STEVENSON

CLEVEDON QUARRY EXPANSION

APPLICATION FOR RESOURCE CONSENT AND CONSENT VARIATION

ASSESSMENT OF ENVIRONMENTAL EFFECTS

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Abbreviations

Abbreviation	Definition
AAQG	Auckland Ambient Air Quality Guidelines
ABM	Automatic bat monitor
AEE	Assessment of Effects on the Environment
AQGs	World Health Organisation Air Quality Guidelines
AUP	Auckland Unitary Plan
AUP RPS	Auckland Unitary Plan Regional Policy Statement
AMP	Avifauna Management Plan
ARI	Average Recurrence Interval
ARMP	Augmentation Regime Management Plan
AWS	Automatic Weather Station
BlaMP	Blast Management Plan
BMP	Bat Management Plan
BOAM	Biodiversity Offset and Accounting Model
CLG	Community Liaison Group
CVIA	Cultural Values and Impacts Assessment
DIN 4150-3 1999	German Standard DIN 4150-3 1999: Structural vibration – Part 3 Effects of vibration on structures
DMP	Dust Management Plan
DOC	Department of Conservation
EcIA	Ecological Impact Assessment
ECR	Environmental Compensation Ratio
eDNA	environmental DNA
EMP	Ecological Management Plan
EPA	Environmental Protection Authority
ESC	Erosion and Sediment Controls
ESCAR	Erosion and Sediment Control Assessment Report
ESCP	Erosion and Sediment Control Plan
FIDOL	Frequency, intensity, duration, offensiveness and location
FMP	Freshwater Management Plan
FoH	Front of House operations
FTAA	Fast-track Approvals Act 2024
GD01	Auckland Council Guideline Document 2017/001: Stormwater Management Devices in the Auckland Region
GD05	Auckland Council Guideline Document 2016/005 (GD05): Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region
GSWMCP	Groundwater and Surface Water Monitoring and Contingency Plan
HNZPT	Heritage New Zealand Pouhere Taonga
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
LAeq	A-weighted equivalent continuous sound level

Abbreviation	Definition
LAFmax	Maximum A-weighted sound level (fast time weighting)
LEA	Landscape Effects Assessment
LoQ	Life of Quarry
MALF	Mean annual low flow
MCI	Macroinvertebrate Community Index
MfE	Ministry for the Environment
MIC	Maximum instantaneous charge
MoU	Memorandum of Understanding
mRL	Metres reduced level
MT	Million tonnes
NES	National Environmental Standard
NES-AQ	Resource Management (National Environmental Standards for Air Quality) Regulations 2004
NES-CF	Resource Management (National Environmental Standards for Commercial Forestry) Amendment Regulations 2023
NES-F	National Environmental Standards for Freshwater 2020
NPS	National Policy Statement
NPS-FM	National Policy Statement for Freshwater Management 2020 (as amended in October 2024)
NPS-I	National Policy Statement for Infrastructure 2025
NPS-IB	National Policy Statement for Indigenous Biodiversity 2023
NPS-NH	National Policy Statement for Natural Hazards 2025
NSMA	Natural Stream Management Area
NZAA	New Zealand Archaeological Association
NZTA	NZ Transport Agency Waka Kotahi
ONF	Outstanding Natural Feature
OBDA	Overburden Disposal Area
PM_{10}	Particulate matter less than 10 micrometres in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micrometres in diameter
QMP (cc)	Quarry Management Plan (consent compliance)
QMCI	Quantitative Macroinvertebrate Community Index
RCS	Respirable Crystalline Silica
RL	Reduced level
RMA	Resource Management Act 1991
RMP	Residual Effects Management Plan
RPS	Regional Policy Statement
RPZ	Rural Production Zone
RUB	Rural Urban Boundary
SAL	Stevenson Aggregates Limited
SEA	Significant Ecological Area
SEV	Stream Ecological Valuation

Abbreviation	Definition
SNA	Significant Natural Area
SPQZ	Special Purpose - Quarry Zone
SRP	Sediment Retention Pond
SSMP	Slope Stability Management Plan
tmpd	Truck Movements per Day
tmph	Truck movements per hour
TSS	Total Suspended Solids
USLE	Universal Soil Loss Equation
VMP	Vegetation Management Plan
WMS	Water management system

Glossary

Key Project terms	
Project	Publicly known as the 'Clevedon Quarry Expansion'. The description, is as follows: *"In stages, increase the aggregate resource at Clevedon Quarry from 60 million tonnes (MT) to approximately 150 MT, and provide for this resource to be extracted over a period of up to 50-years."* In this AEE, the Project refers to all parts of the Project collectively, including the new resource consents sought for the 'Quarry Expansion' and two section 127 variations: the 'Front of House consent' and 'Relocation of ONF Planting Areas'.
Quarry Expansion	The new bundled consent being sought, which will comprise the following: • Land use consents for mineral extraction activities (where required, this is specifically referred to as the mineral extraction consent). This land use consent will not overlap with the FoH area proposed by the Front of House consent. • Regional consents, which will cover the entire Project extent.
Front of House consent	The proposed variation to the 2018 land use consent (LUC60291842), which if granted, would reduce the scope so that it becomes a standalone FoH consent, limited to authorising the ongoing operation of the consented ancillary activities (such as the weighbridge, wheel wash, offices, processing and stockpiling) at the base of the expansion area.

Key Project terms	
Relocation of ONF Planting Areas	The proposed variation to consent LUC60361560 to relocate planting areas required under that consent, which approved the widening and ongoing use of an existing haul road for mineral extraction activities within the ONF to accommodate two-way heavy vehicle movements[1].
Project footprint	The areas where works are anticipated associated with the Project.
The Site[2]	As shown in Figure 1 in Appendix C, the expansion extends the current quarry at 546 McNicol Road south-eastward into 646 McNicol Road and 439 Otau Mountain Road (collectively referred to as the Site).
Existing Clevedon Quarry or current quarry	The existing established Clevedon Quarry as-at the time of lodgement, being located entirely within 546 McNicol Road, Clevedon.
Overburden Disposal Area	As shown in Figure 4 in Appendix C, an Overburden Disposal Area (OBDA) will be established in the east of the Site and used to receive overburden material during indicative Stage 1 (the first 10 years of operation). The area is expected to be approximately 4.6 ha and sits immediately adjacent to the SPQZ, within the RPZ. The OBDA is designed to take approximately 660,000 m^3 of fill. Upon completion of filling, the OBDA will be rehabilitated and planted.
Stevenson Aggregates Limited (SAL)	Company name of applicant.
SAL landholdings	The wider landholdings owned by SAL which encompass an area of approximately 544.32 ha. The landholdings include quarry activities, plantation forestry (recently felled and replanted), and areas of native vegetation.
General terms	
Application	Means the application and assessment of environmental effects lodged with the Environmental Protection Authority on 30th October 2026 and the applicant's responses to requests for further information.
Front of House (FoH)	The facilities and activities which support the broader quarry operation (and will support the Project).
Life of Quarry (LoQ)	Maximum extent of the Project over an approximate 50-year period.
Overburden	Topsoil and other subsurface material removed to access aggregate.
The 2018 Consent	An existing bundled consent BUN60302442 (land use and regional consents) held by SAL and granted in 2018 authorising expansion of the quarry to enable the extraction of approximately 60 MT of aggregate and overburden at an annual extraction rate of around 3 MT per year.

[1] WorkSafe New Zealand requirements.

[2] The Site at which the activity is to occur in accordance with Schedule 5, Clause 5(1)(b) of the FTAA.

Key Project terms	
Potential impact area	The areas/resources that may be affected by the biophysical changes caused by the proposed Project and associated activities, particularly adjoining or connected terrestrial, freshwater and wetland habitats and associated native species.

Executive summary

Stevenson Aggregates Limited (SAL) is seeking resource consents for the expansion of the existing Clevedon Quarry, located at 546 McNicol Road, Clevedon (the Project). This Assessment of Effects on the Environment (AEE) has been prepared by Tonkin + Taylor Ltd (T+T) to accompany a substantive application to the Environmental Protection Authority (EPA) for the Clevedon Quarry Expansion under section 42(1) of the Fast-track Approvals Act 2024 (FTAA). The Clevedon Quarry Expansion was referred into the fast-track approvals process by the Minister on 20 July 2026. This application is not for an ineligible activity as defined in section 5 of the FTAA.

This substantive application seeks approvals under section 42(4)(a) of the FTAA for resource consents that would otherwise be applied for under the Resource Management Act 1991 (RMA), including a new land use consent for mineral extraction activities and associated works within the proposed Quarry Expansion area, and a new suite of regional consents, which will authorise the regional activities required across the Project extent. The application also seeks variations to two existing consents: the 2018 resource consent (BUN60302442), to reduce its scope to a standalone Front of House (FoH) consent, and LUC60361560, to relocate four planting areas. No Wildlife Act approval or Archaeological Authority is required.

SAL is one of New Zealand's leading industry experts in aggregate extraction, processing and distribution. Clevedon Quarry is New Zealand owned and operated and has been part of the Clevedon community since the 1970s. It is a greywacke hard rock quarry supplying concrete, asphalt and roading aggregate to the Auckland market. The existing quarry is located within SAL's wider landholdings, which encompass an area of approximately 544.32 ha.

Aggregate is used across a broad range of applications within the Auckland economy to meet the needs of residential, business, infrastructure and road construction requirements. Aggregate extraction can only take place where it is found naturally in situ and is preferably extracted in close proximity to demand in order to minimise the environmental effects and costs of transporting aggregate from the quarry to the construction site.

SAL currently holds a 2018 resource consent authorising the extraction of approximately 60 million tonnes (MT) of aggregate at an annual extraction rate of up to 3 MT per year. However, advances in geotechnical understanding and geological modelling since 2018 have identified the opportunity to recover a materially greater volume of in situ aggregate within the existing SAL landholdings through a more efficient and operationally workable quarry design. The Project proposes to expand the quarry in stages across an area of approximately 74 ha to provide access to approximately 150 MT of aggregate over an approximate 50-year period, without any increase to the existing consented annual extraction limit of 3 MT per year or other operational parameters including truck movements and hours of operation. The Project is strategically positioned to serve Auckland's south and east growth areas, where 41% of Auckland's total population growth is forecast to occur over the next 30 years.

The development of the Clevedon Quarry Expansion under this proposed consent will involve the staged extraction of aggregate across five indicative stages to a maximum excavation level of approximately reduced level (RL) 22.5 m. The expansion will extend the current quarry at 546 McNicol Road south-eastward into 646 McNicol Road and 439 Otau Mountain Road. The majority of the proposed Life of Quarry (LoQ) extent (approximately 59 ha) is located within the Special Purpose – Quarry Zone (SPQZ), which anticipates quarrying activities, with the remaining approximately 15 ha within the Rural Production Zone (RPZ).

The Project comprises the following primary activities:

- Overburden removal and establishment of an Overburden Disposal Area (OBDA) of approximately 4.6 ha.

- Continued aggregate extraction and processing, including mobile crushing and processing plant operating within the quarry.
- Establishment of internal haul roads and ancillary quarry infrastructure.
- Operational drilling, blasting, stormwater, dust, erosion and sediment control (ESC) management.
- Groundwater dewatering and augmentation of Streams 1 and 3 to offset predicted reductions in stream baseflows.
- Vegetation removal, including approximately 6.1 ha of regenerating tree fern/broadleaf forest within SEA_T_5588 and plantation forestry across the wider expansion area.
- Reclamation of streams within the quarry footprint, resulting in the permanent loss of approximately 2,392 m of permanent and intermittent stream reaches across four catchments.
- A comprehensive mitigation, offset and compensation package comprising approximately 67.6 ha of legally protected native planting in perpetuity within the Stream 3 catchment.

SAL seeks unlimited duration land use consents and a 35-year term for all regional consents to reflect the long-term nature of quarry development. The proposed works require consent as a non-complying activity overall under the Auckland Unitary Plan (AUP), but are not subject to a section 104D RMA assessment as set out under clause 17(1)(b), Schedule 5 of the FTAA. The Planning Act and Natural Environment Act 2026 were enacted on 30 September 2026, with transitional amendments to the RMA and FTAA taking effect on 30 October 2026. Amended section 104(1) requires consent authorities to disregard specified effects when considering district land use consent applications, including effects on views from private properties. Consistent with this, clause 5(4A) of Schedule 5 of the FTAA confirms that assessments under clause 5(4) do not need to address the effects listed in section 104(1A) of the RMA.

This AEE draws the following conclusions:

- The Clevedon Quarry Expansion is consistent with the purpose of the FTAA as it will secure approximately 150 MT of high-quality greywacke aggregate for the Auckland region, a fundamental resource required to facilitate the delivery of infrastructure and development projects that provide significant regional and national benefits.
- The works are consistent with the purpose and principles of the RMA 1991, including sections 5, 6, and 7.
- A number of National Environmental Standards (NES) and National Policy Statements (NPS) are relevant to this Project, including the National Environmental Standards for Freshwater 2020 (NES-F), Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NES-AQ), National Policy Statement for Freshwater Management 2020 (NPS-FM), National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB), National Policy Statement for Infrastructure 2025 (NPS-I) and National Policy Statement for Natural Hazards 2025 (NPS-NH). Having regard to the mitigation, offset and compensation measures proposed, the Project is considered not inconsistent with these.
- The works are directly supported by relevant objectives and policies of the AUP, particularly those relating to the development of identified mineral resources within the SPQZ and opportunities for environmental improvement through offset and compensation.
- In accordance with the amended statutory framework, Schedule 5, clause 5(4A) of the FTAA, visual amenity effects relating to views from private property have been disregarded for the purposes of this assessment.

- The Project will generate significant positive economic benefits, with the Economic Assessment estimating transport, emissions and social costs of between $489.2 million and $1.5 billion will be saved relative to out-of-region supply, supporting population growth, infrastructure delivery and long-term regional well-being.
- The Front of House consent would authorise the ongoing ancillary activities. No changes are proposed to the existing consented operational parameters under that consent, including truck movements and hours of operation.
- The Relocation of Outstanding Natural Feature (ONF) Planting Areas would relocate four planting areas required under consent LUC60361560 to enable the proposed Quarry Expansion. Adverse effects are limited to landscape and visual effects on public viewing audiences which are considered to be less than minor.
- The proposed ecological offset and compensation package is designed to achieve net gain in terrestrial ecological values and provide for a positive effect that outweighs the residual adverse effects on freshwater ecological values, and will establish an ecological corridor connecting the Wairoa River to the Hunua Ranges.
- The Project has the potential to have minor or less than minor effects on archaeology, air quality, geotechnical stability, surface water and flooding, erosion and sediment control, groundwater, noise, vibration, traffic and landscape and natural character, and more than minor effects on freshwater and terrestrial ecology at the point of impact. Residual freshwater and terrestrial ecology effects are addressed through the ecological offset and compensation package described above.

SAL has received support in principle from Ngaati Whanaunga and Ngāi Tai ki Tāmaki. The proposed mitigation and management measures, and proposed consent conditions, generally address the concerns raised, and SAL is committed to ongoing engagement with Tangata Whenua.SAL has engaged with Auckland Council, the Department of Conservation (DOC), Tangata Whenua, adjacent landowners and occupiers and the Clevedon community, including through the Clevedon Quarry Community Liaison Group (CLG), and will continue to do so throughout the consenting, construction and operational phases of the Project.

Overall, the Project is consistent with the purpose of the FTAA and with Part 2 of the RMA. The Project will enable an environmentally sound and sustainable quarry expansion that secures a long-term, locally sourced aggregate supply to support infrastructure and development projects with significant regional or national benefits.

1 Introduction

SAL has engaged T+T Ltd to prepare this AEE report to accompany a substantive application for the Clevedon Quarry Expansion (the Project).

This application seeks to authorise, in stages, an increase in the aggregate resource at Clevedon Quarry from 60 MT to approximately 150 MT, and provide for this resource to be extracted over a period of up to 50 years. Details of the Project and staging are outlined in this AEE, along with measures to manage potential adverse effects on the environment.

This report has been prepared in fulfilment of section 43 and Schedule 5 of the FTAA, on behalf of SAL.

The Project does not involve any ineligible activities (as defined in section 5 of the FTAA), pursuant to section 43(1)(c) of the FTAA or prohibited activities pursuant to section 42(5)(a) of the FTAA.

The Planning Act and the Natural Environment Act 2026 were enacted on 30 September 2026. As of 30 October 2026, the transitional provisions amending the RMA have come into effect, marking the start of the transition period to the new resource management system. Following enactment of these Acts, the FTAA has been amended to give effect to them, including in respect of how applications made under the FTAA are processed and determined during the transition period.

As part of these transitional provisions, amendments to section 104(1) of the RMA have come into effect. When considering an application for a district land use consent, the consent authority is now required to disregard certain specified effects, including effects on views from private properties. Consistently, clause 5(4A) of Schedule 5 of the FTAA provides that an assessment under clause 5(4), in respect of a resource consent application for a district land use consent, need not include any of the effects listed in section 104(1A) of the RMA.

1.1 Project overview

SAL is one of New Zealand's leading industry experts in aggregate extraction, processing and distribution. Clevedon Quarry is a regionally significant quarry, operating in the area since the 1970s (initially operated by Warren Shaw Limited). Specifically, Clevedon Quarry is a greywacke hard rock quarry supplying aggregate to the Auckland market.

Aggregate is an essential resource that underpins development across New Zealand. The construction of infrastructure, as well as both urban and rural growth, relies on the ability to access, extract, process and transport this material efficiently. Aggregate extraction can only occur where the resource is naturally found in situ, and it is preferable for it to be sourced in close proximity to where it will be used in order to minimise the environmental effects and costs of transporting aggregate from the quarry to the construction site.

The existing Clevedon Quarry is located entirely within 546 McNicol Road, Clevedon. The quarry sits within a wider area owned by SAL, encompassing approximately 544.32 hectares (ha), referred to in this application as the 'SAL landholdings' and shown on Figure 1 of the AEE drawing set (attached as Appendix C). Existing land types/uses within the SAL landholdings include quarrying, plantation forestry (recently felled and replanted), and areas of native vegetation.

Based on current supply, over the past couple of years, Clevedon Quarry has extracted approximately 200,000 – 300,000 tonnes of aggregate annually. SAL holds the 2018 Consent[3], which authorises the expansion of the quarry to enable the extraction of approximately 60 MT of aggregate and overburden at an annual extraction rate of around 3 MT per year.

[3] [2018] NZEnvC 96.

SAL proposes an alternative staged expansion of Clevedon Quarry that delivers additional resource access and a more efficient, practical quarry design than the 2018-approved design. The maximum LoQ footprint is approximately 74 ha (excluding an approximately 4.6 ha OBDA), with a maximum excavation level of approximately RL 22.5 m. The proposed LoQ extent is shown in Figure 1.1, below.

The LoQ will be achieved across five indicative stages over an approximate 50-year period. The expansion will ensure access to approximately 150 MT of aggregate[4]. No changes are proposed to the current consented annual extraction limit of 3 MT per year, and there will be no increase to existing operational parameters such as truck movements or hours of operation.

The proposed improved expansion design refines the staging and extraction sequencing to better align with operational requirements, optimises the overall LoQ within the existing SAL landholdings, and improves operational continuity and constructability across stages, supporting a stable, reliable local aggregate supply to meet forecast growth in demand and help address Auckland's shortfall in locally produced aggregate. To achieve this, the expansion would extend the current quarry at 546 McNicol Road south-eastward into 646 McNicol Road and 439 Otau Mountain Road (collectively referred to herein as the Site).

The majority of the proposed LoQ extent (approximately 59 ha) is located within the SPQZ, which anticipates the use of this area for quarrying activities. The remaining extent (approximately 15 ha) is located within the RPZ. Ecological features, including forest vegetation and stream systems, are located in both zones. The northeastern portion of the LoQ extends into a Significant Ecological Area Overlay (SEA) (SEA_T_5588). The SEA is predominantly mapped over land zoned RPZ.

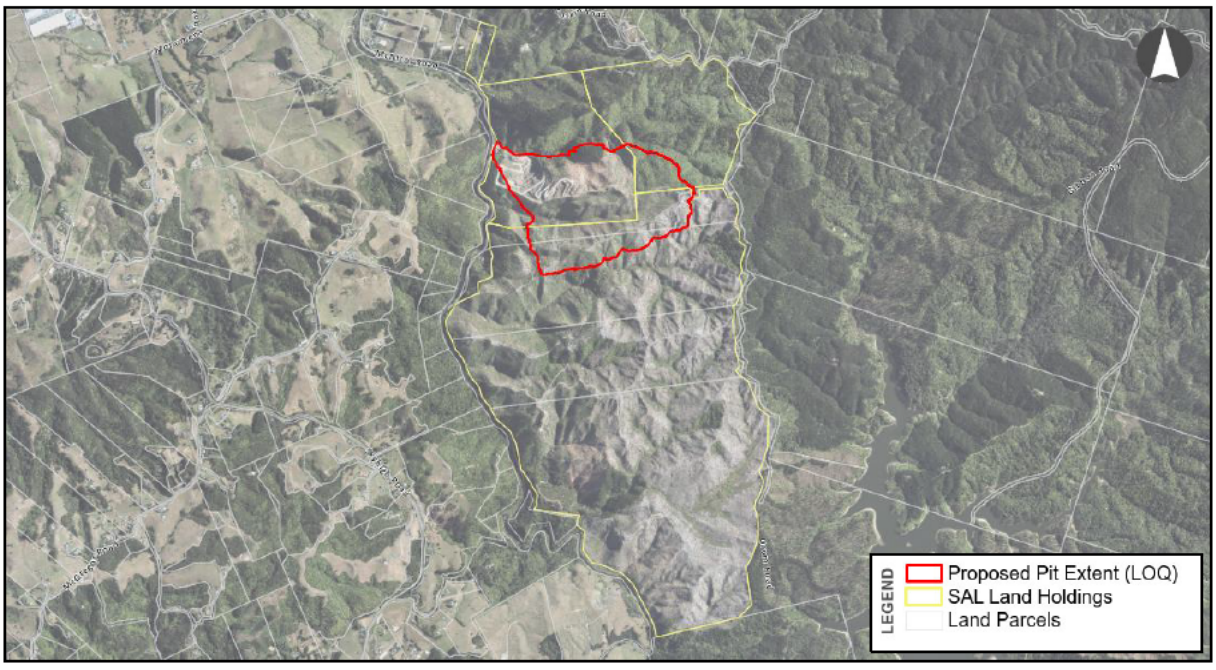


Figure 1.1: Site location – wider SAL landholdings.

1.2 Consent package

To enable the Clevedon Quarry Expansion, approvals are sought under the RMA[5].

The consent package comprises new resource consents for the proposed expansion (referred to as the Quarry Expansion consent), together with variations to two existing consents.

[4] Assuming consent is granted in 2027.
[5] FTAA, s 42(4)(a) and 42(4)(b).

The Quarry Expansion consent will comprise the following:

- A new land use consent for mineral extraction activities and associated works within the proposed Quarry Expansion area (where required, this is specifically referred to as the mineral extraction consent).
- A new suite of regional consents, which will authorise the regional activities required across the Project extent, including activities associated with the LoQ footprint and supporting ancillary infrastructure.

An overview of the Quarry Expansion works is provided in Section 1.2.1.

In parallel, SAL seeks variations to two existing consents referred to as 'FoH consent' and 'Relocation of ONF Planting Areas'. An overview of these variations is provided in Sections 1.2.2 and 1.2.3 below.

1.2.1 Quarry Expansion

The new bundled consent will authorise the extraction of aggregate from the proposed Quarry Expansion extent, along with the associated enabling and operational works required within the expansion area and the OBDA. The proposed Quarry Expansion extent is identified as the black hatched area in Figure 1.2 below. Aggregate extracted from this area will continue to be transported to the FoH area for processing and distribution, as described further in Section 1.2.2 below.

1.2.2 Front of House consent

This FTAA application seeks approval for a substantially larger Quarry Expansion area with different development staging and a larger LoQ footprint than that authorised by the 2018 Consent. As a result, both the 2018 land use consent and associated regional permits are not fit for purpose.

Accordingly, as part of this application, SAL is seeking to vary the 2018 land use consent (LUC60291842) to reduce its scope so that it functions as a standalone Front of House consent. The FoH consent will authorise the ongoing FoH ancillary activities at the base of the quarry that support quarry operations, including processing and stockpiling, weighbridges, wheel wash facilities, site offices, parking areas and site access and associated ancillary infrastructure. SAL uses this consent structure at other sites, including Drury Quarry, where a standalone FoH consent operates efficiently.

The extent of the proposed FoH area will not overlap with the Quarry Expansion consent. Instead, the Quarry Expansion and the FoH activities will be authorised through separate but complementary land use consents (see Section 1.3 below).

No changes are proposed to the existing operational parameters authorised by the 2018 Consent, including truck movements or hours of operation within the FoH area. SAL therefore proposes to retain the relevant operational and transport-related conditions insofar as they relate to FoH ancillary activities. Conditions that are not relevant to the FoH activities are proposed to be deleted, or amended, as appropriate, as set out in the proposed changes to FoH consent in Appendix H. A single Quarry Management Plan (consent compliance) (QMP (cc)) is proposed to apply across the whole Site and cover both the FoH activities and the Quarry Expansion. This approach avoids the complexity of operating under two overlapping condition sets for the expansion works and supports effective monitoring and compliance.

Subject to exercising new earthworks consents, groundwater and air discharge permits (as identified in Section 1.5 below), the existing earthworks consent (LUC60291842), groundwater take and diversion (WAT60302444) and air discharge (DIS60302443) permits granted as part of the 2018 Consent process would be surrendered. The proposed Quarry Expansion consent conditions and amendments to the FoH consent are proposed to take effect when SAL exercises the replacement consents for the Quarry Expansion, including regional permits applying across the entire Site. This would ensure that the relevant regional permits align with the proposed Quarry Expansion and the updated suite of consents for ongoing operations.

1.2.3 Relocation of ONF Planting Areas

SAL is seeking to vary LUC60361560, which approved widening an existing haul road within the Outstanding Natural Features Overlay - ID 237, Wairoa River Gorge (ONF). As part of the expansion of Clevedon Quarry, four 'Planting Areas' required by this consent need to be relocated (refer to Section 4.4 for details).

The proposed variation seeks to replace the approved planting plan with a revised planting plan. Mitigation planting instead will be undertaken as part of the Quarry Expansion broader restoration planting package. No physical works to expand the quarry are proposed within the ONF extent.[6]

1.3 Consent strategy

Given the multi-faceted nature of the consent package, this section explains how the various consents and consent variations are intended to operate.

Figure 1.2 illustrates the spatial relationship between the proposed Quarry Expansion area, the LoQ extent, the OBDA, and the area proposed to be retained under the 2018 land use consent variation – scope reduction (for FoH activities). This figure is included to assist the Panel in understanding how the proposed Quarry Expansion consent and FoH consent are intended to operate alongside one another.

Overall, the Quarry Expansion land use consent will authorise the extraction of aggregate from the black hatched area shown in Figure 1.2, while the regional consents will apply across the wider LoQ extent. Extracted material will continue to be transported to and processed within the FoH area shown in blue hatching and authorised by the FoH consent. Mobile crushing and processing plant may also operate within the Quarry Expansion extent as an ancillary mineral extraction activity, together with the establishment of maintenance sheds and temporary stockpiling where required to support operations or staging.

[6] Planting will be undertaken as a Permitted activity under the AUP in the ONF as part of the wider Clevedon Quarry Expansion offset and compensation package.

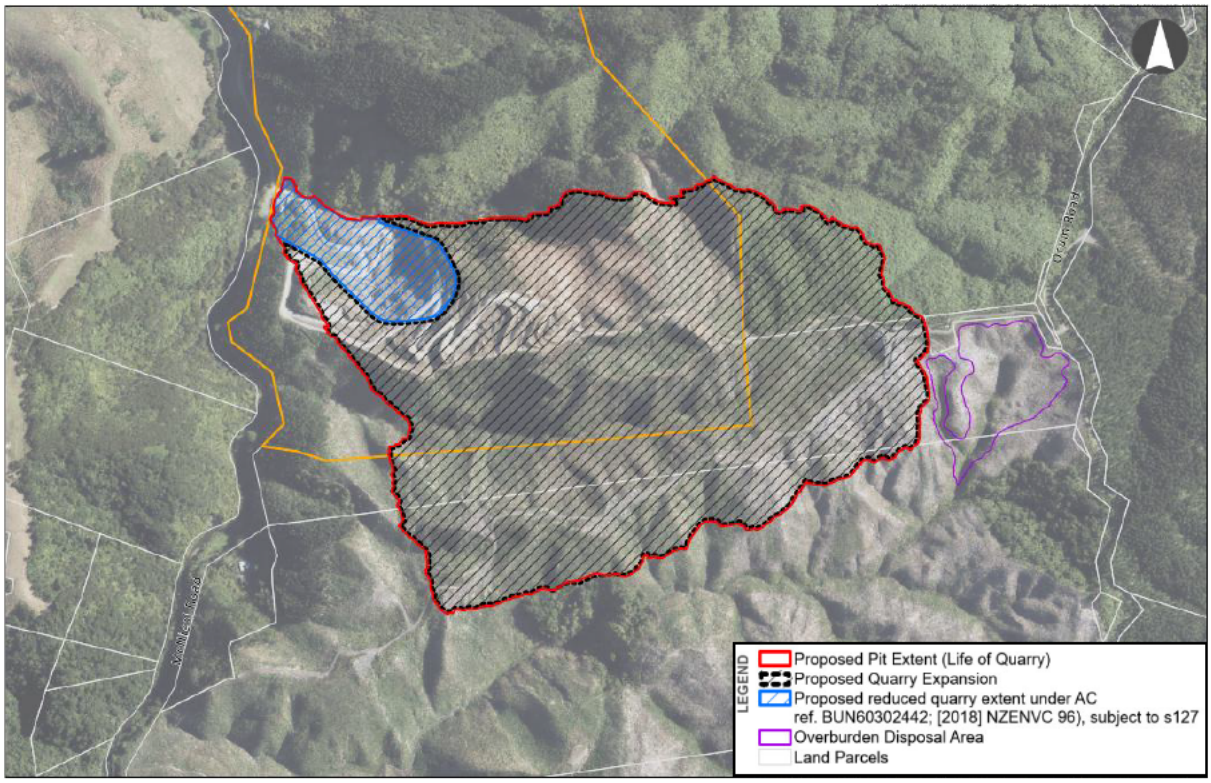


Figure 1.2: LoQ extent, proposed Quarry Expansion area, FoH area and OBDA.

1.4 Applicant and property details

Table 1.1 below sets out the details of the applicant and application site, as required by section 1 of the application form. Evidence of authorisation to make the application on behalf of the applicant is included in Appendix A.

Table 1.1: Applicant and property details[7]

Applicant	**Stevenson Aggregates Limited**
Owner and occupier of application site	
Site address	• 546 McNicol Road • 646 McNicol Road • 439 Otau Mountain Road
Landholdings	544.32 ha
Project extent	• 74 ha (approximate quarry extent, including the FoH area) • 4.6 ha (approximate OBDA)
Legal description	• Lot 1 Deposited Plan 169491 • Lot 1-3 Deposited Plan 177738 and Lot 12 Deposited Plan 49440 • Lot 1 Deposited Plan 56208
Record of Title reference	• NA103B/586 • NA105B/560

[7] FTAA, s 13(4)(s).

	• NA8C/442
Council / Plans	Auckland Council (AC) Auckland Unitary Plan - Operative in Part (AUP)
Agent acting on behalf of applicant	**Tonkin & Taylor Limited** PO Box 5271, Victoria Street West, Auckland 1142 Attention: Jessica Urquhart Phone: [redacted] Email: [redacted]
Applicant (including finance)	**Stevenson Aggregates Limited** Private Bag 94000, Auckland 2241 Attention: Kelsey Bergin Phone: [redacted] Email: [redacted]

1.4.1 Company overview

In 2018, Fulton Hogan acquired SAL, which now operates as a subsidiary of Fulton Hogan delivering high-quality aggregates throughout New Zealand.

As noted above, Clevedon Quarry is New Zealand owned and operated and has been part of the Clevedon community since the 1970s. Key operations at Clevedon Quarry include aggregate extraction, processing and distribution of a range of aggregate products for construction, infrastructure, roading, drainage and landscaping.

In addition to Clevedon Quarry, SAL owns and operates a number of quarries across the upper North Island, including:

- Drury Quarry - 41 Bill Stevenson Drive, Drury 2579: An operating hard rock quarry.
- Bell Road Sand - Bell Road, Pāpāmoa Beach: An operating sand quarry.
- Poplar Lane Quarry - Poplar Lane, Pāpāmoa: An operating hard rock quarry.
- Waingaro Quarry - 184 Waingaro Road, Ngāruawāhia: An operating hard rock quarry.
- Tauhei Quarry - 1500 Tauhei Road, Waikato: An operating hard rock quarry.
- Tūākau Sand - 86 Friedlander Road, Tūākau: An operating sand quarry with a cleanfill.

1.5 Quarry Expansion resource consent requirements

The resource consents sought to enable the Project are assessed in Section 6 and listed in Table 1.2 and Table 1.3 below. It is our understanding that no additional consents are required; however, if further consent matters are identified post-lodgement of the application, these should also be considered as forming part of the application. No Archaeological Authority or Wildlife Permits are sought as part of the Project.

Overall, resource consent is required as a **non-complying activity** under the AUP but is not subject to a s104D RMA assessment as set out under clause 17(1)(b), Schedule 5 of the FTAA.

Table 1.2: Summary of resource consents required under the AUP (in order of AUP chapter).

Rule reference / description	Activity status
E3.4.1 (A44) Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.6.1.23	Discretionary

Rule reference / description	Activity status
E3.4.1 (A49) – New reclamation or drainage, including filling over a piped stream.	Non-complying
E7.4.1 (A26) – Take and use of groundwater not meeting the permitted activity or restricted discretionary activity standards or not otherwise listed.	Discretionary
E7.4.1 (A28) - The diversion of groundwater caused by any excavation, (including trench) or tunnel that does not meet the permitted activity standards or not otherwise listed.	Restricted discretionary
E8.4.1 (A10) – All other diversion and discharge of stormwater runoff from impervious areas not otherwise provided for.	Discretionary
E11.4.1 (A9) – Earthworks greater than 2,500 m^2 within the Sediment Control Protection Area.	Restricted discretionary
E11.4.3 (A28) – Land disturbance in the SEA not otherwise listed – Greater than 5 m^2	Restricted discretionary
E11.4.3 (A30) - Land disturbance in the SEA not otherwise listed – Greater than 5 m^3	Restricted discretionary
E12.4.3 (A6) – Land disturbance in the Rural – Rural Production Zone – greater than 2500 m^2	Restricted discretionary
E12.4.3 (A10) – Land disturbance in the Rural – Rural Production Zone – greater than 2500 m^3	Restricted discretionary
E14.4.1 (A91) - Mineral extraction activities at a rate exceeding 200 tonnes/ hour from any one quarrying process within the Low air quality – dust and odour area (Quarry).	Controlled
E14.4.1 (A91) - Mineral extraction activities at a rate exceeding 200 tonnes/ hour from any one quarrying process within the Medium air quality - dust and odour rural area (Rural).	Discretionary
E15.4.1 (A10) - Vegetation alteration or removal, including cumulative removal on a site over a 10-year period, of greater than 250 m^2 of indigenous vegetation that: (a) is contiguous vegetation on a site or sites existing on 30 September 2013; and (b) is outside the rural urban boundary.	Restricted discretionary
E15.4.1 (A17) – Vegetation alteration or removal within 10 m of rural streams in the RPZ and Rural – Mixed Rural Zone.	Restricted discretionary
E15.4.1 (A18) – Vegetation alteration or removal within 20 m of a natural wetland, in the bed of a river or stream (permanent or intermittent), or lake.	Restricted discretionary
E15.4.2 (A43) – Any vegetation alteration or removal not otherwise provided for.	Discretionary
E15.4.2 (A44) – Any vegetation alteration or removal within a Quarry Zone and within an SEA.	Restricted discretionary
E36.4.1A (A92) – Construction of other land drainage works, stormwater management devices or flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain and flood prone areas.	Restricted discretionary
E36.4.1A (A102) – Diverting the entry or exit point, piping or reducing the capacity of any part of an overland flow path.	Restricted discretionary
E36.4.1A (A107) – All other infrastructure in flood and coastal hazard areas not otherwise provided for.	Restricted discretionary
H19.8.1 (A60) – Mineral extraction activities in the RPZ.	Discretionary

Rule reference / description	Activity status
H28.4.1 (A7) – Mineral extraction activities.	Controlled
H28.4.1 (A14) Land disturbance – District, greater than 2500 m^2	Controlled
H28.4.1 (A15) Land disturbance – District, greater than 2500 m^3	Controlled
H28.4.2 (A16) Land disturbance – Regional, greater than 10,000 m^2 where land has a slope less than 10 degrees and is outside the Sediment Control Protection Area.	Controlled
H28.4.2 (A17) Land disturbance – Regional, greater than 2,500 m^2 where the land has a slope equal to or greater than 10 degrees.	Controlled
H28.4.1 (A18) – Land disturbance Greater than 2,500 m^2 within the Sediment Control Protection Area.	Controlled

Table 1.3: Summary of resource consents required under the NES-F[8]

Rule reference / description	Activity status
Regulation 57 (1) - Reclamation of the bed of any river is a discretionary activity.	Discretionary

1.5.1 Bundling

As the quarry and associated activities will operate as one integrated site, and all components of the quarry operations that require consent are interconnected, it is appropriate that the new consents outlined in Section 1.2 are bundled for the application and assessment purposes and that an overall assessment of the application is made as a **non-complying activity**. However, as noted above, whilst the Project is a non-complying activity, under clause 17(1)(b), Schedule 5 of the FTAA, a s104D assessment is not required.

1.6 Section 127 variation[9]

As detailed in Sections 1.2.2 and 1.2.3 above, SAL is seeking variations to the existing 2018 Consent and ONF Planting Area that would otherwise be applied for under the RMA as set out under s42(4)(b) of the FTAA. These variations sit alongside the proposed Quarry Expansion consents and are required to align the existing consent framework with the proposed expansion.

1.7 Consent duration

Land-use consents are sought in perpetuity. A term of 35 years is sought for all other (i.e., regional) resource consents.

1.8 Lapse date

The default period of five years is sought as the lapse period for the consents.

[8] It is unknown at this stage whether there is a hydrological connection between any natural inland wetlands or whether the works will result in partial drainage of these. Therefore, the NES-F has been conservatively assessed for this substantive application.
[9] FTAA, s 42(4)(b).

1.9 Report structure

The purpose of this AEE is to describe the proposed works associated with the construction and operation of the Clevedon Quarry, including assessing the potential effects on the environment. The report also assesses the Project against the relevant statutory documents.

Table 1.4 below outlines the structure of this report, including the associated technical reports and drawings.

