged from sediment devices in areas of works during rainfall events, but this will generally occur when the streams are under higher flows and receiving sediment from other sources in the catchment. Given the natural conditions that exist, and assuming best practice erosion and sediment control as described in the Guidelines, the effects of construction discharges on receiving environments should be no more than minor.

Accordingly, the proposed ESC measures for both establishment and quarrying activities, along with the predicted sediment discharges, are expected to meet statutory requirements and support the intended outcomes for water quality and downstream environments. Overall, I consider that provided the works are undertaken in accordance with the proposed ESCP and all recommended conditions of consent, adverse effects associated with the works are anticipated to be no more than minor.

11.3 Ecology Report Recommendations

The ecological assessment prepared by BlueGreen (2026) identifies a range of ecological values and sensitivities associated with the proposed OBDA footprint and its downstream receiving environments. These include ephemeral and intermittent streams, natural inland wetlands, regenerating indigenous shrubland, and habitat for native lizards and avifauna. The report outlines a series of recommendations intended to ensure that ecological effects arising from the staged development of the OBDA are appropriately avoided, minimised, remedied, or offset.

The erosion and sediment control framework for the OBDA has been developed with direct reference to these ecological recommendations. The following sections summarise the key ecological requirements and describes how they have been incorporated into the ESC design, staging, and operational approach.

Hydrological Function and Downstream Connectivity

The ecological report identifies the maintenance of hydrological inputs to downstream wetlands and intermittent streams as a critical ecological requirement. The eastern gullies and the central western swamp maire gully rely on shallow surface flows, ephemeral drainage pathways, and subsurface seepage originating from the OBDA footprint. Any interruption to these pathways has the potential to alter wetland function, reduce soil moisture availability, and affect the persistence of swamp maire and associated vegetation.

The ESCP addresses this requirement by treating each OBDA stage as its own separate hydrological catchment during active earthworks. Surface runoff is directed internally to sediment treatment devices which will discharge into the same catchments. Cleanwater diversions will also be staged to achieve the same outcome. Subsoil drainage is proposed to be installed beneath overburden fill to manage pore water pressures and to re-establish controlled discharge points at the toe of the OBDA. Once external faces are stabilised, ESC devices are removed and rehabilitated slopes reconnect to natural drainage pathways. This ensures that downstream wetlands and streams continue to receive appropriate hydrological inputs throughout the life of the project, consistent with the ecological recommendations.

Sediment Discharge and Water Quality

The ecological report identifies sedimentation as a key risk to downstream ecological values, noting that even minor increases in turbidity or deposition could adversely affect wetland vegetation, macroinvertebrate communities, and the root systems of swamp maire. BlueGreen (2026) emphasises that sediment discharge effects must be avoided, particularly to the eastern gullies and the central western wetland.

The ESCP has been developed to achieve, as a minimum, the standards set out in the Guidelines, and in several locations the controls have been strengthened to reflect the ecological sensitivities identified within the OBDA footprint. In particular, additional measures (set out in more detail below) have been incorporated in the gullies where swamp maire is present, recognising the susceptibility of these systems to fine sediment inputs and changes in water quality.

Within these areas, the sediment control approach will provide a higher level of protection than would ordinarily be required under the Guidelines. Informal forebays will be added to DEBs to encourage additional settlement prior to water reaching the main pond body for treatment. This also allows the device to be cleaned out easily as sediment accumulates closer to the entrance of the device. Super silt fences (in place of silt fences) will be constructed around the DEBs located within the swamp maire gullies, providing an additional physical barrier to sediment movement downslope if there are any slope failures. At the outlets of the DEBs, lined sediment sumps will be installed to capture any residual material. These sumps can be monitored and cleaned out by hand if necessary. Monitoring thresholds (Section 12) are also established to ensure that any drop in treatment efficiency is identified early and remedied.

These measures will provide additional protection to ecologically sensitive areas which goes beyond the requirements of the Guidelines.

Staged Vegetation Clearance

BlueGreen (2025) notes that vegetation clearance will occur progressively over the life of the OBDA and recommends that clearance be limited to discrete stages to minimise the extent of habitat loss at any one time.

The ESCP details staging sequences which supports this recommendation by restricting vegetation clearance to the specific stage under construction. Each stage is isolated hydrologically and operationally, with all other areas remaining undisturbed until required. Vegetation clearance is limited to what works would occur in the next 6 – 12-month period, based on the earthworks season timeframes.

Progressive Stabilisation and Rehabilitation

The management of ecological effects relies on progressive rehabilitation to restore vegetation, offset residual effects, and ultimately achieve a net ecological gain across the OBDA and wider regional park. BlueGreen (2025) identifies 15 ha of on-site restoration and 18 ha of additional restoration within the regional park, as well as the creation of a new 0.2 ha wetland.

The ESCP supports this by requiring immediate topsoiling and stabilisation of external faces once final design levels are reached. This occurs for smaller areas within a sub-stage. Completed areas are planted in the next planting season, ensuring rapid establishment of indigenous cover. This approach reduces erosion risk, supports long-term ecological restoration, and reflects the ecological recommendation for sequential rehabilitation across the OBDA.

12 Monitoring and Maintenance

12.1 Audits

The operational effectiveness and efficiency of all erosion and sediment control measures must be maintained throughout the duration of, and each stage of, the OBDA development, or until the site is permanently stabilised against erosion. Audits must be completed at certain time intervals and triggers as below:

Each audit must:

- check whether all erosion and sediment controls have been installed, operated, and maintained in line with the Erosion and Sediment Control Plan (ESCP) and the Guidelines; and
- identify any actions needed to achieve full compliance.

Audits must be completed:

a) Quarterly at a minimum (unless GWRC approves a reduced frequency in writing); and

b) As soon as practicable after any rainfall event of 25 mm or more within 24 hours during periods of active earthworks and where ESC devices are operational.

Each audit must be recorded in writing and provided to GWRC within 2 working days of the audit, unless GWRC approves a different timeframe.

A record will be maintained of the date and time of inspection undertaken, any maintenance requirements identified and of maintenance undertaken to all erosion and sediment control structures. A suggested maintenance record template and inspection record is included in Appendix D.

12.2 Water Quality Monitoring

Sediment Treatment Devices (SRPs and DEBs)

Sampling of sediment treatment devices must be undertaken as soon as practicable after the following instances:

a) **After rainfall**: following any rainfall event of more than 25 mm in 24 hours, as measured at the onsite weather station; and/or

b) **Monthly dry-weather monitoring**: once each month during dry weather. This sampling may stop if GWRC agrees in writing, provided that 11 out of 12 consecutive dry-weather samples show compliance with the discharge limits below.

Monitoring undertaken includes:

- **Parameters:** pH and Turbidity (NTU)
- **Samples:** NTU at the outlet of the device must not be greater than 170 NTU and for any flocculated device the pH is at or below 5.5 or above 8.5

Sampling and record-keeping must follow an approved methodology which will be submitted to GWRC within 20 working days prior to the commencement of works. This methodology will detail locations, methods and procedures for water quality monitoring.

Monitoring must continue until each stage is fully stabilised against erosion and all sediment controls have been decommissioned, unless GWRC approves an earlier end date. Monitoring data collected will be provided to GWRC within 5 working days after the rainfall event (or after results are received from an accredited laboratory).

In-Stream Monitoring

Any discharges to the tributaries of the Hutt River do not give rise to any of the following:

a) NTU level at Downstream Testing point shall be no more than 30% higher than the Upstream Testing Point

b) A pH level outside the range of 5.5 and 8.5 (unless Upstream Testing Point is outside of this range in which case the PH level must not be any higher or lower than Upstream Testing Point).

Monitoring locations may be retired as individual stages reach final landform and are certified as stabilised.

Subsoil Monitoring

Subsoil drainage will be installed across the OBDA site. This will generally consist of perforated novacoil pipes, wrapped in geotextile and aggregate. There is a risk that this type of drainage conveys sediment laden water directly to the receiving environment, therefore monitoring of these drains should occur:

- **After installation:** To adequately assess the discharge, subsoil outlets should be inspected during dry weather and rainfall events to ensure discharge is not greater than 170 NTU. If the discharge is above this value, adequate measures shall be put in place (e.g. discharge to go to sediment sludge bags with chemical treatment prior to discharge).
- **After rainfall**: following any rainfall event of more than 25 mm in 24 hours, as measured at the onsite weather station

This monitoring should continue during the construction and operational phase until the subsoils are reliably running clean.

12.3 Monitoring Response

In the event that any of the following incidents occur:

a) Monitoring under Section 12.2 shows that the sediment treatment device has:
   - An outflow turbidity which exceeds 170 NTU, and/or
   - for any flocculated device a pH level outside the range of 5.5 and 8.5

b) Monitoring of:
   - Discharges to tributaries of the Hutt River, or
   - the Waikoropupu Stream shows that discharge quality standards in Section 12.2 have been exceeded; and/or

c) Any erosion or sediment control measure fails or malfunctions, or any other unauthorised contaminant discharge occurs, resulting in a discharge—either directly or via land—to a waterbody or the local authority stormwater system;

The consent holder must:

1. Notify GWRC of the incident
2. Notify the project ecologist (if applicable)
3. When safe to do so, immediately investigate the cause and put in place changes to prevent it from happening again.
4. Take photographs of:
   - the discharge point,
   - upstream of the discharge point, and
   - downstream of the discharge point.

5. Re-establish erosion and sediment controls as soon as practicable in accordance with the ESCP.

Within 10 working days of any of the incidents listed in (a)–(c), the consent holder must provide GWRC with a written report that includes:

- the date and time of the incident
- weather conditions before and during the incident
- the required photographs
- investigations carried out
- the cause of the incident
- actions taken in response
- lessons learned and measures to prevent it happening again

All corrective measures must be completed to the satisfaction of GWRC.

12.4 SRP and DEB maintenance

Maintenance of the erosion and sediment control measures should seek to ensure that the accumulated sediment be removed from sediment retention devices prior to reaching 20% live storage capacity. The SRP or DEB must have at least 80% treatment capacity at all times. Sediment removed from treatment devices should be placed within the OBDA or stable ground where it cannot re-enter the device or be washed into any watercourse.

The SRP sump or any sumps around the site must be cleaned out regularly and after every large storm, as required event to allow them to be effective during and immediately after future rain events

12.5 Other Recommended Maintenance Activities

Table 5 sets out the recommended maintenance checks, which support a comprehensive assessment of the site's erosion and sediment control measures and their operational condition.