Table 1.4: Report structure

Clevedon Quarry Expansion – Assessment of Effects on the Environment		
Volume 1u	**Assessment of Effects on the Environment Appendices**	
	Appendix A	Adjacent landowners and occupiers
	Appendix B	Permitted Activity Assessment
	Appendix C	AEE drawing set
	Appendix D	Consultation documentation
	Appendix E	Cultural Values Documents
	Appendix F	Assessment of objectives and policies
	Appendix G	Proposed conditions of consent
	Appendix H	Proposed changes to FoH consent
	Appendix I	Quarry Management Plan
Volume 2	**Technical Reports**	
	Technical Report A	Economic Assessment
	Technical Report B1	Geotechnical Feasibility Assessment
	Technical Report B2	Geotechnical Assessment Report Proposed overburden disposal area
	Technical Report C	Transportation Assessment
	Technical Report D	Assessment of Noise Effects
	Technical Report E	Archaeological Assessment
	Technical Report F	Air Quality Assessment
	Technical Report G	Groundwater Assessment
	Technical Report H	Surface Water Management Report
	Technical Report I	Ecological Impact Assessment
	Technical Report J	Landscape Effects Assessment
	Technical Report K	Erosion and Sediment Control Assessment Report
	Technical Report L	Drilling & Blasting Vibration Assessment

2 Project context

A secure and reliable aggregate supply is critical to the economic and social well-being of Auckland's people and communities. This section provides an overview of aggregate use, demand, trends and the role quarries play in the overall aggregate supply chain and urban development.

2.1 Role of quarries and aggregate use

Quarries play a vital role in supporting infrastructure and urban growth throughout New Zealand by providing a steady and essential supply of raw materials for construction. Quarries are primary sources for extracting a variety of natural resources such as rock, limestone, sand, and other minerals. Mineral extraction can only take place where the resource is found naturally in situ and where the overlying land use has not sterilised that resource.

Rock aggregate is a foundation and building product and a fundamental component of concrete. It plays a critical role in various construction and civil engineering applications. Some of the primary uses of rock aggregate include:

- Concrete production.
- Asphalt mixtures.
- Road construction (used as a base material to build road foundations).
- Railroad ballast (used as a base material to support railway tracks).
- Drainage systems, including stormwater management and construction water and wastewater networks.
- Building foundations.
- Concrete blocks and pavers used for construction purposes.
- Industrial processes.
- Erosion control (i.e. riprap).
- Landscaping.

On average, each new house requires approximately 250 tonnes of aggregate. Construction of 1 km of a two-lane highway requires approximately 14,000 tonnes of construction aggregate, equivalent to approximately 450 truck and trailer loads[10].

Given these numerous applications and volume requirements, aggregate resources are critical for the Auckland region.

2.2 A Minerals Strategy for New Zealand to 2040

A Minerals Strategy for New Zealand to 2040 (Minerals Strategy)[11] sets out the Government's long-term strategy for the minerals sector. Its vision is for "a minerals sector that delivers for New Zealanders, now and into the future, by supporting a productive and resilient economy through responsible and sustainable practices." The Minerals Strategy also sets a goal of doubling the value of mineral exports by 2035. It also expressly recognises the strategic importance of aggregate production, noting that quarries supply aggregates, industrial rocks, building stone, gravels, and sands that form the "building blocks" of New Zealand's infrastructure and housing. This is directly relevant to the Clevedon Quarry Expansion, which seeks to secure long-term access to a regionally significant greywacke aggregate resource close to the Auckland market.

[10] The Aggregate & Quarry Association of NZ, dated 2023, Fact Files | Aggregate & Quarry Association (aqa.org.nz)
[11] A Minerals Strategy for New Zealand to 2040, dated January 2025 | A Minerals Strategy for New Zealand to 2040

The Minerals Strategy is broadly centred around the following three core outcomes:

- Productive (sector growth and innovation).
- Valued (understanding mineral potential and recognising responsible practices).
- Resilient (critical minerals are sought after and support resilient supply chains).

The Clevedon Quarry Expansion is strongly aligned with the Productive and Valued outcomes**.** The Minerals Strategy identifies that New Zealand's economy requires access to minerals at the right time and in the right quantities to grow and thrive, and that many minerals can be sourced responsibly in New Zealand with the right settings in place, enhancing security of supply. The Clevedon Quarry Expansion would enable continued and more efficient access to a significant aggregate resource from an established quarry, within existing SAL landholdings, and in close proximity to the Auckland market. It would also improve the staging, extraction sequencing and operational efficiency of the quarry, while retaining the existing annual extraction limit and existing operational parameters such as truck movements and hours of operation.

The Project also aligns with the Minerals Strategy's Productive outcome, which seeks to improve regulatory pathways and make obtaining permits and consents more efficient. In particular, the Strategy's delivery roadmap identifies the Fast-track Approvals legislation as part of achieving a more efficient regulatory system for minerals development, while maintaining responsible management of environmental effects.

The Project is also consistent with the Strategy's emphasis on responsible mineral development. The expansion is proposed within SAL's wider landholdings and builds on an established quarry operation, rather than establishing a new greenfield quarry in a different location. The application includes a comprehensive suite of technical assessments and proposed management, mitigation, offsetting and monitoring measures, including in relation to water management, ecology, landscape, transport, noise, air quality and rehabilitation. This reflects the Strategy's expectation that mineral development should proceed in a manner that manages environmental effects and recognises community and environmental considerations.

As described in the Economic Assessment (Technical Report A, Volume 2), the Clevedon Quarry Expansion offers substantial benefits by helping address Auckland's long-term shortfall in locally produced aggregate. Further detail on this is provided in Sections 2.3.1 to 2.3.3 below.

2.3 Auckland context

2.3.1 Population growth

As detailed in the Economic Assessment (Technical Report A, Volume 2), across all growth scenarios, Auckland's population growth is forecast to outpace the national average. Using Stats NZ's population projections and grouping the Local Boards into six broad areas shows that spatially, the growth is expected to be distributed around Auckland. The largest increases are anticipated in the southern and northern areas, followed by the west between 2023 and 2053. The shares of growth by broad area are:

- North 23%
- West 16%
- Central 20%
- East 6%
- South 35%
- Gulf Islands 0.1%

Combined, south and east Auckland account for 41% of total growth. These spatial patterns are relevant because they influence where aggregate will be required. The Project, located in Auckland's south-east, is strategically positioned to serve these growth areas. Its proximity to south and east Auckland, along with good access to central Auckland, makes it a key source of aggregate for future infrastructure and construction demand.

Aggregate is also a high-volume, low-value[12] product which is expensive to transport. This means that for aggregate extraction to be economical and more sustainable (reducing other indirect effects like emissions and social costs[13]), it should be located proximate to the areas where it is required, and closest to the areas with predicted highest demand.

2.3.2 Aggregate demand and trends

The Economic Assessment (Technical Report A, Volume 2) states that Auckland faces a well-documented shortfall in local aggregate supply, meaning demand often exceeds what can be supplied within the region. Auckland therefore relies on imported aggregate from neighbouring regions, particularly Waikato and Northland, which increases transport costs and associated environmental and social costs.

Based on available information, production levels in 2022 in Auckland reached near parity with demand. However, this relied on a significant uplift in 2022, where Auckland supply rose by 28% from the year before, which may not be sustained. Under a medium growth demand scenario, the output gap in 2056 would require supply to increase by up to 64% to meet demand[14].

According to the Infrastructure Commission's Infrastructure Pipeline[15], there are several large[16] projects planned[17] across Auckland. Notably, Auckland Council plans to spend $295 billion[18] on infrastructure over the next 30 years, upgrading, replacing and building new infrastructure across the region, according to its infrastructure strategy. This implies an average of $9.83 billion being spent per year on infrastructure.

Examples of major funded (or funding sources confirmed) infrastructure projects include:

- NZ Transport Agency Waka Kotahi (NZTA):
  - Te Ara Hauauru - Northwest Busway Stage 1.
  - Roads of Regional Significance (RoRS) SH22 (Drury) Corridor Upgrade.
  - RoRS Waihoehoe Road (Drury) Upgrade.

[12] Aggregate is low value relative to its weight.
[13] Social costs linked to injuries and fatalities due to changes in distance travelled.
[14] Under the worst-case supply scenario where listed projects are not granted consent.
[15] The Pipeline | Te Waihanga
[16] Expected cost range of $100 million+.
[17] In early planning, planning or procurement stage.
[18] Some of these projects are included in the Infrastructure Pipeline's list of Projects.

  - Roads of National Significance (RoNS) Northland Corridor – Section 1 (Ara Tūhono – Warkworth to Te Hana).
- Watercare:
  - Upgrade of Hingaia Wastewater Pump Station – Southern Auckland.
  - Whenuapai & Redhill Wastewater Scheme – Package 2.
  - Upgrades of Separation and Wastewater Pipes to Reduce Wet Weather Overflows - Herne Bay.
  - New North Harbour Number Two Watermain.
  - Rosedale Sludge Conditioning.
  - Waikato water treatment plant raw water intake.
  - Mangere Wastewater Treatment Plant distributed blowers.
- Health New Zealand:
  - New Specialised Rehabilitation Centre, Manukau Health Park
- Ministry of Education:
  - 23 projects ranging from new schools and expansion work in response to roll growth, valued around $120 million.
- Kāinga Ora – Homes and Communities:
  - Kāinga Ora Large Scale Programme.[19]
- Other high-profile projects which are underway include:
  - RORS O Mahurangi Penlink.
  - Auckland Airport.
  - Eastern Busway
  - Papakura ki Pukekura (SH1 Papakura to Bombay).
  - Several Precinct Properties.

The significance of these projects is that, collectively, they demonstrate a sustained regional infrastructure pipeline that will continue to require substantial volumes of aggregate. This is particularly relevant in south and east Auckland, where a significant share of Auckland's future population growth and infrastructure demand is expected to occur.

2.3.3 Consented aggregate market

The Government named eight quarry projects on its FTAA list, four of which are in Auckland, and all of them are expansions of existing quarries. Two of the applications have been approved to date (Sutton Block and Kings Quarry - Stage 2), with a third (Hunua Quarry) recently receiving a draft decision to grant approval. These recently granted expansions, as well as Brookby Quarry,[20] will contribute additional aggregate to the market annually. There are also other non-fast tracked consent applications currently being prepared in the northern parts of the Auckland region. However, the Economic Assessment (Technical Report A, Volume 2) determines that across all supply and demand combinations, locally sourced aggregate is insufficient to meet Auckland's requirements.

[19] Kāinga Ora's response to development of more than 30,000 dwellings over 5 LSP areas in the next 20 years. Mt Roskill, Mangere, Tāmaki, Northcote, Oranga, including active modes, public transport and safety improvements to enable developing communities to adopt the right travel choices.
[20] Recently granted resource consent under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

Under the best-case supply scenario[21], Auckland experiences a surplus over the short and medium term, peaking at approximately 3.2 MT per annum in 2031. However, this surplus declines thereafter, with the market returning to deficit by 2056 (around 0.9 MT per annum). Under the worst-case supply scenario[22], Auckland faces an immediate shortfall of approximately 2.2 MT per annum. This deficit increases consistently over time, reaching around 8.4 MT per annum by 2056.

The Economic Assessment states that the widening gap under the worst-case scenario reflects the risk that, if additional planned projects are not realised, the region will become increasingly reliant on external sources of aggregate. This comparison also demonstrates that while additional projects can delay the onset of supply constraints, they do not fully offset long-term demand pressures. As a result, the market remains structurally constrained over the longer term.

Moreover, projected population and infrastructure growth in south and east Auckland reinforces the need for aggregate capacity to be retained and secured close to those areas of demand. Alternatively, aggregate may be imported from other areas/regions, increasing costs for both purchasers and society more broadly.

Approval of the Project would secure access to approximately 150 MT of aggregate in the Auckland market, ensuring supply for up to 50 years. The Project would provide much--needed certainty to the infrastructure and development sectors that a reliable, locally sourced aggregate supply will continue to support Auckland's long--term growth.

2.3.4 Summary

Overall, a consistent, readily available local aggregate supply is essential to support Auckland's growth and meet the infrastructure needs of its rapidly expanding population and economy.

2.4 Site context

2.4.1 Landowner and consenting background

Clevedon Quarry has been operating for over 50 years. In 1995 the Site was purchased by Warren Fowler (Fowler Quarries Limited) and was previously known as 'Fowler Quarry'. Fulton Hogan subsequently purchased the Quarry in April 2016. It was later transferred to Fulton Hogan's subsidiary, SAL, in 2019.

As the Site has evolved, with changes in landownership and approaches to quarry development, SAL now holds several consents relating to the operation and expansion of Clevedon Quarry that form part of the existing environment. Table 2.1 below summarises the existing granted SAL resource consents.

The approximate extent of these key existing consents that apply to the SAL landholdings is shown in Figure 2.1 and are also provided in Figure 15, Appendix C.

Table 2.1: Existing resource consents – Clevedon Quarry and SAL landholdings

Consent number	Consent type	Expiry Date
[2018] NZEnvC 96 / BUN60302442 (blue extent in Figure 2.1)		
LUC60291842 (Land Use Consent and Earthworks)	Mineral Extraction and associated activities within SPQZ	Granted 25 June 2018 Term – 35 years

[21] Scenario considering historic maximum, recently consented capacity and aforementioned listed projects are granted consent. The best-case scenario also relies on quarries maintaining relatively high levels of production in the future, including Clevedon Quarry which accounts for a portion of the current supply.
[22] Scenario considering most recent 10-year average and recently consented capacity.

Consent number	Consent type	Expiry Date
	Consent to undertake earthworks over an area of approx. 29 ha. Provides for vegetation clearance, overburden removal and reformation of tracks.	Expires 25 June 2053
WAT60302444 (Groundwater)	De-watering and diversion of groundwater. Groundwater take and use with a daily maximum of 2,500 m^3 or annual 912,500 m^3.	Granted 25 June 2018 Term – 35 years Expires 25 June 2053
DIS60302443 (Air Discharge)	Air discharge for mineral extraction activities at a rate exceeding 200 tonnes/hour from any one quarrying process in a low air quality – dust and odour area.	Granted 25 June 2018 Term – 35 years Expires 25 June 2053
ONF Consents		
LUC60349699	Retrospective consent for a haul road located within the ONF.	Granted – 6 March 2020
LUC60361560	To widen the existing haul road within the ONF.	Granted - 8 March 2021
Water Take		
WAT60368872	To take water from an unnamed tributary of the Wairoa River (known as the North Stream) for use in processing aggregate and dust suppression.	Granted – 18 March 2021 Expires – 30 June 2036 Surrendered 20 August 2024
Plan Change 89		
Plan Change 89	Rezoning a portion of land (from the north of the Site) from SPQZ to RPZ and the other portion of land (to the south and east of the Site) from RPZ to SPQZ - essentially a "zone swap".	Approved – 8 April 2024

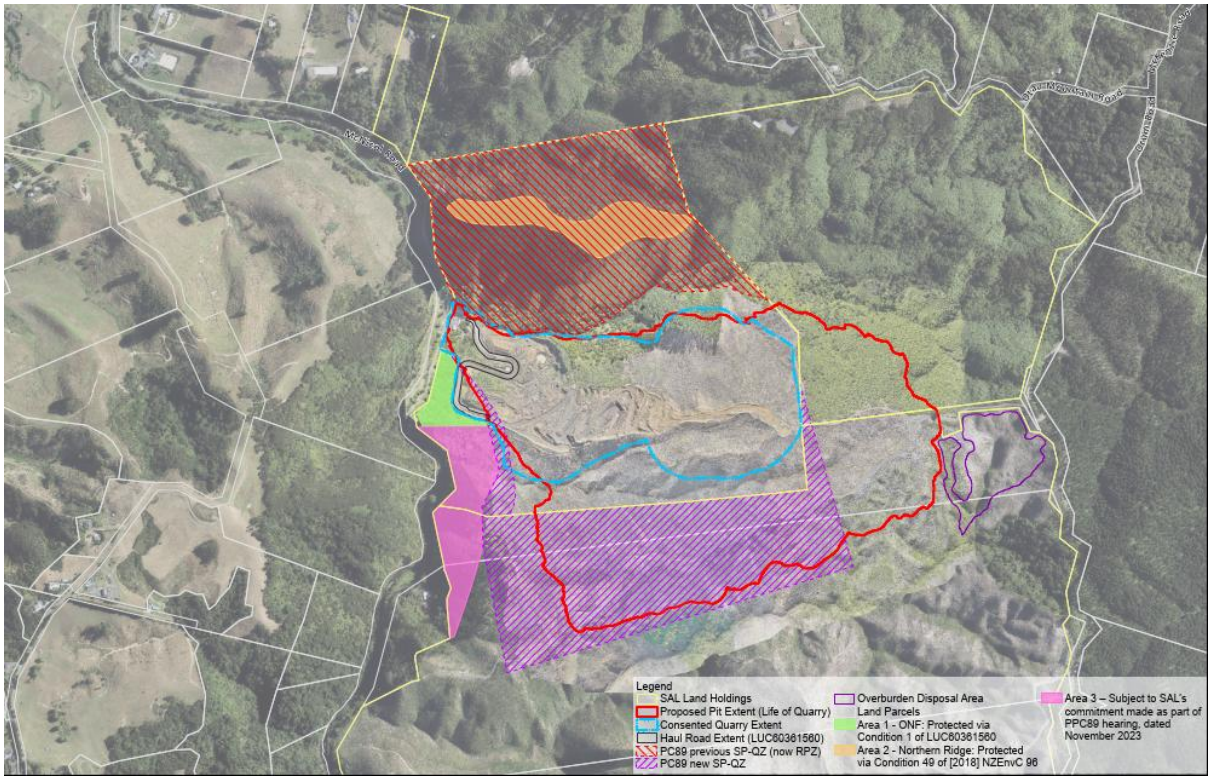


Figure 2.1: Key existing consents within the proposed Clevedon Quarry extent.

2.4.2 Existing consents relevant to this application

The long-standing operation of Clevedon Quarry, the Site's underlying SPQZ zoning, and the suite of existing resource consents demonstrate that quarrying is the established and anticipated primary land use across the area subject to the LoQ expansion. This is reflected in the planning framework, which provides for quarrying activities to ensure that demand for minerals can be met, and significant resource can be extracted.

The existing consents are also directly relevant to the proposed consent strategy. In particular, the 2018 Consent currently authorises the quarry's key operational parameters and associated ancillary FoH activities.

2.4.2.1 2018 Consent

On 25 June 2018, Fulton Hogan[23] obtained resource consent in the Environment Court for an expansion to increase annual production of up to approximately 3 MT per year, totalling 60 MT of aggregate and overburden across six stages (approximately 16 ha), earthworks and vegetation clearance over an area of approximately 29 ha. The 2018 Consent also authorises key operational components of the quarry, including aggregate processing, crushing, stockpiling, and quarry traffic movements. In addition to the land use consent, the approval included a Groundwater Permit for take and use with a daily maximum of 2,500 m^3 or annual 912,500 m^3 to a maximum depth of 20 RL and an Air Discharge permit for mineral extraction activities at a rate exceeding 200 tonnes/hour from any one quarrying process in a low air quality – dust and odour area.

[23] Fulton Hogan purchased Clevedon Quarry in April 2016. It was later transferred to Fulton Hogan's subsidiary, SAL, in 2019.

The 2018 Consent footprint and staging were based on the geological and geotechnical understanding available at the time. A more detailed model has since been developed, which has identified the opportunity to recover a materially greater volume of in situ aggregate within the existing SAL landholdings, optimise the overall LoQ, and maintain constructability and continuous operations across the staged development. Accordingly, this FTAA application seeks approval for a substantially larger, more efficient and operationally workable expansion with different development staging and a larger LoQ footprint, which responds more effectively to the Site's steep topography by providing a constructible and safe operating geometry that supports continuous quarry operations throughout the staged development.

As a result, the 2018 Consents (both the land use consent and associated regional permits) are not fit for purpose.

3 Existing environment

3.1 Site location

As shown in Figure 3.1, the Site is located on the northwestern edge of the Hunua Ranges, in the upper Wairoa River Valley, approximately 5 km from Clevedon village. The landscape is heavily influenced by rural and industrial activities, including pine forestry, pastoral farming, existing quarry operations, and rural residential development.

The existing Clevedon Quarry is located entirely within 546 McNicol Road, Clevedon. The current extent sits within a natural depression facing northwest and is surrounded by steep topography. Access to the Site is from McNicol Road. As shown in Figure 3.2, the Project will progressively expand the quarry into 646 McNicol Road to the south of the existing extent and 439 Otau Mountain Road to the east.

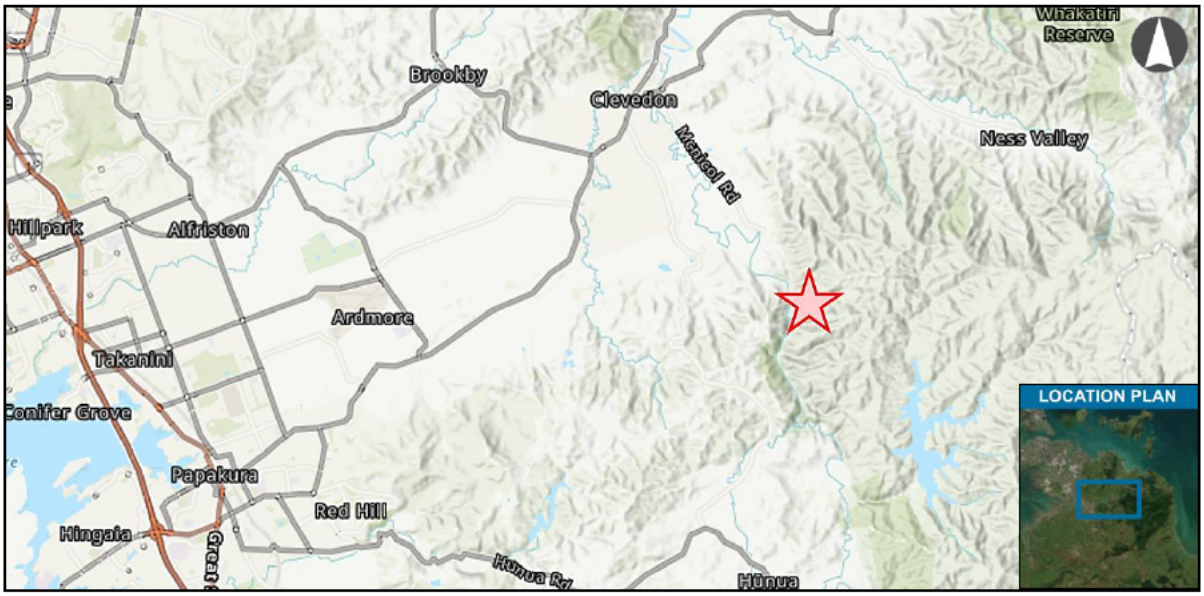


Figure 3.1: General location and topography of the Site (star).

3.2 Site description

The current Clevedon Quarry has been developed by pushing back into the flanks of the hillside to the east of McNicol Road. As stated in the Geotechnical Feasibility Assessment (Technical Report B1, Volume 2), extraction is presently concentrated on upper benches and is removing weathered rock to expose unweathered greywacke resource. This excavation is broadly following topography eastwards with a series of staggered benches and batters that provide a final approximate cut height of 175 m. The Site office area is at an approximate elevation of RL 21 m, with the current extraction areas at RL 140 m, RL 160 m (Shot Floor), and RL 200 m (Overburden Stripping).

The existing quarry activities include mineral extraction activities (aggregate extraction and processing), supported by FoH activities including site offices, wheel washing, stockpiling and further processing shown in Figure 3.2. In addition to quarrying activities, existing land types/uses within the wider SAL landholdings include plantation forestry (recently felled and replanted), areas of native vegetation, and streams. Streams located within and in proximity to the proposed LoQ extent include the Northern Tributary (Stream 1), Southern Tributary (Stream 2), Stream 2a to the southwest and Stream 3 directly south (shown on Figure 7, Appendix C). These streams all discharge to the Wairoa River, located to the west of the Site.



Figure 3.2: Existing quarry operations.

3.3 Site zoning

The zoning of the LoQ extent under the AUP comprises approximately 59 ha (around 80%) within the SPQZ, with the remaining approximately 15 ha (around 20%) within the RPZ (Figure 3.3, below). The northeastern portion of the Quarry Expansion will slightly extend into a SEA (SEA_T_5588) around Year 10 (indicative Stage 2), with the majority of expansion into this SEA occurring around Year 30 (indicative Stage 4). The SEA is predominantly mapped over land zoned RPZ as well as a very small area within the SPQZ at the northeastern edge of the LoQ.

Outside the proposed quarry extent, the SAL landholdings are predominantly zoned RPZ. The SAL landholdings in the northeast are primarily covered by the extent of SEA_T_5588. An ONF adjoins the SPQZ to the west. A Natural Stream Management Area (NSMA) also applies to a small portion of the northern part of 546 McNicol Road. A Wetland Management Areas Overlay – 588 Orams Road Wetland, is located within the southeastern portion of 646 McNicol Road. Both the NSMA and the Wetland Management Areas Overlay are located well outside the Project LoQ footprint.

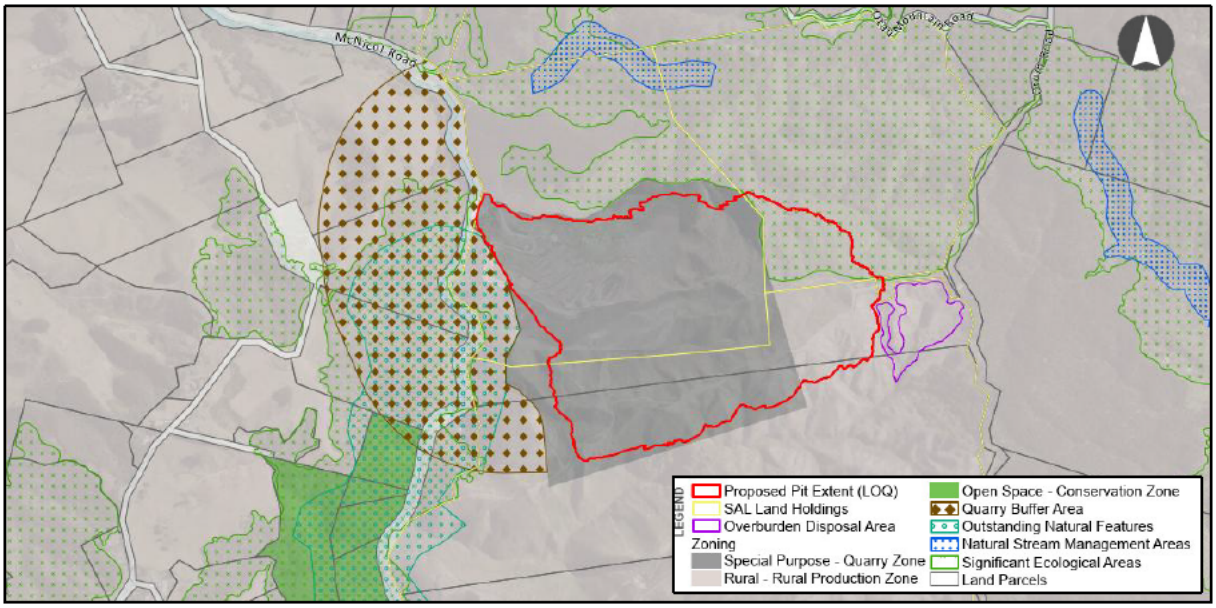


Figure 3.3: AUP zoning and overlays.

3.4 Human environment

3.4.1 Land uses

The land within and surrounding the Project is predominantly characterised by the following land uses:

- **Quarrying:** Existing quarry activities and associated infrastructure are a prominent land use in the immediate vicinity.
- **Rural Production and Farming:** A large portion of the surrounding area is rural production land, which includes pastoral farmland and rural activities.
- **Forestry and Natural Vegetation:** The surrounding area heavily features forested land, including both commercial pine plantations within SAL landholdings and native indigenous vegetation within the SEA (including the Hunua Ranges Regional Park).
- **Residential and Community:** The wider surrounding area features rural residential development. To the north and west (towards the flatter valley and Clevedon area), land uses expand to include farmland, rural residential properties and urban development within the southern reaches of Clevedon village.
- **Water supply:** A Watercare Services Ltd Designation (9501) for Cosseys Dam Catchment Headworks Service Land directly adjoins the Site to the east.
- **Police and emergency services**: A Minister of Police Designation (5728) for a Police & Emergency Services Broadcast Tower is within 501 Otau Mountain Road. It is located to the north of 646 McNicol Road.

3.4.2 Nearest sensitive receptor

As shown on Figure 3.3 above, the AUP Quarry Buffer Area Overlay applies to land to the west of the Project. Land to the north, east and south is owned by SAL and is zoned Rural Production, with areas also subject to a SEA overlay. Together, these land ownership and planning controls provide separation from the Project and limit the potential for additional sensitive activities to establish in close proximity.

The nearest existing sensitive receptor to the Project is the dwelling at 600 McNicol Road, located to the south-west and within the Quarry Buffer Area Overlay. The nearest land outside of SAL ownership with potential for a future dwelling is located to the west of the Project, within the Quarry Buffer Area Overlay, which extends beyond 200m from the SPQZ.

Under Chapter D27 Quarry Buffer Area Overlay, Rule D27.4.1 (A1), dwellings within the Quarry Buffer Overlay are a controlled activity and require a resource consent. Accordingly, a future dwelling within the Overlay cannot be assumed to form part of the permitted baseline. The location and orientation of the dwelling and its outdoor living areas, including whether occupants would be adequately separated from or protected from potential adverse effects of mineral extraction activities, including dust, noise and vibration, form part of the Council's assessment criteria for this activity.

The dwelling at 600 McNicol Road has therefore been adopted as the nearest sensitive receptor for the purposes of the Project's effects assessments and proposed consent conditions.

3.4.3 Traffic

3.4.3.1 Access

The principal vehicular access route for Clevedon Quarry is McNicol Road. It has been the only transport access route for the Site since the establishment of the Quarry during the 1970s. The Quarry entrance at 546 McNicol Road is positioned approximately 3.1 km south of the intersection of McNicol Road and Tourist Road.

McNicol Road is a sealed (up to the Quarry entrance), rural, local route providing primarily for the vehicle access and movements of the properties along the route, including Clevedon Quarry. The current road is between 5–8 m wide. The access to the Quarry itself is a sealed carriageway extending for approximately 200 m inside the Site (to a point beyond the weighbridge and wheel wash facilities).

3.4.3.2 Transport routes

Vehicular access to and from the primary road network at the southern end of Clevedon's urban area is via Monument Road, Tourist Road and onto McNicol Road (refer to Figure 3.4). Although the local roading network in this part of the Clevedon area provides for several potential transport route options, the 2018 Consent[24] requires that SAL undertakes best endeavours to ensure that quarry trucks travelling to and from the Site only use the following routes:

- McNicol Road from the Quarry gate to Tourist Road.
- Tourist Road from McNicol Road to Papakura-Clevedon Road.

The Transportation Assessment (Technical Report C, Volume 2) states that quarry-related travel beyond this immediate area is largely dependent on the specific origin and destination of the trips made to and from Clevedon Quarry. However, in general, truck movements are directed towards the west and north due to the more substantial urban and peri-urban areas of south and central Auckland.

[24] NZEnvC 96 (Council Reference BUN60302442), Condition 26.

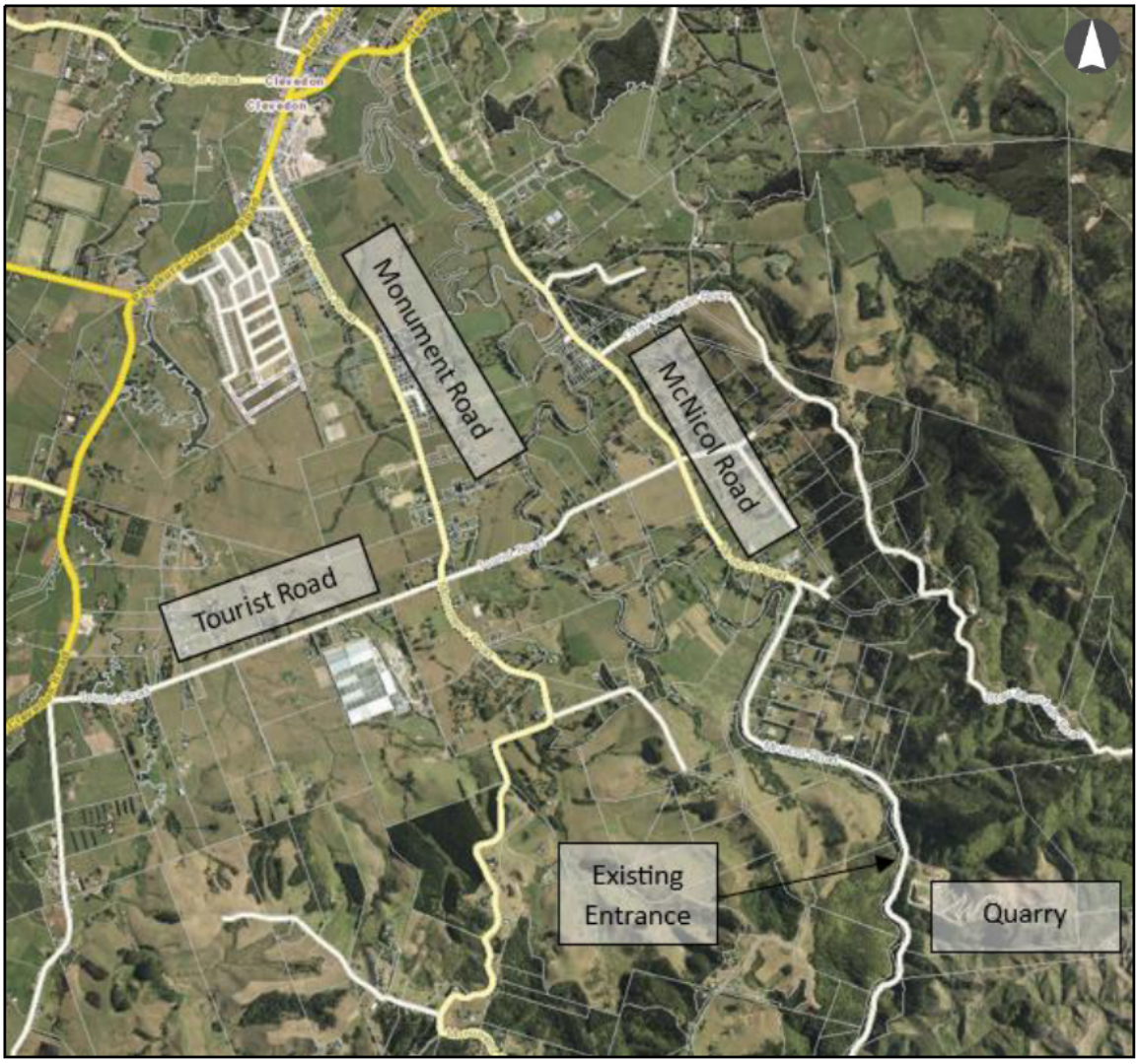


Figure 3.4: Site location and relevant roads.

3.4.3.3 Traffic volumes and trip generation

Based on Auckland Transport (AT) and NZTA traffic count databases and the MobileRoads online traffic database, the Transportation Assessment determines that current volumes handled by McNicol Road (as well as other routes referenced in Table 1 of the Transportation Assessment) remain well within the anticipated ordinary capacity of these routes.

In terms of off-site trip generation to and from Clevedon Quarry, the busiest days over the 2025/2026 period recorded peak truck movements per day (tmpd) in the range of 200-250 tmpd (with one exception 280 tmpd). For truck movements per hour (tmph), the busiest hour across the 2025/2026 period reached a two-way total of 44 tmph (i.e. 22 truck inbound + 22 truck outbound).

Condition 22 of the 2018 Consent limits the total hour truck movements to and from the quarry to a maximum of 90 tmph, and to no more than 900 tmpd per day, averaged over a 12-month rolling basis. Condition 28 imposes a lower temporary limit of 45 quarry truck movements per hour until the unsealed section of McNicol Road has been sealed and the road-widening works required by condition 60(a)–(f) have been completed. Current movements are lower than the 2018 Consent limits, reflecting the recent annual aggregate extraction of 200,000 – 300,000 tonnes.

3.4.4 Noise

The nature of the existing noise environment is detailed in the Assessment of Noise Effects undertaken by Marshall Day Acoustics (Technical Report D, Volume 2). These findings are summarised below.

The existing sound environment around Clevedon Quarry is heavily influenced by the site's diverse topography and its day-to-day operational capacity. The quarry landscape varies significantly in elevation, starting at RL 20 at the base of the hill behind the current excavated extent and rising to RL 300 at the top.

To establish a baseline of the existing sound environment, Marshall Day Acoustics undertook long-term noise monitoring at the notional boundary of the house at 546 McNicol Road. A logger was deployed from 22 October to 4 November 2025, and the quarry operated at its full capacity on 4 November 2025 from 7 am to 4 pm.

Measurements were carried out generally in accordance with NZS 6801:2008 using a 01dB Cube noise logger. Weather conditions were generally suitable for environmental noise monitoring, but wind and rain data from local weather stations were used to identify and exclude any periods potentially affected by weather.

The results show that daytime noise levels are between 35 – 57 dB $L_{Aeq,15m}$ until 7 pm, gradually dropping after 4 pm. The rise from around 6am is likely due to traffic, and the dawn chorus of birdsong. The average daytime ambient noise level at 546 McNicol Road (notional boundary) was measured at 49 dB LAeq. These noise levels include quarry activities and other ambient noise sources such as birdsong, insects and traffic on McNicol Road. The crushing plant was also audible.

As shown in Figure 3.5, the Site topography, with the hill to the north of the existing Clevedon Quarry, is an important factor in existing ambient levels because it effectively reduces quarry noise for receivers to the north.

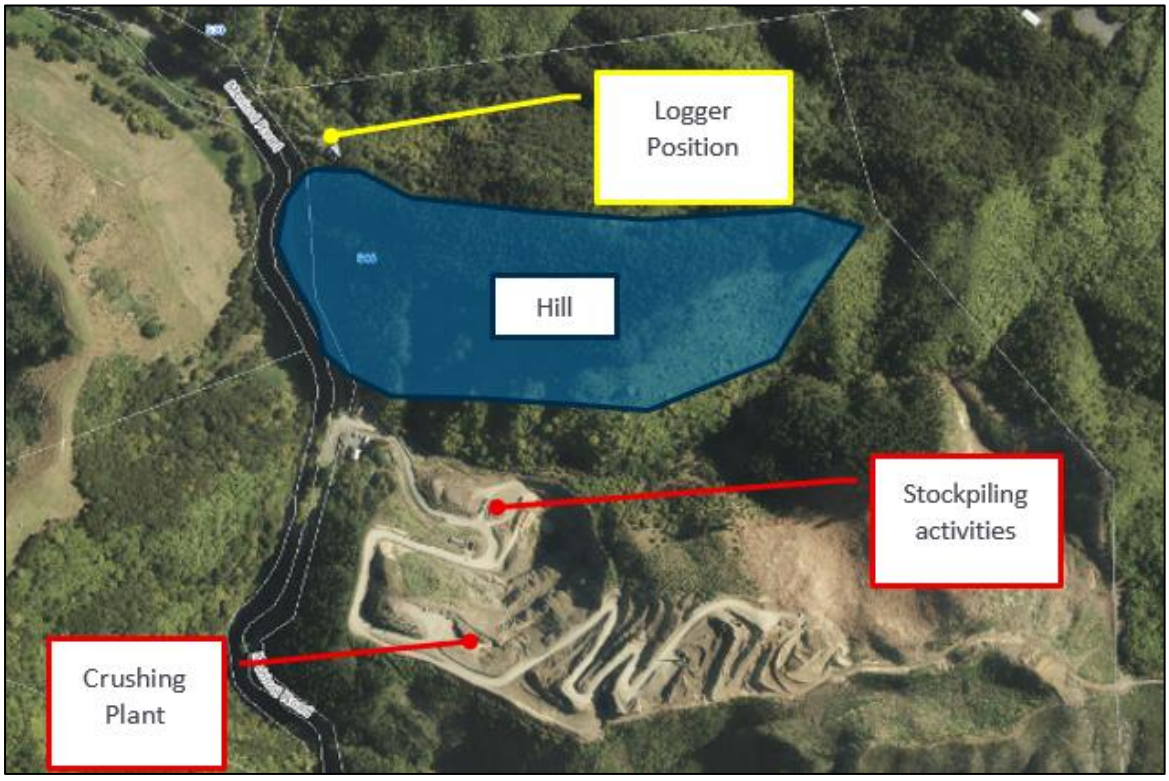


Figure 3.5: Ambient noise monitoring positions.

3.4.5 Archaeology

An Archaeological Assessment has been undertaken by CFG Heritage Ltd (Technical Report E, Volume 2). The archaeological context and findings are provided below.

The Archaeological Assessment states that the Wairoa River Valley and the low hills around the Hunua Ranges were settled by Māori with strong connections to Hauraki and Waikato. The foothills of the Hunua Ranges were used for cultivation and settlement, including the settlement at Ōpāheke on the Manukau Harbour and various kāinga along the Firth of Thames coastline. Subsequently, early European settlers were involved in gum digging and kauri felling and flax harvesting, freeing up land for farming. Historical drawings prior to approximately 1867 indicate that the Site was almost entirely under bush, with a transport route running up the centre northeast – southwest line of the Project area. A survey plan drawn in 1890 shows the Project area became considered "broken bush land" including "rata, rimu, tawa".

There has been little archaeological survey or investigation done in the Clevedon area. Accordingly, a field survey of the Site was undertaken by CFG Heritage on 3 November 2025, which focused on the accessible ridge lines and any flat areas. The Site and immediate surrounds were confirmed as being modified by the current quarry operations and by successive forestry harvests. No archaeological features or deposits were observed. Furthermore, based on a desktop review of historic aerial imagery and research[25], site survey results, and Light Detection and Ranging (LiDAR) results, no archaeological features are expected to be present. The steep and rocky nature of the landscape also means it is highly unlikely that any heritage sites are located within the Site.

No archaeological sites are recorded by the New Zealand Archaeological Association (NZAA) within the LoQ expansion extent. Several sites have been recorded in the surrounding area. As shown in Figure 3.6, there are 20 recorded archaeological sites within 4.5 km of the LoQ extent, 12 of which are pre-European.

[25] Including but not limited to the New Zealand Archaeological Association Site Recording Scheme, records of previous archaeological investigations near the Site from the Heritage New Zealand Pouhere Taonga (HNZPT) digital library, the HNZPT New Zealand Heritage List / Rārangi Kōrero and the Auckland Council Cultural Heritage Inventory.

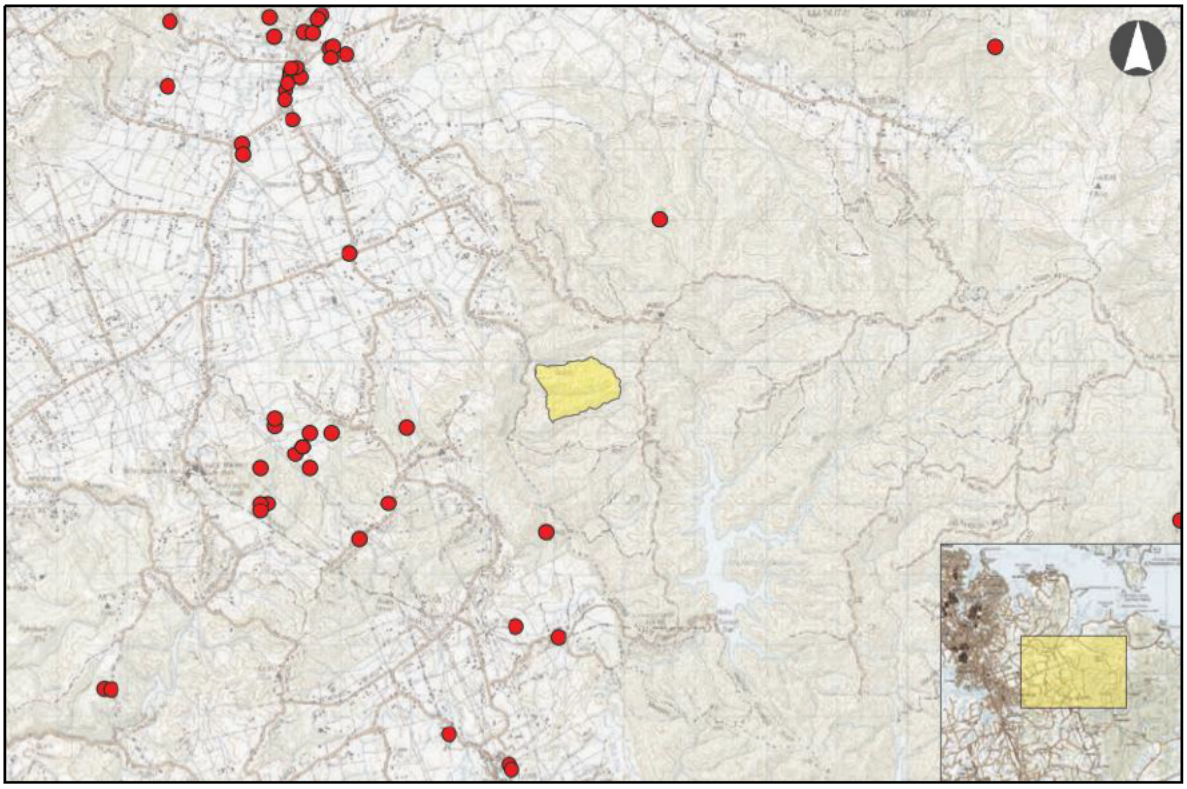


Figure 3.6: LoQ extent and surrounding archaeological sites.

3.4.6 Tangata Whenua

A number of iwi groups have Tangata Whenua interests over the area of the Site. These are identified on the Auckland Council GeoMaps database as:

- Ngaati Whanaunga
- Te Ākitai Waiohua.
- Ngāi Tai ki Tāmaki.
- Ngāti Paoa.
- Ngāti Tamaterā.
- Ngāti Te Ata.
- Ngāti Maru.
- Waikato-Tainui.

As part of the referral application, Ngāti Tamaoho Settlement Trust provided written feedback on the Project. Although Ngāti Tamaoho is not identified in the Auckland Council GeoMaps database as having an interest in the Site, SAL acknowledged receipt of these comments and invited further kōrero with the Ngāti Tamaoho Settlement Trust.

On 25 October 2025, an email was sent to all of the iwi groups listed above. The correspondence introduced the initial high-level plans for the Project and sought confirmation from those who wished to engage further (with follow-up emails provided subsequently). The following groups registered an interest in the Project:

- Ngāti Paoa Iwi Trust.
- Ngaati Whanaunga.
- Waikato-Tainui.
- Ngāi Tai ki Tāmaki.

Engagement with iwi is ongoing and will continue during the processing of the application and throughout the operation of the quarry.

3.4.6.1 Statutory acknowledgements of Ngāi Tai ki Tāmaki

The Site is shown on Auckland Council GeoMaps as being part of the Wairoa River catchment and Statutory Acknowledgement area, which is of significance to Ngāi Tai ki Tāmaki. The associated Deed of Settlement Plan is OTS-403-127[26] 'Wairoa River and tributaries'. This specific relevant plan (OTS-403-127) only relates to the riverbed or streambed owned by the Crown. On that basis, the statutory acknowledgement area does not apply to the Project Site[27].

Ngāi Tai ki Tāmaki provided a letter outlining engagement to date, dated 30 September 2026 (attached as Appendix E), confirming themselves as the Iwi holding Mana Whenua status of Clevedon and the surrounding area. The letter does not identify site-specific cultural values.

Although the statutory acknowledgement does not apply directly to the Project Site, SAL recognises the cultural significance of the Wairoa River catchment and the wider area to Ngāi Tai ki Tāmaki. SAL has an ongoing relationship with Ngāi Tai ki Tāmaki, and regular hui have occurred and will continue to occur through the processing of this application. Engagement with Mana Whenua, including Ngāi Tai ki Tāmaki and other iwi with interests in the area, is addressed further in Section 8.3 and the consultation documentation attached as Appendix D.

3.4.6.2 Ngaati Whanaunga

Ngaati Whanaunga has provided a Cultural Values and Impacts Assessment (CVIA) for the Project, dated 11 September 2026, attached as Appendix E. The Site is located within the rohe of Ngāti Whanaunga, as described and illustrated in Section 5.2 of the CVIA. Ngaati Whanaunga's relationship with the Site is grounded in whakapapa, mauri, kaitiakitanga, taha wairua, mātauranga Whanaunga and āpōpō atu nei (intergenerational responsibility), and they regard the Site as part of an integral cultural landscape rather than an isolated development site.

The CVIA identifies the following cultural values associated with the Site:

- Mauri – the mauri and mana of the Site's geology, soils, water, vegetation and associated fauna (including birds, insects and reptiles).
- Tapu – the tapu associated with the Site and anything connected with it, which requires assessment but does not, in itself, preclude quarrying.
- Kōrero tūturu – the Site forms part of an integral cultural landscape and retains its significance despite its long history as a quarry site.
- Rawa tūturu – remnant vegetation valued for food, fibre, fuel and rongoā;
- Hiahiatanga tūturu – habitats of culturally significant species, including pekapeka (long-tailed bats) and pepeketua (Hochstetter's frogs); and
- Contemporary significance – the Site's ongoing amenity, cultural and economic value.

[26] https://www.govt.nz/assets/Documents/OTS/Ngai-Tai-ki-Tamaki/Ngai-Tai-ki-Tamaki-Attachments-Nov-2015.pdf
[27] s 83, Ngāi Tai ki Tāmaki Claims Settlement Act 2018.

3.5 Natural environment

3.5.1 Topography

The SAL landholdings consist of a sequence of east-west orientated ridges spanning the foothills of the Hunua Ranges. The existing Clevedon Quarry is located within the lower reaches and is enclosed by steep hills to the east, south, and west.

From the quarry entrance at McNicol Road, the land slopes upward towards the east, reaching an RL of approximately 335 m. The existing site office and active quarry areas are at the elevations described in Section 3.2. On the western edge of the quarry area, directly adjacent to the main entrance, the Wairoa River flows north at a much lower level, sitting at an RL of roughly 13 m.

The Project will extend operations eastward and southward, incorporating the valley to the south and part of its adjacent ridgeline, while avoiding Stream 3 (shown in Figure 3.10) in the subsequent valley.

3.5.2 Geology

As shown in Figure 3.7: Published geological map. Source: Baseline Geotechnical Limited (retrieved from GNS on 16/01/26)., published geological maps indicate that the Site is underlain by Waipapa Group (Greywacke). The Waipapa Group is described as a massive to thinly bedded volcaniclastic sandstone and siltstone. There are localised deposits of Tauranga Group River and hill slope deposits, East Coast Bays Formation sandstone and siltstone, and Holocene River deposits to the north and west of the Site.

The Wairoa North Fault is inferred to be positioned within the western portion of the Site and is considered active (downthrown to the southwest). An unnamed secondary fault extends to the west of the Wairoa North Fault, with inferred downthrow to the southeast. Although the Wairoa North Fault is mapped as passing beneath the FoH area and the Quarry Expansion extent near the Site entrance, the proposed quarry excavation will not extend to a depth that intersects the fault plane. As a result, the Quarry Expansion will not intersect or directly affect the fault.

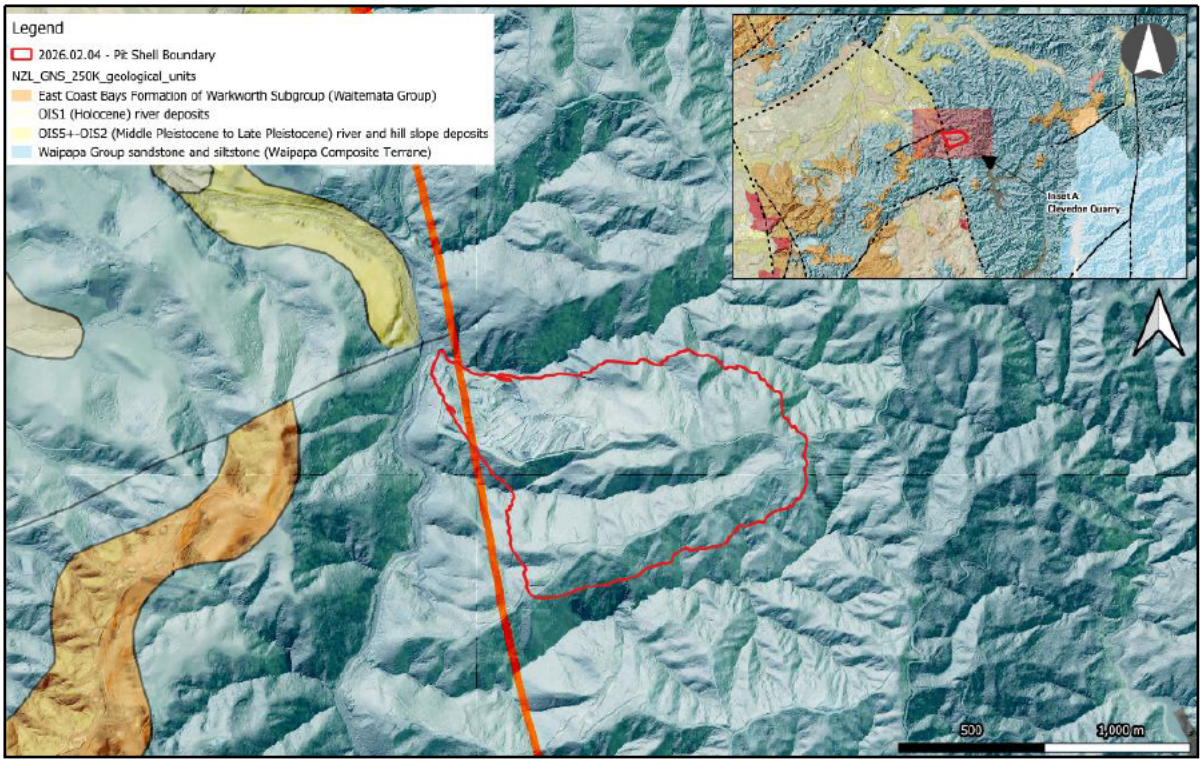


Figure 3.7: Published geological map. Source: Baseline Geotechnical Limited (retrieved from GNS on 16/01/26).

3.5.3 Climate

3.5.3.1 Wind

Meteorological data was collected from the Clevedon Quarry Automatic Weather Station (AWS), located amid the processing area and entrance gate of the existing quarry, between 1 November 2023 and 31 May 2026 (shown in Figure 3.8). The Clevedon Quarry AWS shows mostly low windspeeds with predominant southerly and north-westerly winds. These wind directions are seasonal in nature with southerly winds dominating in the winter months.

Given the Clevedon Quarry AWS outputs may be influenced by the mast height of the monitor and the topography of the Site, data from the Ardmore Aerodrome between 24 July 2016 and 20 October 2024 was also reviewed. Ardmore is a more exposed location that can be assumed to be representative of the flatter area to the west of the Site. This data shows generally faster windspeeds than the Clevedon Quarry AWS with prevailing south-westerly winds in summer and east to north-east in winter, which is the typical wind pattern across the Auckland region.

The Air Quality Assessment (Technical Report F, Volume 2) considers that winds above 7.5 m/s have the greatest potential to cause a high risk of dust nuisance effects to the nearest sensitive receptors (shown in Figure 3.9). Winds above 7.5 m/s have been infrequently recorded by the on-site monitor, occurring 0.1% of the time from any direction. Windspeeds of between 5 m/s and 7.5 m/s which have a low to moderate risk of dust nuisance effects, occur for a total of 2.1% of the time. Combined, high and moderate wind conditions occur for 1.2% of the time (or on average a total 105 hours per year). Any dust carried by these higher speed winds would impact the forested areas to the east and south of the Site.

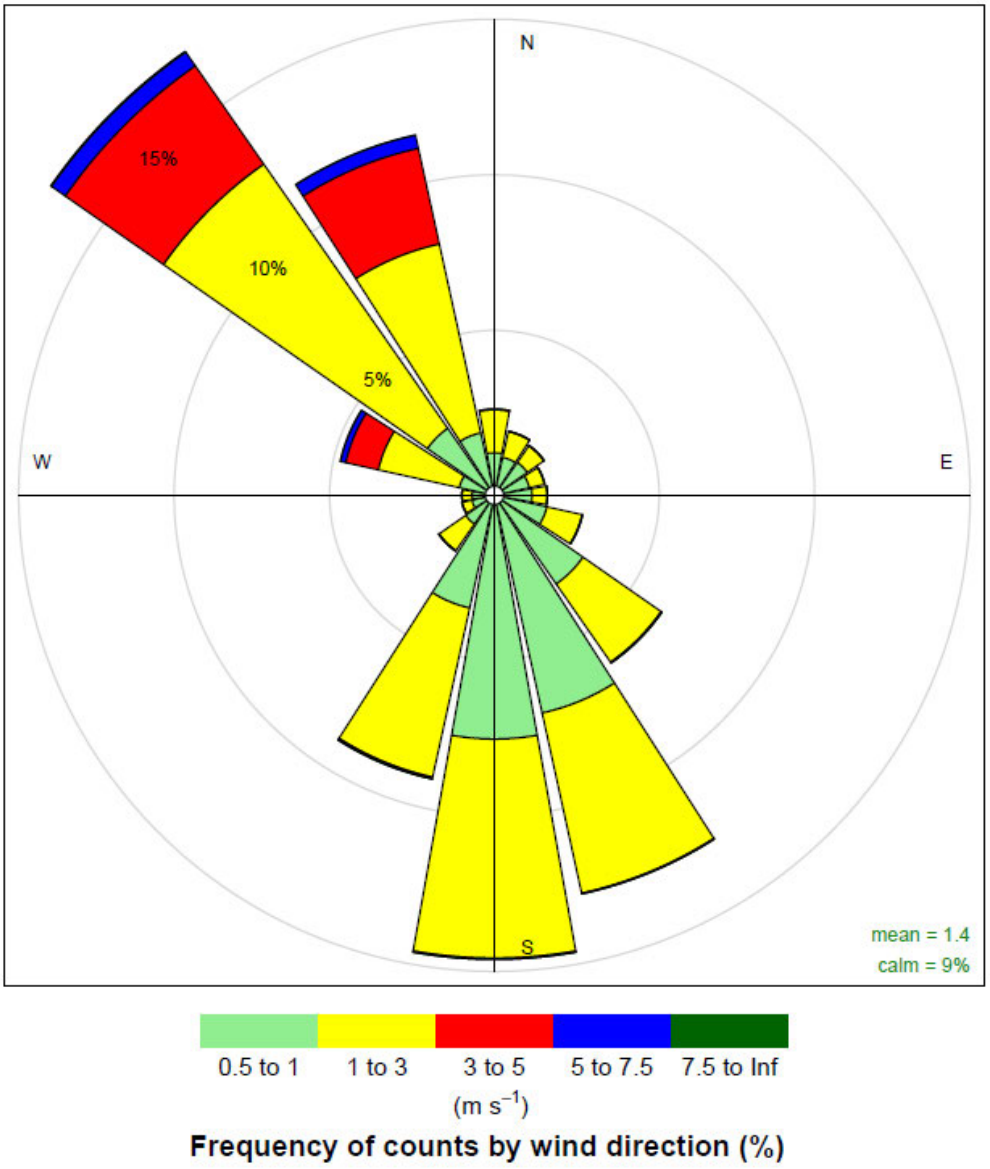


Figure 3.8: Wind rose for Clevedon AWS, November 2022 to May 2026.

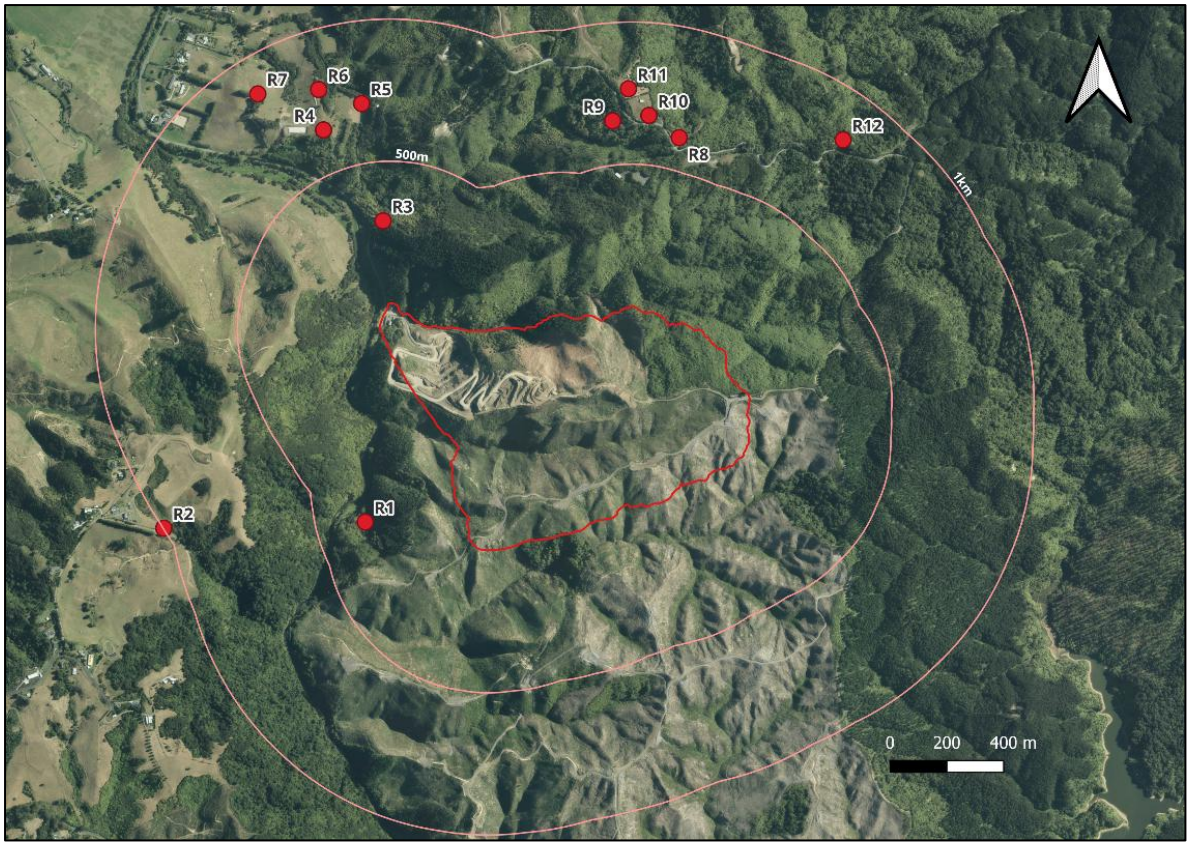


Figure 3.9: Nearest sensitive receptors.

3.5.3.2 Rainfall

Rainfall acts as a natural dust suppressant and therefore reduces the potential for dust generation. The average daily precipitation for the years 2000 to 2016 for the nearest automated weather station which measures rainfall (Ardmore Aerodrome) shows that 53% of days had less than 0.2 mm of rain in a 24-hour period. The driest months of the year are January to April. Therefore, greater consideration and management is given to dust control during these months.

3.5.4 Ambient air quality

In the area around the Clevedon Quarry there are few other significant dust emission sources due to the remote nature of the Site. No other industrial activities are known to exist in the nearby vicinity. As outlined in Section 3.4.1, rural residences in the RPZ are located to the north and west of the Site. Some farming, residential wood burning and transport emissions are expected from this area. To the east and south of the Site are SAL landholdings, which are replanted plantation forestry. The associated logging and general forestry works can at times result in bare land, which may be a source of airborne dust. The wider Hunua Ranges are also forested.

The nearest available ambient air quality data to the Site provided by Auckland Council is to the west of Patumahoe, which is not considered to be representative of the Site. As such, particulate matter less than 10 micrometres in diameter (PM_{10}) and less than 2.5 micrometres in diameter ($PM_{2.5}$) background concentrations (24-hour and annual) are best estimated from the default background air quality values by census area unit (CAU)[28], produced by NZTA. The Site lies within the Clevedon CAU, which has the background levels stated as follows:

- PM_{10} 24hr average – 18.7 µg/m^3.
- PM_{10} annual average – 7.1 µg/m^3.

Based on these estimated background concentrations, ambient PM_{10} concentrations at and around the Site are expected to remain well below the relevant NES-AQ 24-hour standard and the applicable annual average air quality guideline value.

3.5.5 Groundwater

The Groundwater Assessment (Technical Report G, Volume 2) developed a hydrogeological conceptual model for current conditions based on an assessment of piezometer data, site observations, and a review of relevant local literature.

Groundwater within the greywacke is treated as one continuous flow system extending from the water table to depth. Hydraulic properties vary with depth, transitioning from the clay-rich weathered profile (typically 5–30 m thick) to fresh fractured greywacke below. No confining layer has been identified between the two zones. Localised perched groundwater may occur within clay-rich horizons of the weathered profile. Groundwater movement occurs from the hill crest downslope towards the Wairoa River, with discharge also into smaller incised tributaries within the valleys. Flow pathways are considered to be governed predominantly by secondary permeability features, such as fracture zones and fault openings, rather than by primary porosity within the rock matrix.

3.5.5.1 Recharge

Groundwater recharge into the underlying greywacke was assessed using both rainfall infiltration estimates and streamflow analyses.

Based on average rainfall of 1,241 mm/year recorded at the Ardmore Climate Station, groundwater recharge to the greywacke terrain is estimated to range from ~65 mm/year to ~180 mm/year, equivalent to about 5% to 15% of annual rainfall.

Streamflow and baseflow analyses were also undertaken to support model calibration and characterise groundwater contributions to local tributaries. The report estimated MALF-equivalent baseflows of approximately 7.5 L/s at Stream 1 Downstream, 1.5 L/s at Stream 2 Downstream, 0.1 L/s at Stream 2a Downstream, and 7.2 L/s at Stream 3 Downstream. These values were used alongside groundwater-level data to calibrate the baseline groundwater model. These MALF-equivalent baseflows correspond to groundwater recharge estimates ranging from approximately 143 mm/year to 231 mm/year, with a mean of 185 mm/year.

[28] NZTA. (2022). *Background PM Concentrations by CAU*. https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/environment-and-sustainability-in-our-operations/environmental-technical-areas/air-quality/background-air-quality

3.5.5.2 Static water level and hydraulic conductivity

The Groundwater Assessment (Technical Report G, Volume 2) compiles results from hydraulic testing and groundwater modelling undertaken across the Waikato and Auckland regions, including at Whitford Quarry, Beachlands Quarry, Hunua Quarry, Brookby Quarry, Beachlands South and Waingaro Quarry.

Hydraulic testing was undertaken at Clevedon Quarry using falling head tests across seven piezometers. The results, copied into Table 3.1 below together with groundwater/static water-level information, provide information on hydraulic conductivity and groundwater levels. They also indicate that while individual test results may vary due to localised fracture conditions, the overall hydraulic behaviour of the formation aligns closely with the range of values reported for greywacke materials in other regional studies.

During a site visit in winter 2025, no signs of seepage or baseflow into the existing Clevedon Quarry drains were observed. The greywacke appeared to have a relatively low level of fracturing in the exposed quarry faces. SAL noted the general lack of any observed seepage in the existing quarry. Therefore, the local hydraulic conductivity is expected to be relatively low.

Table 3.1: Hydraulic testing at Clevedon Quarry

Piezometer ID	Highest recorded groundwater level (mRL)	Hydraulic Conductivity (m/day)	Hydraulic Conductivity (m/s)
GW2N	27.1	0.001	1.2×10^{-8}
FH1 – Shallow	17.4	4.93	5.7×10^{-5}
FH1 – Deep	17.3	0.04	4.3×10^{-7}
FH2 – Shallow	210.0	0.1	1.3×10^{-6}
FH2 – Deep	181.0	-	$<1 \times 10^{-8}$
FH3 – Shallow	176.8	0.03	3.8×10^{-7}
FH3 – Deep	174.8	0.01	1.2×10^{-7}

3.5.6 Surface water

3.5.6.1 Surface water catchments

A detailed description of the surface water catchments relevant to the LoQ is provided in the Surface Water Management Report (Technical Report H, Volume 2). A summary is provided below.

Clevedon Quarry is located within the Hunua Stream catchment upstream of the Wairoa River. The Hunua Stream catchment is approximately 156 km², while the Wairoa River has a total catchment area of approximately 258 km² where it outflows to the Tāmaki Strait. The wider catchment includes two reservoirs/dams: Cosseys Reservoir and the Wairoa Dam/Reservoir.

As identified in Section 3.2, there are four streams located within or adjoining the LoQ footprint that are relevant to the Project.

The relevant streams are described below and shown in Figure 3.10:

- **Stream 1** – Located directly to the north of the existing quarry. This stream flows in an east-to-west direction and discharges under McNicol Road via an existing 1200 mm diameter concrete culvert to the Wairoa River. It has a catchment area of approximately 1.1 km^2. Existing treated runoff from the quarry discharges to the lower reaches of Stream 1.
- **Stream 2** – Located directly south of the current quarry footprint. This stream flows east to west and is located in the centre of the proposed Quarry Expansion. It has a catchment area of approximately 0.35 km$^{2.}$ The catchment is relatively steep and comprises cleared forest landcover.
- **Stream 2a** – The upper/headwater section of Stream 2a is located within the southern part of the proposed Quarry Expansion footprint, while the majority of the stream extends outside the proposed Quarry Expansion footprint to the west/south-west. It has a catchment area of approximately 0.07 km^2. The upper part of the catchment comprises cleared forest, while the lower portion retains intact forest landcover.
- **Stream 3** - Located in a valley to the south of the current quarried area and outside the proposed Quarry Expansion, adjoining the southern boundary. It has a catchment area of approximately 1.16 km^2 and comprises steep cleared forestry landcover, consisting of steep hills.

All of the streams are tributaries of the Wairoa River.

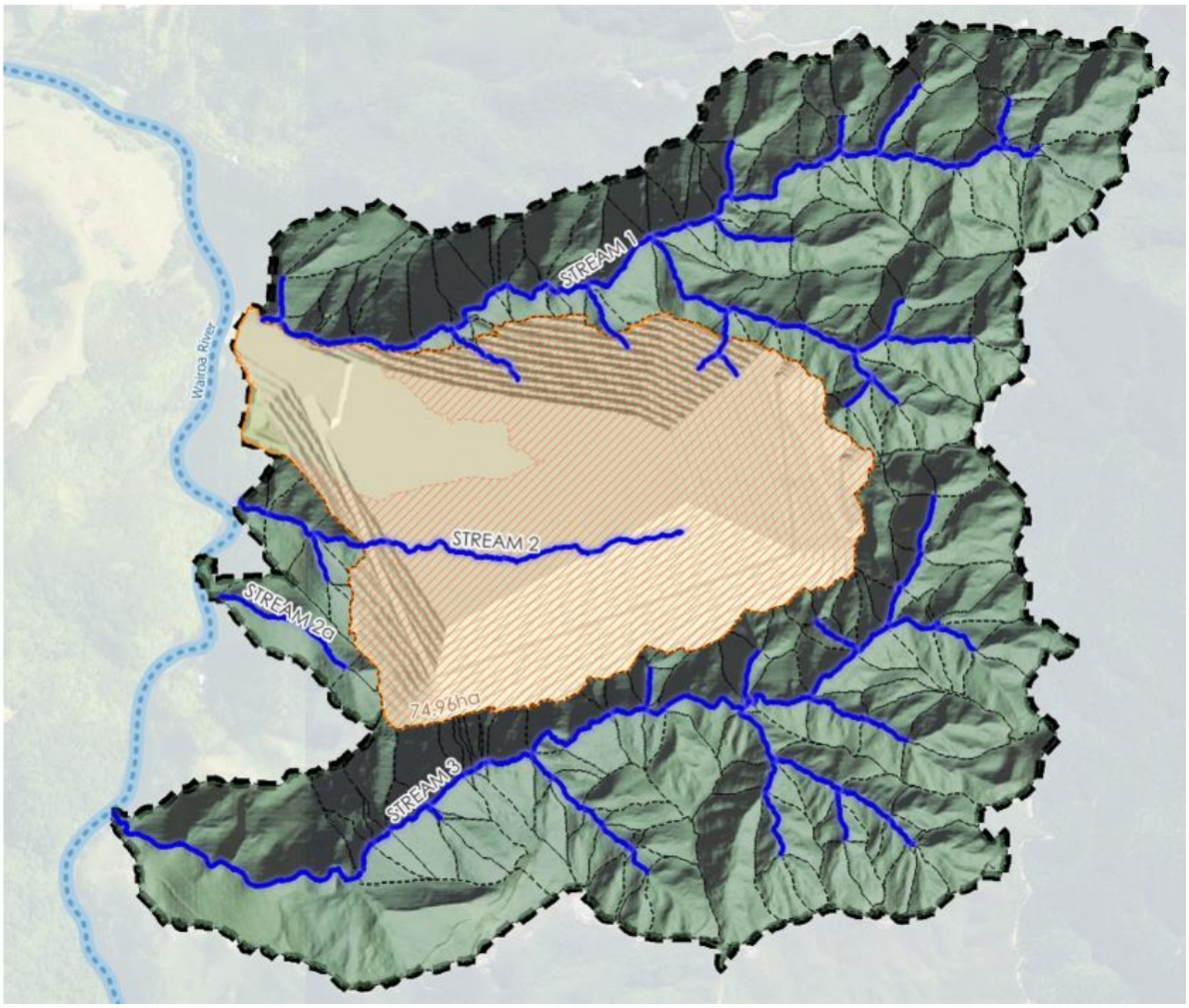


Figure 3.10: Catchment and hydrology.

From a surface water perspective, the proposed Quarry Expansion is divided into two main areas: the lower quarry floor (FoH area) and the upper main quarry extraction area, as shown in Figure 3.11 below. Surface runoff within the quarry is currently captured and treated via two sediment ponds, before being discharged to the lower reaches of Stream 1.

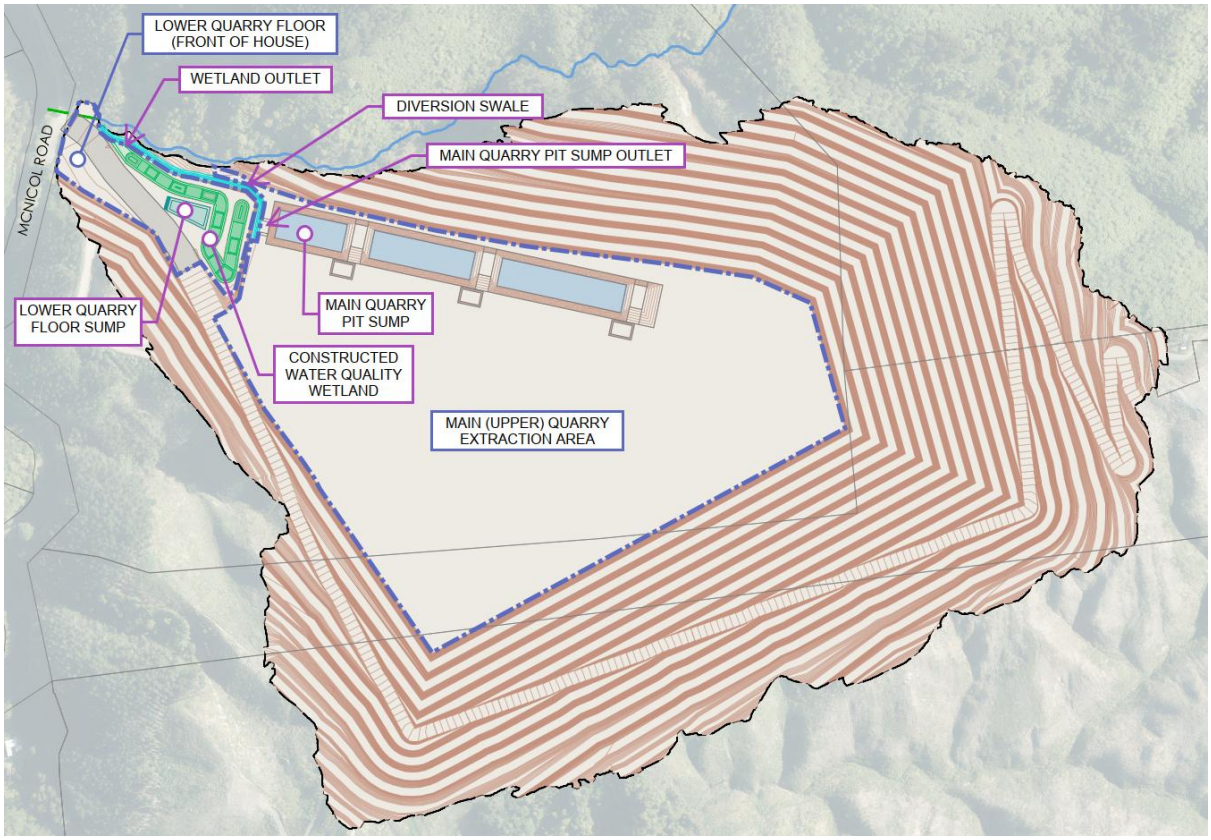


Figure 3.11: Overall indicative quarry floor extent.

3.5.6.2 Surface water flow

As reported in the Groundwater Assessment (Technical Report G, Volume 2), two rounds of stream gauging were undertaken by Pattle Delamore Partners Limited (PDP) on both Stream 1 and Stream 2 during January 2017 and February 2017. Spot gauging was completed at four locations along Stream 1 and three along Stream 2, with Sites N4 and S3 representing the downstream monitoring points closest to the Wairoa River, as shown in Figure 3.12 below. The PDP 2017 results were considered indicative only, as the limited dataset was unlikely to fully represent baseflow conditions. Average discharges at the downstream monitoring points were approximately 8.7 L/s at Site N4 on Stream 1 and 1.2 L/s at Site S3 on Stream 2.

Routine streamflow monitoring of Stream 1 has continued on a twice-yearly basis from 2017 onward. As reported in the Groundwater Assessment (Technical Report G, Volume 2), and using an index-site correlation approach against the long-term Wairoa River flow record, PDP (2024) derived a mean annual low flow (MALF) of 7.52 L/s at Site N3 and 8.08 L/s at Site N4 on Stream 1.

To characterise streamflow conditions across all four streams, a permanent monitoring network was established in 2026 by Hydro Logic NZ Ltd, including continuous water-level recording and three rounds of manual flow gauging between mid-February and late April 2026. As all gaugings were undertaken when the Wairoa River was flowing above its MALF, raw gauged flows were indexed against the long-term Wairoa River record to derive MALF-equivalent baseflows. These are summarised in Section 3.5.5.1 above and were used to support groundwater model calibration. The reliability of flow estimates varies between streams, with Streams 1 and 3 considered more reliable than Stream 2 and Stream 2a. Additional gauging across a wider range of flow conditions is recommended to improve rating-curve confidence.