Table 5: Recommended maintenance activities and checks

Control Type	Description	Frequency
Weather forecast	Check Metservice New Zealand for rainfall forecasts	Weekly or as required
Diversion bunds and channels	Ensure they are in the correct place (clean water diverting flows away from the work areas and sediment-laden flows directed to sediment treatment devices)	Weekly or as agreed
	Inspect for signs of scouring or collapse and repair	Weekly or as agreed
	Remove any materials that may have accumulated	As required
	Take particular care to protect against damage from earthmoving operations and reinstate the diversion if damaged.	As required

	Look for low spots, areas of water ponding, formation of tunnel gullies, sediment deposition and debris blockage	Weekly or as agreed
Sediment Retention Pond/Decanting Earth Bund	Inspect the SRP and clean out if excess material has accumulated	Weekly or as agreed
	Check the embankment for signs of erosion. Stabilise appropriately.	Weekly or as agreed
	Check the inlet structure	Weekly or as agreed
	Check the outlet structure and pipe (i.e. signs of seeping, blockages)	Weekly or as agreed
Monitoring of sediment discharge	Check whether the erosion and sediment devices are operating as designed	During rainfall events
	Inspect areas of earthworks and identify whether additional erosion and sediment control measures are necessary	During rainfall events
	Determine whether excessive sediment is discharging to roadways, land, or watercourses	During rainfall events
Stabilising areas	Identify areas that require stabilisation	As works progress (minimum of once a week)

Any accumulated sediment deposited in the diversion channels where there is a risk of overtopping due to a lack of freeboard will be removed and disposed of to a secure area to ensure it does not discharge to the receiving environment.

Any sediment or fines removed from erosion and sediment control structures will be placed within the proposed OBDA fines disposal (or at the Cottle OBDA) in a manner that meets the structural and geotechnical requirements associated with the OBDA.

13 Proposed Consent Conditions

In order to manage erosion and sediment control on the site, the following conditions are proposed which relate specifically to erosion and sediment control. These conditions are based on the existing consent conditions for the Cottle Block which is currently in operation and have been modified to suit the new OBDA proposal with explanation of the modifications set out in the Notes column:

Number	Detail	Notes
1	The consent holder may request amendments to the Erosion and Sediment Control Plan by submitting the amended plan to the Manager for the certification. Any amendments to the Management Plans must be in accordance with the ESC Guide for Land Disturbing Activities in the Wellington Region and other conditions of this consent. Major amendments sought shall not be implemented until the consent holder has received notice in writing amendments have been certified by the Manager.	
2	Unless otherwise agreed in writing with the Manager, the Belmont Quarry – Overburden Disposal Area Sediment Control Plan, must be reviewed as a minimum once in every annual period and updated as required by the Manager. The updates shall take into consideration monitoring results from the previous annual period, practical experience gained from the site, and improvements and innovations in erosion and sediment control practice and any relevant regulatory changes. As a minimum the outcome of the review will be reported to the Manager and confirmation sought that an update is not required. This review must be submitted at least 20 working days following the end of each annual period.	
	~~The consent holder must review the Flocculation~~ ~~Management Plan (FMP) prior to commencing each new stage of works, or at minimum once in every annual period. Reviews must reference monitoring data and/or further bench testing results to determine the effectiveness of the FMP and whether it needs to be amended to ensure on-going optimal performance. The findings of each review shall be submitted to the Manager upon request.~~	This condition has not been proposed because the overburden material will largely be the same over the life of the OBDA. The flocculant dose rates can be adjusted and bench tests completed outside of the FMP, if it is found that SRP's are not performing as well as expected after initial testing is completed or the soil type changes.

3	20 working days following the end of each annual period, the consent holder shall submit to the Manager an analysis of all results from the sampling conducted under condition7 during the previous annual period, including a comparison of the results with water quality monitoring triggers and limits specified in conditions 9 and 10, and proposed actions (including updates to the ESCP in accordance with condition 2 or FMP in accordance with condition 17 and associated timeframes if there is a trend of triggers being observed and water quality limits not being met.)	
5	The consent holder must progressively stabilise all disturbed or un-stabilised areas in accordance with the Erosion and Sediment Control Plan subject to this consent and ESC Guide for Land Disturbing Activities in the Wellington Region. Upon completion of works authorised by this consent, the entire site shall be stabilised.	
6	During all works authorised by this consent, and until the site has been permanently stabilised, the consent holder shall have the site and erosion and sediment control measures audited by a SQEP. The audits must identify whether all erosion and sediment controls have been installed, operated and maintained in accordance with the ESCP and ESC Guide for Land Disturbing Activities the Wellington Region, and identify any steps or measures required to ensure compliance is achieved. The audits required by this condition must be undertaken: a) as a minimum on a quarterly basis (unless a reduced frequency is approved in writing by the Manager); and b) as soon as practicable after a rainfall event greater than 25mm in 24 hours or 15mm in 1 hour. Each audit must be recorded in writing and submitted to the Manager within 2 working days of completing the audit, unless an alternative timeframe is approved by the Manager. *Note: In relation to 6 (a) audits may be reduced with the written approval of the Manager including, but limited, to in the event that the site is stabilised during winter.* *Note: Any site audits carried out by Wellington Regional Council or its contractors do not constitute the audits required by this condition.*	
7	Unless otherwise agreed in writing with the Manager, the consent holder shall sample and record the parameters set out in Table 1 below as soon as practicable and in the following instances as a minimum: a) following a rainfall event greater than 25mm in 24 hours or 15mm in 1 hour, as measured at the onsite weather monitoring station; and/or b) Monthly during dry weather. Sampling and recording requirements under 7 (b) may cease with the written agreement of the Manager in the event that 11 out of 12 consecutive dry weather samples demonstrate that the compliance limits in condition 10 have been met. Table 1: Sampling Parameters for Devices and receiving environment	

	<table><tr><th>Parameter</th><th colspan="2">All discharging DEB's and SRPs</th><th>Location: Tributary to the Hutt River</th><th>Location: TBC</th></tr><tr><td></td><td>Inlet</td><td>Outlet</td><td></td><td></td></tr><tr><td>pH</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>Turbidity</td><td>✓</td><td>✓</td><td></td><td></td></tr><tr><td>Total Suspended Solids (TSS)</td><td></td><td></td><td>✓</td><td>✓</td></tr></table> The monitoring required by this condition may only cease once the catchment has been completely stabilised and sediment control measures decommissioned, unless otherwise approved by the Manager.	
8	Monitoring data collected in accordance with the requirements of condition 9 will be provided to the Manager within 5 working days of the close of the quarterly period.	
9	In the event that any of the following incidents occur: a) The sediment treatment device monitoring required under Condition 7 confirms that: • At the outflow of the device, the NTU value is 170 NTU or greater; and/or • for any flocculated device the pH is at or below 5.5 or above 8.5; and/or b) Monitoring of the tributary to the Hutt River identified as (location to be confirmed) the tributaries to the Hutt River confirms that there is a breach in discharge quality standards specified in condition 10.; and/or c) there is a failure or malfunction of any erosion and sediment control measure, or any other unauthorised discharge of contaminants, that has resulted in a discharge either directly or via land to a waterbody or local authority stormwater infrastructure. The consent holder shall: i. Immediately notify the Manager of the incident; ii. Immediately investigate the cause of the incident and implement changes required to prevent a reoccurrence; iii. Take photographs of the discharge point, and upstream and downstream of the discharge point; iv. Re-establish erosion and sediment control measures as soon as practicable in accordance with the ESCP; Within 10 working days of any of the issues in a)-c) above occurring, provide a written report to the Manager including the following information: • Date and time of the incident; • Weather conditions prior to and during the incident; • Photographs required by iii • Investigations undertaken; • Cause of the incident; • Response actions taken; • Lessons learnt and actions taken to prevent a recurrence.	

	All measures to prevent a reoccurrence of the exceedance or failure shall be to the satisfaction of the Manager.	
10	Compliance Limits: The consent holder shall ensure that any discharges to the tributary to the Hutt River identified as (Location to be confirmed) does not give rise to any of the following: a) A total suspended solids (TSS) reading which is no greater than a 30% increase when comparing upstream to downstream; and b) A pH level outside the range of 5.5 and 8.5 (unless Upstream is outside of this range in which case the PH level must not be any higher or lower than Upstream)	
11	The consent holder must not remove or decommission any erosion or sediment control measure until the contributing catchment for the erosion or sediment control measure is completely stabilised, or a suitable replacement has been installed. Written notice must be provided to the Manager prior to the removal or decommissioning of each erosion or sediment control measure. Written notice must include evidence of stabilisation and be signed off by SQEP confirming that the contributing catchment for the erosion or sediment control measure is completely stabilised.	
	~~At least 20 working days prior to works commencing, the consent holder shall submit to the Manager for certification the methodology, for undertaking any monitoring required by conditions of this consent, including locations, methods and procedures for water quality monitoring required by condition X7.~~	[note]This consent condition is not included since the different phases in the OBDA development are all covered by the same condition requirements.
12	Other than the process fines void, the site shall be stablished during the period 1 June – 30 September inclusive each year and no earthworks authorised by this consent, other than those necessary for the maintenance of erosion and sediment controls, shall take place during the period of 1 June to 30 September inclusive each year, unless otherwise approved in writing by the Manager.	
13	Any request for approval to undertake earthworks, during the period 1 June to 30 September shall be made to the Manager no less than 20 working days prior to the proposed commencement date of the works and shall be in the form of an amendment to the ESCP (if modified) and accompanied by: a) A description of the proposed works, duration of the works, and method(s) of stabilisation; b) A plan showing the areas that have already been stabilised and any additional erosion and sediment controls proposed; and c) A summary of the environmental performance of the site, including any relevant monitoring results.	

	Note: Any request for Winter Works approval will be assessed by the Manager against the following criteria: *a) Scale and duration of the works* *b) Effectiveness of existing controls* *c) Prior compliance history, including effectiveness of monitoring and reporting* *d) Likely effectiveness of the proposed controls and methods of stabilisation* *e) Sensitivity of the receiving environment* *f) Any other matters considered relevant by the Manager*	
14	The consent holder must submit a Capping Erosion and Sediment Control Plan (Capping ESCP) to the Manager for certification at least 20 working days prior to commencing earthworks associated with capping the OBDA. The purpose of the ESCP is to show what measures, procedures and methodologies will be put in place to manage the actual and potential erosion and sediment discharge related risks and effects. The ESCP must be prepared by a SQEP and must be in accordance with the ESC Guide for Land Disturbing Activities in the Wellington Region. The ESCP must include the following information, plans and details as a minimum: a) Responsibilities and contact details of all parties responsible for the construction, inspection or maintenance of erosion and sediment controls; b) The locations of any rivers, streams, wetlands, waterbodies and stormwater drainage; c) Areas and cross-sections of cut and fill; d) The extent of soil disturbance and vegetation removal; e) Any areas that will remain undisturbed, including riparian vegetation to be retained; f) Locations of all temporary stockpiles, permanent spoil deposition areas, access roads and stabilised construction entrances; g) Nature of progressive site rehabilitation proposed; h) All erosion and sediment control measures, including diversion channels, and staging details for those measures; i) The catchment boundaries and areas of all sediment control devices; j) The specific locations of all points of discharge to the receiving environment, including to the stormwater network; k) An update of the methodology, required by condition 22 to ensure it is relevant to the OBDA capping phase of works; and l) Any other relevant site or information required to demonstrate compliance with the ESC Guide for the Wellington Region or consent conditions.	

	Note: It is recommended that the ESCP is prepared with input from the contractor undertaking the works.	
15	Works authorised by this consent associated with capping the OBDA shall not commence until the consent holder has received notice in writing that the ESCP has been certified by the Manager.	
16	At least 2 working days prior to the commencement of works authorised by this consent associated with capping the OBDA, the consent holder shall provide the Manager with 'as-built' plans and details, which have been prepared and signed by a SQEP, confirming that the erosion and sediment controls have been constructed in accordance with the ESCP. *Note: For sediment retention ponds, as-built check sheets are available on the Wellington Regional Council's website at the following link: gw.govt.nz/earthworks.* • *For other ESC measures, as-built information for the purpose of this condition may include:* • *A signed copy of the certified ESCP with a statement that the ESC measure has been constructed in accordance with the certified ESCP. This statement may include the relevant construction quality check sheet for the ESC measure from Appendix C1.0 of the ESC Guidelines for the Wellington Region; and* • *Photographs of each control measure as constructed.*	
17	The consent holder must submit a Flocculation Management Plan (FMP) to the Manager for certification at least 20 working days prior to the proposed date of commencement of earthworks associated with capping the OBDA authorised by this consent. The purpose of the FMP is to demonstrate how flocculation will be used, monitored and managed appropriately. The FMP must be prepared by prepared by a SQEP in consultation with the contractor undertaking the works and party who will be responsible for the operation and maintenance of the system and must be in accordance with the ESC Guide for Land Disturbing Activities in the Wellington Region. The FMP must include as a minimum: a) Specific design details of the chemical treatment dosing system, based on a rainfall activated methodology for decanting earth bunds (DEBs) and sediment retention ponds (SRPs); b) Monitoring, maintenance (including post-storm) and contingency programme (including a record sheet); c) Details of optimum dosage, including assumptions; d) Results of initial chemical treatment trials; e) A spill contingency plan; and f) Details of the person or bodies that are responsible for the operation and maintenance of the chemical treatment system and the organisational structure that will support this system.	

18	Works authorised by this consent associated with capping the OBDA shall not commence until the consent holder has received notice in writing that the FMP has been certified by the Manager.	
19	The consent holder shall submit flocculation monitoring reports as required by Flocculation Management Plan to the Manager. These reports must be submitted each week and include: a) Dates and results of operation and maintenance undertaken by a SQEP b) Flocculation testing undertaken (record sheets) c) Any corrective measures taken where a device has been found to not be functioning effectively	
~~20~~	~~All earthworks associated with capping the OBDA shall be stabilised prior to 1 June each year and be maintained in a stabilised state until at least 30 September. The stabilised surface shall be maintained in accordance with the ESCP.~~	This condition has not been included since winter works are covered by Condition 13
	~~No earthworks authorised by this consent associated with capping the OBDA, other than those necessary for the maintenance of erosion and sediment controls, shall take place during the period of 1 June to 30 September inclusive each year.~~	This condition has not been included since winter works are covered by Condition 13

14 Incident Management and Reporting

Incident response in relation to an unauthorised sediment discharge shall be undertaken. In relation to erosion and sediment control, an incident is defined as:

- Discharges from non-stabilised areas that are not treated by erosion and sediment control measures as required by the ESCP;
- Failure of any erosion and sediment control measures;
- Failure of any temporary stream diversion; and/or
- Any other incident, which either directly or indirectly causes, or is likely to cause, adverse ecological effects in any waterbodies, that is not authorised by a resource consent.

Incidents will primarily be identified by site observations by quarry staff and as a result of specific environmental and erosion and sediment control inspections undertaken by an appropriate Winstone representative. An incident may also be required as a result of the monitoring undertaken, through complaints, or stakeholder feedback.

An internal incident report will be prepared (within 5 working days), and include the following details:

- Description and location of incident;
- Description of the weather conditions before/during the incident;
- Description of work being carried out at the time of the incident and how the incident occurred;
- Immediate corrective actions taken to rectify the situation and mitigation measures to be taken to minimise the adverse effects on the environment;
- Root causes of the incident; and
- Environmental controls in place at the time of the incident.

14.1 Corrective Actions

As soon as practicable after an incident, the following recommendations should be made:

- Determine the immediate actions to be taken to ensure compliance with the relevant management plan(s), as soon as possible
- Corrective actions to address root causes shall be assigned and actioned as soon as practicable, taking into account health and safety.
- If required, liaise with Greater Wellington Regional Council to establish what remediation or rehabilitation is required and whether this is practicable to implement.

Additional monitoring may be required as a result of an incident, and changes may be required to the certified ESCP. Any such changes will be made in accordance with the conditions of consent(s).

15 Decommissioning

No erosion and sediment control measures can be removed or decommissioned until the contributing catchment is completely stabilised, or a suitable replacement has been installed. Written notice must be provided to GWRC prior to the removal or decommissioning of each erosion or sediment control measure. Written notice must include evidence of stabilisation and be signed off by SQEP confirming that the contributing catchment for the erosion or sediment control measure is completely stabilised.

Once stabilisation requirements have been met, the decommissioning of controls will meet the following standards:

- Prior to backfilling of any devices, the silt fence or super silt fences that were utilised during the installation devices will be reinstated if required (particularly over the spillways), note this requirement will be subject to the duration of the backfilling.
- Any accumulated sediment is to be removed as part of this decommissioning and will be disposed of in one of the site spoil disposal areas.
- The exposed areas resulting from sediment retention pond or decanting earth bund decommissioning will be rapidly stabilised in accordance with the final landscaping for the area. Where this final landscaping requires grassing, additional stabilisation in the form of hay mulch may be appropriate.
- Any recyclable materials as the result of silt fence or super silt fence removal, waratahs, wire, tensioners, waratah caps etc will be retained and reused as practical.
- The geotextile from the silt fences or super silt fences is not (typically) suitable for reuse so will be removed from site as waste.
- As with the silt fence material, geotextile used for site stabilisation will be recycled if practical, where this is not practical it will be removed from site as waste.
- Throughout the duration of the project, the ability to salvage and recycle silt fence and geotextile will continue to be investigated. Off-site recycling opportunities will also be investigated.

Notice of the decommissioning must be provided to GWRC at least two working days prior to the removal of any erosion and sediment control works specifically required as a condition of resource consent or by this document.

A template for decommissioning any erosion and sediment control device is included in Appendix E.

Appendix A – DRAFT ESCP

1 Introduction

The Belmont Quarry OBDA proposed expansion is located across a 23.86 ha, irregularly shaped area, which extends across three parcels of land legally described as Part Section 200A Hutt DIST, Section 255 Hutt DIST and Part Section Hutt DIST.

The earthworks construction activities will follow a conventional approach. This will involve removal of vegetation within the areas to be worked; drainage activities; stripping of topsoil to stockpile; filling operations, spreading and; reinstatement of the finished surface with topsoil and grass or other stabilised surface where appropriate. Once vegetation has been removed, it may be beneficial to resurvey the area to confirm contour lines and appropriateness of ESC device locations.

Erosion and Sediment Control design and methodology is in accordance with Greater Wellington Regional Council's *Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region* (GWRC, 2021).

Winstone staff must ensure that the consent, along with all referenced documents and plans, is:

- given to every operator or contractor involved in the authorised works before those works begin; and
- kept on site at all times during construction, and made available to any Warranted Wellington Regional Council Officer upon request; and
- It is recommended that contractors receive a verbal briefing on the consent conditions before starting work.

2 General Erosion and Sediment Control Details

Generally, erosion and sediment controls for the development site will be simple and traditional. Works will be accessed from the existing quarry site, so no additional entrance points from outside the quarry area are required., As new works areas are reached, the following general methodology will be followed.

1. Set out the location of the specific sediment retention device, DEB or SRP.
2. Install a silt fence below this work area.
3. Construct the specific sediment retention device.
4. Install flocculation shed or similar for chemical treatment
5. As built sediment retention device to confirm compliance.
6. Install dirty water diversion bunds, formed from stripped topsoil/overburden to direct runoff to the specific sediment retention device.
7. Commence cut to fill and cut to waste earthworks within the catchment of the specific sediment retention device. Surplus material disposed of appropriately or stockpiled and stabilised locally.
8. As the batters are complete, respread topsoil and grass/hydroseed/plant as possible and practicable.
9. As the subgrade is completed and roadside drains formed complete these works to permanent design.
10. The SRPs, DEBs, silt fences and super silt fences are to remain until all surfaces within the contributing catchments are stabilised by grass (strike > 80%), aggregate or are deemed to be non-erodible material (e.g. Rock or polymer).

Stockpile areas will be managed within existing catchment areas for SRPs or DEBs and are subject to the stabilisation requirements for the Project. These measures are consistent with The Guidelines.

2.1 Clean and Dirty Water Diversions

Clean water will be diverted around work areas to minimise catchment sizes and potential for erosion. Clean water will be diverted back into the original gully / tributary catchment where it would have discharged naturally wherever possible to minimise any potential effects on receiving environments. Some modification to the proposed ESCP is expected to allow this to occur.

Cleanwater diversions (Figure 22) will be constructed to divert upper catchment clean water away from the area of works. Cleanwater diversions for the OBDA will need to be staged to suit the progression of works. As the fill level increases, the diversions may need be constructed on top of the fill surface. It may not always be possible to follow the natural contours of the site due to access and steepness, so their alignment will need to be reviewed regularly to ensure that adequate fall is maintained for effective water discharge.

The cleanwater diversion bunds (for the earthworks) will likely be constructed using stripped topsoil and will be stabilised immediately following construction. This will likely include a perimeter bund around the extent of works and stage boundaries and will be progressively installed (and removed) as the quarry operations progress.