Figure 3.12: Watercourse gauging locations.

3.5.7 Water quality

As outlined in the Groundwater Assessment (Technical Report G, Volume 2), site-specific surface water quality data were collected by WGA from Stream 1 upstream and Stream 3 on 14 January 2026. Results indicated near-neutral pH (7.39–7.44), low electrical conductivity (177–193 µS/cm), total dissolved solids between 115 and 136 mg/L, and low nutrient concentrations. Metals were generally very low, with arsenic, cadmium, lead and zinc below detection limits. Overall, the results are indicative of relatively unimpacted stream conditions in the immediate catchment of the proposed Quarry Expansion.

Groundwater quality was also assessed from the Clevedon Quarry Production Bore, which was characterised by slightly alkaline pH (9.1–9.4), low dissolved solids, and undetectable nitrate, consistent with deep fractured greywacke groundwater with limited surface water influence. The groundwater is dominated by sodium and bicarbonate ions, consistent with water that has undergone prolonged interaction with rock minerals at depth.

3.5.8 Freshwater ecology

Desktop and field assessments have been undertaken by T+T freshwater and terrestrial ecologists to determine the ecological values of the Site. Freshwater field assessment methods included mapping and classification of streams in accordance with the AUP definitions, stream ecological valuations (SEV), macroinvertebrate sampling to assess stream health using indices including Macroinvertebrate Community Index (MCI) values, and environmental DNA (eDNA) sampling. The freshwater survey locations are shown in Figure 3.13. The findings of these assessments are detailed in the Ecological Impact Assessment (EcIA) (Technical Report I, Volume 2) and summarised below.

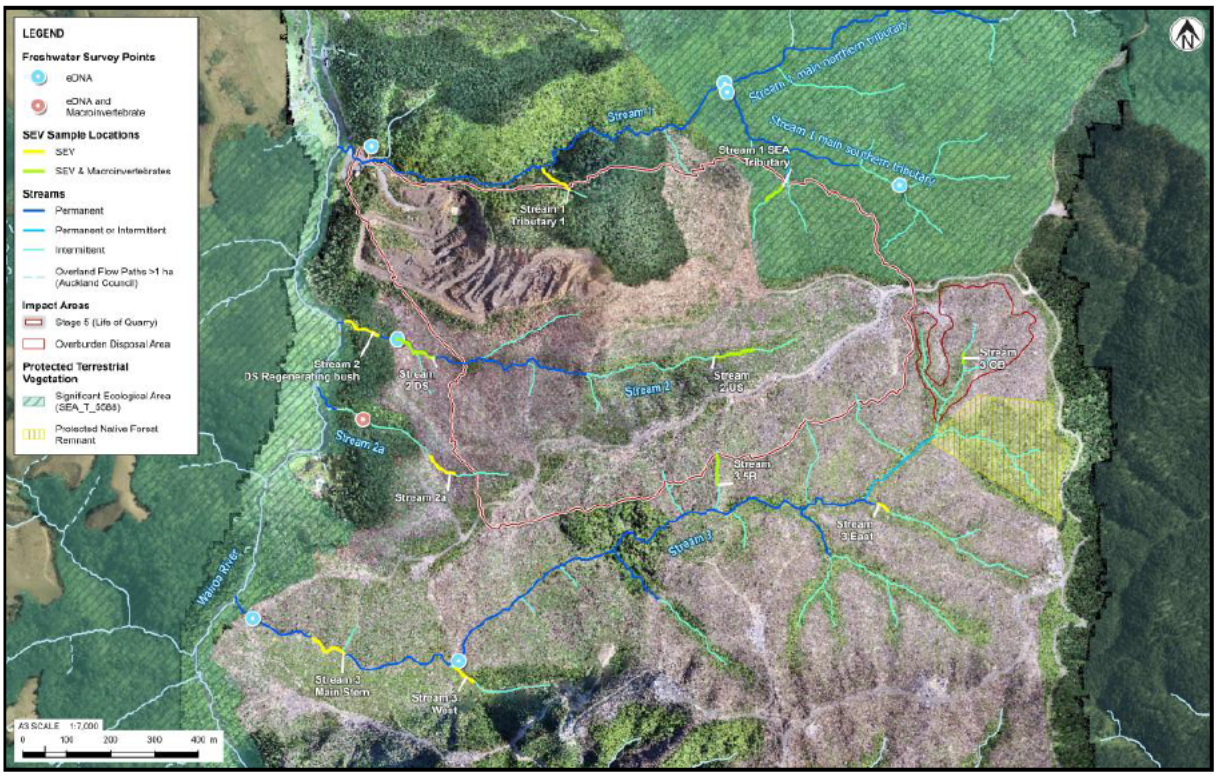


Figure 3.13: Freshwater survey locations.

As discussed in Section 3.5.6.1 and shown in Figure 3.10, there are four streams (Streams 1, 2, 2a, and 3) located within or adjoining the LoQ, comprising both permanent and intermittent reaches, all of which discharge to the Wairoa River to the west of the Site.

The ecological function (including habitat condition and riparian values) and freshwater fauna values (including fish species presence and conservation status) for each watercourse are outlined in the following sections.

3.5.8.1 Stream 1

The Stream 1 main channel is located outside of the proposed LoQ footprint. However, it is considered a receiving environment for activities within the LoQ footprint, as treated stormwater will be discharged directly to the lower reach of the channel. Several tributaries of Stream 1 are located within the LoQ boundary. While an SEV was not undertaken on Stream 1 main channel, two SEV assessments were completed for Stream 1 tributaries, including 'Stream 1 Tributary 1' and 'Stream 1 SEA Tributary' sites, as shown in Figure 3.13 above.

- Main channel:
  - The Stream 1 main channel is considered to have high ecological function value. This is due to the channel retaining a hard-bottomed substrate and diverse instream habitat features, including riffles, runs, shallow pools and small waterfalls, which provide high-quality aquatic habitat. The channel has a continuous native riparian zone (including areas connected to an SEA), which provides high levels of shading and supports a high diversity, abundant and good-quality instream habitat. The true left bank of the lower reaches is adjacent to consented quarry and/or exotic forestry. A previous SEV assessment undertaken for the 2018 Consent (SEV score of 0.73) indicated a high ecological value for the main channel, with the upper reaches expected to have higher ecological value due to lower levels of modification to stream banks and riparian margins.
  - Freshwater fauna values in Stream 1 main channel are considered very high. eDNA sampling of the lower reaches of Stream 1 detected a diverse fish community, including regionally 'Threatened', 'At Risk' and nationally 'At Risk' species, such as torrentfish (nationally 'At Risk – Naturally uncommon', regionally 'Threatened – Vulnerable'), longfin eel, redfin bully and banded kōkopu.
- Tributaries:
  - The Stream 1 tributaries are considered to have high ecological function value, with SEV scores of 0.74 and 0.71 at 'Stream 1 Tributary 1' and 'Stream 1 SEA Tributary', respectively. These tributaries are predominantly intermittent headwater streams within regenerating native vegetation and/or pine, generally well shaded with high organic-matter inputs and moderate instream habitat diversity (including woody debris, root mats, cobble, undercut banks and pools). Flows were intermittent to very low at the time of the March 2025 survey. Sediment loading from recent pine harvesting reduces ecological values in some reaches. The upper Stream 1 catchment comprises two main tributaries, the main northern tributary and the main southern tributary, both within native regenerating vegetation. The main southern tributary is highly shaded with hard substrates, including large cobbles and rock cascades, although high fine sediment loading was also noted.
  - Freshwater fauna values of the Stream 1 tributaries are considered high. Fish communities in upper sections are limited to good climbers (such as nationally 'At Risk' longfin eel and banded kōkopu) due to steep gradients, natural barriers and limited habitat availability. However, the wider catchment fauna value is very high (e.g. torrentfish, longfin eel, redfin bully) as outlined above.

3.5.8.2 Stream 2

The Stream 2 main channel and its tributaries are located almost entirely within an actively managed area of pine forestry, which has recently been felled. Approximately 100 m of the lower reach of the main channel, outside the LoQ footprint, flows through semi-natural mixed exotic/native regenerating bush immediately upstream of the Wairoa River. SEV assessments were undertaken at three points along the main channel: one in the lower reaches within the felled forestry (Stream 2 DS), one in the upper reaches (Stream 2 US) and one within the regenerating bush lower reaches (Stream 2 DS Regenerating bush), as shown in Figure 3.13.

- Main channel:
  - The Stream 2 main channel is considered to have moderate to high ecological function values. In particular, the Stream 2 DS Regenerating bush reach achieved an SEV score of 0.77, indicative of a high value stream reflecting permanent flow, high hydrological heterogeneity and good shading from the surrounding native vegetation. In contrast, the Stream 2 DS site, which is representative of the permanent reach of the main channel within the felled exotic pine forest, and the Stream 2 US site located within the upper intermittent reaches of the main channel achieved SEV scores of 0.54 and 0.44 respectively and were assessed as having moderate ecological value.
  - The upper reaches are intermittent and soft-bottomed, transitioning to a permanent, hard-bottomed channel in the lower reaches. The lower reaches within felled forestry remain affected by high sediment loads, very low shading and sparse riparian cover. The regenerating bush reach has permanent flow and high hydrological heterogeneity, including incised bedrock banks and abundant habitat features. Upper and mid reaches are considered to have moderate ecological value due to sediment impacts from forestry activities and limited riparian cover.
- Tributaries:
  - The Stream 2 tributaries are considered to have moderate ecological function values due to sediment impacts from forestry activities and the lack of canopy cover. Substrates within these tributaries are predominantly silt/sand, along with occasional gravel and boulders. Riparian vegetation is sparse and dominated by exotic shrubs, including gorse, pampas grass and privet. As a result, shading is limited and is provided primarily by forestry slash and the surrounding topography.
- Freshwater fauna values for Stream 2 main channel and tributaries are considered high. Two rounds of eDNA sampling were undertaken in the lower reaches of Stream 2, indicating that species present in this stream are limited to one ‘At Risk – Declining’ species (longfin eel), one ‘At Risk – Naturally uncommon’ species (banded kōkopu) and one nationally and regionally ‘Not Threatened’ species (shortfin eel). Fish distribution is likely concentrated in the lower to mid-catchment, with waterfalls restricting access to the upper catchment. However, as good climbers, these species are considered likely to be present in small numbers in some reaches at least during periods when sufficient habitat is available.

3.5.8.3 Stream 2a

The upper reach of Stream 2a is located within the recently felled pine forestry within the proposed LoQ, with a large proportion of its contributing catchment also falling within this area. An SEV assessment was undertaken on the upstream section of Stream 2a within the felled forestry area, as shown in Figure 3.13.

- The upstream section of Stream 2a, which represents the reaches within the LoQ, is considered to have moderate ecological function value. The stream is intermittent and soft-bottomed at the SEV site and is characterised by a large series of cascades and waterfalls.

Recent forestry activities within this area have resulted in an unnaturally high loading of fine sediments and a lack of riparian cover. This received an SEV score of 0.37, indicating low ecological value.

- The lower reach of Stream 2a, located outside of the LoQ footprint, is hard-bottomed and characterised by a long sequence of cascades and waterfalls, with high shading and native riparian cover, and is considered to have similar habitat and SEV values to the Stream 2 DS Regenerating Bush reach (i.e. high ecological function value). However, a perched culvert (Ø 300 mm) near the confluence with the Wairoa River is likely a significant constraint on fish passage into the catchment.
- Freshwater fish values within Stream 2a are considered low, being limited to shortfin eel ('Not Threatened' species) and kōura both detected in eDNA surveys of the lower reaches. The limited fish assemblage likely reflects the downstream fish passage barrier created by the perched culvert, as well as limited habitat availability within this small intermittent catchment.

3.5.8.4 Stream 3

The Stream 3 main channel and majority of the tributaries lie outside the LoQ footprint and within the site of proposed freshwater offset. In the middle of the catchment, the main channel flows approximately 250 m through a remnant block of native bush within the forestry land. Several intermittent tributaries in the upper eastern catchment also extend into the protected native forest remnant. SEV assessments were undertaken on five reaches along Stream 3 catchment, including one on the lower reach of the Stream 3 main channel and four on side tributaries, as shown in Figure 3.13. Two of the tributaries assessed extend into the proposed LoQ or OBDA (Stream 3 Overburden (OB) site, Stream 3 Site 5B). The remaining SEV sites (Stream 3 Main Stem, Stream 3 East and Stream 3 West) are located within the proposed freshwater offset site.

- Main channel:
  - The Stream 3 main channel is considered to have moderate to high ecological function values. An SEV score of 0.60 was determined for the lower reach of the Stream 3 main channel, which is considered representative of the main channel from its confluence with the Wairoa River and upstream to the remnant bush area. The main channel is hard-bottomed and permanent, with substrates comprising bedrock, boulders, cobble, gravel and silt/sand. Ecological function value is considered moderate in much of the catchment due to the effects of forestry harvesting, associated sediment inputs and reduced riparian cover and shading. However, the mid catchment reach through the remnant native bush block is considered to have high ecological function values, as the riparian margins feature a mix of native and exotic tree and shrub species that are undergoing natural regeneration.
  - The freshwater fauna value is considered very high for the lower reaches of the main channel, due to the presence of torrentfish, inanga and redfin bully, and high for the lower to mid-catchment due to the presence of longfin eel and banded kōkopu. Inanga is classified as 'Threatened – Nationally Vulnerable' and regionally 'At Risk – Declining'. Rainbow trout ('Introduced') are also present in the lower reaches. Common smelt and kōaro, both regionally 'Threatened', were detected at trace levels in eDNA surveys and should be treated as potential rather than confirmed occurrences. Fewer species were detected further upstream in the main channel, likely due to waterfalls restricting fish passage. The lower to mid-catchment still supports longfin eel and banded kōkopu and is considered high in species value.

- Tributaries:
  - The Stream 3 tributaries are considered to support a range of moderate to high ecological function values, based on SEV assessments undertaken at four sites across different tributaries.
  - The Stream 3 Site 5B scored 0.44 (low to moderate value) and Stream 3 West scored 0.58 (moderate value), both reflecting elevated sediment loads, very low shading and limited riparian cover associated with recently harvested pine forestry. The Stream 3 OB site scored 0.67 (high value), benefiting from more effective topographic and regenerating-vegetation shading than the other forestry-affected sites. The Stream 3 East site (scored 0.70, high value) and the bush covenant area tributaries (outside the LoQ footprint) are considered to have high ecological function values. Stream 3 East is distinguished by its larger channel, moderate to high shading and regenerating riparian vegetation.
  - Freshwater fauna values for Stream 3 tributaries are considered high to very high. Fish communities are expected to be limited to good climbers, including longfin eel and banded kōkopu, due to the steep catchment and presence of natural fish passage barriers. Kōaro (regionally 'Threatened') may also access the upper catchment and larger tributaries, although presence within small intermittent headwater streams would be limited by steep gradients, high sediment loads and limited suitable habitat.

3.5.8.5 Wairoa River

Desktop review of existing data suggests that the river has moderate ecological function values in the mid-reaches in the downstream vicinity of the LoQ.

The Wairoa River is the second largest river in the Auckland region, flowing northeast towards the Tāmaki Strait. The upper catchment is forested (Hunua Ranges), while the mid to lower catchment is predominantly rural. Connectivity between the Wairoa River and its upper forested tributaries supports a diverse diadromous fish assemblage, and can be considered an important fish migration pathway, providing largely undisrupted access to important fish habitat. Based on fish species present within the above Stream 3 catchment, the freshwater fauna values are considered very high.

Macroinvertebrate monitoring at the Auckland Council Wairoa River monitoring site indicates that Quantitative Macroinvertebrate Community Index (QMCI) values are typically poor and MCI values are generally moderate, consistent with the predominantly rural catchment land use at this location.

The overall ecological function and species values for each stream are provided in Table 3.2 for ease of reference.

Table 3.2: Freshwater ecological values summary

Freshwater body	Ecological function values	Species values
Stream 1 (main channel)	High	Very high
Stream 1 (tributaries)	High (High to Very High)	High
Stream 2 (main channel)	Moderate to High	High
Stream 2 (tributaries)	Moderate	High
Stream 2a	Moderate to High	Low

Freshwater body	Ecological function values	Species values
Stream 3 (main channel)	Moderate to High	Very High (near Wairoa River confluence) to High (upstream of confluence)
Stream 3 (tributaries, including the southwest tributary within the OBDA and the tributaries within a protected native forest remnant)	Moderate (tributaries within the OBDA) and High (tributaries within the protected native forest remnant)	High to Very High
Wairoa River (mid-catchment, downstream of the proposed impact site)	Moderate	Very high

3.5.9 Terrestrial ecology

3.5.9.1 Vegetation

The Site consists of felled pine slash with discrete areas of native forest and riparian vegetation in the base of the steep gullies. The terrestrial habitat classifications and corresponding ecological values are detailed in the EcIA (Technical Report I, Volume 2) and are summarised below.

As shown in Figure 3.14 below, four main vegetation types were identified within the impact area, including:

- Regenerating tree fern/broadleaf forest.
- Cutover pine.
- Tree privet-kānuka treeland.
- Exotic shrubland.

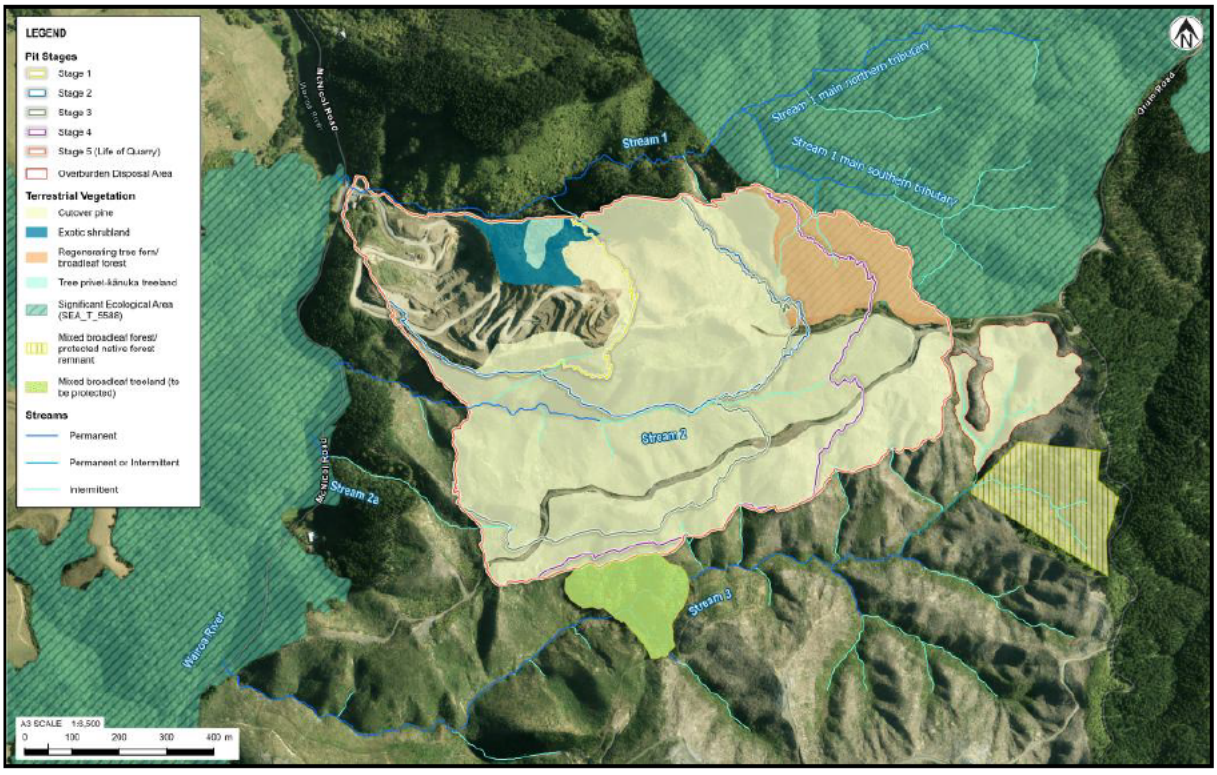


Figure 3.14: Terrestrial vegetation.

3.5.9.1.1 Regenerating tree fern-broadleaf forest

This forest type is located in the northern extent of the Site, within SEA_T_5588, including within the LoQ extent. Approximately 6.1 ha of this vegetation type is proposed to be removed. Historical aerial images indicate the area was grazed pasture in the 1940s and began transitioning to scrub from the 1970s onwards.

The forest comprises a mosaic of tree fern-dominant and mixed-broadleaf areas. This vegetation type most closely aligns with ecosystem type 'VS5 – Broadleaved species scrub/forest'. Tree fern-dominant areas are characterised by a canopy of ponga, while broadleaf-dominant areas support māhoe, patē/seven-finger and ponga. The sub-canopy throughout comprises wheki, kawakawa, hangehange and nīkau, reflecting a structurally diverse regenerating forest with very few pest plants.

King fern (nationally and regionally 'At Risk – Declining') has been recorded within this vegetation type, particularly at the base of stream gullies. The area falls within SEA_T_5588, which has been assessed as regionally significant and contributes to a linkage between the Wairoa River and the Hunua Ranges.

This vegetation also provides potential nesting and foraging habitat for common forest birds. Long-tailed bats may forage over the vegetation, but it is unlikely that the forest provides any roosting habitat due to the age of the trees (approximately 30 years old) and species composition. Habitat suitable for terrestrial lizard species is present throughout in the form of dense leaf litter and coarse woody debris. Habitat for arboreal lizards is more limited, occurring primarily in the form of natural cavities and knots within māhoe, and beneath the flaking bark of mānuka and kānuka. Overall, based on the habitat values and ecological function of the vegetation, this vegetation type is considered to have a high ecological value in accordance with the EcIA.

3.5.9.1.2 Cutover pine

Most of the proposed LoQ extent, and much of the proposed offset area, comprises recently felled pine forest (approximately 55.4 ha) of cutover pine within the impact area. A dense layer of pine slash covers much of the area, with some areas of bare earth.

Exotic species including woolly nightshade, gorse, fireweed, black nightshade, pampas grass and Scotch thistle have established within this area. Native species including māhoe and patē are scattered throughout, with higher densities of native species observed within gullies and stream riparian margins. However, the native species maintain a proportionally low cover amongst the dense growth of exotic weed species.

The cutover pine area is subject to frequent and irregular disturbance associated with forestry operations and pine replanting, including mechanical site preparation, herbicide application and manual weed control. These activities suppress successional development and favour disturbance-tolerant exotic species, resulting in fragmented and highly modified vegetation communities. Vegetation density and composition vary across the site in response to differences in topography, slash accumulation and frequency and intensity of forestry operations. In general, higher vegetation cover typically occurs where disturbance is reduced and closer to watercourses.

The magnitude of effect of vegetation clearance has been assessed as moderate. The vegetation is almost entirely dominated by exotic species and is therefore not representative of a naturally occurring ecosystem, which provides very little habitat for native fauna. As such, it has been assigned an ecological value of negligible.

3.5.9.1.3 Tree privet-kānuka treeland and exotic shrubland

The 2018 Consent authorised the removal of 600 m^2 of native treeland, predominantly consisting of kānuka, located to the east of the existing quarry (now located within Stage 1 of the proposed Quarry Expansion) that has not yet been removed. Removal of this vegetation is intended to occur before the proposed FoH consent is given effect to; however, removal is also being sought under the Quarry Expansion consent as a contingency, in case the removal is delayed.

Two vegetation types are present within this area, comprising 0.5 ha of tree privet-kānuka treeland and 2.0 ha of exotic shrubland (total 2.5 ha), as mapped in Figure 3.14. This vegetation was described and mapped in 2017 for the 2018 Consent and it has not changed materially in composition or ecological value since it was previously assessed.

The treeland comprises an open canopy of 80% tree privet and 20% kānuka over kikuyu grass with occasional pampas grass or gorse. Scattered kānuka provides potential habitat for native geckos. However, the sparse canopy and lack of connectivity to other native habitat means geckos are unlikely to be present. The exotic shrubland comprises kikuyu grass with exotic shrubs, including gorse, blackberry, and woolly nightshade. Additionally, inkweed and pampas are also commonly found in this area.

Despite being dominated by exotic species, both the treeland and shrubland provide potential nesting habitat for native birds and are each considered to have a low ecological value.

3.5.9.1.4 Native vegetation outside the LoQ footprint

Two areas of native vegetation are also present, outside the LoQ footprint, within the Stream 3 catchment, where the proposed offset and compensation package is located. These comprise approximately 4.9 ha of mixed broadleaf forest[29] (a protected native forest remnant) and approximately 3.4 ha of mixed broadleaf treeland[30].

The protected native forest remnant, at the top of the Stream 3 catchment, comprises a diverse mix of native species including tawa, hīnau, karaka and kohekohe, with very few pest plants, and supports a population of king fern. It provides high-quality habitat for native birds, contains multiple trees with potential bat roost features, and provides potential habitat for native lizards. It is considered to have a very high ecological value.

The mixed broadleaf treeland is located on very steep terrain either side of a waterfall and comprises mature native trees including kohekohe, taraire and rewarewa. It provides good-quality nesting and foraging habitat for native birds, potential bat roosting habitat and potential habitat for native lizards and is considered to have a high ecological value.

3.5.9.2 Fauna

3.5.9.2.1 Lizards

Desktop review of the Department of Conservation Herpetofauna Database and Auckland Council Herpetofauna Atlas identified five native lizard species within a 10 km radius of the Site. All five are classified as regionally 'At Risk – Declining'.

[29] The protected native forest remnant is protected under an existing Consent Notice registered against the Certificate of Title, which requires the native bush to be protected and maintained.
[30] Neither area is included in or counted towards the proposed offset and compensation package. Instead, the package is designed to connect with these existing protected areas, avoiding double-counting.

Within the impact area, regenerating tree fern-broadleaf forest vegetation provides good potential habitat for native skinks and geckos, and rank vegetation on forest edges offers suitable habitat for native skinks. No native lizards were detected during manual searching or spotlighting, and no native lizards were found in surveys undertaken across the site in 2016/2017 to support the 2018 Consent application.

Two unidentified skinks were observed in 2016/2017 along the edge of pine forest, that has since been felled. They were considered more likely to have been exotic plague skinks (Lampropholis delicata) than native species, given the habitat in which they were observed. Plague skinks were observed throughout the Site during recent surveys and are an Unwanted Organism under the Biosecurity Act 1993.

The Site has been subject to high levels of disturbance since at least the 1940s. Combined with no native lizard detections across extensive survey work over a number of years, it is considered unlikely that any native lizards are present at the Site. Lizards are therefore not considered further.

3.5.9.2.2 Bats

The Hunua Ranges and surrounding areas are a known stronghold for long-tailed bats, with numerous records of this species within 10 km of the site. Long-tailed bats were detected during previous surveys at the site, including most recently in 2024, and on all 10 automatic bat monitors (ABMs) deployed to inform the EcIA assessment. No bat activity was indicative of roosting, but rather just fly-throughs and foraging.

Bats are likely to use the Site for foraging and to commute between the Wairoa River and the Hunua Ranges. Activity levels were generally low across most ABMs, with the lowest rates recorded at the edge of the existing quarry footprint (0.5 passes per night) and at two ABMs on the edge of the regenerating tree fern-broadleaf forest. Low activity across most of the site is likely due to disturbance from recent pine harvesting. The highest bat activity levels were recorded along the eastern edge of the Site on the edge of the protected native forest remnant.

Only one remnant pine tree within the LoQ footprint, on the edge of the regenerating tree fern-broadleaf forest, contains low-quality potential roost features (note, activity at this tree was very low). Otherwise, no other roosting habitat is currently present within the impact area. However, roosting habitat may develop as the regenerating tree fern-broadleaf forest matures, between granting of consent and vegetation clearance (potentially 30 years away). It is unlikely that pines growing within the Project extent would develop roost features before they are harvested. Long-tailed bats have a conservation status of ‘Threatened – Nationally Critical’ and have been assigned an ecological value of very high.

3.5.9.2.3 Native birds

Records from iNaturalist and eBird databases identified 13 native bird species that may use habitats at the Site for nesting. Of these, kākā is the only species with a conservation status of ‘At Risk – Recovering’. No nesting habitat for kākā is currently present. However, suitable cavities may develop in the regenerating tree fern-broadleaf forest between the granting of consent and vegetation clearance being undertaken. No nationally or regionally ‘At Risk’ or ‘Threatened’ native bird species were observed, and no 'At Risk' or 'Threatened' birds are considered likely to nest within the Project extent. Common native birds are likely to forage and nest in woody vegetation. ‘Not Threatened’ native birds have been assigned an ecological value of low and kākā an ecological value of high.

3.5.9.2.4 Frogs

Records from DOC and Auckland Council herpetofauna databases indicate that Hochstetter's frogs occur throughout the Hunua Ranges. In March 2025, Hochstetter's frogs were detected in one of six replicate eDNA samples collected from Stream 1, which is considered a "trace detection" and may not be indicative of Hochstetter's frogs being present. A follow-up eDNA survey in August 2026 recorded a further trace detection on the main stem of Stream 1. No frogs were detected in two six-replicate samples from Stream 1 southern tributary. Field assessments confirmed that some reaches of Stream 1 and its tributaries provide potential habitat. No frogs were observed during opportunistic searches of suitable habitat in the southern tributary undertaken during habitat mapping.

Potential frog habitat associated with the main stem of Stream 1 was most prevalent on small side tributaries higher up in the catchment, where low flows and hard-bottomed substrates were present. Limited areas of rock cascades provided the most effective frog habitat. However, habitat quality was limited by excess silt and sediment throughout the catchment.

The Stream 1 southern tributary provided marginal to moderate quality frog habitat where areas of large cobbles and rock cascades occurred, but again habitat quality was reduced by excess sediment as well as higher flows.

All potential frog habitat is outside of the direct impact area.

Hochstetter's frogs have a national and regional conservation status of 'At Risk – Declining' and have been assigned an ecological value of high.

3.5.9.2.5 Terrestrial invertebrates

It is unlikely that any invertebrate species protected under the Wildlife Act 1953 or with a conservation status of 'At Risk' or 'Threatened', or notable endemic species such as *Rhytida greenwoodii* and peripatus, are present within the Project extent. No invertebrate species were detected during manual hand searching. Therefore, they are not further considered in this application.

3.5.9.2.6 Pest mammals

Within the impact area, possums were observed during spotlighting, and rabbit sign was observed. Rats, mice and mustelids are almost certainly present. No sign of feral ungulates was noted.

3.5.10 Landscape and natural character

The landscape and natural character of the SAL landholdings is detailed in the Landscape Effects Assessment (LEA) (Technical Report J, Volume 2). The findings of the LEA are based on a combination of on and off-site survey and fieldwork, Project shaping and advice, visibility analysis, and photography from representative publicly accessible viewpoints. The LEA considers both public and private viewing audiences, noting that the viewpoint photographs were taken from publicly accessible locations only. A summary of the identified existing environment is provided below.

The existing environment of the Clevedon Quarry site and its surrounding context is characterised by a blend of modified, managed and unmodified areas.

3.5.10.1.1 Landscape context and character

Regarding the landscape, the Site is situated within the broader foothills of the Hunua Ranges, which feature a series of east to west oriented ridges. The western portion of the Site is defined by the Wairoa River Gorge, part of which is classified as an ONF valued for its geology and landform (ONF shown in Figure 3.3). The ONF forms an important part of the Site's wider landscape context. The proposed Quarry Expansion itself is not located within the ONF.

The Project footprint also partially overlaps with SEA_T_5588. This ecological area is highly valued for its indigenous vegetation, consisting of an extensive regenerating tree fern and broadleaf forest that supports a mosaic of early successional species (refer to Section 3.5.9.1.1, above). The Project will result in the clearance of approximately 6.1 ha of this regenerating native forest.

The Wairoa River catchment and Scenic Reserve are also considered to have important cultural landscape values, which form part of the associated values of the Site[31].

Despite the presence of these natural and cultural attributes, the broader landscape is heavily modified by rural and industrial activities, including pastoral farming, pine forestry, existing quarry operations, and rural residential development.

3.5.10.1.2 Natural character

The natural character of the Site is primarily defined by its waterbodies and their margins. The Project has the potential to affect four local streams and their tributaries, specifically identified as Streams 1, 2, 2a, and 3. Stream 1 is a permanent second order stream with an average width of one metre, flowing north of the expansion area through the SEA and alongside the existing quarry before joining the Wairoa River. The section of the Wairoa River near the Site retains a degree of naturalness due to its largely unimpeded water flows and the presence of riparian indigenous vegetation. However, because of the significant influence of surrounding rural and quarrying activities, the overall natural character of this section of the river is assessed as moderate.

[31] Associative values are the intangible things that influence how places are perceived.

4 Project description

4.1 Clevedon Quarry Expansion

As a whole, the Clevedon Quarry Expansion will involve the staged development and ongoing operational activities, which will continue through to final quarry closure and site rehabilitation, including:

- Removal of overburden material.
- Construction of an OBDA outside of the quarry footprint.
- Vegetation removal.
- Establishment of internal haul roads.
- Aggregate extraction.
- Aggregate processing (crushing and processing of rock) within FoH and higher up on the quarry benches.
- Transportation of the rock from the quarry face to the FoH for processing.
- Stockpiling and load out.
- Operational earthworks.
- Stream reclamation.
- Operational stormwater, dust, erosion and sediment control management.
- Construction stormwater, dust and erosion and sediment control management.
- Environmental mitigation activities, including enhancement planting and pest control.
- Other ancillary activities.

4.1.1 Interaction between consents

As outlined in Section 1.2, SAL is seeking a new bundled consent for the Quarry Expansion. The consent being sought will comprise:

- Land use consents for mineral extraction activities, which are separate to the FoH area which is currently authorised by the existing 2018 land use consent, and which is subject to a s127 variation as part of this application.
- Regional consents, which will authorise the regional activities required across the Project extent, including activities associated with the LoQ footprint and supporting ancillary infrastructure.

SAL is also seeking to vary the 2018 land use consent (BUN60302442) to reduce its scope so that it functions as a standalone FoH consent, limited to authorising the ongoing operation of the consented ancillary activities at the base of the quarry.

A variation to a standalone land use consent, which approved widening of an existing haul road within the ONF (LUC60361560), is proposed to replace the approved planting plan with a revised planting plan.

The proposed variation to the FoH consent is intended to take effect on the day that SAL gives notice to the Council that it is implementing the replacement consents for the Quarry Expansion. At that time, SAL proposes to surrender the existing regional permits. The commencement of the replacement consents and the surrender of the existing regional permits are addressed in proposed conditions 5–7 in Appendix G.

For completeness, it is noted that the Quarry Expansion does not require approval under the Wildlife Act 1953 or an Archaeological Authority under the Heritage New Zealand Pouhere Taonga Act 2014. Accordingly, no such approvals are sought as part of this application.

The following sections provide a detailed description of the proposed Quarry Expansion and each consent variation with respect to the existing quarry.

4.2 Quarry Expansion

4.2.1 Overview

The Project involves expanding the quarry in stages, across an area of approximately 74 ha, designed to secure a reliable, long-term aggregate supply for Auckland's future growth. Specifically, the Project is expected to provide approximately 150 MT of aggregate across five stages, over approximately 50 years. The floor will remain unchanged from RL 22.5 m for each stage. The maximum annual extraction rate will remain limited to 3 MT per year.

4.2.2 Existing operational parameters

4.2.2.1 Hours of operation

The proposed operating hours for mineral extraction activities under the proposed Quarry Expansion consent are 24 hours per day, seven days a week[32]. These hours are consistent with the hours of operation authorised for on-site mineral extraction activities under the 2018 Consent (and to be retained as part of the FoH consent).

Removal of rock from the quarry working face requires blasting, which is undertaken as required, usually on average twice per fortnight. Blasting at Clevedon Quarry is currently completed between the hours of 9 am and 5 pm Monday to Saturday.

4.2.2.2 Aggregate crushing

Aggregate crushing and processing will continue to occur within the quarry using both fixed and mobile plants. The FoH consent will authorise crushing, processing and stockpiling within the FoH area, while the new Quarry Expansion consent will authorise mobile crushing, processing plant, and accessory buildings (i.e., maintenance sheds) within the Quarry Expansion area where required to support extraction and staging.

The aggregate crushing methods will be consistent with those granted under the 2018 Consent[33].

Aggregate crushing will generally occur on the basis of the following hours of operation:

- 7 am – 9 pm Monday to Friday (not exceeding LAeq 55dB).
- 7 am – 4 pm, Saturday (not exceeding LAeq 55dB).
- All other times and on public holidays i.e., up to 24 hours per day 7 days per week when required (not exceeding LAeq 45dB, LAFmax 75dB).

4.2.2.3 Aggregate production capacity

The aggregate output at Clevedon Quarry is driven by the processing capacity of the onsite plant rather than the extraction limit itself. Processing facilities and supporting infrastructure convert raw rock into usable aggregate, with each facility having a specific throughput capacity that determines the maximum volume of material that can be processed over a given period.

[32] Refer to condition 20 of [2018] NZEnvC 96. No changes are proposed to the wording of this condition.
[33] Refer to conditions 21 to 27 of [2018] NZEnvC 96.

The processing facilities comprise a combination of fixed and mobile crushing and screening plant and associated infrastructure. Together, these facilities are capable of supporting production up to the consented annual extraction limit of 3 MT per year.

Based on recent production, Clevedon Quarry has been extracting approximately 200,000 – 300,000 tonnes per year — well below the consented 3 MT per year limit. The proposed Quarry Expansion refines the staging and extraction sequencing and provides a larger FoH area to enable production to progressively ramp up toward the already-consented 3 MT per year limit as demand grows.

No changes are proposed to the processing facilities or supporting infrastructure approved under the 2018 Consent, and the annual extraction limit of 3 MT per year is retained.

4.2.3 On-site vehicle movement

To enable the expansion and support the extraction of aggregate, the Project involves the construction of new internal haul roads within the Quarry Expansion area. The primary haul road will be progressively developed as the quarry expands. The existing haul road through the ONF will be utilised as a secondary access to the quarry. Extracted material will continue to be transported from within the Quarry Expansion area to the FoH area for processing.

Access to the OBDA located to the east of the existing quarry will be established during indicative Stage 1 through the middle of the proposed Quarry Expansion, primarily utilising an existing access that will be upgraded as required.

As the haul road(s) are constructed, they will also be sheeted with aggregate and is therefore expected to have low sediment yield.

4.2.4 Access

As detailed in Section 3.4.3.1, McNicol Road serves as the principal vehicular access route for Clevedon Quarry. No changes to the existing quarry access from 546 McNicol Road are proposed as part of this application.

4.2.5 Lighting

Any required lighting, security or other, will be designed and operated so as not to cause any light spill or disturbance glare for occupiers of any other properties. Any spill or glare onto McNicol Road shall comply with E24.6 of the AUP. Lighting management measures are outlined in the QMP (cc).