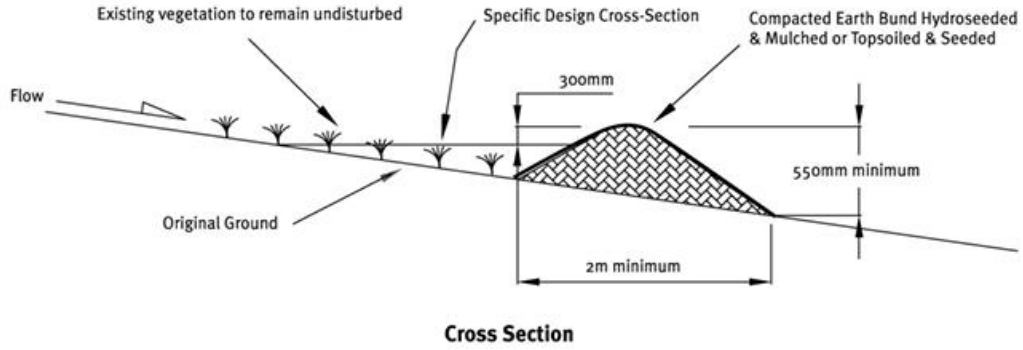


Figure 22: Cross section of a cleanwater diversion

The maximum contributing catchment area for cleanwater diversions during Stage 1 – 4 will be <10ha for all catchments. Calculations and detailed design are provided in Appendix B.

Suitable site material will be utilised to form dirty water diversion bunds (Figure 23) to divert sediment laden water from the site to the sediment treatment devices. Where required, bunds will be turfed on the cleanwater side to allow for immediate stabilisation. If turfing is not possible, the cleanwater side will be stabilised with hay mulch, seed and fertiliser, geotextile or coconut matting. Dirty water diversions will be required as per the ESCP (Appendix A), usually for the establishment of works and for the haul road. The purpose of these diversions is to divert sediment laden water to the correct location for treatment prior to discharge.

The maximum contributing catchment area for the dirty water diversions will be <5ha for all SRP catchments. To comply with The Guidelines the calculated minimum perimeter bund height installed across the project would be a minimum of 550mm to provide conveyance of the 5% AEP storm event, plus 300mm freeboard.

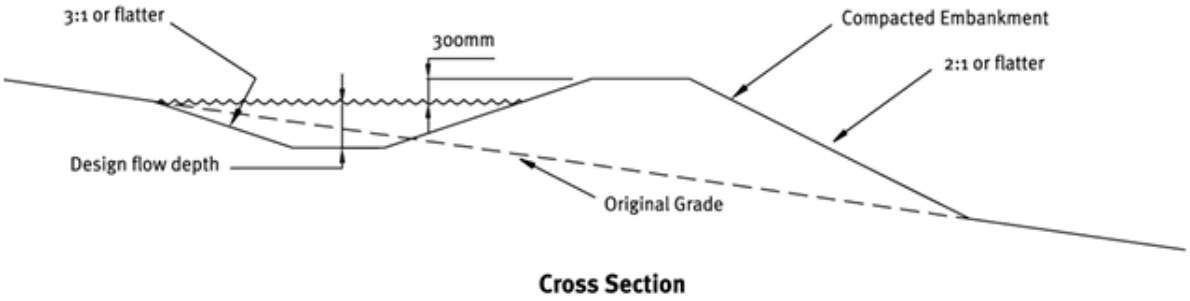


Figure 23: Cross section of a dirty water diversion

2.2 Sediment Retention Ponds

Sediment retention ponds (SRPs) (Figure 24 and Figure 25) treat sediment laden runoff and reduce the volume of sediment leaving site, to protect downstream environments from excessive sedimentation, water quality degradation and impacts of increased flow. SRPs are suitable for catchments sized between 0.3 – 5 Ha. Floating decants are to discharge at 3L/s per Ha of catchment, and the SRP outlet structure shall have a decant pulley system to cease discharge when required, and a forebay with a minimum volume of 10% of the pond volume. The sizing criteria for any SRP on site is as follows:

- Size SRPs based on the contributing catchment area and slope length.
- On earthwork sites with slopes < 18% and < 200 m in length, design SRPs with a minimum volume of 2% of the contributing catchment area (200 m3 for each ha of contributing catchment).
- On earthwork sites with slopes > 18% or > 200 m in length, design SRPs with a minimum volume of 3% of the contributing catchment area (300 m3 for each ha of contributing catchment).

- The above calculations define the total storage volume, which is measured from the base of the pond to the top of the primary spillway.
- The slope angle is determined by the slope immediately (within 20 m) above the SRP, or by the average slope over the contributing catchment, whichever is greater. The slope angle should also be the greater of the pre- or post-construction slope.

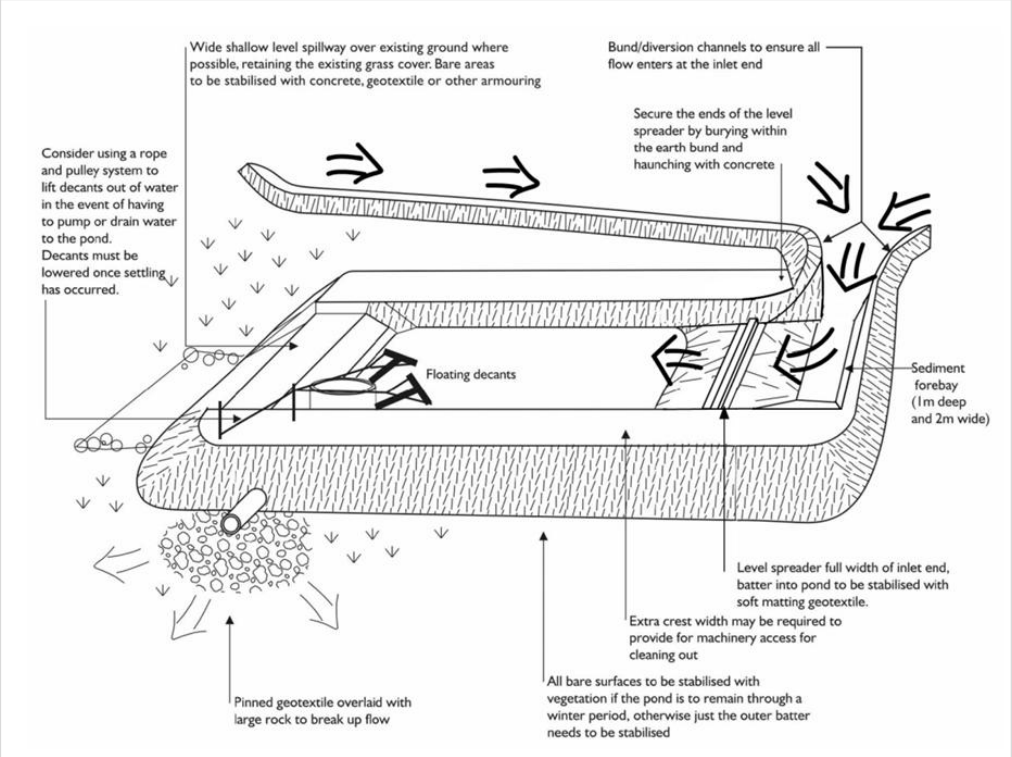


Figure 24: Schematic of a SRP

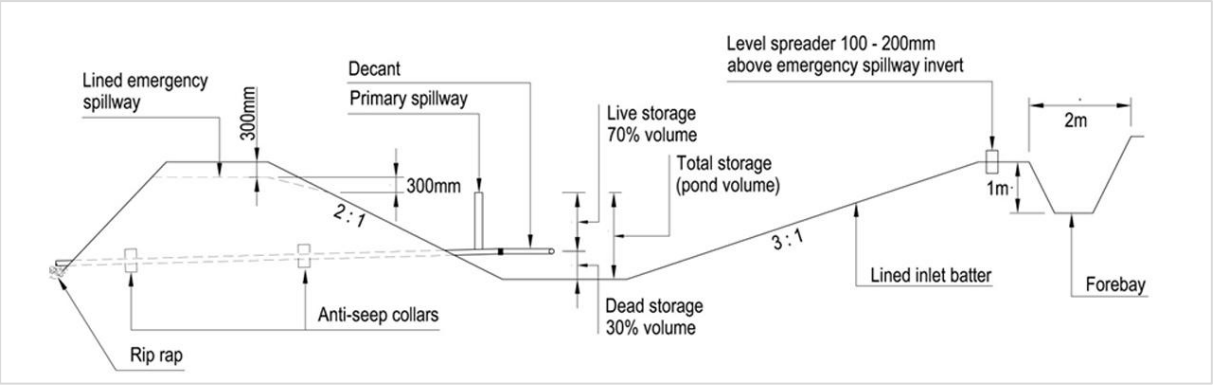


Figure 25: SRP Cross Section

SRPs will discharge to bush and, wherever possible, to the original gully or catchment that the treatment area would have naturally drained to. All SRPs will be chemically treated. Detailed construction drawings and dimensions can be found in Appendix B.

2.3 Decanting Earth Bunds

Several Decanting Earth Bunds (DEBs) will be constructed to manage runoff from the earthworks area.

All DEBs will be chemically treated and have been sized and designed in accordance with the Guidelines where possible. Where deviations from the Guidelines are required for DEB construction, reasoning and additional controls have been detailed in Appendix A. Refer to Appendix B for specific design details.

DEBs will discharge to bush and, wherever possible, to the original gully or catchment that the treatment area would have naturally drained to.

2.4 Chemical Treatment

In accordance with best practice, all SRPs and DEBs to be used in the enabling works will be chemically treated to enhance sediment retention efficiency. A Flocculation Management Plan (FMP) will be prepared and submitted to Council for certification at least 20 working days prior to works commencing. Chemically treated devices typically achieve 85-90%+ sediment removal efficiency.

The purpose of the FMP is to demonstrate how flocculation will be used, monitored and managed appropriately. The FMP must be by prepared by a SQEP in consultation with the contractor undertaking the works and party who will be responsible for the operation and maintenance of the system and must be in accordance with the Guidelines. The FMP must include as a minimum:

a) Specific design details of the chemical treatment dosing system, based on a rainfall activated methodology for decanting earth bunds (DEBs) and sediment retention ponds (SRPs);
b) Monitoring, maintenance (including post-storm) and contingency programme (including a record sheet);
c) Details of optimum dosage, including assumptions;
d) Results of initial chemical treatment trials;
e) A spill contingency plan; and

Details of the person or bodies that are responsible for the operation and maintenance of the chemical treatment system and the organisational structure that will support this system. Works on the OBDA will not commence until the FMP has been certified by GWRC and notice in writing has been received.

See Section 6 for reporting requirements on the FMP.

2.5 Silt Fences

Silt fences and super silt fences will be used to treat site runoff from small areas that will not actively drain to a SRP or DEB.