4.2.6 Water management

To manage surface water runoff, a staged treatment-train approach is proposed to control and treat surface water flows. Runoff from the quarry will be directed to the main quarry sump at the base of the quarry floor within the FoH area. The sump will provide storage to attenuate flows and allow sediment to settle before water is conveyed in a controlled manner to a constructed wetland water treatment system near the Site entrance.

The sump is the primary mechanism for attenuating peak flows for storm events up to and including the 100-year Average Recurrence Interval (ARI) (including 3.8°C climate change allowance). For events up to the 20-year ARI, treated water is discharged through the constructed wetland. For larger events, peak flows bypass the wetland via a diversion channel. Post-development peak flows in the 100-year ARI event are reduced to approximately 60% of pre-development rates.

Other Erosion and Sediment Control measures will be put in place to manage construction related sediment discharges in accordance with Auckland Council's Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05)[34].

The newly constructed wetland is proposed to be progressively developed to remove any remaining suspended solids and other contaminants as the quarry expands. The wetland will be designed in accordance with Auckland Council's Stormwater Management Devices in the Auckland Region (GD01) and will utilise a treatment train approach from the Waikato Regional Council Technical Report TR20/07. The required wetland area at Stage 5 full Quarry Expansion is expected to be approximately 4,488 m^2. Figure 4.1 and Figure 4.2 demonstrate the stormwater management layout across Stage 1 and Stage 5. Details of the staged development of the wetland treatment system are outlined in Section 4.2.6.1 below and will be addressed through the QMP (cc).

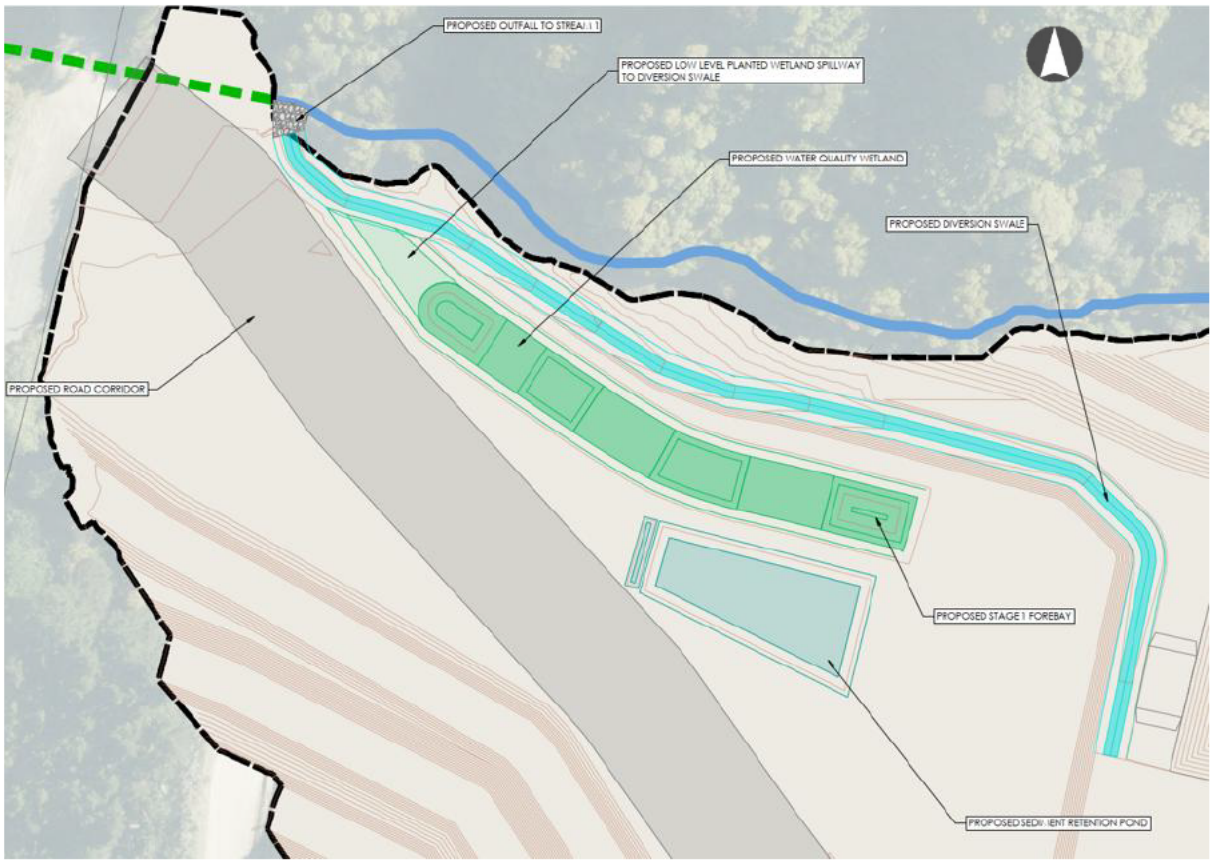


Figure 4.1: Stage 1 stormwater management layout.

[34] Auckland Council Guideline Document 2016/005 *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* (GD05).

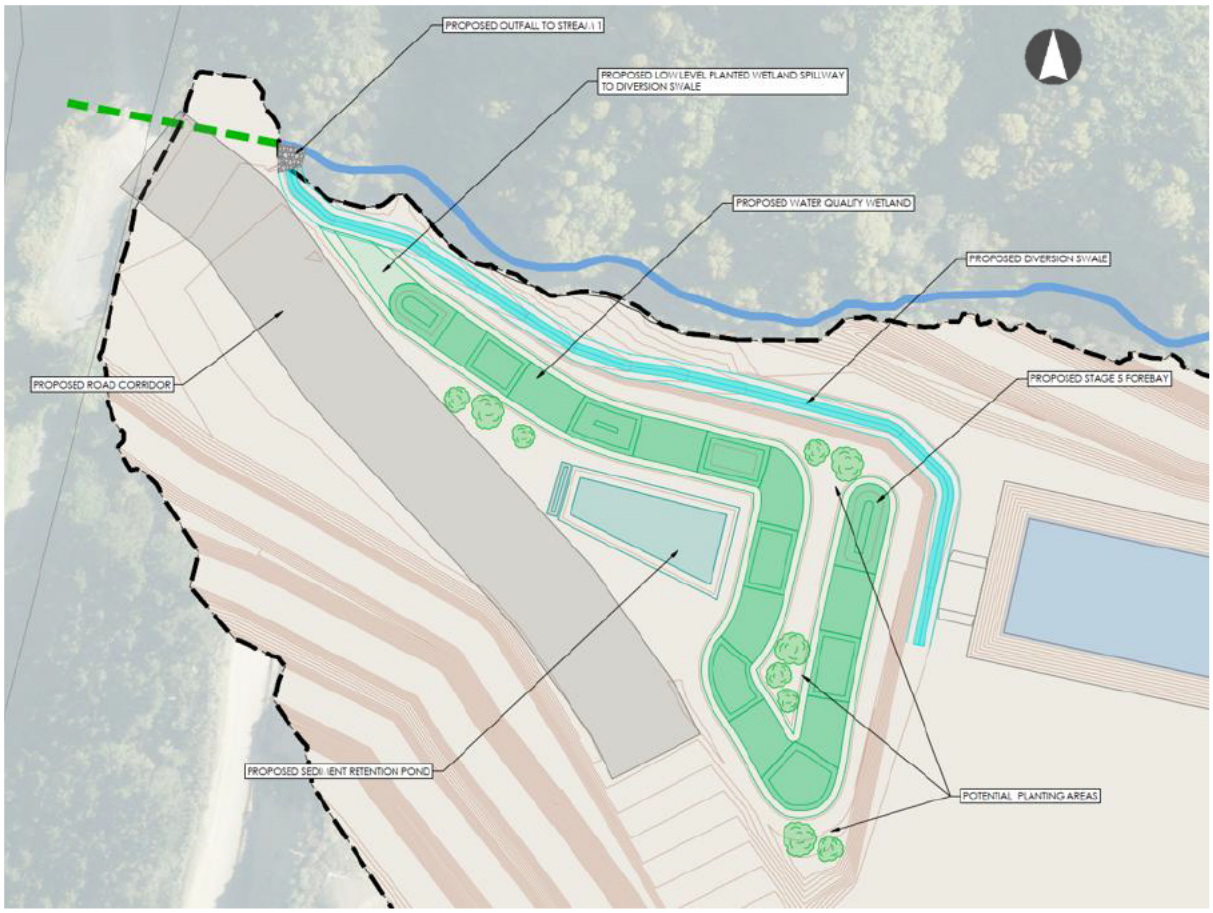


Figure 4.2: Stage 5 LoQ stormwater management layout.

4.2.6.1 Wetland Treatment System

As detailed in the Erosion and Sediment Control Assessment Report (ESCAR) (Technical Report K, Volume 2), the newly constructed wetland system will be staged in accordance with the following indicative methodology:

Stage 1

Enabling works will be required to construct the new access road to allow for the construction of the constructed wetland treatment system and allow ongoing quarry operations, as shown in Figure 4.3.

- During the initial works, the existing access road will be maintained and remain operational.
- The new access way will be constructed with the bulk of earthworks being undertaken to the south and west of the existing access road.
- During construction of the new internal haul road within the LoQ footprint, quarry water management will continue to be managed via the existing pit, soakage, and the Sediment Retention Pond (SRP) setup. Any construction water will be directed to the existing SRP.
- Silt fencing will be installed for the minor area of earthworks below the existing sump and culvert to the SRP.
- The new access road will be made operational following the completion of construction at this stage.

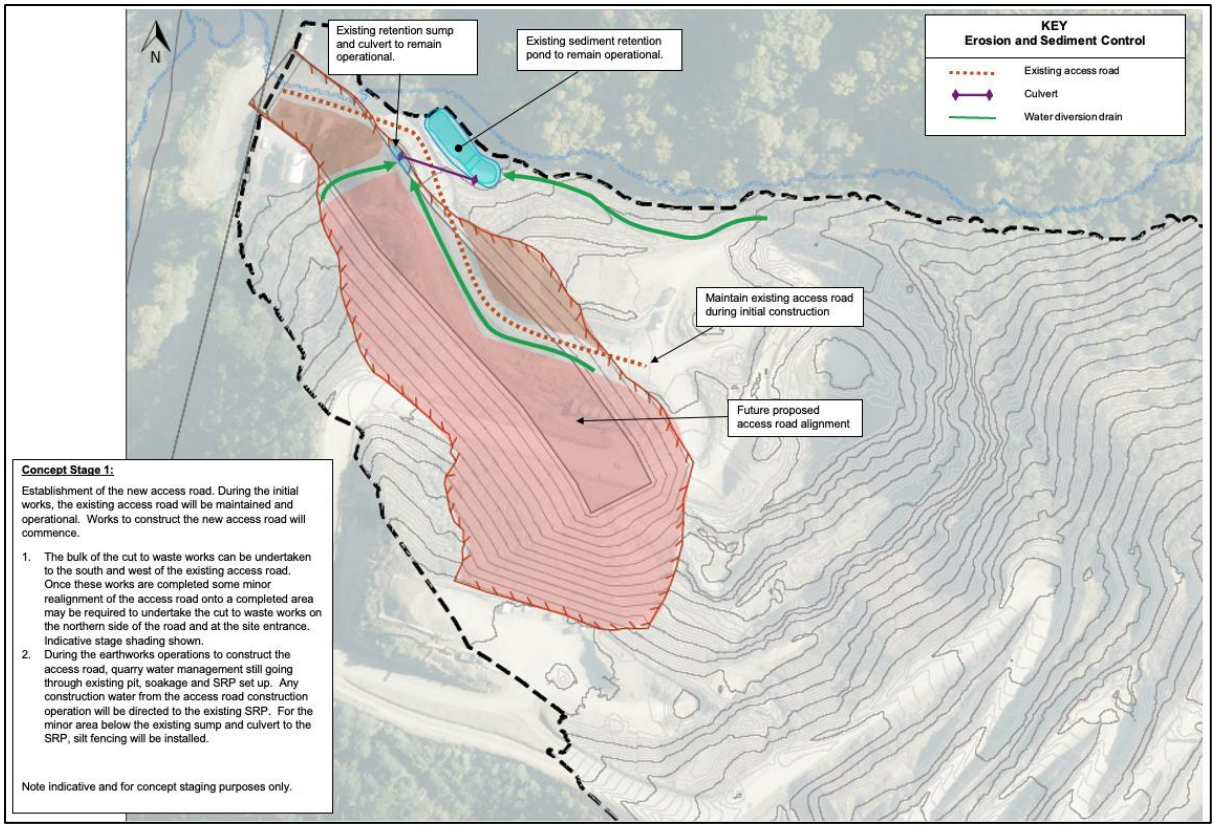


Figure 4.3: Concept Stage 1 – New Water Management System access road establishment.

Stage 2

Stage 2 focuses on the establishment of the new constructed wetland, SRP and diversion swale, as follows:

- Quarry water management will continue to be managed via the existing system during construction of the constructed wetland treatment system.
- Works will be undertaken without disrupting the operation of the existing SRP.
- The new treatment system will be made operational following the completion of construction.

Stage 3

As the newly constructed wetland and SRP become operational, the existing SRP and sump will be removed. The final (northern) section of the diversion swale will also be constructed in the location of the removed SRP.

- Works will be undertaken offline from the quarry water management system (WMS). Silt fencing is proposed to be installed to provide sediment control.
- The newly constructed wetland treatment system will be fully operational following the completion of the final section of the diversion swale.

4.2.7 Overburden Disposal Area

The initial excavation of material is classed as overburden. Overburden consists of topsoil, followed by residual greywacke soils and highly weathered rock which are located below the topsoil. The aggregate extraction process involves stripping, transporting, and removing topsoil and organic materials using conventional quarry hydraulic excavators and six-wheeled dump trucks (or scrapers).

An OBDA will be established in the east of the Site during indicative Stage 1. The area is expected to be approximately 4.6 ha and sits outside the SPQZ, within the RPZ but immediately adjacent to the SPQZ (see Figure 13, Appendix C). The OBDA is designed to take approximately 660,000 m³ of fill. In order to establish the OBDA, approximately 4.43 ha of cutover pine will be removed, and a section of Stream 3 headwater tributary will be filled during Stage 1 Quarry Expansion. This affected section of Stream 3 tributary comprises approximately 543 m of stream length and 203.5 m^2 of streambed area.

It is intended that the OBDA will receive overburden within approximately the first 10 years of the Project (indicative Stage 1). Any overburden generated after this period is expected to be either stockpiled onsite or transported off site and sold as fill (the latter being dependent on market demand).

4.2.7.1 Construction

The OBDA has been geotechnically assessed by Baseline Geotechnical Limited, Geotechnical Assessment Report Proposed overburden disposal area (refer to Technical Report B2, Volume 2). The indicative design incorporates a series of batter faces separated by 3 m wide surface water drainage benches, ranging from a toe elevation of approximately RL 210 m to a crest of up to RL 300 m. Batters are 10 m high and become progressively gentler with elevation, ranging from approximately 1V:1.5H at the base to 1V:3.5H near the crest. Maximum fill thickness is approximately 40 m.

Prior to filling, the entire OBDA footprint will be stripped of vegetation and topsoil. Soft and unsuitable soils within the gully floor will be undercut to expose competent, completely weathered greywacke, extending a minimum of 100 m up-gully from the OBDA toe. Stripped topsoil may be stockpiled for use in final rehabilitation.

Fill will be placed in three geotechnical zones — a free-draining weathered rock buttress at the toe, improved compacted clay fill on the outer face, and mixed clay fill in the rear and upper portions.

Sub-surface drainage will be installed along the gully axes prior to infilling. Geotechnical inspection and testing will be carried out during construction to verify ground conditions and fill placement. The construction requirements will be formalised in an OBDA Construction Management Plan (OBCMP).

4.2.7.2 Erosion and sediment control

Two SRPs are proposed to be installed to treat runoff during construction (refer to ESCAR (Technical Report K, Volume 2) and Erosion and Sediment Control Plan (ESCP) staging drawings attached to the ESCAR). Each SRP is sized for a 3 ha catchment and will be chemically treated to enhance sediment retention efficiency. No more than 3 ha of the OBDA is proposed to remain open at any one time.

Enabling works, including engineered fill platforms, will be required to construct the SRPs given the steep nature of the site. Silt fencing will be installed downslope of the SRP locations during SRP establishment and removed once each SRP is operational.

Perimeter bunds will direct site runoff to the active SRP. As sections of the OBDA are progressively stabilised, bunding will be adjusted to route clean water away from the SRPs as clean discharges. The outlet from the first SRP will be piped to a stabilised surface outside the catchment of the second SRP.

The OBDA batters will be progressively stabilised as material is placed and design levels are achieved. Existing internal quarry access roads will be used to reach the OBDA.

Once the OBDA is complete, it is proposed to be planted as part of the terrestrial ecological offset and compensation package, helping to create an ecological corridor that connects with the existing SEA (SEA_T_5588) to the north (refer to Section 5 for further details).

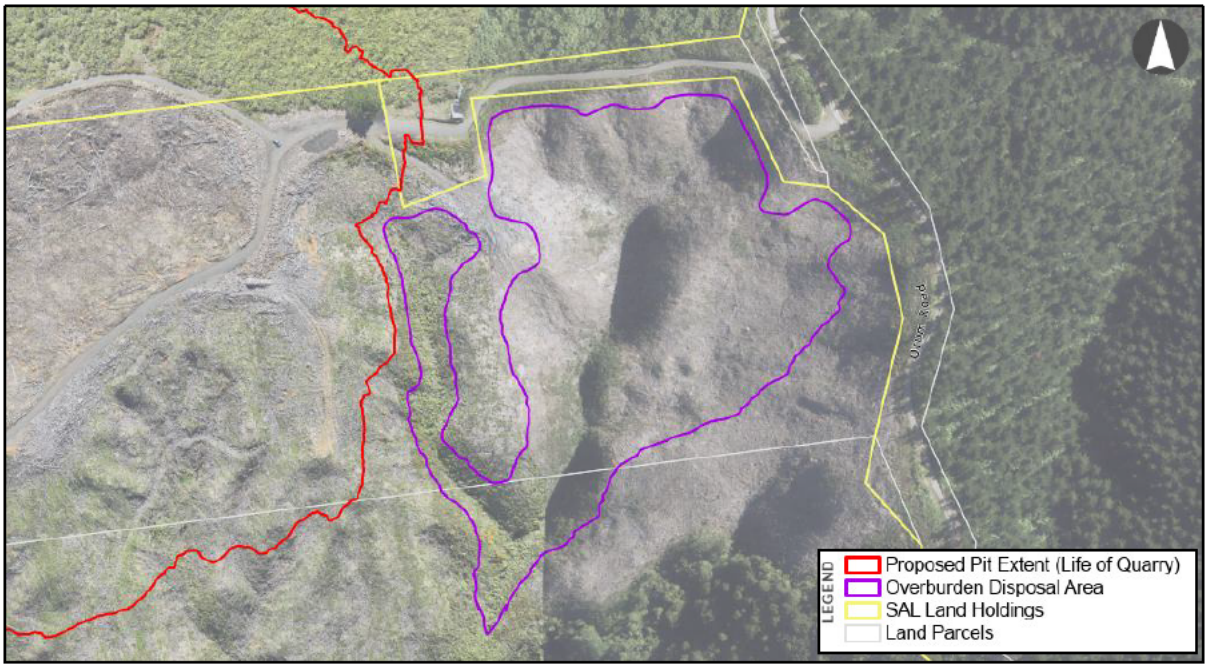


Figure 4.4: Overburden disposal area.

4.2.8 Indicative staging

The five indicative stages are shown in Figure 4.5 (Figure 5, Appendix C). The timing is indicative only and may vary over the life of the quarry. However, it is considered relevant to provide an appropriate basis for assessment purposes. The quarry footprint will expand incrementally as resource is extracted.

In summary, Stage 1 (Years 0-10) generally involves construction of the constructed wetland, construction of internal haul roads, establishing access to the OBDA in the east, overburden removal, and expanding the quarry footprint. Stages 2 to 5 are described in Sections 4.2.8.2 to 4.2.8.5 below. The final footprint is expected to be approximately 74 ha (refer to Section 3.3 for the zoning split).

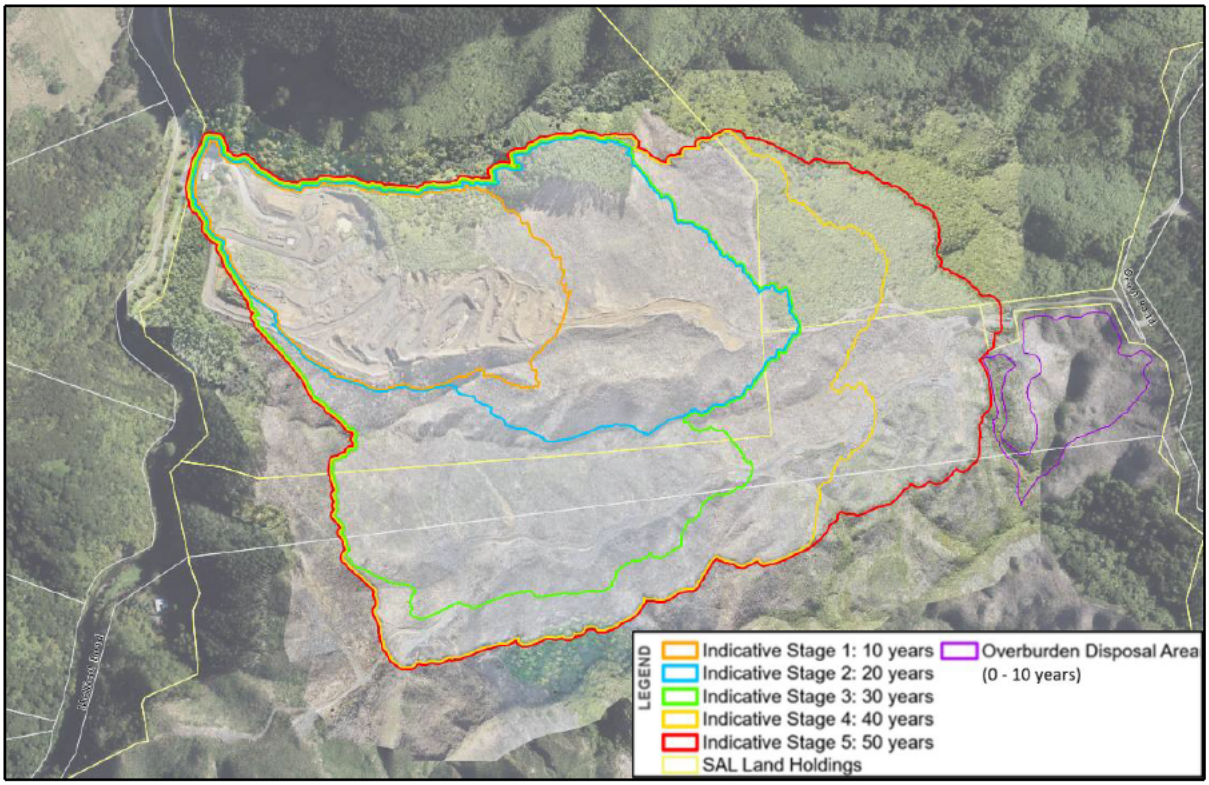


Figure 4.5: Indicative staging map of proposed LoQ.

4.2.8.1 Stage 1 (Years 0-10)

The initial stage of work is shown as the orange line in Figure 4.5 and is located entirely within the SPQZ, including the following:

- Expansion of the quarry floor to create a larger, more workable quarry floor footprint.
- Establishment of the diversion channel, the lower quarry sump, the main quarry pit sump and a newly constructed wetland sized to treat the proposed open operating area, as outlined in Section 4.2.6.1 above.
- Establishment of internal haul roads and access to the OBDA in the eastern part of the Site as the quarry expands.
- Overburden removal.
- OBDA construction and completion.
- Removal of approximately 2.8 ha of cutover pine in the middle of the pit and near the Site entrance to the south, as well as 600 m² of kānuka vegetation authorised under the 2018 Consent if the kānuka has not been removed before the proposed FoH consent is given effect to.
- Commence offset / compensation.
- Partial reclamation of Stream 2, the Southern Tributary, Stream 2a and a small section of the upper tributary of Stream 3, and a small area of SEA_T_5588 will remove approximately 69 m of stream length. A further 543 m of the Stream 3 tributary will be filled by the OBDA, resulting in approximately 612 m of stream length being affected in total.

4.2.8.2 Stage 2 (Years 10-20)

The second stage of work is the 10-year plan between Years 10 – 20 (refer to the blue line in Figure 4.5) and is located entirely within the SPQZ. This stage involves the following activities:

- Commencement of quarrying within the interim expansion boundary. Expansion is indicatively shown progressing to the east. The pit will widen and deepen incrementally as resource is extracted, with internal roads constructed as the pit expands.
- Reclamation of a very small section of the upper tributary of Stream 2 and the removal of the upper contributing catchment of water into Stream 2a. In total, approximately 104 m of stream length and 32 m^2 of streambed area will be removed during Stage 2.
- Removal of approximately 16.2 ha of cutover pine and a small encroachment into SEA_T_5588, resulting in the removal of approximately 0.2 ha of regenerating tree fern-broadleaf forest.
- All site water will be directed to the base of the quarry for treatment via the constructed wetland water treatment system, which will be fully operational by this stage.

4.2.8.3 Stage 3 (Years 20-30)

Stage 3 is shown as the green line in Figure 4.5 and involves further expansion of the interim quarry boundary, predominantly within the SPQZ to the southeast. The pit will widen incrementally as resource is extracted, with internal pit roads constructed as the pit expands:

- The majority of Stream 2 reclamation will occur during Stage 3, with approximately 966 m of stream length and 670 m^2 of streambed area removed. All water will continue to be directed to the base of the quarry for treatment via the fully operational constructed wetland treatment system.
- No regenerating tree fern-broadleaf forest removal is proposed during Stage 3. Approximately 15.9 ha of cutover pine will be removed to allow for quarry pit expansion.

4.2.8.4 Stage 4 (Years 30-40)

Stage 4 is shown as the yellow line in Figure 4.5 and involves further expansion primarily within the SPQZ and into the RPZ. As with previous stages, the direction of expansion is indicatively mapped to extend to the east:

- This stage will involve the bulk of the SEA_T_5588 removal, including approximately 3.0 ha of regenerating tree fern-broadleaf forest and 11.79 ha of cutover pine.
- The final section of Stream 2 upper tributary reclamation is anticipated to occur during Stage 4. In total, approximately 507 m of stream length and 208 m^2 of streambed area will be removed during this stage.
- Internal roads will be constructed progressively as the quarry expands.

4.2.8.5 Stage 5 – Life of Quarry Plan (Years 40-50)

The fifth and final stage reflects the quarry pit over an approximate 50-year period (refer to the red line in Figure 4.5), which is the full LoQ:

- Expansion will generally involve the reclamation of the upper reaches of Stream 2a and part of tributaries of Stream 3 located within the Project footprint. In total, approximately 204 m of stream length and 47 m^2 of streambed area will be removed to allow quarry expansion during this stage.
- Approximately 2.9 ha of regenerating tree fern-broadleaf forest along with 5.9 ha of cutover pine will be removed during this stage.

- Within five years of confirmed closure, the QMP (cc) will be updated to include a Closure and Rehabilitation Plan (as required by the proposed consent conditions attached as Appendix G). The final end use of the Quarry will be determined through that process and given that it is more than 50 years away, it is not appropriate to try and provide any more detail about the ultimate end use now.

4.3 2018 land use consent variation (BUN60302442) – scope reduction[35]

4.3.1 Overview

The 2018 Consent is described in Section 2.4.2.1.

This FTAA application seeks approval for a substantially larger expansion with different development staging and a larger LoQ footprint, as discussed above and shown in Figure 4.6 below. As a result, the 2018 Consents (both the land use consent and associated regional permits) are not fit for purpose.

Accordingly, as part of this application, SAL is seeking to vary the 2018 land use consent[36] to reduce its scope so that it becomes a standalone FoH consent, limited to authorising the ongoing operation of the consented ancillary activities (such as the weighbridge, wheel wash, offices, processing and stockpiling) associated with mineral extraction activities at the base of the expansion area.

To enable the scope reduction described above, a number of existing 2018 Consent conditions (BUN60302442) are proposed to be amended or removed, with the full set of proposed changes to FoH consent set out in Appendix H. Further details of the Front of House consent are outlined in the following sections.

This variation is sought as part of this application and would otherwise be applied for under the RMA[37].

[35] FTAA, s 42(4)(b).
[36] Consent reference LUC60291842.
[37] FTAA, s 42(4)(b).

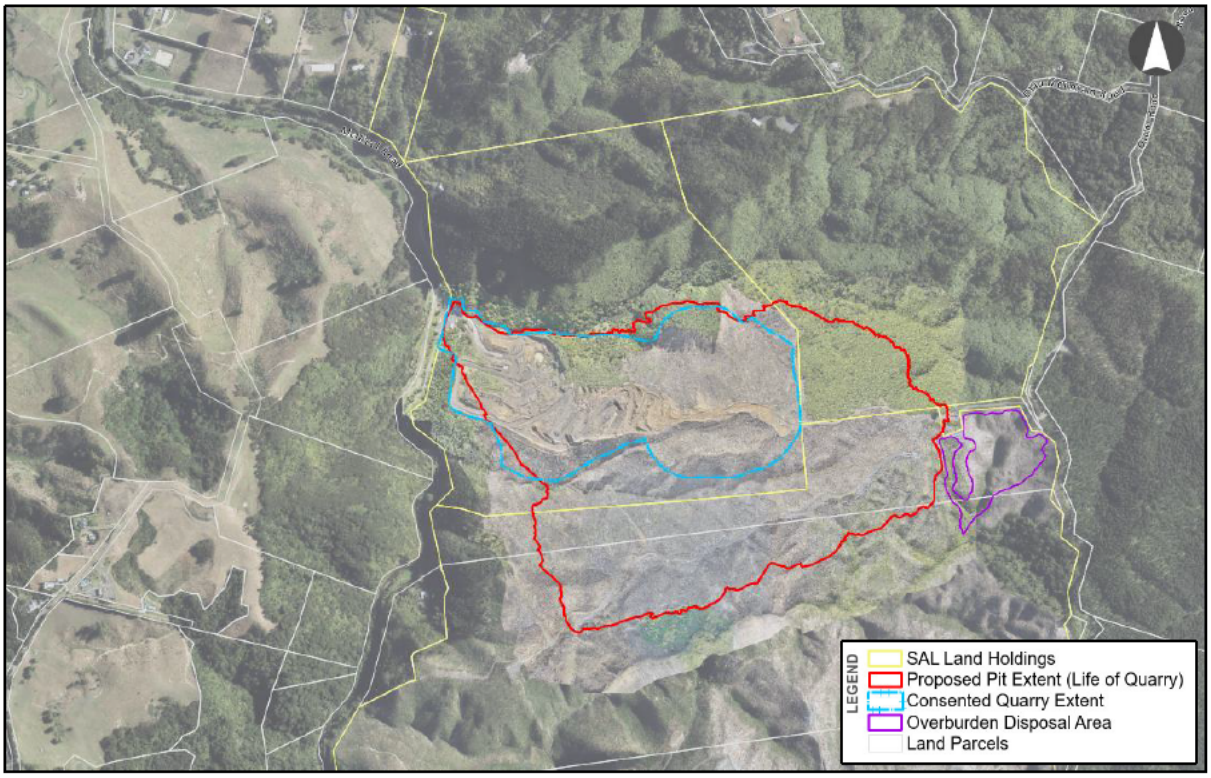


Figure 4.6: Approved LoQ extent (2018) vs proposed LoQ extent (including OBDA).

4.3.2 FoH extent

Similar to the existing 2018 Consent, the internal layout of the Site's FoH area is expected to be driven by the operating and production needs of quarrying activities. Because the FoH area will service a larger quarry, a larger portion of the base of the quarry will be utilised as a FoH area to support those mineral extraction activities.

A new drawing showing the proposed reduced consent extent (shown in Figure 4.7 below) will form part of the Front of House consent, and the "general accordance" condition will be amended to reference that updated plan, ensuring the consent clearly identifies the area covered and the extent of the FoH footprint.

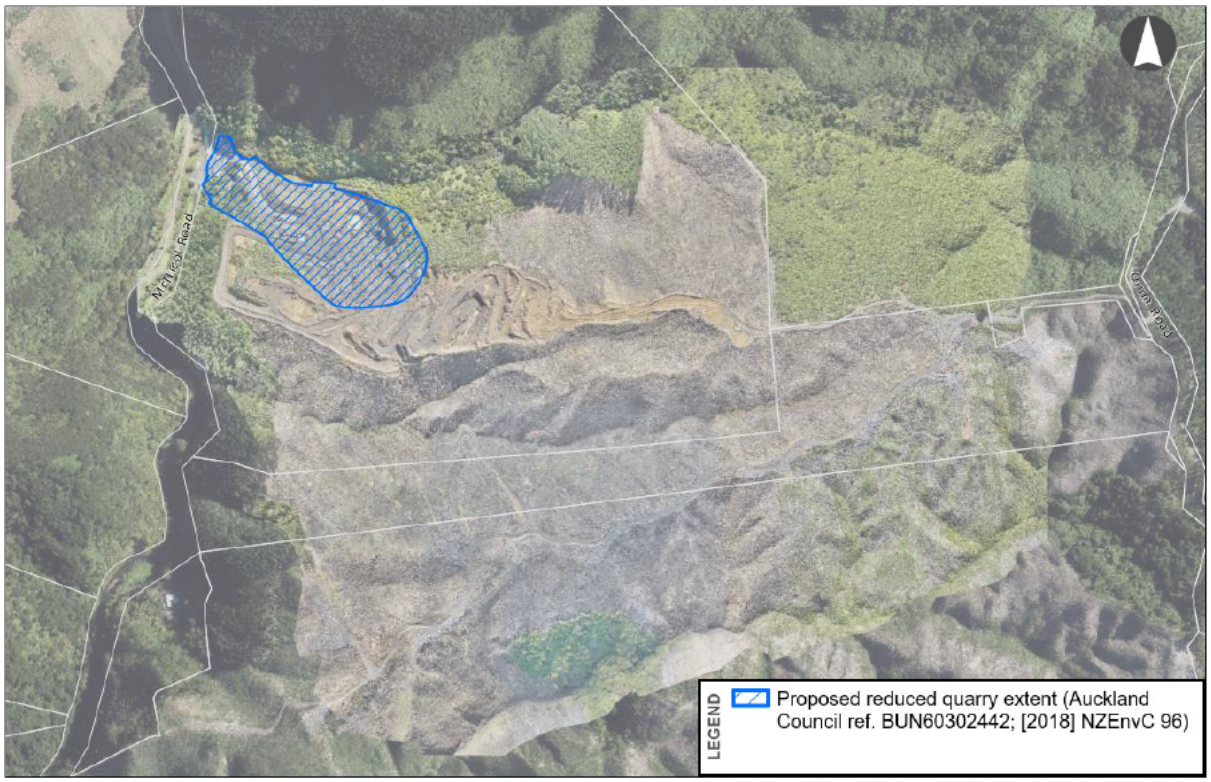


Figure 4.7: Area subject to s127 variation (Front of House consent).

4.3.3 FoH ancillary infrastructure

Existing FoH infrastructure and activities generally undertaken at the base of the quarry (within the area identified in blue in Figure 4.7) include:

- Access road (from McNicol Road) and parking area.
- Offices and workshop.
- Truck wheel wash.
- Weighbridge.
- Aggregate storage bins and stockpiles.
- SRPs.
- Quarry sump.
- Storage tanks.
- Loading area.
- Stockpiles.
- Fixed and mobile crushers.

Several of these existing FoH facilities such as the weighbridge and site offices will initially service the Project. As the Clevedon Quarry Expansion progresses, the base of the pit will also be progressively expanded, with these FoH facilities being relocated, reconfigured or upgraded as required to support ongoing operations, whilst remaining within this general area. The Site access from McNicol Road and the general nature of the FoH activities will remain unchanged. Any upgrades are expected to be permitted within the SPQZ. However, if any future relocation or upgrade requires a resource consent, it would be addressed through a separate application and does not form part of this application.

4.3.4 Existing operational parameters

4.3.4.1 Hours of operation

No changes are proposed to the existing hours granted under the 2018 Consent. The FoH area will not be subject to blasting or the excavation of rock, with those activities confined to the Quarry Expansion area authorised under the proposed new mineral extraction consent. Ancillary activities within the FoH area will continue to be undertaken 24 hours per day seven days a week[38] subject to operating within the consented noise limits.[39]

4.3.4.2 Aggregate crushing

No changes are proposed to the aggregate crushing methods granted under the 2018 Consent[40], as detailed in Section 4.2.2.2.

Fixed and mobile processing plants will remain the primary processing facilities utilised on-site located within the FoH area. Where required to support extraction and staging, mobile plant(s) may also operate within the active excavation area, near recently blasted rock. The rock will be fed into the crusher plant(s) using 40 – 50 tonne excavator(s) for processing. The blasted rock will then be stockpiled in the designated areas or transported off-site.

4.3.4.3 Off-site truck movements

No changes are proposed to the limitations on truck movements granted under the 2018 Consent[41]. Specifically, quarry truck movements to and from the Site will not exceed an hourly maximum of 90 truck movements (Monday to Saturday), or exceed an average of 900 truck movements per day (Monday to Saturday) measured on a 12-month rolling basis.

Conditions 60(a)-(f) of the 2018 Consent require the consent holder to undertake road improvement works along McNicol Road, including sealing (completed), localised widening, and construction of an unsealed path for non-vehicle users prior to the Quarry generating more than 45 quarry truck movements per hour (Condition 28(b). These obligations will be satisfied before that threshold is exceeded.

Overall, the Quarry Expansion will not result in any truck movements beyond those authorised by the 2018 Consent and accordingly will not give rise to any adverse effects not considered and consented throughout that earlier process.

4.3.5 Regional consents

Subject to obtaining and exercising new earthworks, groundwater and air discharge permits under the proposed Quarry Expansion consent, the existing Earthworks consent (LUC60291842), Groundwater take and diversion (WAT60302444) and Air discharge (DIS60302443) Permits granted as part of the 2018 Consent process are proposed to be surrendered, with the relevant activities to be authorised under the new regional consents sought as part of this application. The Quarry Expansion consents and FoH consent amendments are proposed to take effect on the date SAL gives notice of its intention to exercise the replacement consents (refer to consent conditions 5-7 of Appendix G).

[38] Refer to condition 20 of [2018] NZEnvC 96. No changes are proposed to the wording of this condition.
[39] Refer to condition 35 of [2018] NZEnvC 96.
[40] Refer to conditions 21 to 27 of [2018] NZEnvC 96.
[41] Refer to conditions 21 to 27 of [2018] NZEnvC 96.

4.4 Relocation of ONF Planting Areas

As part of this FTAA application, SAL is seeking the Relocation of ONF Planting Areas, relating to the consent that approved the widening of an existing haul road within the ONF to accommodate two-way heavy vehicle movements associated with Mineral Extraction Activities. To enable the expansion of Clevedon Quarry, four Planting Areas required by this consent, including parts of A, B, some of C and all of E, need to be relocated (see Figure 4.8).

In order to provide appropriate access for the LoQ extent, the FoH area will need to be expanded southeast, allowing space for the internal access road, constructed wetland and the relocation of existing site office and workshop.

Accordingly, parts of completed Planting Areas A and C are proposed to be cleared where they are within the proposed FoH approximate extent (refer to Section 4.3.2 above). The remaining two Planting Areas B and E (respectively comprising one planting location and one hydroseeding location), located in the ONF, were not planted because a slip that occurred after the consent was granted altered the original ground contours and site conditions. Specifically, the landform change in Area B means it is no longer safe or practical to establish the intended mix of native shrub and tree species.

SAL considers this an opportunity to integrate the relocated and unplanted planting areas into a coordinated, catchment-wide planting programme. Accordingly, the relocated and unplanted areas are proposed to be delivered as part of the wider ecological offset and compensation package, aligned with the overall landscape, visual and terrestrial mitigation framework, to help screen the quarry, enhance ecological connectivity, and achieve a more integrated catchment-based planting outcome.

SAL is seeking the Relocation of ONF Planting Areas to replace the approved planting plan with a revised planting plan shown in Figure 7.1 below (and Figure 22 of the AEE drawing set in Appendix C). No physical works are proposed within the ONF extent.

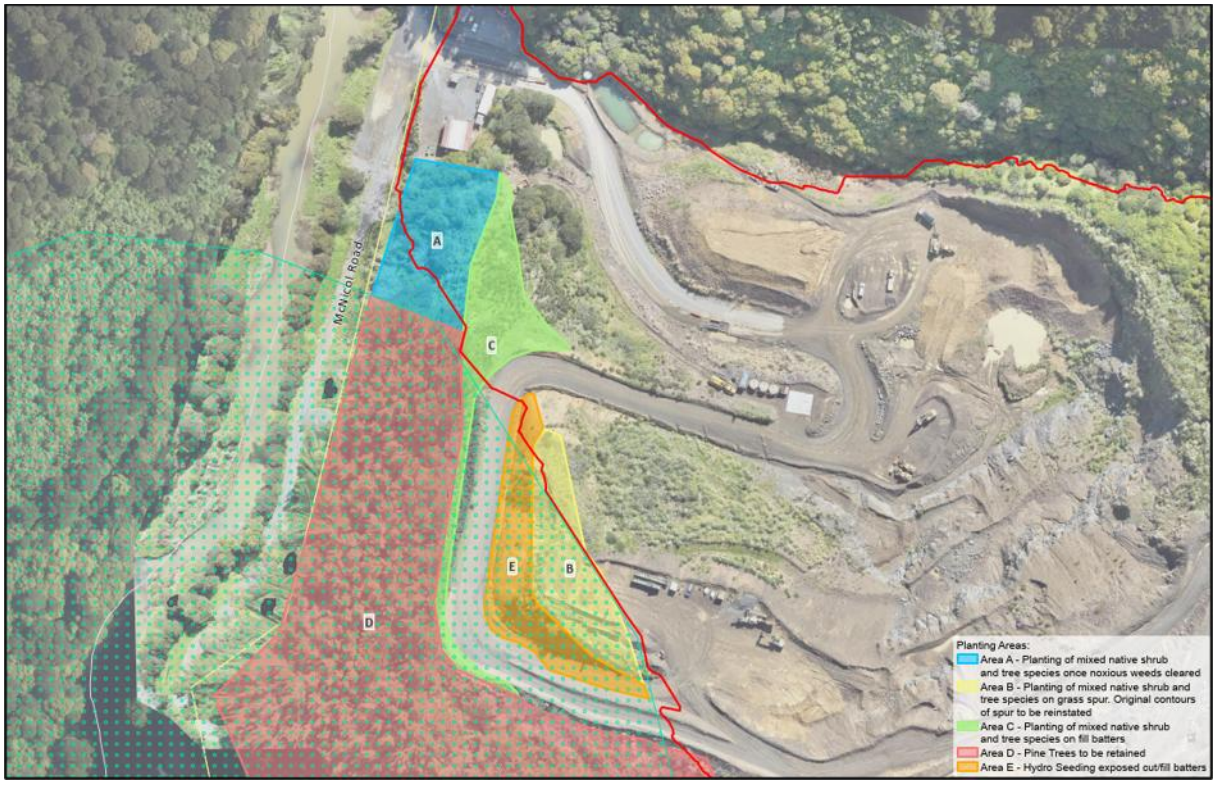


Figure 4.8: LUC60361560 approved resource consent plan for planting overlays dated 08/03/2021.

5 Ecological offset and compensation

An ecological offset and compensation package is proposed to address the residual ecological effects of the Project which cannot be avoided, remedied or mitigated. Full details of the offset and compensation package are set out in the EcIA (Technical Report I, Volume 2). Conditions of consent are also proposed, consistent with the measures required, and are set out in Appendix G of the AEE.

The overarching goal of the restoration is to provide a fully forested corridor linking the Wairoa River to the Hunua Ranges, connecting the existing vegetation fragments within the Stream 3 catchment. This includes a total of approximately 67.6 ha of restoration planting in the Stream 3 catchment immediately to the south of the quarry footprint, as detailed in Table 5.1 below.

The Stream 3 catchment is considered most appropriate for restoration works. It is the closest catchment to the impacted areas for both terrestrial and freshwater adverse effects. It contains terrestrial and freshwater habitats comparable to those being impacted, including similar freshwater fauna communities, topography and soil types. The existing mature native forest and treeland within the catchment will provide seed sources for future natural regeneration.

The restoration package comprises terrestrial offset, freshwater offset and freshwater compensation planting as summarised below and described in Sections 5.1 to 5.3:

- Planting of steep slopes in the upper catchment of Stream 3 as terrestrial offset and freshwater compensation.
- Planting of the OBDA once it is full as terrestrial offset.
- Riparian planting within the 20 m margins on both sides of approximately 4,510 m of Stream 3 and its upper catchment tributaries as freshwater offset; and
- Planting of an additional 20 m either side of the main stem of Stream 3 downstream of the existing native treeland as freshwater compensation.

The residual effects management measures are summarised in Table 5.1.

Table 5.1: Summary of residual effects management measures

Impact	Residual effects management	
	Slope planting / additional riparian buffer (ha)	20 m riparian buffer planting (ha)
Terrestrial habitat loss offset	10.6	n/a
Freshwater habitat loss offset	n/a	16.6
Freshwater habitat loss compensation	40.4	n/a
Total	**67.6 ha**	

All planting areas and the existing native treeland within the Stream 3 catchment are proposed to be legally protected in perpetuity through covenants and conditions of consent.

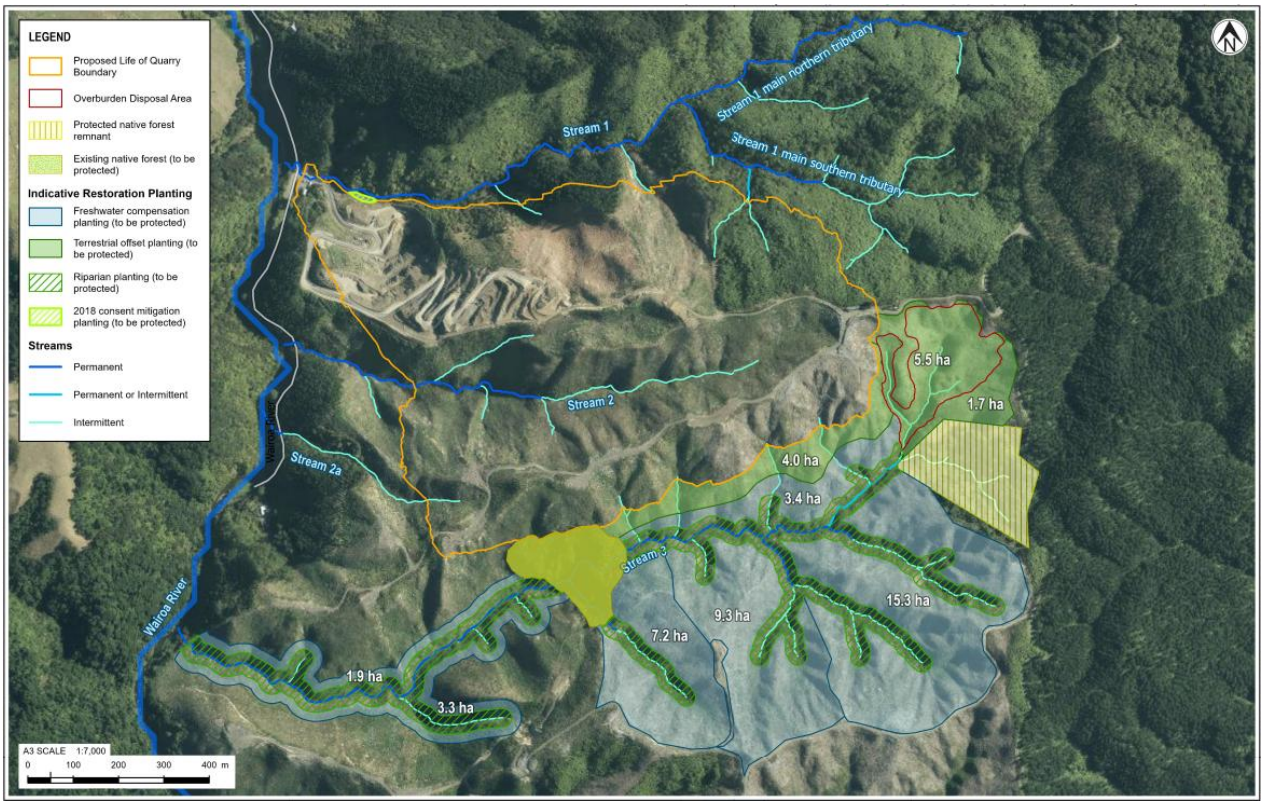


Figure 5.1: Ecological offset and compensation package.

The following sections provide further details on the offset and compensation actions.

5.1 Terrestrial offset

Approximately 10.6 ha of restoration planting is proposed to offset the loss of 6.1 ha of regenerating tree fern/broadleaf forest within the SEA. The quantum of offset was determined using two Biodiversity Offset and Accounting Models (BOAM):

- BOAM1 determined that planting the full 4.6 ha OBDA (once filled, approximately 10 years post-consent) is sufficient to offset 2.0 ha of regenerating tree fern/broadleaf forest.
- BOAM2 determined that an additional 6.0 ha of slope and open-area planting within the Stream 3 catchment (to be undertaken within 1 year of commencement of consent) is sufficient to offset the remaining 4.1 ha of loss.

Both models indicate that full implementation will result in a net gain in biodiversity values. All offset planting will be completed prior to the relevant vegetation clearance occurring.

Key measures include:

- Pest plants will be controlled prior to planting.
- Existing felled pine (pine slash) will be left in situ to provide shelter for establishing plants and fauna habitat.
- Initial planting will comprise a standard revegetation species mix suitable for open areas in Auckland.
- Enrichment planting will be undertaken several years after initial planting to add species characteristic of the WF9 ecosystem, adjusted to suit site characteristics; and

- Pest plant control will continue on an ongoing basis, with frequency decreasing as plantings establish.

The proposed terrestrial offset has been designed to ensure that a sufficient quantity, diversity and quality of planting is achieved to offset the terrestrial vegetation and habitats to be removed as a result of the Project. The proposed consent conditions also set out management measures to ensure planting is maintained to facilitate the ongoing survival and development of the recreated and enhanced habitats, including maintenance and monitoring requirements.

Further details are provided in the Ecological Management Plan (EMP) (Technical Report I, Volume 2).

5.2 Freshwater offset

Approximately 16.6 ha of riparian planting is proposed within the 20 m riparian buffer along both banks of the 4,510 m (4,420 m^2 streambed area) of the Stream 3 main channel and its permanent and intermittent tributaries.

The quantum of freshwater offset was determined using the Stream Ecological Valuation/Environmental Compensation Ratio (SEV/ECR) methodology — a peer-reviewed method that quantifies the ecological function of a stream reach and determines the restoration area required to achieve no net loss of freshwater ecological function. The SEV/ECR calculations determined that this riparian offset planting addresses 38% of total residual stream loss effects, equating to 737 m² of the 1,182 m² of total streambed area lost across the four catchments. The remaining 62% of residual freshwater effects are addressed through freshwater compensation planting, as set out in Section 5.3 below.

Key measures to achieve the proposed riparian planting include:

- Pest plants will be controlled prior to planting, with ongoing controls as plants become established.
- Plant mixes will comprise hardy species that are known to establish well on bare stream banks in the Auckland region; and
- Pest animal control will be limited to species having an adverse effect on plant establishment.

Further details of riparian planting methods are provided in the EMP (Technical Report I, Volume 2) and accompanying consent conditions.

5.3 Freshwater compensation

Approximately 40.4 ha of restoration planting is proposed to compensate for residual freshwater effects that cannot be addressed through riparian offset planting alone. This comprises slope planting in the upper Stream 3 catchment and an additional 20 m buffer either side of the main stem of Stream 3, downstream of the existing native treeland, as shown in Figure 5.1. This planting also addresses the potential residual effects associated with reduced stream flows on intermittent tributaries of the upper Stream 1 and Stream 3 catchments.

As set out in Section 5.2, the SEV/ECR methodology was used to determine a quantum of compensation. The residual freshwater effects — comprising 445 m² of unaddressed stream loss and 744 m² of streambed area in reaches where the loss of contributing catchment area will result in a shift from intermittent or permanent flow to ephemeral flow — were converted to a compensation planting requirement of approximately 30 ha. The 40.4 ha of compensation planting provided within the Stream 3 catchment represents 1.3 times this calculated requirement. This multiplier is considered appropriate given that the compensation planting is located beyond the immediate riparian margin, where aquatic ecology benefits are incrementally reduced.

The freshwater compensation package has been designed to provide for positive effects that outweigh the residual adverse effects on freshwater ecological values, consistent with the compensation principles of the NPS-FM (refer to Technical Report I, Volume 2).

The planting and management measures for the compensation planting are the same as those set out for the terrestrial offset planting in Section 5.1 (pest plant control before and after planting, retention of pine slash, a standard revegetation species mix followed by enrichment planting characteristic of the WF9 ecosystem). After five years, pest plant control will likely only be required along forest edges, and pest animal control will be limited to species having an adverse effect on plant establishment.

5.4 Monitoring and additional management measures

Regular monitoring will be undertaken during the planting establishment phase (generally five years after planting) to ensure the success of restoration and riparian planting. Once the plants are well established, the focus of monitoring will be to track the progress of the planting against the targets set in the BOAM and SEV/ECR calculations. Monitoring measures include canopy cover, pest plant absence / suppression and plant survival.

If the plantings do not meet these targets within the expected timeframes, additional management measures will be implemented, including:

- Additional pest plant control.
- Additional enrichment planting.
- Planting of additional areas; and
- Targeted pest animal control.

These monitoring and additional management measures are outlined in the proposed conditions of consent (attached as Appendix G of the AEE).

6 Resource consent requirements

To authorise the proposed works outlined in Sections 4.2 and 4.3, the applicant is seeking:

- New resource consents under the AUP and relevant NES under section 42(4)(a) of the FTAA.
- Variations to two existing consents that would otherwise be applied for under the RMA as set out under s42(4)(b) of the FTAA.

Resource consents and variations are being sought to enable the Project works as described in this report and the application intends to include all necessary consents for those activities to occur, even if not specifically notified or identified. Therefore, the consent requirements set out below may not be an exhaustive list and if further consent matters are identified, including post lodgement of the application, these should also be considered as forming part of the application. No Wildlife Act approval or Archaeological Authority is required.

6.1 New resource consents under the Auckland Unitary Plan

The AUP is a single comprehensive plan for the Auckland Region and includes the Regional Policy Statement (AUP RPS) provisions, regional provisions and district provisions that apply across the region. The AUP was made fully operative in July 2026.

The requirements for resource consents are determined by the rules in the AUP. The rules which apply are determined by the zoning of the Site, any identified notations in the plan and the nature of the activities proposed. The planning notations for the Site are included in Table 6.1 below and an assessment of the rules under the AUP is in Table 6.2 below.

Overall, resource consent is required as a **non-complying** activity but is not subject to section 104D assessment under clause 17(1)(b), Schedule 5 of the FTAA.

Table 6.1: Planning notations

Zoning / Overlay or other planning limitation	Comment
Zone	
SPQZ	The majority of the Clevedon Quarry LoQ footprint is located within this zone, including the entire extent within 546 and 646 McNicol Road. This zone provides for significant mineral extraction activities to ensure that mineral extraction can continue in a manner that minimises adverse effects.
RPZ	The southeastern portion of the Clevedon Quarry LoQ footprint extends into this zone. The purpose of this zone is to provide for the use and development of land for rural production activities and rural industries and services, while maintaining rural character and amenity values. However, the AUP Rural Zone policy framework explicitly acknowledges that mineral extraction activities are typical features of the RPZ, and that noise, dust, traffic and visual effects associated with mineral extraction activities generally will not give rise to reverse sensitivity issues.
Overlays	

Zoning / Overlay or other planning limitation	Comment
Quarry Buffer Area Overlay	This overlay extends along the western boundary of the Site. The Quarry Buffer Area Overlay is located around significant mineral extraction activities. The intent of the overlay is to avoid reverse sensitivity effects on quarry operations that can result from subdivision, use and development occurring in close proximity to mineral extraction activities.
SEA Overlay (SEA_T_5588)	The northeastern portion of the proposed LoQ extends into the SEA_T_5588 overlay. SEA overlays protect areas of vegetation which have been identified as having particular characteristics and are afforded a higher level of protection by the AUP.
Outstanding Natural Features Overlay (ID 237, Wairoa River Gorge)	The western portion of the SPQZ adjoins an Outstanding Natural Feature Overlay. No physical works are proposed within this overlay.
NSMAs Overlay [rp]	This overlay applies to a small portion of the northern part of 546 McNicol Road, well outside the Clevedon Quarry LoQ footprint. The Project footprint does not extend into this overlay.
High-Use Aquifer Management Areas Overlay [rp] - Clevedon East Waitemata Aquifer	This aquifer is located to the northwest of 546 McNicol Road. The Project footprint does not extend into this overlay. Moreover, the Clevedon East Waitemata Aquifer includes all rocks of the Waitematā Group, but not the underlying greywacke (Waipapa Group) or the overlying Tauranga Group or Kaawa Formation. Accordingly, it is not considered relevant to groundwater abstraction at the Site.
Water Supply Management Areas Overlay [rp] - Hunua	The Overlay applies to the east of the SAL landholdings, well outside the LoQ footprint. The Project footprint does not extend into this overlay.
Wetland Management Areas Overlay [rp] - 588, Orams Road Wetland	The Overlay applies to the southeastern area of 646 McNicol Road, well outside the LoQ footprint. The Project footprint does not extend into this overlay.
Controls	
MCI	This control impacts the entire site.
Designations	
Hunua Ranges Regional Park (Designations – 601)	This designation is located to the east of 646 McNicol Road. The Project footprint does not extend into the designation.
Water Supply Purposes - Headworks Service Land, Watercare Services Ltd (Designations – 9501)	This designation is located to the east of 646 McNicol Road. The Project footprint does not extend into the designation.
Police and emergency services radio and telecommunications, Minister of Police (Designations – 5728)	This designation is within 501 Otau Mountain Road. It is located to the north of 646 McNicol Road, adjacent to the OBDA. The Project footprint does not extend into the designation.
Auckland Council GeoMaps and other relevant notations[42]	

[42] It is noted that these are not statutory layers included in the AUP as those above and are provided for context only.

Zoning / Overlay or other planning limitation	Comment
Overland flow paths	Auckland Council GeoMaps shows a number of overland flow paths within the LoQ footprint area and across the SAL landholdings. There are rules for activities within overland flow paths, which have been assessed in this AEE.
Flood plains	Several Flood Plains are identified from the Auckland Council GeoMaps GIS Viewer within the Site, generally following the position of the Overland Flow Paths.
Streams	Several streams are located within the Project LoQ footprint.
Flood Hazard Areas: Very High to Low Hazard Areas	Plan Change 120 includes updated Flood Hazard Areas, identifying Very High to Low hazard areas over parts of the Clevedon Quarry LoQ. Generally, the Very High Hazard areas follow the path of Stream 1 and Stream 2. There is also a larger extent of Low to Medium hazard area in the north-west of the Site. This area is within the existing quarry footprint and generally focused on the quarry sump and SRP.
Groundwater: Hunua Wairoa Greywacke Aquifer	The Clevedon Quarry is shown as being within the Hunua Wairoa Greywacke aquifer.
Landslides: Shallow and large scale landslide susceptibility	Plan Change 120 includes updated landslide susceptibility. Clevedon Quarry LoQ is mapped as having primarily Very Low susceptibility for large scale landslide susceptibility with areas of Low and one area of High susceptibility. For shallow landslide susceptibility, there are Very Low to Very High areas mapped across the Clevedon Quarry LoQ.
Rural Urban Boundary (RUB)	The Site is located outside the RUB.
Land Use classification	The soils within the LoQ expansion are classified as Land Use Classification (LUC) 7 in the west of the LoQ footprint and 6 in the east, on the Manaaki Whenua New Zealand Land Resource Inventory land use classification maps.
Treaty Settlements – Statutory Acknowledgements	The Site is shown on Auckland Council GeoMaps as being part of the Wairoa River catchment and Statutory Acknowledgement area, which is of significance to Ngāi Tai ki Tāmaki. Deed of Settlement Plan OTS-403-127 'Wairoa River and tributaries' shows Ngāi Tai ki Tāmaki's statutory area, including Wairoa River and tributaries. However, that statutory acknowledgement only applies to riverbed or streambed owned by the Crown and accordingly does not apply to the Site[43]. The Wairoa Gorge Scenic Reserve (OTS-129-34) is located downstream a short distance away (not within the Project area) from the Quarry and is of significance to Ngāti Tamaoho.
Mana Whenua Area of Interest	The Site is an area of interest to the following Mana Whenua groups as identified in the Auckland Council GeoMaps Cultural Heritage Inventory: • Ngāti Whanaunga. • Te Ākitai Waiohua. • Ngāi Tai ki Tāmaki. • Ngāti Paoa. • Ngāti Tamaterā. • Ngāti Te Ata.

[43] s 83, Ngāi Tai ki Tāmaki Claims Settlement Act 2018.

Zoning / Overlay or other planning limitation	Comment
	• Ngāti Maru; and • Waikato-Tainui.

Table 6.2: AUP resource consent requirements

Rule reference	Activity status	Comment
Reclamation and drainage and associated structures, bed disturbance or depositing any substance, diversion of water, incidental temporary damming of water, and discharges arising from the piping of a reclaimed waterbody associated with the following		
E3.4.1 (A44) Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.6.1.23	Discretionary	Temporary structures may be required during the reclamation of Stream 2, as part of general construction works. Construction methodology, including the types, extent and duration of these structures, has not yet been confirmed. Therefore, on a conservative basis, it is assumed that the permitted standard cannot be met and a precautionary approach has been taken to seek consent for this activity. Accordingly, consent is sought as a discretionary activity under Rule A44.
E3.4.1 (A49) – New reclamation or drainage, including filling over a piped stream	Non-complying	Approximately 2,392 linear metres of stream is proposed to be reclaimed. The streams, including their classification as intermittent/permanent, are described in the EcIA (Technical Report I, Volume 2). Accordingly, consent is sought as a non-complying activity under Rule A49.
Take and use of groundwater		
E7.4.1 (A26) – Take and use of groundwater not meeting the permitted activity or restricted discretionary activity standards or not otherwise listed	Discretionary	A maximum groundwater take of approximately 199,000 m^3/year is required. Accordingly, consent is sought as a discretionary activity under Rule A26.
Diversion of groundwater		
E7.4.1 (A28) - The diversion of groundwater caused by any excavation, (including trench) or tunnel that does not meet the permitted activity standards or not otherwise listed	Restricted discretionary	Consent is sought for the diversion of groundwater associated with the proposed excavations that does not meet the relevant permitted activity standards. Accordingly, consent is sought as a restricted discretionary activity under Rule A28.
Diversion and discharge of stormwater runoff from impervious areas onto or into land or into water or to the coastal marine area pursuant to sections 14 and 15 of the RMA		
E8.4.1 (A10) – All other diversion and discharge of stormwater runoff from impervious areas not otherwise provided for	Discretionary	Stormwater within the Clevedon Quarry catchment will be diverted to the sump before being directed to the constructed wetland or diversion channel prior to discharge. Accordingly, consent is sought as a discretionary activity under Rule A10.
Land disturbance - Regional		
E11.4.1 (A9) – Earthworks greater than 2,500 m^2 within the Sediment Control Protection Area	Restricted discretionary	The Project requires excavations which exceed 74 ha in area, the majority of which is located within the SPQZ as shown in Figure 6, Appendix C. Given the number of streams located within the proposed LoQ footprint, land disturbance within the Sediment Control Protection Area is proposed and will exceed 2,500 m^2. Accordingly, consent is sought as a restricted discretionary activity under Rule A9.

Rule reference	Activity status	Comment
E11.4.3 (A28) – Land disturbance in the SEA not otherwise listed – Greater than 5 m^2	Restricted discretionary	Primarily within the RPZ, earthworks will encroach into SEA_T_5588 in the northeastern portion of the Project at around Stage 4 (after around 30 years). As shown in Appendix C, earthworks will occur in the SEA across an area of approximately 6.1 ha. Accordingly, consent is sought as a restricted discretionary activity under Rules A28 and A30.
E11.4.3 (A30) - Land disturbance in the SEA not otherwise listed – Greater than 5 m^3	Restricted discretionary	
Land disturbance - District		
E12.4.3 (A6) – Land disturbance in the Rural – Rural Production Zone – greater than 2500 m^2	Restricted discretionary	The Project requires excavations of approximately 14.8 ha (around 20%) within the RPZ for the LoQ footprint and approximately 4.6 ha within the RPZ for the OBDA which will exceed the 2,500 m^2 and 2,500 m^3 thresholds. Accordingly, consent is sought as a restricted discretionary activity under Rules A6 and A10.
E12.4.3 (A10) – Land disturbance in the Rural – Rural Production Zone – greater than 2500 m^3	Restricted discretionary	
Air quality		
E14.4.1 (A91) - Mineral extraction activities at a rate exceeding 200 tonnes/ hour from any one quarrying process within the Low air quality – dust and odour area (Quarry)	Controlled	The Project involves the establishment of mineral extraction activities within the SPQZ, including associated generation of dust emissions. Accordingly, consent is sought for air discharge as a controlled activity under Rule A91.
E14.4.1 (A91) - Mineral extraction activities at a rate exceeding 200 tonnes/ hour from any one quarrying process within the Medium air quality - dust and odour rural area (Rural)	Discretionary	Approximately 15 ha or 20% of the LoQ footprint is located within the RPZ. Accordingly, consent is sought for air discharge activities as a discretionary activity under Rule A91.
Vegetation management and biodiversity		
E15.4.1 (A10) - Vegetation alteration or removal, including cumulative removal on a site over a 10-year period, of greater than 250 m^2 of indigenous vegetation that: (a) is contiguous vegetation on a site or sites existing on 30 September 2013; and (b) is outside the rural urban boundary	Restricted discretionary	The Site is outside of the RUB. Approximately 6.1 ha of indigenous vegetation is proposed to be removed, comprising regenerating tree fern-broadleaf forest. While not all contiguous, and over an approximate 50-year period (LoQ), it is anticipated that the area of vegetation cleared will exceed 250 m^2 for each 10-year period. Accordingly, consent is sought as a restricted discretionary activity under Rule A10.
E15.4.1 (A17) – Vegetation alteration or removal within 10 m of rural streams in the RPZ and Rural – Mixed Rural Zone	Restricted discretionary	Vegetation clearance is required along the edges of streams across the Project footprint, including in the RPZ. Accordingly, consent is sought as a restricted discretionary activity under Rules A17 and A18.
E15.4.1 (A18) – Vegetation alteration or removal within 20 m of a natural wetland, in the bed of a river or stream (permanent or intermittent), or lake	Restricted discretionary	

Rule reference	Activity status	Comment
E15.4.2 (A43) – Any vegetation alteration or removal not otherwise provided for	Discretionary	The proposed vegetation works include clearance of approximately 6.1 ha from SEA_T_5588, which is mostly located within the RPZ. Vegetation clearance of SEAs within the RPZ for the purpose of mineral extraction has not been otherwise provided for in the rules. Accordingly, consent is sought as a discretionary activity under Rule A43.
E15.4.2 (A44) – Any vegetation alteration or removal within a Quarry Zone and within an SEA	Restricted discretionary	The AUP maps show a very small amount of encroachment of the SEA_T_5588 into the SPQZ in the northeast. Accordingly, consent is sought as a restricted discretionary activity under Rule A44.
Natural hazards and flooding – Plan Change 120[44]		
E36.4.1A (A92) – Construction of other land drainage works, stormwater management devices or flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain and flood prone areas	Restricted discretionary	Stormwater management devices are proposed within the 1 per cent annual exceedance probability (AEP) floodplain and flood prone areas. Accordingly, consent is sought as a restricted discretionary activity under Rule A92.
E36.4.1A (A102) – Diverting the entry or exit point, piping or reducing the capacity of any part of an overland flow path	Restricted discretionary	A number of overland flow paths are identified within the proposed LoQ footprint. These will be diverted or filled as the LoQ footprint expands. The pre-development overland flow paths are shown in the drawing set attached as Appendix C. Accordingly, consent is sought as a restricted discretionary activity under Rule A102.
E36.4.1A (A107) – All other infrastructure in flood and coastal hazard areas not otherwise provided for	Restricted discretionary	As the Clevedon Quarry footprint expands to LoQ, haul roads and access roads are considered to be infrastructure but are not otherwise provided for in the rules. Both will cross and divert numerous overland flow paths. The pre-development overland flow paths are shown in the drawing set attached in Appendix C. Accordingly, consent is sought as a restricted discretionary activity under Rule A107.
Rural Zone – land use		
H19.8.1 (A60) – Mineral extraction activities in the RPZ	Discretionary	As indicated above, approximately 15 ha or 20% of the LoQ footprint is located within the RPZ. Accordingly, consent is sought to establish mineral extraction activities which include accessory activities and accessory buildings and structures as a discretionary activity under Rule A60.
SPQZ – land use		
H28.4.1 (A7) – Mineral extraction activities	Controlled	The Project involves the establishment of mineral extraction activities, including accessory activities and accessory buildings and structures within the SPQZ. Accordingly, consent is sought as a controlled activity under Rule A7.

[44] Under section 86B(3)(f) of the RMA, the natural hazard rules in Plan Change 120 of the AUP have immediate legal effect.

Rule reference	Activity status	Comment
H28.4.1 (A14) Land disturbance – District, greater than 2500 m^2	Controlled	The Project involves land disturbance across approximately 59 ha (around 80%) within the SPQZ. To access the underlying rock, excavation of overburden material will be required before extraction activities can commence. Overburden removal will occur progressively and in stages to minimise the extent of exposed areas. Accordingly, consent is sought as a controlled activity under Rules A14 and A15.
H28.4.1 (A15) Land disturbance – District, greater than 2500 m^3	Controlled	
H28.4.2 (A16) Land disturbance – Regional, greater than 10,000 m^2 where land has a slope less than 10 degrees and is outside the Sediment Control Protection Area	Controlled	As shown on the Slope Map (Figure 18, Appendix C), there are extents within the SPQZ that have a slope of less than 10 degrees and are outside the Sediment Control Protection Area of the Site's streams. Given the scale of land disturbance proposed, the threshold of 10,000 m^2 of land disturbance may be exceeded in these areas. Accordingly, consent is sought as a controlled activity under Rule A16.
H28.4.2 (A17) Land disturbance – Regional, greater than 2,500 m^2 where the land has a slope equal to or greater than 10 degrees	Controlled	As shown on the Slope Map (Figure 18, Appendix C), there are valley systems within the SPQZ that have a slope of equal to or greater than 10 degrees. Given the scale of land disturbance proposed, the threshold of 2,500 m^2 of land disturbance will be exceeded within these areas. Accordingly, consent is sought as a controlled activity under Rule A17.
H28.4.1 (A18) – Land disturbance Greater than 2,500 m^2 within the Sediment Control Protection Area	Controlled	A number of streams are located within the LoQ footprint, with earthworks occurring within the Sediment Control Protection Area of those streams and wetlands. Accordingly, consent is sought as a controlled activity under Rule A18.

Overall, the Project requires resource consent as a non-complying activity under the AUP.

6.1.1 National Environmental Standards (s13(4)(y)(i) and clause 2 of Schedule 5)

Table 6.3: NES-F Regulations

Rule reference / description	Activity status	Comment
Regulation 57 (1) - Reclamation of the bed of any river is a discretionary activity.	Discretionary	The reclamation of the bed of watercourses is proposed for the purpose of constructing the Project. Aggregate is a natural material that is determined by geology and can therefore only be sourced from where it is naturally found in situ. Given aggregate is located at Clevedon Quarry, it is considered that there is a functional need for the proposed reclamation in order to be able to extract the aggregate from this particular location. Accordingly, consent is sought as a discretionary activity under Regulation 57.

6.1.2 Resource Management (National Environmental Standards for Commercial Forestry) Amendment Regulations 2023 (NES-CF)

Given the Site is partly plantation forestry, regulations under the Resource Management (National Environmental Standards for Commercial Forestry) Amendment Regulations 2023 (NES-CF) were considered but were deemed not to apply. This is because the proposed quarrying will not be undertaken as part of a commercial forestry activity, and the relevant NES-CF quarrying provisions apply only where quarrying is undertaken as part of that commercial forestry activity.

7 Assessment of effects on the environment

7.1 Introduction

The following assessment identifies and assesses the types of effects that may arise from the proposed works in accordance with Schedule 5 of the FTAA. The conclusions in the following subsections have been drawn from the technical reports contained in Volume 2. The technical reports contained in Volume 2 are based on information available as of 30 September 2026. This section also outlines the measures that the applicant proposes to avoid, remedy, mitigate or offset/compensate any potential adverse effects on the environment.

The assessment is based on the LoQ footprint, which represents the full spatial extent of the quarry and enables consideration of the maximum potential extent of effects.

Importantly, for certain effects – namely dust, noise, and landscape and visual effects – the assessments in this report have been prepared on a whole-of-project basis. This means they address the combined effects of both the proposed Quarry Expansion and the ongoing FoH activities authorised under the FoH consent, rather than the Quarry Expansion in isolation. This approach reflects the fact that these effects arise from the overall quarry operation and cannot be meaningfully assessed by reference to the proposed consent boundaries alone. The assessments of dust, noise, and landscape and visual effects should therefore be read accordingly.

7.2 Positive effects

7.2.1 Provision of regionally significant mineral resources

As recognised by the AUP, mineral resources are important for the Auckland region. As set out in Section 2, aggregate is a foundational building material, and a consistent, readily available source of quality, locally sourced aggregate is essential to support Auckland's economic growth and the infrastructure needs of its rapidly growing population.

The 2018 Consent enables extraction of up to 60 MT of material cumulatively, at an extraction rate[45] of 3 MT per annum. The Project could extend the life of the quarry to a total period of approximately 50 years, ensuring access to approximately 150 MT of aggregate. This would provide greater certainty of supply for South and East Auckland, including local investors.

The Project is also located in close proximity to areas of projected future growth in South Auckland and through to the Waikato (i.e., Papakura down to Mercer) and East Auckland which, as set out in Section 2.3, are expected to account for approximately 41% of Auckland's total population growth over the next 30 years and a significant share of the approximately $295 billion of planned infrastructure investment. This will generate considerable and sustained demand for aggregate across residential, roading and other infrastructure categories, including in the areas in closest proximity to the Clevedon Quarry Expansion.

[45] Actual extraction will be subject to demand, up to the consented maximum.

While Hunua, Brookby, and Drury quarries are also situated within the same general locality, this reflects the in-situ nature of aggregate resources, which can only be extracted where the material naturally occurs, specifically the Hunua Greywacke within the wider Hunua Ranges. Moreover, the Drury Quarry rock source is entering a phase in which it will predominantly produce high--grade aggregates suitable for concrete, asphalt, and other high--specification construction applications. Within a few years, it is expected that Drury's contribution to supplying materials for the low-grade aggregate market will significantly reduce. The Project will therefore serve as a complementary source to Drury Quarry. During the first 5-10 years of the Project, Clevedon Quarry will primarily target the low--grade aggregate market, reflecting the nature of its initial development stage. The substantial greywacke resource at Clevedon Quarry is also comparatively well-exposed with very low stripping and overburden ratios.

The revised pit design improves the efficiency of resource extraction, enabling better access to high-quality rock, more favourable overburden-to-useable material ratio, and a greater proportion of saleable material. The larger quarry floor will also support improved on-site storage and therefore responsiveness to market demand. The proposed revised staging is also expected to maintain workable extraction areas and continuous access for plant and infrastructure, supporting stable production levels.

Lastly, the Clevedon Quarry Expansion will also utilise the existing quarry infrastructure, including the plant and facilities. This is an efficient use of resources as it secures an additional 50 years of local aggregate supply, through the continued use of the existing quarry which has been established at the Site since the 1970s.

Accordingly, the expansion of Clevedon Quarry will benefit the region by securing a locally sourced aggregate supply to ensure the cost of aggregate remains affordable and facilitate regional growth.

7.2.2 Economic benefits

The Project is a valuable regional and national resource that is of strategic importance to the future growth of Auckland considering its proximity to upcoming large-scale projects and substantial aggregate resource. If granted, the consents package will secure additional mineral resources to provide for the ongoing supply of aggregate to the Auckland market for an estimated 50 years.

The Economic Assessment (Technical Report A, Volume 2) estimates the transport, emissions and social costs associated with Clevedon's current annual aggregate production over the past three years as well as consented levels and compares them against the cost of delivering the aggregate through the Smythes Quarry (Waikato) and Maungaturoto Quarry (Northland) alternatives. These quarries were selected as the closest out--of--region greywacke alternatives and are used to represent an "at least" or minimum--case position, on the basis that if Clevedon Quarry cannot supply the market, replacement aggregate would need to be sourced from neighbouring regions, or potentially further afield**.** The Economic Assessment does not assume that the comparator quarries necessarily have capacity to supply the modelled volumes. Rather, Smythes Quarry and Maungaturoto Quarry are used as conservative reference points to demonstrate the additional costs associated with more distant supply. Out--of--region comparators are appropriate because other Auckland quarries are considered unlikely to meet the market demand in the short term due to capacity or expansion constraints, or differences in material quality/type. Accordingly, Waikato and Northland are used as the main points of comparison for assessing the avoided transport, emissions and social costs associated with local supply from Clevedon Quarry. The findings are summarised below.

Based on recent production volumes of 330,000 tonnes per annum, the Economic Assessment estimates that supplying aggregate from Clevedon Quarry results in total annual transport, emissions and social costs of approximately $7.6 million per annum. If the same volume of aggregate were sourced from the comparator quarries, the total annual costs would increase to approximately $11.8 million from Smythes Quarry and $20.8 million from Maungaturoto Quarry. Accordingly, expanding the quarry and supplying aggregate from Clevedon Quarry could avoid additional costs of approximately $4.2 million to $13.2 million per annum, relative to those out-of-region alternatives. At the maximum consented production level of 3 MT per annum, the annual cost-savings increase substantially, with annual savings estimated to range between $38.6 million and $119.8 million.