Silt fences will be installed below the footprint of the SRPs to capture any runoff generated during the construction of the ponds. Once the ponds are constructed the silt fences will be returned up either side of the

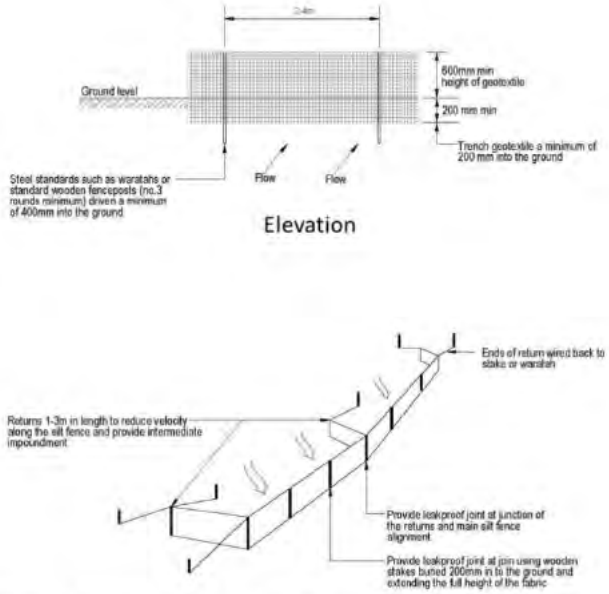


Figure 26: General silt fence schematic

emergency spillway to allow the spillway to function as designed. **Error! Reference source not found.** provides a schematic of silt fences that may be used on the project and Table 6 shows the design criteria.

Super silt fences will also be used on site. See Table 7 for design criteria.

See Section F1.3 of the Guidelines for full silt fence and super silt fence limitations, correct positioning and design information.

Table 6: Silt fence design criteria

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

Table 7: Super silt fence design criteria

Slope steepness %	Slope length (m) (maximum)	Spacing of returns (m)	Super silt fence length (m) (maximum)
0 – 10%	Unlimited	60	Unlimited
10 – 20%	60	50	450
20 – 33%	30	40	300
33 – 50%	30	30	150
> 50%	15	20	75

2.6 Access and Stabilised Entranceways

Primary movement of vehicles the proposed OBDA will be from the existing quarry site, with the development of new site access tracks and haul road.

The main site entrance to the quarry is on Hebden Crescent, Belmont, just off State Highway 2. This has been fitted with a stabilised, formed entrance in accordance with The Guidelines, with a wheel wash and is already operational. Whilst no traffic movement associated with the OBDA development will access on to the public road. The existing entranceway treatments will prevent the exit point from site becoming a source of sediment generation and to reduce the tracking of sediment on to public roads.

2.7 As Builts

At least 2 working days prior to the commencement of works authorised by the consent, the consent holder shall provide the GWRC with 'as-built' plans and details, which have been prepared and signed by a SQEP, confirming that the erosion and sediment controls have been constructed in accordance with the ESCP. Where DEBs and SRPs have been constructed in fill material, it is highly recommended that these devices receive inspection and testing from a geotechnical engineer to confirm fill compaction is adequate.

For sediment retention ponds[5], as-built check sheets are available on the Greater Wellington Regional Council's website at the following link: gw.govt.nz/earthworks or the form available in Appendix C.

For other ESC measures, as-built information may include a signed copy of the certified ESCP with a statement that the ESC measure has been constructed in accordance with the certified ESCP. This statement may include the relevant construction quality check sheet for the ESC measure from Appendix C1.0 of the ESC Guidelines for the Wellington Region.

Photographs of each control measure as constructed should be taken.

2.8 Dust control

Forward planning and management to minimise dust problems from earthworks activities provide the best options for control. If dust management is only addressed after it has become a problem on site, it is very difficult to bring under effective control until the site has been stabilised.

If dust is observed on site or predicted to be an issue, appropriate measures will be implemented as described below.

Stripping and Overburden Removal

The following measures will be adopted to control dust generated by these on-site activities:

- During stripping activities in dry windy conditions, a water cart is used on site to dampen haul roads and stripped areas as required; and,
- Exposed surfaces that have the potential to cause dust emissions will be grassed, hydroseeded or stabilised as soon as practicable following each stripping season as per the quarry management plan.

Overburden Transportation and Disposal

As each proposed OBDA stages occur, areas of bush, shrubland, pasture will be removed to access the land so that material can occupy the land. The removed overburden is transported via trucks to the proposed OBDA. Following measure will be used to control dust emissions from overburden disposal:

- A water cart used to dampen haul roads and overburden disposal areas in dry conditions;
- Trucks will follow site speed control rules tThe site speed limit is 25 kph on the haul roads), and stay on haul roads when possible;
- All drivers will be advised to maintain a good following distance between vehicles when using the haul roads to minimise the potential for cumulative dust emissions arising from closely travelling vehicles;
- Spillage from trucks will be minimised by not overloading or otherwise incorrectly loading trucks. Any spill material will be promptly cleaned up;
- Haul roads will be regularly graded to maintain an even surface with potholes and bumps smoothed over as soon as is reasonably practical. Daily inspections of the haul roads will be undertaken to identify any surface deterioration that may result in increased dust generation;
- Minimising duration of stripping operations; and

[5] *Note: Photos must be taken of the anti-seep collar(s) for the as built information to ensure the SRP is not at risk of failure. The as built cannot be submitted unless there is evidence that these collars are appropriately installed.*

- Mitigation set out in the quarry dust management plan such as overburden grassing, hydroseeding, or stabilising will be done as soon as practicable on completion of a fill area.

These recommendations are in accordance with the Belmont Quarry OBDA Dust Management Plan. Please see this plan for additional information including dust monitoring and maintenance, responsibilities, incident management and complaint procedures.

2.9 Timing of earthworks

Once all necessary approvals have been obtained for the development, drainage and erosion and sediment controls will be completed first. Preliminary works will commence shortly, these include establishment of access track along the alignment of the future central haul road, the installation of security fencing, signage and construction of the northern bunds for amenity screening. This stage occurs prior to any bulk earthworks commencing onsite.

Normal quarry operations are possible all year round, however there are some activities which will be timed to take into account traditional earthwork season timeframes. This includes topsoil stripping, the removal of overburden and overburden disposal site remediation.

Winter works

Except for activities required to manage the process-fines void, the site must be stabilised between 1 June and 30 September each year. No earthworks authorised by the consent may occur during this period, other than those necessary to maintain erosion and sediment controls, unless written approval is obtained from GWRC.

Any request for approval to undertake earthworks, during the period 1 June to 30 September will need to be made to the Manager no less than 20 working days prior to the proposed commencement date of the works and shall be in the form of an amendment to the ESCP and accompanied by:

a) A description of the proposed works, duration of the works, and method(s) of stabilisation;
b) A plan showing the areas that have already been stabilised and any additional erosion and sediment controls proposed; and
c) A summary of the environmental performance of the site, including any relevant monitoring results.

Any request for Winter Works approval will be assessed by GWRC against the following criteria:

- Scale and duration of the works
- Effectiveness of existing controls
- Prior compliance history, including effectiveness of monitoring and reporting
- Likely effectiveness of the proposed controls and methods of stabilisation
- Sensitivity of the receiving environment
- And any other matters considered relevant by GWRC.

2.10 Minimise exposed areas

A range of best practice measures will be employed to maximise the area of land exposed to erosion at any one time. Vegetation clearance will be limited to those areas where soil disturbance will be undertaken, with as much existing ground cover being retained as possible. Staging of works is also proposed, where practical, in order to progressively stabilise areas where works have been completed.

2.11 Stabilisation and reinstatement

A stabilised site is one that is resistant to erosion and therefore reduces pressure on sediment controls. Exposed soil will be progressively stabilised for permanent and temporary purposes for each stage. Stabilisation will be in accordance with The Guidelines and the quarry management plan objectives. All erosion and sediment controls

will remain in-place until 80% vegetation reinstatement has been achieved. See Appendix E for the glossary of terms which includes 'stabilisation'.

A summary of stabilisation techniques which may be used on site:

- Geotextiles - An immediate form of stabilisation which involves the placement of geotextiles, mats, plastic covers, or erosion control blankets to stabilise disturbed soil areas and protect soils from erosion by wind or water. May be used as a permanent or temporary measure to control erosion.
- Hydromulch/Hydro-hay - Hydromulch by itself will not provide the required amount of stabilisation to meet standards, however it will allow for very quick establishment of vegetation. Ideal for steep batters or slopes or runoff diversion channels/bunds when conditions allow for fast growth.
- Polymer - Will provide immediate stabilisation to areas which will not be disturbed for some time.

A combination of temporary and permanent stabilisation measures will be applied across the OBDA to minimise sediment generation and dust effects. Stabilisation will occur progressively and will not be delayed until final heights are reached. Instead, areas will be stabilised as soon as they become inactive or are expected to remain exposed for an extended period. Any areas that are not intended to be worked as part of a winter works application will be stabilised.

Where conditions allow, topsoil will be placed on areas intended for permanent stabilisation. This is particularly important where the exposed material has low organic content and cannot support vegetation effectively for long term stabilisation.

This progressive stabilisation approach ensures that outer faces and intermediate surfaces are stabilised throughout the development of each stage, reducing the extent of exposed ground and supporting effective erosion and sediment control.

2.12 Watercourse protection

No machinery is to enter watercourses or wetlands, except for authorised works in accordance with an approved resource consent. All sediment laden water must be treated through a sediment treatment device before being discharged into any waterway. Diversion bunds or channels will be required to prevent sediment laden water from entering waterways.

2.13 Stream Works

There some stream works associated with this application which involves the headwaters of streams during the OBDA development and then reinstating them as part of the site rehabilitation.

It should be noted that works in, or around, streams have potential to have a direct impact on watercourse habitat by habitat disturbance or destruction, and on watercourse ecology (such as through sediment and temperature-related effects). Care is therefore required for works in and around watercourses to minimise potential effects as much as possible, consistent with the proposed Ecological Management Plan.

2.14 Over Pumping Operations

Over pumping operations may be required at certain stages of the work if required or a change in methodology is required. This is anticipated to be on a short-term basis only (<24hrs).

The ESCP component of this report would need to be updated to reflect this change.

2.15 Dewatering

As the earthworks progress, a certain degree of dewatering may be required. This dewatering will be undertaken in accordance with the following:

1. All excavation works are to be within the perimeter controls.
2. Any works required outside of the perimeter controls will need to be assessed in accordance with the requirements of this ESCP and the Consent Conditions to determine if a revision of the ESCP is required to accommodate those works prior to implementation.
3. Water which is to be removed from an excavation is to be pumped to the nearest SRP or DEB.
4. When the water reaches the required discharge standards then the stored flows will be discharged.

Any batch dosing of the device is to be undertaken in accordance with the Flocculation Management Plan.