These cost savings are principally driven by transport distance. Aggregate is a low-value, high-volume commodity, meaning transport forms a significant component of the delivered cost. It is highly likely that these costs are passed on to end-users through higher aggregate prices, affecting consumption costs for stakeholders, which include local councils, developers, households (homeowners/buyers) and businesses. The increased costs faced by intermediate or end users, for the same product, point to systemic inefficiencies. Therefore, enabling the Project to deliver aggregate to the local market avoids this additional transport cost and will yield a cost-saving (benefit).

Environmental costs relate specifically to emissions and are calculated by combining travel distances with emission factors and costs. Based on the modelling in the Economic Assessment, the estimated annual cost of emissions is $1.6 million for aggregate sourced from Clevedon Quarry, compared to $3 million from Smythes and $4.7 million from Maungaturoto. This suggests granting the consent would avoid emissions costs of between $1.4 million and $3.1 million, annually.

Social costs affect the wider community, even if only a small proportion of people are involved in road accidents. The annual social costs are estimated at $365,000 for aggregate sourced from Clevedon Quarry, compared to $915,000 from Smythes and $2.3 million from Maungaturoto. This suggests enabling the expansion to the Clevedon Quarry will avoid social costs ranging from $550,000 to $1.9 million per year, based on the Waikato and Northland alternatives, respectively**.**

When considered over the lifetime of the Project, the Economic Assessment (Technical Report A, Volume 2) concludes that the Clevedon Quarry extension would generate significant long-term cost savings (benefits) relative to sourcing aggregate from more distant locations, valued between $489.2 million and $1.5 billion. The results suggest that the Clevedon Quarry extension would contribute to a more cost-effective supply of aggregate to the market, reducing overall transport-related expenditure and associated environmental and social impacts over the approximate 50-year extraction period.

In terms of opportunity costs, the values indicate that, while the Project will result in some opportunity costs from foregone alternative land uses, the impact is relatively small when assessed over the life of the consent. Further, when compared to the avoided costs (benefit), the opportunity cost is relatively small.

Lastly, it is also noted that the increased scale and longevity of the proposed Clevedon Quarry Expansion operation will support economies of scale, lowering average costs per tonne, and is expected to sustain employment and ongoing economic activity, further reinforcing the net economic benefit of the resource.

Overall, the Economic Assessment concludes that the Project offers substantial economic benefits to Auckland. By securing a strategically located, long-term and locally sourced aggregate supply, the Project will reduce reliance on more distant out-of-region sources, avoid significant transport-related costs, while reducing associated emissions and social costs. Accordingly, the Clevedon Quarry Expansion will support the timely and cost-effective delivery of housing, infrastructure and regional growth.

The estimates are considered conservative, as they assume that the closest out-of-region comparator quarries could replace Clevedon's supply, whereas in practice aggregate may need to be sourced from further afield, increasing the avoided cost benefits of the Project. However, it is noted estimates are based on current market conditions and today's distribution of demand and growth patterns.

7.2.3 Ecological offset and compensation

A total of approximately 67.6 ha of restoration planting is proposed as part of the offset and compensation package (refer to Section 5) to address the residual effects of the removal of native terrestrial vegetation and loss of streams. Restoration and riparian planting, including proposed pest plant control, animal control and enrichment planting, will provide a range of positive terrestrial and freshwater ecological benefits.

In terms of terrestrial benefits, the Stream 3 catchment contains a mature native forest remnant and an area of native treeland; therefore, restoration planting will strengthen and connect these existing habitats by providing additional habitat, buffering and ecological linkages. Over time, the restoration is expected to provide a continuous forested corridor linking the Wairoa River to the Hunua Ranges, connecting the existing vegetation fragments within the catchment. The establishment of a well-buffered forested core will reduce edge effects associated with the Project and improve the resilience and ecological functioning of the remaining native vegetation. As the plantings mature, they will provide additional terrestrial habitat for 'At Risk' and 'Threatened' fauna and flora, including Hochstetter's frog, long-tailed bats, and king fern. Restoration planting on steep slopes will also help stabilise the area, reduce the potential for slips and erosion, and consequently reduce sediment loads entering the receiving environment.

Additionally, the proposed restoration and riparian planting will provide positive freshwater ecological benefits. Riparian planting along Stream 3 will improve the ecological condition of streams within the catchment, including through improved stream shading, temperature regulation, slowing and filtering runoff, bank stabilisation, and reduction of sediment inputs to stream channels. The location of the freshwater compensation planting adjacent to the riparian offset planting will reinforce and extend these benefits. Together, these measures provide an opportunity to improve freshwater ecological function across the catchment extending through to the Wairoa River, via a 'ridge-to-river' approach.

Overall, the restoration and riparian planting is anticipated to result in a net gain in terrestrial ecological values. For freshwater, the offset and compensation package has been designed to provide for positive effects that outweigh the residual adverse effects on freshwater ecological values. The plantings will have positive effects by creating additional terrestrial and freshwater habitat, enhancing stream and riparian function and improving ecological connectivity to the Wairoa River and the Hunua Ranges. These plantings will be protected in perpetuity through covenants and conditions of consent. This will ensure that the long-term positive outcomes can occur and be maintained by preserving and protecting the land from future inappropriate use and development.

7.2.4 Conclusion

The Project will result in a range of positive effects, including:

- Ensuring a consistent and complementary supply of aggregate for Auckland over the next 50 years, enabling and supporting Auckland's population growth and development.
- Economic benefits for the Auckland region which will assist in enabling people and communities to provide for their economic and social well-being.
- Environmental benefits associated with reduced transport distances in comparison to if the aggregate was sourced from outside the region.

- Efficient use of existing ancillary infrastructure at the Site and aggregate resources within a site that has been identified under the AUP for mineral extraction.
- Ecological offset and compensation package that will deliver a net gain in terrestrial biodiversity values and provide for positive effects that outweigh the residual adverse effects on freshwater ecological values, while establishing a forested corridor linking the Wairoa River to the Hunua Ranges.

Overall, these will result in significant positive effects associated with the Project.

7.3 Quarry Expansion

7.3.1 Archaeology

As detailed in Section 3.4.5, no archaeological sites are recorded by NZAA within the LoQ extent or wider landholdings, but there are several in the wider Clevedon area. Given the Quarry Expansion involves bulk earthworks and aggregate extraction, there may be potential for impact on archaeological features.

As described in Section 3.4.5, the field survey of the Site undertaken by CFG Heritage in November 2025, together with a desktop review of historic aerial imagery, research and LiDAR data, identified no archaeological features or deposits, and none are expected to be present given the highly modified and steep, rocky nature of the Site.

The Archaeological Assessment (Technical Report E, Volume 2) concludes that there is no reasonable case to suspect that the proposed Quarry Expansion will affect potential unrecorded archaeology.

Accordingly, the Archaeological Assessment recommends that an Authority to modify or destroy an archaeological site under section 44(a) of the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014) is not required. However, if suspected archaeological remains are exposed during land disturbance, the Archaeological Accidental Discovery Rule set out in Chapter E11.6.1 of the AUP will be followed. The Archaeological Assessment also recommends that Mana Whenua engagement be undertaken recognising that an archaeological survey cannot always determine sites of significance to Māori or wāhi tapu. Mana Whenua engagement has been undertaken to date and will be ongoing (refer to Section 8.3).

Overall, based on the above, the adverse effects of the Quarry Expansion on archaeology are considered less than minor.

7.3.2 Air quality

The Quarry Expansion activities described in Section 4.2 include overburden removal and disposal, establishing internal haul roads, aggregate extraction and mobile crushing on upper benches, and aggregate loading and transport to the FoH area. The potential air quality effects of these activities are associated primarily with generation of dust, including potential amenity, human health, and ecological effects.

The following sub-sections describe the nature of the discharges to air from the Project and proposed controls to minimise this discharge and mitigate effects, as described in the Air Quality Assessment (Technical Report F, Volume 2).

7.3.2.1 Amenity

To determine the likely amenity effects of the proposed Quarry Expansion, a FIDOL (frequency, intensity, duration, offensiveness and location) assessment was undertaken, as included in Technical Report F, Volume 2. The key findings are described as follows:

- As outlined in Section 3.5.3.1, there is potential for between low and high risks of dust nuisance effects from moderate (5 m/s) and high (7.5 m/s) windspeeds. Combined, these moderate and high wind conditions occur for <1.2% of the time (or on average a total of 105 hours per year), all from the northwest quadrant. For dust nuisance to occur, dust producing activities would need to coincide with the receptor affecting winds and during dry conditions. Based on Institute of Air Quality Management guidance, the frequency of winds blowing toward sensitive receptors is classified as infrequent.
- The nearest sensitive receivers R1 (600 McNicol Road) and R3 (546 McNicol Road, SAL owned land) are within 500 m of the Stage 5 LoQ footprint, being 320 m and 420 m away respectively. These minimum separation distances are not likely to occur until at least 40 years into the future, and the dust sources within the quarry will be further from these receptors. Analysis of New Zealand and international quarry monitoring data, along with industry guidelines, indicates that unmitigated quarry dust is unlikely to be transported more than 250 metres from a source. The Quarry Expansion is also situated within an area of steep topography, with surrounding ridges and landform providing additional screening and limiting the lateral transport of dust, while acknowledging that some dust-generating activities may occur near ridge tops. Additionally, SAL proposes to continue to utilise dust mitigation and management measures such as those outlined in the existing Clevedon Quarry Dust Management Plan (DMP). When effectively implemented, these measures will minimise dust emissions and limit impacts to within 50 to 100 m of the sources.
- The character of dust generated by quarrying and materials processing activities is inert soil and rock particles similar to other earthwork activities and natural sources (wind abrasion of soil and rock). Any deposited dust particles from these natural soil and rock sources are easily removed with washing so that they are not considered to be of an unpleasant character, such as sticky or etching. Accordingly, the Air Quality Assessment (Technical Report F, Volume 2) considers the potential offensiveness of the dust discharged from the Clevedon Quarry as low to moderate.
- The Air Quality Assessment considers the surrounding land uses (rural production and forested land) as having low sensitivity to the amenity impacts of dust discharged from the proposed quarry extension. This is reflected by the AUP given the SPQZ and RPZ are listed under section E14.4.1 as ‘low air quality (dust and odour) areas’ and ‘medium air quality (dust and odour) areas (rural)’. Therefore, the location of the Quarry Expansion in regard to amenity dust impacts is considered appropriate.

Overall, any adverse effects on amenity caused by the discharge of dust from the Quarry Expansion will be negligible.

7.3.2.2 Human health

7.3.2.2.1 PM_{10}

Potential human health impacts are primarily driven by smaller size particulate (PM_{10} and smaller). An assessment of the potential human health impacts from the discharge of dust from quarrying activities is included in the Air Quality Assessment (Technical Report F, Volume 2).

Given the sources and type of dust proposed to be discharged, the potential for human health effects from dust discharges is considered to be negligible for the following reasons:

- PM_{10} is only a component of the dust generated from quarrying and aggregate processing activities. Most dust emitted from these activities is not in the inhalable PM_{10} fraction[46].

[46] IAQM. (2016).

- Given low background PM_{10} concentrations in the surrounding environment, with the small contribution to PM_{10} from the Site's activities, total cumulative concentrations of PM_{10} will be maintained well below the relevant NES-AQ criteria, Auckland Ambient Air Quality Guidelines (AAQG), as well as the 2021 World Health Organization (WHO) Air Quality Guidelines (AQGs); and
- Dust suppression also suppresses PM_{10}.

Accordingly, any adverse human health effects associated with PM^{10} at nearby sensitive locations are expected to be less than minor and the dust impact is considered negligible, particularly with continued implementation of the DMP and dust suppression measures.

7.3.2.2.2 Respirable Crystalline Silica

Ambient monitoring of Respirable Crystalline Silica (RCS) is not currently undertaken at the existing Clevedon Quarry site. However, the quartz analysis of processed material and the monitoring data from comparable quarries (such as Drury Quarry and Waingaro Quarry) indicate that the processed material produced contains a quartz content of between 0.5 and 13 percent.

Conservative screening calculations are included in the Air Quality Assessment (Technical Report F, Volume 2) to assess the potential for RCS to result in a health effect. Notably, these worst-case scenario concentrations are significantly lower than the health response thresholds identified by a review which assessed the potential cumulative health risk to the community based on a lifetime RCS exposure over 70 years[47]. The Air Quality Assessment concludes that RCS will not cause any human health risk; therefore, potential adverse effects are deemed negligible.

7.3.2.3 Ecology

Several ecological receptors have been identified along the boundaries of the Site, as follows:

- Rural production land located on the south and western boundaries.
- Forested land to the north and eastern boundaries.
- NSMA on the west boundary.
- Streams on the south and northern boundaries.

While these ecological receptors are located along the Site boundaries, most are likely to be more than 250 m from the key dust sources. Based on the FIDOL assessment in Section 7.3.2.1 used to inform the assessment of ecological effects, ecological receptors within 100 m of the key dust sources have the potential to experience a low frequency of exposure to dust emissions, low intensity of dust loading, low duration of dust exposure and moderate sensitivity to the impacts of dust. Accordingly, the potential effects of dust discharged from the proposed activities will likely be:

- Low on the small area of plants and streams located within 100 m of the Site's key dust sources.
- Very low on the plants and streams located 100 m - 250 m from the key dust sources.
- Negligible on the plants and streams located more than 250 m from the key dust sources.

[47] United States Environmental Protection Agency. (1996). Ambient Levels and Noncancer Health Effects of Inhaled Crystalline and Amorphous Silica: EPA/600/R-95/115.

The Air Quality Assessment deems that when considering the measures proposed to mitigate and monitor the dust effects (detailed further below), the dust emissions are reduced to effectively minimise the deposition of dust to plants and streams within the Site. Observations of plant dust made during the Air Quality Assessment site visit also suggest that soil and rock dust are not currently posing any dust loading risks to ecological receptors. Accordingly, any adverse effects on ecology caused by the discharge of dust from the Quarry Expansion will be less than minor.

7.3.2.4 Conclusion

As stated in Section 7.3.2.1, the existing DMP will be utilised for the Quarry Expansion. The specific dust mitigation measures included in the DMP are listed in Section 9.1 of the Air Quality Assessment (Technical Report F, Volume 2). The key management measures include the application of water to dry surfaces that contain fine material which may be lifted and blown away as dust by strong winds using water carts, as well as a wheel wash for heavy vehicles exiting the Site. Implementation of the DMP on-site has proved successful in minimising complaints received by SAL or Auckland Council in relation to dust discharges from existing quarry operations. Additionally, a water demand and water supply model prepared for the proposed Quarry Expansion demonstrates that sufficient water is available on site to maintain effective dust suppression.

Supplementary dust mitigation measures are proposed to be included in an amended DMP. The on-site meteorological monitor will trigger dust management responses during high winds, including additional water suppression and, if necessary, ceasing dust-generating activities. The amended DMP will also include procedures for monitoring and recording visible dust emissions, responding to dust events and complaints, and implementing further mitigation where required.

When considering these proposed management measures, alongside the FIDOL assessment and the potential effects of the Project on human health and ecology, the Air Quality Assessment (Technical Report F, Volume 2) concludes that there is a low risk of dust effects from the proposed expanded Clevedon Quarry operations. Therefore, the adverse effects from the potential discharges of dust from the Quarry Expansion are considered negligible.

7.3.3 Geotechnical

The underlying geology is a key consideration when selecting a site for a quarry expansion. The proposed LoQ extent is primarily underlain by Waipapa Group greywacke (the target rock resource), with localised Tauranga Group and East Coast Bays Formation deposits. The Geotechnical Feasibility Assessment (Technical Report B1, Volume 2) concludes the proposed Quarry Expansion is geotechnically feasible and can be appropriately developed within the footprint being applied for, as described below.

7.3.3.1 Seismic risk

Earthquakes pose a potential risk to quarry stability. In the event of an earthquake, there is a risk of batter collapse. Accordingly, the slope stability analysis outlined in the Geotechnical Feasibility Assessment (Technical Report B1, Volume 2) takes into account seismic risk, particularly given the proximity of the Wairoa North Fault and the unnamed secondary fault.

An assumed earthquake magnitude of 5.9 was adopted based on the relevant guidelines[48], alongside a design life of greater than 100 years. The assessment adopted an ultimate limit state peak ground acceleration of 0.14g and a Maximum Considered Earthquake loading of 0.21g for the seismic stability case. Displacements of 15 mm and 29 mm were calculated for the base case under the seismic loading scenario. Higher displacements are concentrated at batter crests and do not reflect expected whole wall performance.

Overall, the Geotechnical Feasibility Assessment (Technical Report B1, Volume 2) states that these results indicate acceptable levels of stability under static and seismic conditions along the South and East walls at a whole slope scale (multi-bench), with no material instability effects anticipated beyond the Site.

7.3.3.2 Slope stability

The development and operation of quarries rely on having a safe and efficient site with good slope stability. Slope instability can cause a range of potential adverse effects, including back-break and uncontrolled sediment discharges if not appropriately managed. Such instability can be triggered by cutting into a slope and destabilising the material above. As such, it is important to identify potential instability risks and adapt the design accordingly to remove or manage the area.

The preliminary analysis undertaken as part of the Geotechnical Feasibility Assessment identified a risk of failure in the upper residual soil and completely weathered batters. In response, the quarry design has been amended to adopt the recommended slope geometry and bench/batter configuration, including within the upper weathered greywacke profile. The recommended configuration can be readily accommodated within the design, including through the conservative 10 m bench widths currently proposed. On this basis, the Geotechnical Feasibility Assessment concludes that the updated quarry design demonstrates an acceptable level of batter performance within the weathered greywacke profile.

Local instability of batters may occur where specific defects intersect the batters, but this is not expected to present a risk of an environmental effect. Given that a fit-for-purpose quarry floor and bench design has been adopted, including bench/batter geometry tailored to the relevant material type, slope stability risk will be appropriately managed. A Slope Stability Management Plan (SSMP) is proposed for inclusion in the QMP (cc) to formalise these controls and provide a framework for managing and mitigating potential safety and stability risks as the quarry expands.

7.3.3.3 Geological uncertainty

A key risk in pit design is uncertainty in the rock structure in final walls. While the mapping undertaken and borehole data provide a guide to expected pit slope performance, rock structure orientations can change with distance and the local unfavourable intersection of specific, large scale, persistent faults with final pit walls can be difficult to predict with a high degree of certainty. Geological uncertainty will be managed through a range of measures, including:

- Undertaking intermittent geotechnical design review (indicatively on a 5-year basis). One of these reviews should be completed prior to individual quarry walls being excavated back within 30 m of any final wall position.
- Collation of rock structural data into a geotechnical database. Slope analyses and the associated design should be revised as required if ground conditions change significantly from those defined in this reporting.

[48] MBIE and NZGS (November 2021) Earthquake Geotechnical Engineering Practice: Module 1 Overview of the guidelines, Appendix A.

The Geotechnical Feasibility Assessment considers that these recommendations could be readily incorporated into the QMP (cc) and SSMP where they could sit alongside any operational/health and safety requirements related to pit slope performance.

7.3.3.4 Ground settlement

The lowering of groundwater levels through quarry dewatering has the potential to cause ground settlement where drawdown effects reach compressible near-surface materials. As discussed in Section 7.3.6 below, WGA (Technical Report G, Volume 2) predicts the drawdown zone of influence associated with the proposed Quarry Expansion to be confined within the quarry catchment and does not extend materially beyond the quarry boundary. Offsite settlement effects are therefore considered negligible.

As discussed in Section 3.5.2 and in the Geotechnical Feasibility Assessment (Technical Report B, Volume 2), within the zone of influence (in this case within the quarry boundary), the ground comprises varying weathering grades of Greywacke, which generally has very low compressibility. Settlement effects within the zone of influence are therefore expected to be minimal. Overall, ground settlement effects relating to the Quarry Expansion are considered negligible.

7.3.3.5 Overburden Disposal Area

The geotechnical performance of the proposed OBDA Geotechnical Assessment Report is assessed within Technical Report B2, Volume 2. Currently, the gully floor is obscured in places by alluvium and forestry slash. However, the presence of rock outcropping near the toe of the proposed OBDA, at the confluence of the east and west gullies, indicates that a greywacke rock or hard soil foundation will be available for the OBDA, with only typical foundation preparation (such as undercutting of local soft alluvium) required.

The key area of potential environmental effects relates to the short and long term stability of the OBDA. In general, for environmental effects to be considered significant, there would need to be a risk of slope instability that could:

- Result in instability extending beyond the applicant's property boundaries.
- Result in debris from instability coming into contact with areas of native vegetation.
- Result in debris from instability coming into contact with streams and watercourses.

The OBDA design has been developed to address these risks. In addition to the construction recommendations incorporated into the indicative design (refer to Section 4.2.7.1), the OBDA fill surfaces should be graded so that surface water is unable to pond, and rehabilitation should be undertaken soon after final slopes are developed. These recommendations are incorporated into the proposed OBCMP consent condition. The OBCMP will set out the construction methods and sequencing to ensure the OBDA is constructed in accordance with the approved design, and that potential risks associated with unsuitable founding materials, groundwater and surface water are appropriately managed.

Based on the stability assessments undertaken, the OBDA Geotechnical Assessment Report considers that the risk of instability at the Site is low based on the conservative design criteria adopted, the analysis results and the location of the adjacent property boundaries. Moreover, the potential for off-site effects, including effects on streams or areas of high-value ecology, is considered negligible.

7.3.3.6 Conclusion

Overall, both the proposed Quarry Expansion and OBDA have been assessed as geotechnically feasible, with acceptable levels of stability under static conditions, subject to the recommended design guidance and ongoing geotechnical review. The seismic scenario also achieves acceptable levels of whole slope stability along the South and East walls at a whole slope (multi-bench) scale. While localised instabilities may occur, these are expected to be minor in scale, readily manageable through standard quarry management practices, and not anticipated to result in off-site effects.

Geotechnical risk is therefore considered to be low, subject to ongoing design refinement as exposures and ground conditions are confirmed during excavation. Ground settlement effects are considered to be negligible. Taking into account the conservative design approach and recommended measures, any adverse geotechnical effects associated with the Quarry Expansion will be less than minor. Proposed consent conditions are sought requiring the preparation of an SSMP and OBCMP to ensure these measures are implemented and geotechnical risk is appropriately managed throughout the life of the Quarry Expansion.

7.3.4 Surface water and flooding effects

The proposed Quarry Expansion involves the modification of existing drainage patterns by diverting a large portion of Stream 2 catchment into Stream 1, resulting in an increase of the contributing quarry catchment area from 11.86 ha to 71.40 ha. Without mitigation, it could result in erosive impacts on Stream 1 and increase peak flows leaving the Site, resulting in potential downstream flooding. The works also have the potential to affect surface water quality through the discharge of sediment-laden runoff generated by the establishment and operations of the Quarry Expansion. The proposed mitigation measures to address surface water and flooding effects are detailed in the Surface Water Management Report (Technical Report H, Volume 2).

7.3.4.1 Hydrology and flood effects

As described in Section 4.2.6, the main quarry pit sump is designed to capture and store runoff for all events up to and including the 100-year ARI (including a 3.8°C climate change allowance). Post-development peak flows in the 100-year ARI event are reduced to approximately 60% of pre-development rates. For events up to the 20-year ARI, stored runoff is released at below the pre-development 95th percentile peak flow rate. For larger events, a 20 m wide spillway weir controls outflows from the sump, directing flows to a diversion channel sized to safely convey the 100-year ARI event. The proposed works will not exacerbate flooding on McNicol Road or beyond the site boundary. Flood depths and hazard will remain unchanged.

7.3.4.2 Surface water quality effects

The constructed water quality treatment wetland is described in Section 4.2.6. Surface water is directed to two sediment sumps within the quarry floor. The main quarry pit sump captures runoff from the upper extraction area (72 ha catchment), while a lower sump manages runoff from the FoH area. Both sumps provide storage to retain runoff and allow sediment to settle before water is pumped out in a controlled manner. Runoff is retained for approximately 3.5 days following a rainfall event to allow sediment to settle. The sump pumps are linked to turbidity sensors and will only activate once turbidity drops below 100 g/m^3, ensuring discharge occurs outside of flood conditions and only once water quality targets are met. Given the high sensitivity of the receiving environment, the treatment system has been designed to achieve a target total suspended solids (TSS) removal efficiency of 90%, which exceeds the standard GD01 design target of 80%.

Both the diversion channel (which conveys events above the 20-year ARI) and the wetland discharge to Stream 1 at the existing outlet location via a riprap outfall structure to provide scour protection at the point of discharge.

Overall, the proposed stormwater mitigation measures have been designed in accordance with international best practice. Downstream flood and water quality effects will be managed such that there will be no change in conditions beyond the site boundary. Taking into account the proposed management measures, any adverse surface water quality and flooding effects will be less than minor.

7.3.5 Erosion and sediment control

7.3.5.1 Introduction

Earthworks and on-site activities associated with the proposed Quarry Expansion (including enabling, establishment and operational phase activities) have the potential to increase the risk of sediment loads in the surrounding waterways. The proposed consent conditions require an ESCP to be included as part of the QMP (cc) that sets out the erosion and sediment control methodology for the Quarry Expansion, which will be designed in accordance with best practice and the principles outlined in Auckland Council GD05[49].

The ESC approach will be based on staged quarry and overburden development to minimise exposed areas at any one time (thereby reducing erosion and sediment discharge risk), implementation of best--practice erosion and sediment controls, diversion of runoff from operational areas to the quarry sump for controlled management through the quarry wetland treatment system, and progressive stabilisation of disturbed areas. The specific ESC measures to be implemented are outlined in the ESCAR (Technical Report K, Volume 2) and are described in the sections below.

7.3.5.2 Enabling and establishment earthworks

The enabling works to establish the new constructed wetland (refer to Section 4.2.6.1) and the establishment and operations of the OBDA are considered “general earthworks” and will be treated via GD05 principles and controls. The OBDA will be operational for approximately 10 years during Stage 1 and planted afterwards.

The ESCAR (Technical Report K, Volume 2) outlines specific erosion and sediment control measures to be implemented for general earthworks at Clevedon Quarry. In summary, this includes the following key measures:

- Clean water diversions will be constructed to divert upper catchment clean water away from the area of work as far as practicable and will be stabilised immediately following construction.
- A perimeter bund will be progressively installed around the extent of works and stage boundaries (and removed) as the quarry operations progress.
- Dirty water diversions will be installed for the establishment and operation of the OBDA.
- Two chemically treated SRPs will be constructed for the management of the OBDA, as described in Section 4.2.7.2.
- Silt fences will be installed to capture runoff in localised catchments that do not actively drain to an SRP or the quarry floor, including any runoff during the construction of the SRPs.
- Any overburden material will be removed to the OBDA (up to approximately 660,000m³). Other than the designated OBDA, any stockpiling of overburden on-site will be minor, temporary and within the catchment devices of the SRPs or the quarry floor.
- The works will be undertaken progressively to minimise the open areas.

[49] Auckland Council Guideline Document 2016/005 *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* (GD05).

All erosion and sediment control measures and methodologies will be monitored and maintained during the works. Monitoring will be undertaken before and immediately after rain events as well as during heavy rainfall events. Any required maintenance or improvements to control measures will be undertaken immediately, as soon as practically safe to do so.

7.3.5.3 Quarry expansion and operations

As described in Section 4.2.6 of this report and the ESCAR, to manage the potential generation of sediment-laden water during quarry expansion and operation, a range of sediment control measures will be utilised over the life of the quarry. The ESC measures for construction and enabling works listed in Section 7.3.5.2 (clean water diversions, perimeter bunds, progressive staging of works, SRPs for the OBDA and silt fences) will remain relevant to the operational stages of Clevedon Quarry.

The key difference for quarry expansion operations is that all runoff will be directed to the quarry sump and treated through the constructed wetland prior to discharge, as described in Section 7.3.4.2. The quarry sumps will be enlarged as required and relocated within the FoH area as quarry operations progress.

As concluded in Section 7.3.4.2, once the constructed wetland is fully established it will operate and provide water quality treatment for the life of the quarry.

7.3.5.4 Estimated sediment yield

An estimate of sediment yield for the works that are to be treated via GD05 devices (the FoH enabling works and the OBDA stockpile) has been developed using the Universal Soil Loss Equation (USLE). The USLE model is based on soil erodibility and cannot effectively model the minimal erosion that will occur from low-erodibility surfaces such as rock (aggregate), and the management of runoff from exposed rock surfaces will be contained within the quarry and not via typical sediment retention devices.

The USLE estimates for the enabling and OBDA stockpiling works are summarised below:

- The OBDA is estimated to generate 3.63 tonnes per year, from a 3 ha operating footprint, representing an increase from the existing current land use estimated runoff of approximately 0.34 tonnes – a less than 0.3% increase in the load derived from the existing catchment each year.
- The two OBDA SRPs (refer to Section 4.2.7.2) will discharge to Stream 3, which discharges to the Wairoa River approximately 2 km from the OBDA. The overburden batters will be progressively stabilised as fill levels are lifted.
- FoH enabling works may result in a 0.9% to 2.1% increase in sediment yield from the catchment at the downstream extent of the works during the establishment stage.

The assumptions underlying the USLE estimates are deliberately conservative and are estimates only (i.e. not directly representative of actual sediment yield loads). The proposed ESC methodology is the best practicable option for the proposed development and represents best practice. It is consistent with the industry-leading approach that has appropriately minimised sediment discharges and downstream effects on multiple projects throughout the Auckland Region.

7.3.5.5 Conclusion

Taking into account the iterative staged management approach to sediment management, the proposed ESC measures will minimise erosion and sediment generation during construction and operation of the Quarry Expansion, such that the potential additional sediment load generated from the site will be minor.

7.3.6 Groundwater

Potential effects on groundwater associated with the ongoing operation and expansion of the Clevedon Quarry can be broadly split into five categories – groundwater take and diversion effects, groundwater drawdown on neighbouring groundwater users, stream depletion effects, effects on freshwater habitats and ground settlement effects as described in the Groundwater Assessment (Technical Report G, Volume 2).

7.3.6.1 Groundwater take, diversion and drawdown

Expansion and continued operation of the Clevedon Quarry require the taking, diversion and drawdown of groundwater to enable safe and dry aggregate extraction. The proposed lowest dewatering level is 22.5 mRL, as excavations will extend below the groundwater table to this depth.

As the pit is progressively excavated and expanded, groundwater will naturally migrate toward the sump, intercepting the greywacke groundwater system. The dewatering of the sump therefore involves the taking and diversion of groundwater that would otherwise discharge as baseflow to nearby streams and, to a minor extent, directly to the Wairoa River.

As described in Section 3.5.5, the Site's groundwater system comprises a continuous greywacke flow system, extending from the weathered profile to the fractured rock below, in which groundwater moves from the elevated ridges toward the Wairoa River and the surrounding streams. No confining layer separates the weathered and fractured greywacke and the system functions hydraulically as a single unit.

Groundwater modelling undertaken by WGA (Technical Report G, Volume 2) indicates that groundwater inflow to the quarry sump will increase progressively as excavation advances. Predicted inflow rates are:

- Stage 1: approximately 1.88 L/s.
- Stage 5 (LoQ): approximately 6.30 L/s, equivalent to approximately 199,000 m³/year. This represents the maximum groundwater take and diversion rate sought under this consent.

The groundwater modelling indicates that drawdown is expected to remain localised within the quarry catchment and does not extend beyond the Wairoa River. The zone of influence (defined as the area where groundwater levels are predicted to drop by more than 0.25 m) extends up to approximately 650 m from the eastern pit wall, and is contained within the Wairoa River corridor to the west. Refer to Figure B2 attached to the Technical Report G, Volume 2.

A Groundwater and Surface Water Monitoring and Contingency Plan (GSWMCP) is proposed as a condition of consent that is generally consistent with the framework authorised under the 2018 Consent conditions, and sets out management and monitoring requirements to manage the potential effects associated with groundwater diversion over the life of the quarry.

7.3.6.2 Effects on groundwater resources

The Clevedon Quarry is located within the Hunua Wairoa Greywacke aquifer. The site is not located within a High Use Aquifer Management Area or a Water Supply Management Area under the AUP. The adjacent Clevedon East Waitemata Aquifer, which is identified as a High Use Aquifer Management Area, is defined to include rocks of the Waitematā Group[50] but explicitly excludes the underlying Waipapa Group greywacke. As the proposed groundwater take and diversion at the quarry occurs within the greywacke system, the High Use Aquifer Management Area provisions are not relevant.

[50] Chapter D1 High-use Aquifer Management Areas Overlay. Policy D1.3, Table D1.3.1 of the AUP.

As set out in Section 7.3.6.1, the predicted drawdown remains within the quarry catchment and does not extend beyond the Wairoa River under either Stage 1 or Stage 5 pit design conditions. The Wairoa River and associated Wairoa North Fault corridor act as a hydrogeological boundary, limiting the lateral extent of drawdown effects, consistent with the conceptual model set out in Technical Report G. Given the localised nature of the predicted drawdown and the relatively low permeability of the greywacke formation, the proposed groundwater take is not expected to affect groundwater availability. Therefore, the effects of the proposed groundwater take and diversion on the groundwater resource are considered to be less than minor.

7.3.6.3 Effects on neighbouring groundwater users

The taking and diversion of groundwater associated with quarry dewatering has the potential to lower groundwater levels in the surrounding area, which in turn could affect the availability of groundwater to neighbouring users who rely on bores drawing from the same aquifer system. The extent to which neighbouring groundwater users may be affected is dependent on the magnitude and spatial extent of the predicted drawdown.

A review of bore records within a 3 km radius of the quarry identified five water bores in the wider area. None of these bores are located within the predicted zone of influence of the proposed Quarry Expansion. The closest off-site production bore (New Zealand Geotechnical Database ID 90018) is located approximately 1.4 km north-west of the quarry entrance and is separated from the quarry by the Wairoa River.

As the zone of influence does not extend beyond the Wairoa River (Section 7.3.6.1), no material drawdown interference effects are predicted at any identified off-site bore location. Cosseys Reservoir, located approximately 2 km south-east of the site, is similarly outside the zone of influence under all modelled scenarios.

Given the localised extent of predicted drawdown effects and the natural hydraulic boundary presented by the Wairoa River corridor, no adverse effects on neighbouring groundwater users are anticipated as a result of the proposed Quarry Expansion.

In the event that monitoring indicates unexpected drawdown responses at or beyond those predicted, the GSWMCP sets out mitigation measures and contingency actions to be undertaken.

The effects of the proposed groundwater take and diversion on neighbouring groundwater users are therefore considered to be negligible.

7.3.6.4 Stream depletion effects

Quarry dewatering has the potential to reduce the groundwater contribution to nearby streams, resulting in lower baseflows. This occurs where the zone of influence associated with quarry dewatering intersects the greywacke groundwater system that contributes to stream baseflow. The predicted stream depletion effects relate only to reductions in the groundwater-derived component of streamflow and do not represent equivalent reductions in total streamflow, which also includes direct rainfall runoff and stormflow. The ecological effects of these baseflow reductions are assessed in Section 7.3.11.3.2.

As assessed by WGA (Technical Report G, Volume 2), four streams draining to the Wairoa River are located in proximity to the quarry: Stream 1, Stream 2, Stream 2a and Stream 3. The receiving environments for groundwater-related baseflow depletion effects are Stream 1 and Stream 3, which are assessed in detail below. Predicted depletion effects increase progressively as the quarry expands from Stage 1 through to Stage 5, reflecting the increasing quarry footprint and associated interception of groundwater flow.

Dewatering of the proposed Project is predicted to result in the following loss of stream base flows:

- Stream 1: approximately 1.23 L/s (19% reduction in groundwater-derived baseflow) under Stage 1, increasing to approximately 3.10 L/s (48% reduction) under Stage 5.
- Stream 2: approximately 0.37 L/s (25% reduction in groundwater-derived baseflow) under Stage 1. From Stage 2 onwards, Stream 2 will be progressively reclaimed (refer to Section 4.2.8 above).
- Stream 2a: effects are negligible across all modelled scenarios, amounting to less than 0.0001 L/s under Stage 1 and approximately 0.04 L/s (18% reduction) under Stage 5.
- Stream 3: effects are negligible under Stage 1 (approximately 0.01 L/s, 0.1% reduction), increasing to approximately 1.50 L/s (20% reduction) under Stage 5.

These reductions in groundwater-derived baseflow are most significant during low-flow periods when groundwater discharge represents the primary contributor to streamflow. The ecological implications of these low-flow reductions, including effects on aquatic habitat and fauna, are assessed in Section 7.3.11.3.2.

To mitigate the predicted reductions in baseflow in Stream 1 and Stream 3, stream augmentation is proposed.

Augmentation water will be sourced from the quarry pit sump or, where required, from a bore located within the SAL landholding. As confirmed by WGA (Technical Report G, Volume 2), groundwater inflow to the quarry pit at Stage 5 is predicted to be approximately 6.30 L/s, exceeding the combined predicted baseflow reductions in Stream 1 and Stream 3 of approximately 4.60 L/s. Therefore, there is sufficient groundwater available within the sump to offset the predicted baseflow reductions in both streams.

The augmentation regime will be informed by ongoing monitoring and additional management. Stream augmentation will be triggered where monitoring undertaken in accordance with the GSWMCP confirms baseflow reductions in Stream 1 and/or Stream 3 at or beyond defined trigger levels. The Augmentation Regime Management Plan (ARMP) (refer to Section 7.3.11.3.3) will also set out water quality monitoring requirements and augmentation points. This ensures that the augmentation regime remains proportionate and responsive to actual effects as monitoring data is collected over the life of the quarry.

- The proposed stream depletion effects on Streams 1 and 3 without mitigation are considered to be more than minor. However, having regard to the proposed stream augmentation mitigation, the monitoring and adaptive management framework set out in the GSWMCP, and the suite of proposed consent conditions, effects are expected to be minor.

7.3.6.5 Conclusion

In conclusion, the potential adverse effects of the proposed Quarry Expansion on groundwater are expected to be minor or less, as:

- The predicted zone of influence is contained within the quarry catchment and does not extend beyond the Wairoa River. Accordingly, no drawdown effects on neighbouring groundwater users or groundwater availability are anticipated.
- No drawdown effects are anticipated beyond the site.
- The proposed stream depletion effects on Stream 1 and Stream 3, without mitigation, are considered to be more than minor. However, taking into consideration the proposed stream augmentation regime to offset predicted reductions in baseflow, the residual effects are expected to be minor.

7.3.7 Landscape, visual and natural character

The proposed Quarry Expansion will progressively result in changes to landscape attributes and values, character and visual amenity (i.e. viewing audiences and their outlook), and natural character associated with on-site streams. To determine the natural character, landscape and visual effects of these changes, an LEA has been prepared by Boffa Miskell (Technical Report J, Volume 2) and these effects and effects management measures are outlined below.

7.3.7.1 Landscape effects

The Quarry Expansion will progressively change the majority of the Project footprint, as the plantation forestry area will become an expanded operational quarry. Over five indicative stages, the Project will remove a substantial volume of material and permanently reshape the foothills landform into stepped benches, cut faces and an associated OBDA of approximately 4.6 ha.

In addition, the Project will also require removal of approximately 6.1 ha of native vegetation within SEA_T_5588 during Stages 2, 4 and 5, pine forestry across much of the expansion area, and the streams and tributaries within the quarry footprint (refer to Section 7.3.11). Approximately 15 ha (20%) of the LoQ extent is outside the SPQZ, within the RPZ to the east. Together, these changes will alter the physical, perceptual and associative attributes of the landscape. The expansion will also modify the landform adjacent to the north-eastern edge of the Wairoa River Gorge ONF Overlay, part of which lies immediately west of the Project footprint.