3 Construction Methodology

The general construction methodology will be as follows:

Table 8: Construction Methodology

Stage	Description	ESC Control
1A Drawing Ref: ESCP-BQ-01 Enabling works and establishment of RL170 works area and topsoil stockpile Establishment of amenity bunds	1. Establishment of the haul road which will run the entire length of the OBDA, allowing access to each stage (1-10). This haul road generally follows the crest which runs through the site. The first part of this access track will be formed within the existing quarry and will fall back to the existing water treatment facility. No additional ESC requirements are proposed for this work until it begins to fall away from the quarry pit where a silt fence (SF-1) will be installed along the sides of the haul road as it progresses. The haul road will be upgraded over time to allow for larger machinery access. This haul road will allow for access to the topsoil stockpile (controlled by SSF-1). SF-1 may be removed following completion of the access track, which must be maintained as a stabilised surface. 2. A smaller access track will be required to gain access to the RL 170 area. This track will be formed under a cut and cover methodology and will be completed in 20 – 50m lengths where the vegetation is removed, topsoil stripped and geotextile laid. Aggregate capping will follow. Stormwater controls will be required along this access track: ➢ Sumps where possible (recommended 1 sump per 50m of track) ➢ Lined stormwater channels on the side of the track ➢ Velocity controls where appropriate in steep sections ➢ Temporary pipes may also be required to convey water to the opposite side of the road It will be important to ensure that the track remains stabilised during the construction period, since material will be hauled regularly along this track. The drawing (ESCP-BQ-01) is indicative of where the track may be positioned and therefore controls will be adjusted as required (and addressed in the Site Specific ESCP following consenting). All cut/fill areas are to be stabilised prior to rainfall. 3. Installation of dirty water diversion (DW-1) around the RL 170 are extent and installation of SSF-2 at the base of the gully. Some earthworks and site preparation is required to enable the installation of DEB-1A. This will involve removal of soft, unsuitable material typically found within the base of the gully (undercut). This material will be removed to the topsoil stockpile area or Cottle OBDA. Subsoil installation will follow, and then in-filling of the gully	SF-1 SSF – 1 SSF – 2 DW – 1 SRP-1A Cleanwater and dirty water diversions Monitoring of subsoil discharge post-installation

	up to a point where the DEB can be installed. A higher quality fill material will be used in all gullies where structural integrity is required. Stabilisation of earthworks areas may be required for large rain events. It is recommended that materials are kept on site for this purpose – e.g. coconut matting – until the DEB is established. 4. SRP-1A will be constructed for use in Stage 1B. The pond must be formed in cut, with an outlet level at approximately RL 175 (or as determined by survey), to ensure positive drainage from subsequent OBDA development stages.	
1B Drawing Ref: ESCP-BQ-02 Establishment of RL182 area	1. Installation of DEB-1A to allow for fill height of the embankment to increase. 2. Once SRP-1A is installed, area can be stripped to commence filling up to RL182. 3. Stabilisation required on all completed areas 4. CW-2 to be installed progressively around the site as areas are opened up. **NOTE:** Cleanwater diversions shown on the drawings are indicative only and will need to be staged to suit the progression of works. As the fill level increases, the diversions will be constructed on top of the fill surface. They will not always follow the natural contours of the site, so their alignment will need to be reviewed regularly to ensure that adequate fall is maintained for effective water discharge.	**HOLD POINT:** Where SRPs or DEBs are installed in fill material, this should be inspected and tested by a Geotech engineer to confirm fill compaction suitability and requirements. This can be captured in the as built process. SRP-1A DEB-1A SSF-1 Cleanwater and dirty water diversions
1C Drawing Ref: ESCP-BQ-03 OBDA filling to continue to RL186	1. DEB-1A to be decommissioned once stabilisation is achieved on the above embankment/catchment 2. Installation of SRP-1B to replace SRP-1A. To be installed at approximately RL180 at the outlet (or as determined by survey). 3. Filling to continue to a maximum catchment area of 1.3ha. 4. Establishment of RL186 area in the north easter corner of the site. This will follow the same methodology as initial site establishment. Access track completed under cut and cover in 20m – 50m lengths, stabilised with geotextile and aggregate. Cleanwater diversion bunds to be established around the initial work site. SS-3 installed. A higher quality fill is required in this area, due to sensitive downstream receiving environments.	SRP-B SSF-3 SSF-1 Cleanwater and dirty water diversions
1D Drawing Ref: ESCP-BQ-04 OBDA filling to continue to RL196	1. DEB-1B to be installed (with informal forebay) in the northeastern corner of the site. Secondary treatment measure left in place (SSF-3) due to sensitive receiving environment. Fill in this area will also be of higher quality and less erosive. Where possible, dirty water diversions will have sumps installed in flow paths ~50m. 2. Installation of SRP-C to replace SRP-B due to fill height increasing. SRP-C to be installed in cut at approximately RL186 at the outlet (or as determined by survey). 3. Install SSF-4 along the contour with returns every 20-30m to control temporary fill embankment to RL196. Internal dirty water diversions must be installed to allow sediment laden water to get to SRP-1C and not overload SSF-4.	**HOLD POINT:** DEB-1B installation is a high-risk activity and must take place during a fine weather window. Geotech sign off required for as built due to DEB being installed in fill material. SSF-4 SSF-1

		SRP-1C DEB-1B (with informal forebay) Cleanwater and dirty water diversions
1E Drawing Ref: ESCP-BQ-05	1. Stabilisation of all completed catchments 2. Establishment of fines disposal area (self-contained – see design section for detail on sizing). The minimum bund height and storage capacity must be maintained at all times.	SRP-1C SSF-1 Cleanwater and dirty water diversions
2 Drawing Ref: ESCP-BQ-06	1. Vegetation clearance to commence in the footprint of Stage 2 once SRP2A is operational. 2. Fines disposal area within Stage 1 footprint will be operational but must be kept under 2ha total catchment, with containment bund. 3. All other completed areas to remain stabilised	SRP-2A SSF-1 Cleanwater and dirty water diversions
3 Drawing Ref: ESCP-BQ-07	1. Development of Stage 2 area (no increase in footprint size) to RL220 which will allow Stage 1 and 2 to merge. 2. SRP-2A to have dirty water conveyed to forebay by a drop pipe or flume structure (400mm diameter minimum) 3. Drop out pit to be installed prior to pipe inlet	SRP-2A SSF-1 Cleanwater and dirty water diversions
4A Drawing Ref: ESCP-BQ-08	1. Stage 4 to be split into sub-stages to allow for smaller catchment areas. Access track to be established using cut and cover methodology to allow for the construction of SRP-4A with a maximum catchment area of 2.1ha.	SRP-4A Cleanwater and dirty water diversions
4B Drawing Ref: ESCP-BQ-09	1. Filling of OBDA material up to RL200 to continue. 2. Stabilisation of all completed areas 3. Drop pipe structure to be used to convey water to SRP-4A (400mm minimum diameter) 4. An additional topsoil stockpile may be established within Stage 4 area if required. This will form after the RL200 level is achieved and will be subject to progressive stabilisation. 5. SRP-4B to be constructed to accommodate additional catchment (split between SRP-4A) if required (if there is no stabilisation on the RL200 platform)	SRP-4A SRP4-B Cleanwater and dirty water diversions
5 Drawing Ref: ESCP-BQ-10	1. Establishment of SRP-5A, vegetation clearance and filling of Stage 5 up to RL200. 2. Stabilisation of completed fill areas.	SRP-5A Cleanwater and dirty water diversions
6A Drawing Ref: ESCP-BQ-11	1. Establishment of SRP-6A, vegetation clearance and filling of Stage 6 up to RL200.	SRP-6A Cleanwater and dirty water diversions
6B Drawing Ref: ESCP-BQ-12	1. Establishment of SRP-6B. This SRP is the last to be constructed and will accommodate the remaining catchments until project end. 2. Filling of OBDA material up to RL220	SRP-6B Cleanwater and dirty water diversions
7 – 10	1. During these stages the final filling commences to achieve a height of RL230. Areas will be divided up into sections which will be at different heights, starting from the northern end. 2. Fines disposal area to be maintained within the RL220 area.	SRP-6B

Drawing Ref: ESCP-BQ-13 - 17	3. Vegetation clearance within the final fill site location which also removes the access track. 4. SRP-6B will be in place for as long as possible while fill levels increase to RL230, prior to decommissioning. As catchment areas are stabilised, these may be directed away from the SRP. 5. The final fines disposal area will not report to an SRP but will still have a containment bund around the site, sized for a 1% AEP storm event. 6. Stabilisation to occur for close out of the OBDA.	Cleanwater and dirty water diversions

During construction works, all effort will be made to stabilise parts of the site as areas are topsoiled and completed. Erosion and sediment controls will remain in place until a satisfactory level or reinstatement has been achieved, at which time the temporary controls will be selectively removed.

4 Contaminated Land

Prior to any works commencing on the proposed OBDA, a preliminary and detailed site investigation was undertaken by Pattle Delamore Partners Ltd. Key findings of the investigation are summarised as follows:

- A review of historical information indicates that the site was historically used for farming purposes, with two small buildings present between 1942 and 1966, followed by progressive revegetation. A transmission pylon had been present on the northern part of the site since at least 1957.

- A site walkover identified discarded, degrading sheet metal and abandoned farm machinery at several locations and as such an intrusive investigation was undertaken to assess potential impacts of leaching of heavy metals and the presence of asbestos in the shallow surface soils. The intrusive investigation identified the following:
    - Laboratory results indicate that arsenic, chromium, copper and nickel concentrations across the site are generally consistent across sample locations.
    - Elevated zinc and cadmium concentrations were identified in shallow surface soils in the vicinity of exposed metal sheeting, roof structures and machinery. Zinc and cadmium concentrations generally decrease with depth and lateral spread, indicating limited migration.
    - Asbestos was not detected in any soil or bulk material samples analysed.
    - All soil samples complied with applicable human health soil contaminant standards for commercial/industrial land use, and as such soils are not considered to pose an unacceptable risk to human health, including for short-term exposure of OBDA workers.
    - The results of the intrusive investigation indicated that zinc concentrations around the degraded metal may pose a risk to the environment and as such meet the threshold for Hazardous and Industrial List (HAIL)[6] category I.

Given these finding, a Remedial Action Plan (**'RAP'**) was drafted. The objectives of the RAP are to set out the practices and procedures to be undertaken during earthworks in order to avoid, remedy or mitigate the risk to human health (i.e. site workers) and the environment. The RAP was prepared to address the contaminated soils that have been encountered during intrusive investigations undertaken at the site, and to provide guidance on how these soils should be managed, along with any unexpected discoveries of contamination during the development works.

This RAP is intended for use by contractors and the environmental consultant engaged in the remedial works. It summarises the nature and extent of existing contamination, outlines procedures for the safe handling, removal, and disposal of contaminated soils, and specifies validation sampling and record-keeping requirements. The RAP should be read in conjunction with this ESCP for the development of the OBDA.

The following controls are to be followed for general earthworks across the OBDA, in accordance with the RAP:

4.1 Dust Suppression

Exposed earthwork areas shall be maintained to minimise the release of dust into the atmosphere, and appropriate measures to reduce the dust release to acceptable levels must be implemented as required. Appropriate dust control measures include the following:

- All site workers will be advised of the need to minimise dust by the responsible operation of machinery and vehicles (e.g. limit site traffic speed to reduce the production of dust, access

[6] The Hazardous Activities and Industries List (HAIL) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal. The HAIL is intended to identify most situations in New Zealand where hazardous substances could cause, and in many cases have caused, land contamination.

into/out of the site to be via the stabilised surfaces). Exposed areas will be minimised as far as practicable.
- Water sprays will be used on exposed soils to suppress dust, ensuring that any water used is not allowed to migrate beyond the work zone, and
- Dust generating activities will be limited or suspended during periods of high wind.

4.2 Stockpile Management

All stockpiles of zinc contaminated material will be removed off site. In addition, silt socks shall be installed around stockpiles where required to ensure sediment laden stormwater from the stockpile cannot enter stormwater.

Stockpiling of zinc contaminated soils should be avoided where possible, if temporary stockpiling (of potential or confirmed contamination) is required then the stockpiles shall be managed as follows:

- Given the nature of the site, placing soils on polythene is likely not feasible. If soils cannot be placed on polythene sheeting, when removed the surface soils beneath the stockpile will be excavated 100 mm bgl to remove any potential contamination of the underlying material;
- Controls shall be installed to prevent runoff from leaving the area and stormwater from other areas entering the stockpile area, for example immediate stabilisation which can be achieved with geotextile coverings;
- Be covered or dampened during dry and windy conditions; and
- If significant rainfall is forecast, the stockpiles shall be covered by a suitable material to prevent contaminated stormwater discharge.

Any material removed during the works that is potentially or confirmed as contaminated shall be disposed of at a facility authorised indicated as appropriate by the Suitably Qualified and Experienced Person (**'SQEP'**) to receive such material.

5 Amendments

It is anticipated that the ESCP will evolve over time, as erosion and sediment control methodologies develop alongside legislation and consent requirements. The ESCP will be a working document and will be updated regularly as required, with changes submitted for certification to GWRC prior to works commencing.

Minor, temporary or reactive adjustments (e.g. additional controls, temporary bunding, re-alignment of catchments within an overall stage) can be implemented immediately, with documentation and certification to follow to GWRC.

Formal pre-certification is reserved for material changes that alter the intent or performance of the ESCP.

Any new/updated version of the ESCP documentation will be issued with an updated version number and dated. A copy of the current ESCP document and subsequent versions will be kept for the Project records. Superseded versions will be marked as obsolete.

6 Reporting and Audit Requirements

There are several reporting obligations which must be met at different timeframes to meet the conditions of consent:

1. The approved ESCP for the OBDA must be reviewed as a minimum once in every annual period and updated. The updates shall take into consideration monitoring results from the previous annual period, practical experience gained from the site, and improvements and innovations in erosion and sediment control practice and any relevant regulatory changes.

   As a minimum the outcome of the review will be reported to GWRC and confirmation sought that an update is not required. This review must be submitted at least 20 working days following the end of each annual period.

2. Within 20 working days after the end of each annual period, a summary and analysis of all monitoring results from the previous year must be provided to GWRC. This analysis must:
   - Compare the results against the water-quality monitoring triggers and limits; and
   - Outline any proposed actions, including updates to the ESCP or FMP, along with timeframes for implementing them, if monitoring shows repeated trigger exceedances or that water-quality limits are not being met.

3. Flocculation monitoring reports need to be submitted each week to GWRC, as required by the Flocculation Management Plan. These reports must be submitted each week and include:
   - Dates and results of operation and maintenance undertaken by a SQEP
   - Flocculation testing undertaken (record sheets)
   - Any corrective measures taken where a device has been found to not be functioning effectively

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

AMENITY BUNDS

SF-1

LAND SWAP BOUNDARY

RL170 AREA (0.12HA)
CONSTRCUTED PROGRESSIVELY WITH SSF AT THE BASE OF THE FILL. CAN EXTEND TO A MAXIMUM OF 0.3HA. MUST DISCHARGE TO SRP WHEN >0.3HA

SSF-2
INSTALLED AT THE BASE OF WORKS EXTENT FOR RL170 AREA

RL170

MAIN HAUL ROAD
SILT FENCE INSTALLED AS REQUIRED, TARGETED TO LARGER AREAS OF REQUIRED CUT AND FILLS. TO BE DETERMINED WITH FINAL DESIGN.

ACCESS TRACK TO RL170 AREA
CONSTRCUTED UNDER CUT AND COVER (20M - 50M LENGTH, STABILISED WITH GEOTEXTILE AND AGGREGATE PRIOR TO RAINFALL, AS REQUIRED). DESIGN LOCATION TO BE CONFIRMED.

SSF-1
MUST BE INSTALLED ALONG THE CONTOUR, OUTSIDE THE FINAL EXTENT OF THE TOPSOIL STOCKPILE.
TOTAL LENGTH <310M.
SLOPE STEEPNESS 10-20%.
RETURNS REQUIRED EVERY 50M

CW-1
CONSTRUCTED AROUND THE WORKS EXTENT OF RL170 AREA. INSTALLED ALONG THE CONTOUR TO ALLOW DIRTY WATER TO REACH SSF-2

SRP-1A - INSTALLATION TO START.
0.9HA MAX CATCHMENT
270M3 MIN VOLUME

INSTALLED IN CUT - MINIMUM RL175 AT INLET TO ALLOW FOR FALL FROM OBDA PLATFORM IN NEXT STAGES

- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- flow
- Topsoil Storage (Indicative)
- wetland_areas
- Drainage Channels
- OBDA Extents

TOPSOIL STOCKPILE
TO BE ESTABLISHED GRADUALLY AS THE OBDA AREA INCREASES. MAX AREA OPEN AT ANY TIME WILL BE 0.3HA.

TEMPORARY STABILISATION TO BE USED ON AREAS THAT WILL NOT BE WORKED

CLIENT: WINSTONE AGGREGATES				REV	DESCRIPTION	DRAWN	CHECK	DATE
PROJECT: BELLMONT QUARRY – OBDA EXPANSION				1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026
TITLE	ESCP STAGE 1A							
DWG NO	ESCP-BQ-01	SCALE	1:1250					

DRAWING STATUS: PROPOSED
PROJECT PHASE: PROPOSED
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES
MPD ENVIRONMENTAL

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

STAGE 1 EXTENT

MAIN HAUL ROAD
MAINTAINED AS STABILISED OR KEEP SF IN PLACE

STABILISED AREA

DEB-1A
CHEMICAL TREATEMENT REQUIRED
0.3HA MAX CATCHMENT

INSTALLED IN FILL FOLLOWING ESTABLISHMENT OF GULLY

SSF-1
MUST BE INSTALLED ALONG THE CONTOUR, OUTSIDE THE FINAL EXTENT OF THE TOPSOIL STOCKPILE.
TOTAL LENGTH <310M.
SLOPE STEEPNESS 10-20%.
RETURNS REQUIRED EVERY 50M

CW-2
INSTALLED PROGRESSIVELY ALONG CONTOUR TO ALLOW FOR CLEANWATER TO DISCHARGE EITHER SIDE OF THE OBDA AT THIS STAGE

DW-2
MUST BE MAINTAINED AS FILL EMBANKMENT HEIGHT INCREASES TO DIVERT WATER TO SRP-1A

RL182

TOPSOIL STOCKPILE

SRP-1A
CHEMICAL TREATMENT REQUIRED
0.9HA MAX CATCHMENT.

MAY NEED TO BE DECOMISSIONED ONCE FILL HEIGHT INCREASES AND THE FILL EMBANKMENT NEEDS TO BE COMPELTED. TO BE REPLACED BY SRP-1B PRIOR TO DECOMMISSIONING.

ACCESS TRACK TO RL182 AREA
CONSTRCUTED UNDER CUT AND COVER. UPGRADED AS REQUIRED TO ACCOMODATE LARGER VEHICLES.

- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- flow
- Topsoil Storage (Indicative)
- wetland_areas
- Drainage Channels
- OBDA Extents

CLIENT: WINSTONE AGGREGATES PROJECT: BELLMONT QUARRY – OBDA EXPANSION				REV	DESCRIPTION	DRAWN	CHECK	DATE
TITLE	ESCP STAGE 1B			1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026
DWG NO	ESCP-BQ-02	SCALE	1:1250					

DRAWING STATUS: PROPOSED
PROJECT PHASE: PROPOSED
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES
MPD ENVIRONMENTAL

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

SSF-1
MUST BE INSTALLED ALONG THE CONTOUR, OUTSIDE THE FINAL EXTENT OF THE TOPSOIL STOCKPILE.
TOTAL LENGTH <310M.
SLOPE STEEPNESS 10-20%.
RETURNS REQUIRED EVERY 50M

SSF-3
INSTALLED AT THE BASE OF WORKS EXTENT FOR RL186 AREA

THIS AREA IS SUBJECT TO DIFFERENT FILL REQUIREMENTS DUE TO THE SENSITIVE DOWNSTREAM ENVIRONMENT. SEE ESCP FOR DETAILS.

PLATFORM FOR DEB TO BE ESTABLISHED.

ALL AREAS TO TO BE STABILISED IMMEDIATELY UPSON COMPLETION.

RL186

CW-4

ACCESS TO THE NEW RL186 AREA WILL BE VIA ACCESS TRACK, CONSTRUCTED UNDER CUT AND COVER REQUIREMENTS. LOCATION IS TO BE DETERMINED WITH FINAL DESIGN.

CW-3
INSTALLED PROGRESSIVELY ALONG CONTOUR TO ALLOW FOR CLEANWATER TO DISCHARGE EITHER SIDE OF THE OBDA AT THIS STAGE

DEB-1A
DECOMISSIONED ONCE EMBANKMENT IS STABILISED

STABILISED AREA

RL186

RL186

SRP

SRP-1B
CHEMICAL TREATEMENT REQUIRED
1.3HA MAX CATCHMENT.

TO BE INSTALLED IN CUT AT APPROXIMATLY RL180 AT THE OUTLET. MAY NEED ADDITIONAL STABILISATION MEASURES AT THE OUTLET TO PREVENT SCOURING. SEE ESCP FOR DETAIL.

TOPSOIL STOCKPILE

ACCESS TRACK TO RL186 AREA
CONSTRCUTED UNDER CUT AND COVER. UPGRADED AS REQUIRED TO ACCOMODATE LARGER VEHICLES.

- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- flow
- Topsoil Storage (Indicative)
- wetland_areas
- Drainage Channels
- OBDA Extents

CLIENT: WINSTONE AGGREGATES PROJECT: BELLMONT QUARRY – OBDA EXPANSION				REV	DESCRIPTION	DRAWN	CHECK	DATE	DRAWING STATUS: PROPOSED PROJECT PHASE: PROPOSED
TITLE	ESCP STAGE 1C			1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026	THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED
DWG NO	ESCP-BQ-03	SCALE	1:1250						

WINSTONE AGGREGATES

MPD ENVIRONMENTAL

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

DEB-1B
CHEMICAL TREATEMENT REQUIRED
0.3HA MAX CATCHMENT

INSTALLED IN FILL FOLLOWING ESTABLISHMENT OF PLATFORM. SSF TO REMAIN AS SECONDARY TREATMENT MEASURE.

DIRTY WATER DROP PIPES TO BE INSTALLED AT HINGE POINT ON EMBANKMENT AND FILL TO PREVENT SCOUR.

SSF-1
MUST BE INSTALLED ALONG THE CONTOUR, OUTSIDE THE FINAL EXTENT OF THE TOPSOIL STOCKPILE.
TOTAL LENGTH <310M.
SLOPE STEEPNESS 10-20%.
RETURNS REQUIRED EVERY 50M

TOPSOIL STOCKPILE

- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- flow
- Topsoil Storage (Indicative)
- wetland_areas
- Drainage Channels
- OBDA Extents

SSF-4
CONSTRCUTED ALONG CONTOUR FOR EACH FILL LIFT. RETURNS EVERY 20-30M. MAX CATCHMENT 0.28HA.

DIVERSION BUND MUST BE MAINTAINTED AT THE TOP OF THE FILL TO DEFINE CATCHMENTS.

EMBANKMENT TO BE PROGRESSIVELY STABILISED.

SRP-1C
CHEMICAL TREATEMENT REQUIRED
2.5HA MAX CATCHMENT.

TO BE INSTALLED IN CUT AT APPROXIMATLY RL186 AT THE OUTLET. MAY NEED ADDITIONAL STABILISATION MEASURES AT THE OUTLET TO PREVENT SCOURING. SEE ESCP FOR DETAIL.

RL196

CLIENT	REV	DESCRIPTION	DRAWN	CHECK	DATE	DRAWING STATUS
WINSTONE AGGREGATES PROJECT BELLMONT QUARRY – OBDA EXPANSION	1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026	PROPOSED PROJECT PHASE PROPOSED

TITLE	ESCP STAGE 1D		
DWG NO	ESCP-BQ-04	SCALE	1:1250

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES
MPD ENVIRONMENTAL

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

SSF-1
MUST BE INSTALLED ALONG THE CONTOUR, OUTSIDE THE FINAL EXTENT OF THE TOPSOIL STOCKPILE.
TOTAL LENGTH <310M.
SLOPE STEEPNESS 10-20%.
RETURNS REQUIRED EVERY 50M

INDICATIVE FINES DISPOSAL AREA
TO BE SEPARATED FROM SRP 1C CATCHMENT. BUNDS/FILL SITE MUST BE HIGH ENOUGH TO RETAIN 1% STORM EVENT.

WILL BE ESTABLISHED AT A LOWER RL AND FOLLOW THE PROGRESSION OF THE OBDA FILL.

RL210

TOPSOIL STOCKPILE

SRP-1C
CHEMICAL TREATEMENT REQUIRED
3HA MAX CATCHMENT.

TO REMAIN IN PLACE UNTIL ALL UPPER EMBANKMENTS ARE STABILISED OR IS REPLACED BY ANOTHER SRP AT A HIGHER RL TO ACCOMODATE CATCHMENT.

- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- flow
- Topsoil Storage (Indicative)
- wetland_areas
- Drainage Channels
- OBDA Extents

OBDA ST1H - Aerial
E:\MDSWork\5003\GIS\OB-R9-Stages Drawings\OBDA R9 Stage1 ESCP 21-03-26 .qgz

BELMONT QUARRY
EROSION AND SEDIMENT CONTROL PLAN STAGE 1E

DRAWING: 5003-xx

CLIENT	WINSTONE AGGREGATES
PROJECT	BELLMONT QUARRY – OBDA EXPANSION
TITLE	ESCP STAGE 1E
DWG NO	ESCP-BQ-05
SCALE	1:1250

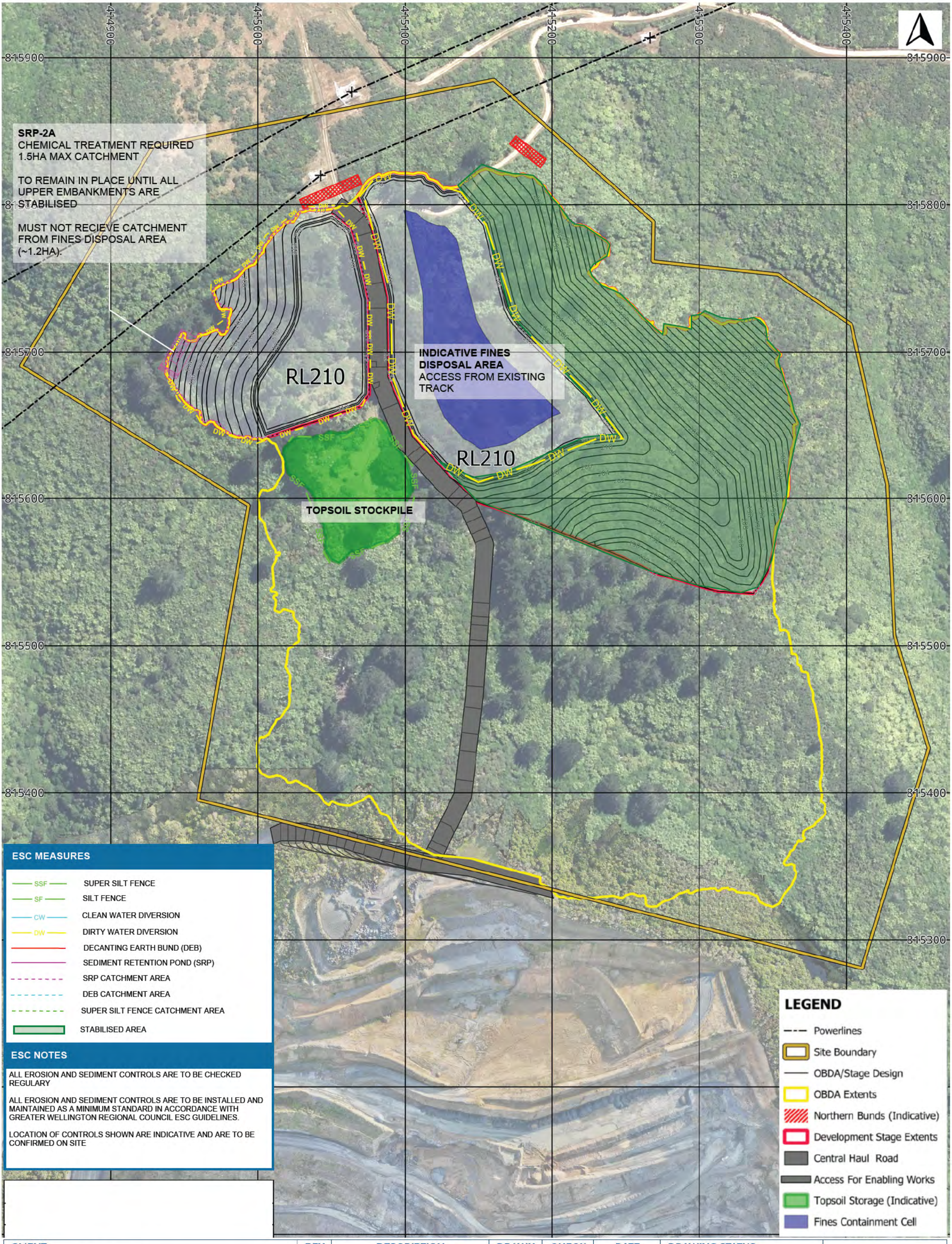
REV	DESCRIPTION	DRAWN	CHECK	DATE
1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026

DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES
MPD ENVIRONMENTAL



CLIENT
WINSTONE AGGREGATES
PROJECT
BELLMONT QUARRY – OBDA EXPANSION

TITLE	ESCP STAGE 2		
DWG NO	ESCP-BQ-06	SCALE	1:2200

REV	DESCRIPTION	DRAWN	CHECK	DATE
1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026

DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES

MPD ENVIRONMENTAL

SRP-2A
CHEMICAL TREATMENT REQUIRED
1.5HA MAX CATCHMENT.

TO REMAIN IN PLACE UNTIL ALL UPPER EMBANKMENTS ARE STABILISED

MUST NOT RECIEVE CATCHMENT FROM FINES DISPOSAL AREA (~1.2HA).

INDICATIVE FINES DISPOSAL AREA CONTAINMENT BUND. SIZED FOR A 1% AEP.

MUST NOT DISCHARGE OFF SITE OR TO SRP-2A.

RL220

INDICATIVE FINES DISPOSAL AREA

TOPSOIL STOCKPILE

DROP PIPE STRUCTRE TO SRP
IN ORDER TO SEPARATE DIRTY AND CLEAN WATER CATCHMENTS, A DROP PIPE STRUCTURE MUST BE USED TO CONVEY DIRTY WATER TO THE SRP FOREBAY.

SIZING TO BE FOR A MINIMUM 5% AEP EVENT (400MM DIAMETER)

ESC MEASURES

- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- CW — CLEAN WATER DIVERSION
- DW — DIRTY WATER DIVERSION
- DECANTING EARTH BUND (DEB)
- SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SUPER SILT FENCE CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

LEGEND

- Powerlines
- Site Boundary
- OBDA/Stage Design
- OBDA Extents
- Northern Bunds (Indicative)
- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- Topsoil Storage (Indicative)
- Fines Containment Cell

CLIENT	WINSTONE AGGREGATES	**PROJECT**	BELLMONT QUARRY – OBDA EXPANSION
TITLE	ESCP STAGE 3		
DWG NO	ESCP-BQ-07	**SCALE**	1:2200

REV	DESCRIPTION	DRAWN	CHECK	DATE
1	ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	MD	PH/SS	12.05.2026

DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED

WINSTONE AGGREGATES

MPD ENVIRONMENTAL