The direct landscape effects on landform, vegetation, streams, landscape character and the ONF are summarised below.

Landform

The change in landform as a result of the Project will be substantial and permanent but localised to the quarry footprint. Stages 1 to 3 will occur mostly within the SPQZ, where change in landform is anticipated. The broader Hunua Ranges foothill landform will remain a legible landform that forms an important backdrop to the Clevedon valley. The potential adverse effects on landform are considered to be moderate.

Vegetation

A large portion of the Quarry Expansion will occur within the existing pine forestry, which the LEA (Technical Report J, Volume 2) does not consider this area as having high landscape values in this context. However, the SEA vegetation proposed to be removed, a mosaic of early-successional tree fern and broadleaf species, contributes to the physical values of the landscape.

As outlined in Section 5, a comprehensive offset and compensation planting package of approximately 67.6 ha is proposed within the Stream 3 catchment and on the OBDA, along with approximately 9.45 ha of planting on upper quarry benches from a height of RL 200 m to RL 306 m, approximately 2 years following closure. This planting is proposed under the consent conditions attached as Appendix G. These plantings will extend and connect existing indigenous vegetation within the Site, eventually provide partial enclosure to the quarry, and produce a more naturalised foothills landscape. The LEA assesses the effects on vegetation as positive during Stage 1 as more planting will be planted than removed, low to moderate during Stages 2 to 5 while SEA vegetation is removed, and reducing to very low adverse once the planting has established after closure.

Streams

The ecological condition and values of the streams contribute in part to the physical values of the landscape. The proposed removal of the Stream 1 tributaries, particularly the SEA Tributary and its riparian vegetation, will have low to moderate adverse physical effects on landscape character. Potential effects on the main channel of Stream 1 will be low adverse, as it is set back from the expansion. The removal of Stream 2, which has lower ecological values due to its modification by pine forestry, will have low adverse physical effects. Despite these localised effects on Streams 1, 2 and 2a, the LEA considers that the total of 67.6 ha of offset and compensation planting (detailed in Section 5) will provide beneficial effects across the balance of the Site once established.

Landscape character

The expansion will occur within an existing quarry landscape, physically and visually linked to the eastern portion of the existing quarry, which has operated on the landholding for over 40 years. The existing quarry and plantation forestry underpin the working rural character of the Site and the wider foothills. The LEA acknowledges that the north-eastern part of the expansion will affect landscape with attributes of greater value (i.e. the SEA), and that the area within the RPZ will no longer reflect the rural characteristics and amenity values anticipated by that zone. However, the boundary between the SPQZ and the RPZ does not correspond to a change in landscape characteristics, both areas remain influenced by extraction activities, and the balance of the landholding will remain in production forestry. The LEA therefore assesses the effects on landscape character as low to moderate adverse and considers that the Project will not compromise the broader pattern of rural production.

Wairoa River Gorge ONF

No works are proposed within the ONF other than the ongoing use of the existing authorised haul road. Although the expansion will modify the landform adjacent to the north-eastern edge of the ONF, it will not alter the landform or geological characteristics of the gorge or affect its state of preservation, and the gorge will remain a representative example of the diversity of Auckland's natural landforms and geological features. The LEA notes that the landform and geology of the ONF do not appear to contribute to the wider character or value of the landscape. It is the more elevated and steeply sloping foothills of the Hunua Ranges that form a backdrop and enclosing element to the Clevedon valley and contribute to wider landscape values. The LEA therefore assesses the effects on the ONF as neutral.

Overall adverse effects

Within the quarry footprint, the change to landform will be permanent, resulting in moderate adverse effects on landform and amenity values. However, the majority of the expansion is within a zone that anticipates quarrying, the broader foothills landform will remain legible and the ONF will not be directly affected. Additionally, the proposed offset and compensation planting will, over time, reduce effects on vegetation to very low, reconnect indigenous vegetation and help naturalise the post-quarry landform and provide beneficial effects on streams across the balance of the Site. With these mitigation measures in place, and considering the wider landholding, the overall landscape adverse effects are considered to be no more than minor.

7.3.7.2 Natural character effects

The Project will progressively impact several streams and tributaries within the quarry footprint, resulting in changes to channel form, hydrology and riparian vegetation. The potential effects must be considered in the context of existing stream conditions and the underlying SPQZ zoning where quarry activities and corresponding landscape change are anticipated. Impacts on these streams will broadly begin in the northern portion of the Site, moving south and then east as extraction activities progress in latter stages. Likely effects are summarised as follows (refer to Figure 7 in Appendix C for the location of the streams discussed below):

- The Quarry Expansion will result in the removal of tributaries of Stream 1 across its upper and lower reaches. The upper reaches, including the SEA Tributary, have high natural character. Their removal will result in low–moderate adverse natural character effects on this discrete section. Tributary 1, within the lower reaches, has moderate natural character and is largely within the approved quarry extent. Its removal will result in low adverse effects. The modified lower reaches of Stream 1 more broadly will also be subject to low adverse effects.
- Streams 2 and 2a have low natural character due to forestry modification and are largely within the SPQZ. The removal of these upper reaches will likely result in low adverse natural character effects.
- The Quarry Expansion will require the removal of some sections of intermittent tributaries in the mid and upper reaches of Stream 3, with some located within the SPQZ. Tributaries outside the SPQZ are modified by the existing pine forestry and have a lower level of natural character.
- A comprehensive offset and compensation package will be undertaken within the Stream 3 catchment, focusing on riparian enhancement, slope revegetation and improved ecological connectivity (as detailed in Section 5). This is anticipated to strengthen the hydrological, ecological and experiential qualities of Stream 3 and, once established, result in an overall beneficial natural character effect.
- Effects on the Wairoa River are assessed as very low adverse, as they are limited to the section of the river immediately downstream of the Project, whose bed, margins and context are already influenced by the existing quarry, pine plantation and other human modifications, such as roads.

Overall, the adverse effects on natural character are considered to be no more than minor.

7.3.7.3 Visual amenity effects

Visual effects are effects on landscape values as experienced through views. The visibility of the Project is defined by its visual catchment, which is the area or extent from which all or part of the Project is visible. Visibility can be affected by topography and elements within the landscape such as vegetation. The nature of a view depends on how it is perceived and the extent to which it is valued.

As set out in Section 1.1, section 104(1A)(f) of the RMA, as amended, requires a consent authority, when considering the effects of a district land use activity, to disregard views from private property. Consequently, Schedule 5, clause 5(4A) of the FTAA provides that an assessment under clause 5(4), in respect of a resource consent application for a district land use consent, need not include any of the effects set out in section 104(1A) of the RMA.

The LEA (Technical Report J, Volume 2) was prepared before these amendments came into effect. The LEA assessed the visual effects of the proposal on both public and private viewing audiences and concluded that the proposal would result in some adverse visual effects for a limited number of residents. However, consistent with the amended statutory framework, effects relating to views from private property have been disregarded for the purposes of this assessment and are not considered further.

Accordingly, this assessment focuses on effects on public viewing audiences, being people who experience views of the Site from public roads, reserves and other publicly accessible places. As detailed in Sections 7 and 8.3 of the LEA (Technical Report J, Volume 2), 18 representative viewpoints were selected from publicly accessible locations to represent the relevant public viewing audiences and viewing distances. The viewpoint locations and representative photographs are provided in Appendix 2, and the visual simulations are provided in Appendix 3 of the LEA. Photographs and visual simulations were prepared for the existing environment, the indicative operational stages, and the post-closure scenario. The assessment considers the anticipated degree of change at each stage, with Stage 5 representing the maximum visual change scenario. The assessment also takes account of the proposed mitigation and rehabilitation planting described in Section 7.3.7.1 as well as the proposed 9.45 ha of quarry bench planting (shown in Figure 13 of the LEA Graphic Supplement), which will assist in softening and integrating the quarry landform over time.

The degree of visual change is expected to vary between stages as follows:

- Stages 1 and 2 (indicatively the first 20 years) will occur at relatively low elevations and largely within the approved quarry extent. The resulting changes in views are broadly anticipated, with these stages expected to result in lower levels of visual effects.
- Stage 3 (indicatively Years 20 to 30) will result in a greater degree of visual change, as extraction extends beyond the approved quarry extent, while remaining largely within the SPQZ, and exposes freshly worked faces on the steeper southern slopes.
- Stages 4 and 5 (indicatively Years 30 to 50) will expand eastward onto the upper slopes outside the SPQZ. Although this occurs at higher elevations, the progressive removal of intervening ridgelines will, in many views, reduce the apparent height and vertical extent of the exposed faces over time. Indigenous planting established during Stage 1 to the east and south of the quarry will become increasingly visible and assist in visually containing and integrating the quarry within the wider landscape.

Public viewing audiences

- Visual effects on public viewing audiences will generally be limited by the transient nature of their views and by intervening landform, vegetation and buildings. Views of the Site from public roads are also limited to particular sections of those roads, with no single road having visibility of the Site along its entire length.
- Public viewing audiences comprise road users across nine viewing audience groups identified in Section 7 of the LEA, together with visitors to publicly accessible reserves and facilities, including the Wairoa Gorge Scenic Reserve (Group C), the Clevedon Showgrounds Reserve, McNicol Homestead, Clevedon Kawakawa Road Esplanade and Clevedon Wharf Reserve (Group E), and the Clevedon Scenic Reserve lookout (Group I) (refer to Figure 6 and Table 1 of Appendix 2 of the LEA).

- As detailed in Section 8.3 of the LEA, visual effects on public viewing audiences will generally be very low, with effects increasing to low for Viewing Audience Groups B and D during Stage 3, and Groups C and E during Stages 3 and 4, as extraction extends beyond the approved quarry extent and exposes additional worked faces. The effects will remain limited to particular viewing locations and sections of public roads, including sections of McNicol Road, Whiteside Lane, Pioneer Road and surrounding roads to the west, northwest and southwest of the Site, as well as views from the Wairoa Gorge Scenic Reserve, Clevedon Showgrounds Reserve and other publicly accessible locations within Groups C and E. Effects will reduce to very low or neutral following completion of the works and establishment of the proposed mitigation planting. The detailed assessment of effects for each viewing audience group is provided in Appendix 4.

Overall, adverse visual effects on public viewing audiences will be no more than low across all stages, with the highest effects (low) experienced by road users in Groups B to E during Stage 3, and in Groups C to E during Stage 4. These effects will be transient and limited to particular sections of road and will reduce to very low or neutral once mitigation planting has established post closure. The adverse effects on visual amenity for public viewing audiences are therefore considered to be less than minor.

7.3.7.4 Conclusion

In conclusion, the parts of the Site most sensitive to change have been avoided. The Wairoa River Gorge ONF is entirely avoided, with no works proposed within it. The Stream 1 main channel and majority of the upper tributaries have been avoided as far as practicable. A large portion of the expansion is within the SPQZ, which anticipates quarry activities. Where avoidance is not possible, approximately 77 ha of indigenous planting is proposed, comprising approximately 67.6 ha of offset and riparian planting established from the commencement of the Project and approximately 9.45 ha of quarry bench planting following closure.

The greatest adverse effect on natural character will be low to moderate (upper reaches of Stream 1), and Stream 3 will benefit as the offset planting establishes. The change in landform of the Site will be permanent, resulting in moderate adverse effects at the scale of the quarry footprint. However, effects on landscape character will be low to moderate adverse, effects on the ONF will be neutral, and effects on vegetation will reduce to very low once the planting has established.

Overall, the adverse effects on landscape and natural character are considered to be no more than minor. Adverse visual effects on public viewing audiences will be low, reducing to very low or neutral post closure, and are therefore considered to be less than minor.

7.3.8 Vibration

Blasting will be required to expand the quarry footprint and access aggregate. Blasting will only commence once excavation has reached rock of such strength where efficient excavation becomes challenging. As per the current consent conditions for the existing Clevedon Quarry, production blasting activities will only operate between the hours of 9 am and 5 pm, Monday to Saturday.

The Drilling & Blasting Vibration Assessment (Technical Report L, Volume 2) involved a desktop-based study, a site walkover, as well as signature hole blasting to assess blast vibration from within the quarry and at offsite locations (undertaken on 18 March 2026). The holes for testing were located within the proposed Stage 1 extent given Stages 2–5 were impractical to assess due to access, slope gradient and depth to rock. To assess scaled distance and vibration attenuation from the signature hole blasting, three seismographs were located within the LoQ extent. A further two seismographs were located at 530 and 600 McNicol Road to assess blast vibration and air overpressure levels at nearby residential properties.

Based on the assessment results, blasting associated with the proposed Quarry Expansion can be undertaken in a manner that complies with the relevant German Standard DIN 4150-3 1999: Structural Vibration - Part 3 (DIN 4150) vibration criteria, adopted 2018 Consent conditions and AUP standards, subject to implementation of the recommended management and monitoring measures. Further detail on the predicted vibration levels is provided below.

7.3.8.1 Vibration from blasting

Vibration levels at the nearest sensitive receivers (600 and 546 McNicol Road and 439 Otau Mountain Road) are predicted to comply with the existing 2018 Consent limits, the AUP and DIN 4150 (Line 2 Classification[51]) based on 15 m bench heights and blasting to the LoQ extent. Of these receivers, the greatest predicted ground vibration is at 600 McNicol Road, which is predicted at 2.0 mm/sec at the boundary of the Quarry Expansion.

Vibration levels at the Police and emergency radiocommunications tower (DIN 4150 Line 1 Classification[52]) are predicted at 43.8 mm/sec. Accordingly, mitigation measures may be required to comply with the relevant DIN 4150 standards as the Quarry Expansion moves towards the tower around indicative Stage 5 (Years 40-50). Mitigation measures may include reduced maximum instantaneous charge (MIC), deck loading, reduced hole diameters, reduced bench heights, and waveform modelling. When considering a reduced MIC, the predicted ground vibration levels are expected to reduce to below the DIN 4150 threshold, at 19.4 mm/sec.

The level of ground vibration that causes human discomfort is generally considered less than the level that could potentially cause damage to structures. The Drilling & Blasting Vibration Assessment considers it likely that adherence to DIN 4150 complies with the recommendations of Australian Standard AS2187.2-2006 Appendix I with regard to blast vibration's potential impact on human comfort.

7.3.8.2 Air blast effects

Air blast refers to the shockwave of compressed air generated during the detonation of explosives and is a byproduct of the sudden release of energy from the explosion. Air blast creates a pressure wave that can be felt and heard in the surrounding areas. The intensity and effect are dependent on various factors, including the type and number of explosives used, the depth and configuration of the blast holes, and the geological characteristics of the rock being blasted. The effect of air blasts in quarry operations is their potential to cause vibration, noise and structural damage to nearby buildings and structures.

The Drilling & Blasting Vibration Assessment states that based on a review of historical monitoring records and the testing undertaken, air overpressure levels generated by blasting are expected to comply with consented and AUP limits when measured at the notional boundary of the nearest residential properties (600 & 546 McNicol Road and 439 Otau Mountain Road).

7.3.8.3 Conclusion

The following suite of management measures are proposed for the Quarry Expansion. These measures will manage vibration effects across all stages of the expansion, including where blasting approaches the Police and emergency radiocommunications tower around Years 40-50.

[51] DIN 4150 Classification Line 2 has a threshold of 5 mm/s.
[52] DIN 4150 Classification Line 1 has a threshold of 20 mm/s.

A Blast Management Plan (BlaMP) is currently in place for the existing Clevedon Quarry. The BlaMP outlines how blasting will take place in a safe and efficient manner and in compliance with the relevant regulatory requirements and consent conditions. It also outlines the procedure for pre-blast notifications which will continue to be carried out. The BlaMP has been reviewed and is considered fit for purpose. It will continue to be periodically reviewed to ensure that it remains fit for purpose, or updated as necessary in accordance with the consent conditions.

Ongoing blast monitoring at the existing installed monitoring positions at 530 and 600 McNicol Road is proposed. Blast monitoring positions will be reviewed and adapted if required on a case-by-case basis.

Furthermore, a staged approach is proposed for ongoing vibration management. Specifically, updates to the Site's vibration model will be triggered where predicted or measured peak particle velocity values exceed 75% of the consented vibration limit. Blasting parameters and vibration management measures will then be considered, allowing for incremental adjustments to enable ongoing compliance.

Overall, when considering the assessment results, as well as the suite of management measures, and that blasting may not always be required to the full LoQ extent, any adverse vibration effects associated with the Quarry Expansion will be less than minor.

7.3.9 Noise

Quarry operations generate a number of potential noise sources including earthworks, the operation of heavy machinery and vehicles and stationary plant, such as crushers and screens to process the excavated material. As the Clevedon Quarry expands to the east and south, it will get gradually closer to dwellings located outside of the site, in those directions. Excessive noise can have adverse effects on surrounding residents' amenity.

The Assessment of Noise Effects (Technical Report D, Volume 2) has conservatively predicted noise levels by assuming that all equipment will be operating simultaneously and will be located in realistic, but worst-case positions around the quarry and haul roads. The modelling also does not rely on screening from stockpiles, bunds or intervening landform to demonstrate compliance. Based on this modelling, noise levels will remain compliant with the relevant AUP limits at all receivers and the proposed conditions, which mirror those in the 2018 Consent.

The highest predicted noise level from the Quarry Expansion is 52 dB LAeq at 520 McNicol Road during Stages 1 and 3. This represents an increase of 3 dB LAeq above the modelled existing quarry noise level of 49 dB LAeq — remaining 3 dB below the applicable 55 dB LAeq daytime limit. The modelled existing quarry noise levels represent noise from the existing quarry activities only. They should not be confused with the measured ambient noise levels, which include quarry noise and other sources such as birdsong, insects and traffic.

As stated in Technical Report D, a noise level increase of 1–2 dB is generally imperceptible, 3–4 dB is just perceptible, 5–8 dB is appreciable to clearly noticeable, 9–11 dB represents a doubling of loudness, and increases greater than 11 dB represent more than doubling of loudness. While the predicted noise levels comply with the relevant AUP standards, the quarry is predicted to become louder at most receiver locations when compared with the modelled existing quarry noise levels and may become more audible, subject to the ambient noise level at each location and wind direction. The results of the Assessment of Noise Effects at each location, compared with the modelled existing quarry noise levels, are summarised as follows:

- The north-west cluster (520, 498 and 458 McNicol Road) will experience an appreciable to clearly noticeable increase in quarry noise levels of up to 5 dB L_{Aeq} during Stage 1, remaining at up to 5 dB $L_{Aeq}$by Stage 5.

- The north cluster (426, 494 and 373 Otau Mountain Road) will receive an increase in noise levels of up to 9 dB L_{Aeq}in Stage 1, reducing to 6 dB L_{Aeq} by Stage 5. This represents a potentially significant change in terms of perceived loudness, although the predicted levels remain below the applicable noise limit.
- The west cluster (listed below) will experience varying increases in quarry noise levels, as follows:
  - 129 Highridge Road: an increase of 4 dB L_{Aeq} in Stage 1, increasing to 6 dB L_{Aeq} in Stage 3 and reducing to 5 dB L_{Aeq} in Stage 5.
  - 164C Highridge Road: an increase of 4 dB L_{Aeq}in Stage 1, reducing to 3 dB L_{Aeq} in Stage 3 and 1 dB L_{Aeq} in Stage 5.
  - 600 McNicol Road: no material change in Stages 1 and 3, reducing by 2 dB L_{Aeq} in Stage 5.
  - 95 Pioneer Road: a just perceptible change.
  - 49 Mathis Road: significant increase of up to 12 dB L_{Aeq} in Stages 1 and 3, reducing to 7 dB LAeq in Stage 5 (likely inaudible at present, and may become audible).

The Quarry Expansion may change the character of the sound environment for identified dwellings, depending on their ambient noise level and the wind direction. They may hear a general broadband noise from quarrying, and intermittent engine noise from particular mobile plant, which will move around the quarry and be shielded to a greater or lesser degree.

It should be noted that noise levels will increase gradually during Stage 1 of the Clevedon Quarry and remain generally the same over the following stages. Given the predicted increases are across 10 years, the subjective response (the neighbour's opinion, acceptance or otherwise) typically is likely to be more moderate. On this basis, and given the predicted compliance with relevant controls, the Assessment of Noise Effects considers that noise effects from the Quarry Expansion will be reasonable.

The noise predictions are based on worst-case scenarios, with the actual noise levels likely to be lower than predicted as there will be less equipment operating than has been assumed at any one time and equipment operating on site to be placed further from some receivers. In order to manage and monitor the operational noise from the Quarry Expansion, noise monitoring conditions are proposed, and a process for community communications and engagement (including how neighbours are contacted, records of contact and complaint management measures) is set out in the QMP (cc) and required under Complaints Register condition 10.

Considering the overall effects of operational noise and taking into consideration the predicted change in ambient noise levels for identified receivers, it is considered the potential adverse effects resulting from the Quarry Expansion are less than minor in relation to permitted noise limits. However, in terms of the change in the existing noise environment, the effects are expected to be minor for the north cluster (426, 494 and 373 Otau Mountain Road) and 49 Mathis Road (part of the west cluster) (specifically predicted during Stage 1 and Stage 3), and less than minor for all other receivers.

7.3.10 Traffic

Off-site traffic movements are managed under the Front of House consent. Refer to Section 7.4.5, below.

Given the improved layout and larger extraction area, internal traffic movements generated by the Project are expected to increase as quarry operations progressively expand. However, the number and intensity of truck movements will continue to be dictated by external demand for aggregate and the Site's processing capacity (refer to Section 4.2.2.3). These production constraints effectively form an upper limit to what can be processed and transported off-site, limiting traffic generation off-site. Importantly, no increase is proposed to the existing consented annual extraction limit of 3 MT per year, truck movement limits, or hours of operation.

As identified in the Transportation Assessment (Technical Report C, Volume 2), the Project primarily increases the extent and duration over which quarrying activities can occur, rather than the intensity of traffic generation. The Transportation Assessment confirms the network has sufficient capacity to accommodate traffic within consented limits across the full 50-year operational period.

7.3.11 Freshwater ecology

The proposed expansion of the Clevedon Quarry will involve the permanent loss of approximately 2,392 m of stream habitat. Expansion of the quarry will also result in a reduction in the contributing catchment areas of the four affected freshwater catchments and potential drawdown of stream baseflows that will also result in stream depletion effects on these catchments. This loss and the associated quarry works will result in actual and potential ecological effects of permanent stream habitat loss or modification, injury or mortality to freshwater fauna, changes to surface stream flows, discharge and deposition of sediment, water quality effects from flow augmentation discharges, and scour and erosion from water discharges. Most of these effects are expected to be managed to be less than minor. However, the permanent loss of stream habitat is expected to result in a more than minor adverse effect. The freshwater ecological values of the site, and the actual and potential effects of the Project on those values, are assessed in the EcIA (Technical Report I, Volume 2). A summary of the assessment is provided below.

As outlined in Section 5, a freshwater offset and compensation package has been developed to address the residual effects on freshwater ecological values that cannot be avoided, remedied or mitigated. The package is designed to provide for positive effects that outweigh the residual adverse effects on freshwater ecological values, consistent with the compensation principles of the NPS-FM.

7.3.11.1 Injury and mortality of freshwater fauna

Without appropriate controls in place, there is a high potential for injury and mortality of freshwater fauna, including 'Threatened' and 'At Risk' species, as a result of stream reclamation and removal within the LoQ footprint and OBDA. The magnitude of potential effect is driven by the nature and extent of the works, fish density, and the ability of fish to escape disturbance. In the Stream 1, 2a and 3 catchments, the affected reaches are primarily intermittent headwaters, making up a small proportion of total catchment fish habitat (approximately 6%, 15% and 11% of stream length respectively). Without management, the magnitude would be very high at the reach scale but at most moderate at the catchment scale. The Stream 2 catchment is more significantly affected, with approximately 60% of intermittent and 20% of permanent stream length to be removed. Without management, this represents a very high magnitude of effect at the reach scale and high at the catchment scale.

Adverse effects on freshwater fauna are proposed to be managed through a Freshwater Management Plan (FMP), which details salvage and relocation procedures to minimise, as far as practicable, injury and mortality of native freshwater fauna. The FMP adopts a toolbox approach, with final details confirmed alongside the stream work methodology before each stage of works, and provides for:

- Recovery of fish and kōura prior to instream works and measures to prevent their return to cleared areas.

- Rescue of fauna from spoil or dewatered materials and relocation to suitable habitat.
- Reporting.

Salvage intensity will be scaled to the likelihood of 'At Risk' species and habitat type. Where practicable, works within intermittent channels will be scheduled during summer when streams are dry and fish have migrated downstream, reducing the likelihood of disturbance. Following implementation of these measures, the magnitude of effect is expected to be no greater than low in the Stream 1, 2a and 3 catchments, and at most moderate in the Stream 2 catchment. Although the resulting overall level of effect is elevated where 'At Risk' or 'Threatened' species are present or potentially present, conservation status does not affect the effectiveness of management measures. Accordingly, the overall adverse effects on freshwater fauna are anticipated to be minor.

7.3.11.2 Permanent loss and/or modification of stream habitat

The potential ecological effects of stream reclamation relate to the permanent and irreversible loss of stream habitat for macroinvertebrates and native fish, and direct mortality of species within these systems (if they are not relocated). Reclamation will also create barriers to fish passage within affected reaches. The proposed Quarry Expansion and OBDA will result in the permanent loss of 2,392 m length of stream habitat, equivalent to an estimated stream bed area of 1,182 m^2, across four catchments, occurring progressively over the 50-year LoQ timeframe. This comprises:

- 344 m of intermittent headwater tributaries within the Stream 1 catchment.
- 999 m of intermittent and 334 m of permanent streams within the Stream 2 catchment.
- 78 m of the intermittent headwaters of Stream 2a.
- 638 m of intermittent tributaries within the Stream 3 catchment (95 m within the LoQ boundary and 543 m within the OBDA).

The OBDA tributaries will be lost during Stage 1 (Years 0–10), with most of the loss (approximately 57% of streambed area) expected during Stage 3 (Years 20–30).

In order to avoid potential effects on freshwater systems, multiple design options were considered and refinements to the location and extent of the Project footprint were undertaken. This included revising the southernmost quarry footprint boundary to reduce direct impacts on Stream 3 headwaters, and retaining the entire Stream 3 catchment for offset and compensation. The quarry footprint was designed to avoid direct effects on the Stream 1 main channel and reduce effects on Stream 1 upper catchment and tributaries. Where avoidance was not considered practicable, augmentation of stream systems is proposed to minimise the adverse effects on stream ecological values as assessed in Section 7.3.11.3.3 below. Although the proposed footprint minimises stream loss as far as practicable, the loss of streams is unavoidable for a Project of this scale and nature.

As set out in Section 3.5.8 above, the ecological function values of the streams vary from Moderate to High and fauna values range from Low to Very High. Given the permanent loss of stream extent and values at the point of impact, Technical Report I assesses the magnitude of effect as very high, resulting in a high to very high overall level of effect. Therefore, the Project is considered to have significant adverse effects on the streams within the Project footprint that cannot be remedied at the point of impact. These are addressed through the offset and compensation package described below.

As set out in Section 5.2, approximately 16.6 ha of riparian offset planting is proposed along 4,510 m of stream in the Stream 3 catchment (Figure 5.1). Using the SEV/ECR methodology, this offsets approximately 1,277 m of stream length (737 m² of streambed) of the total stream loss. All offset planting will be implemented as soon as practicable following commencement of consent, at least 40/45 years in advance of impacts being realised.

A residual 445 m² of stream loss effects remains following the offset above. As no suitable locations for further stream offset were identified, this is addressed through the freshwater compensation planting within the Stream 3 catchment described in Section 5.3, which also secures in perpetuity the riparian margins of 393 m of Stream 3 main channel and one tributary within the existing native vegetation.

In total, 40.4 ha of freshwater compensation planting is proposed, addressing both the residual stream loss effects (11 ha) and the residual effects of changes to stream flows (19 ha) (refer to Section 5.3 for the basis of the 1.3 multiplier applied). This compensation also addresses the potential effects of reduced stream flows on intermittent tributaries of the upper Stream 1 and Stream 3 catchments.

Taking into account the mitigation and the offset and compensation package, the residual freshwater effects are anticipated to result in no net loss of freshwater ecological values and improve ecological connectivity between the Wairoa River and the Hunua Ranges.

7.3.11.3 Changes to surface stream flows

The proposed works will result in a reduction of freshwater volume as a result of:

- A reduction in contributing catchment area contributing to the retained streams adjacent to the proposed quarry footprint.
- Reduction in groundwater baseflows associated with quarry dewatering (stream depletion effects).

These reductions have the potential to increase the stress on aquatic fauna with pressures on temperature control and aquatic habitat availability, as well as changing the regime from permanent to intermittent, or intermittent to ephemeral. These effects are discussed in the following sections.

7.3.11.3.1 Loss of contributing catchment area

The progressive reduction in contributing catchment of Streams 1, 2, 2a and 3, as the proposed quarry footprint expands progressively, will result in reduced stream flows.

Based on the Groundwater Assessment (Technical Report G, Volume 2), the EcIA identified the three groups of affected reaches:

- Reaches becoming ephemeral (<1.4 ha contributing catchment post-expansion): In 1,533 m of stream (744 m² of streambed) in the upper reaches of the Stream 1, Stream 2a and Stream 3 catchments, the contributing catchment area will fall below 1.4 ha, the threshold for intermittent flow. These reaches are expected to become ephemeral. This is considered a high magnitude of effect, resulting in a moderate to very high overall level of effect depending on the ecological values of the affected reach.
- Reaches retaining intermittent flow but with substantially reduced catchment area (>1.4 ha post-expansion): Some reaches will retain more than 1.4 ha of contributing catchment area following quarry expansion; however, contributing catchment area may be substantially reduced relative to baseline. Affected streams are within Stream catchments 1, 2a and 3. These reaches are expected to continue to flow at least intermittently, although flows may be lower or dry periods longer. This is at most a moderate magnitude of effect, resulting in a very low to moderate overall level of effect.
- Remnant Stream 2 reaches: The downstream remnant of the Stream 2 main channel (341 m) and its one remaining tributary (108 m) will experience catchment reduction ranging from 63% to 92%, respectively. This is likely to result in a major loss or alteration of their existing baseline condition. This is also considered a high magnitude of effect, resulting in a moderate to very high overall level of effect.

Stream augmentation is proposed to manage effects on surface stream flows, as detailed in Section 7.3.11.3.3 below. However, augmentation is not practicable for the headwater reaches that will fall below the 1.4 ha threshold or for the remnant Stream 2 reaches. Given these adverse effects cannot be further avoided, minimised or mitigated, they will be addressed through the freshwater compensation package, as detailed in Sections 5, 7.3.11.2, and 7.3.11.3.3 of this AEE report.

7.3.11.3.2 Reduced groundwater contributions

The Groundwater Assessment (Technical Report G, Volume 2) predicts that quarry dewatering will progressively reduce groundwater contributions to baseflow in streams within the LoQ footprint (prior to full reclamation) and adjacent retained reaches (Streams 1, 2a and 3). The model represents groundwater aquifer contributions only and does not account for rainfall runoff, stormflow, or seasonal and year-to-year variability — effects are therefore expected to be greatest in summer when groundwater comprises a higher proportion of baseflow. By Stage 5, the largest predicted reductions are in the Stream 1 lower reaches (2.31 L/s, 89.6%), the Stream 1 main southern tributary (0.79 L/s, 52.7%) and Stream 3 upper reaches (1.35 L/s, 40.2%), representing total reductions of 3.10 L/s and 1.50 L/s against MALFs of 3.64 L/s and 4.33 L/s for Streams 1 and 3 respectively. Without mitigation, the EcIA considers the magnitude of effect on these segments to be at most moderate. Predicted depletion at remaining modelled segments is less than 18%, with a magnitude of effect of at most low. Where practicable, stream flow augmentation using water sourced from the quarry sump or bores is proposed to maintain baseflows in the Stream 1 and Stream 3, as detailed in Section 7.3.11.3.3.

As mentioned above, intercepted groundwater will be diverted to the quarry sumps, treated through the constructed wetland, and discharged to Stream 1 and via augmentation to Streams 1 and 3, ultimately reaching the Wairoa River. Given the Wairoa River's catchment position as a fifth order stream and its significantly larger flows, it is expected to continue receiving all flows from the Project catchments. Accordingly, the magnitude of effect is negligible, with an overall very low level of effect.

7.3.11.3.3 Surface stream flows monitoring, management and compensation

In order to mitigate the potential adverse effects resulting from loss of contributing catchment area and reduction in stream base flows, it is proposed to augment Stream 1 and Stream 3, using water from either the quarry sump and/or bore. As set out in Section 7.3.6.4, groundwater inflows to the quarry will exceed the predicted baseflow reductions in Streams 1 and 3, making the pit a dependable source for augmentation. The proposed augmentation regime will be based on baseflow monitoring to ensure the compensation flows are sufficient to offset the predicted loss of flow (i.e., no more or less).

An ARMP will be prepared and implemented in accordance with consent conditions (Appendix G). The ARMP will establish baseline flow conditions and set triggers for augmentation, cover water quality monitoring and treatment of augmentation water, and provide responses to maintain baseflows during dry weather. The augmentation point/s will change as the quarry footprint develops, to ensure augmentation occurs upstream of where flow reductions are being realised.

With implementation of the ARMP, the magnitude of effect on the augmented reaches will be reduced to negligible, resulting in an overall very low level of effect. Augmentation is not practicable for the smaller intermittent tributaries (Stream 1 tributaries feeding the southern main tributary, and Stream 3 tributaries). In these tributaries, the magnitude of effect remains up to moderate, and the overall level of effect could be high.

In respect of Stream 3, any such effects are expected to be restricted to the northern tributaries, as the main channel is a hydraulic boundary and outside the zone of influence of quarry dewatering (Technical Report G, Volume 2). Effects on stream flows in these tributaries, and in reaches that retain more than 1.4 ha of contributing catchment but lose a substantial proportion of it, are expected to be spatially and temporally variable, reflecting seasonal conditions and differences in groundwater connectivity, with no more than a moderate magnitude of effect. These potential residual effects are addressed through the freshwater compensation package, which is considered proportionate to the potential magnitude of effects and an appropriate response should residual adverse effects arise.

Overall, subject to the proposed streams being augmented and managed through the ARMP, the potential adverse effects of reduced baseflows on the augmented reaches and on the Wairoa River are considered to be less than minor. Taking into account both the augmentation measures and the freshwater compensation package addressing residual effects on reaches that cannot be augmented, the overall adverse effects are considered to be minor.

7.3.11.4 Sediment discharge and sediment deposition

Earthworks associated with the Quarry Expansion — including enabling works, OBDA establishment, instream works and vegetation clearance — have the potential to temporarily increase sediment discharge and deposition in downstream waterways and, ultimately, the Wairoa River. Progressive overburden removal during expansion of the quarry could also result in sediment effects if not appropriately managed. Increased suspended and deposited sediment can adversely affect freshwater ecology by clogging fish and invertebrate gills, reducing water clarity for visual feeders, disrupting fish passage and smothering benthic habitats. It is noted that the affected streams already carry elevated sediment loads from plantation forestry, as described in Section 3.5.8. Without management, the magnitude of effect on potentially affected streams would be at most high for ecosystem function values and moderate for species values, and moderate for the Wairoa River.

As discussed in Sections 4.2, 7.3.4, and 7.3.5 of this report and outlined in the ESCAR (Technical Report K, Volume 2), best practice ESC measures will be implemented throughout all stages of the Project, including progressive quarry development, clean water diversions, treatment of runoff via the quarry sump and constructed wetland WMS, and chemically treated SRPs for OBDA management. With these measures in place, the magnitude of effect is assessed as negligible for the Stream 1 main channel and the Wairoa River, and low for ecosystem function values and negligible for species values in all other affected streams. This results in a very low to low overall level of effect across all potentially affected sites. Accordingly, the adverse effects of sediment discharge and deposition on freshwater ecology are considered to be less than minor.

7.3.11.5 Augmentation water quality effects

Groundwater from the pit sump or bores discharged to Streams 1 and 3 for flow augmentation has the potential to adversely affect aquatic habitat and fauna if the temperature, dissolved oxygen or pH differs significantly from that of the receiving stream. Without management, the magnitude of effect on ecosystem function values in Streams 1 and 3 is expected to be moderate, and low for species values, as most fauna can move away from the discharge point. For the Wairoa River, the magnitude of effect would be low and negligible, respectively.

The water quality of augmentation discharges will be managed through the ARMP and proposed consent conditions. Consent conditions require baseline monitoring of water temperature and dissolved oxygen upstream and downstream of each augmentation discharge point, and that, after reasonable mixing, augmentation does not increase downstream water temperatures by more than 3°C or reduce dissolved oxygen concentrations below 6 mg/L. The most temperature-sensitive species likely to be present in Streams 1 and 3 are banded kōkopu and potentially common smelt in lower Stream 3. Median water temperatures recorded at nearby Wairoa catchment monitoring sites between 2021 and 2025 ranged from 12.5°C to 16.1°C. A 3°C increase would therefore remain well below the upper lethal temperatures of these species (28.3–28.5°C). With respect to dissolved oxygen, the NPS-FM specifies that 6 mg/L may cause occasional minor stress on sensitive organisms. As augmentation will only be undertaken when required, concentrations at this threshold are not expected year-round. Ongoing monitoring and additional management responses are proposed as part of the ARMP.

With these mitigation and management measures in place, the magnitude of effect on ecosystem function and species values is expected to be low in Streams 1 and 3 and negligible for the Wairoa River. This results in an overall low level of effect for Streams 1 and 3 — noting that while the presence of 'At Risk' and 'Threatened' species elevates sensitivity, conservation status does not affect the effectiveness of management measures. For the Wairoa River, the overall level of effect is very low. Accordingly, the adverse effects of augmentation discharges on water quality are considered to be no more than minor for Streams 1 and 3, and less than minor for the Wairoa River.

7.3.11.6 Scour and erosion effects from water discharges

Discharge from the quarry sump and constructed wetland to Stream 1 via the riprap outfall structure, together with augmentation flows to Streams 1 and 3, has the potential to scour and erode stream channels, increasing sediment loads and altering channel morphology in the receiving streams and, ultimately, the Wairoa River. The magnitude of effect on the receiving environment is expected to be moderate to high, decreasing with distance from the discharge points.

As noted in Technical Report I, the risk of scour and erosion on Streams 1 and 3 is reduced given they are generally hard-bottomed streams. Additionally, as flows will be discharged at various augmentation points rather than one concentrated location, the risk of localised scour is further reduced. An ARMP will be developed and implemented to monitor and manage augmented flows, including monitoring of discharge points for erosion and scour effects.

As detailed in Section 7.3.4 above, the quarry sump and constructed wetland attenuate peak flows for events up to and including the 100-year ARI event, ensuring post-development discharge to Stream 1 does not increase flood risk or exacerbate channel scour.

With the implementation of these management measures, the magnitude of effect is expected to be negligible for all receiving streams, resulting in a very low overall level of effect. Accordingly, the adverse effects of scour and erosion from water discharges are considered to be less than minor.

7.3.11.7 Conclusion

Due to the nature and scale of the Project, and because aggregate can only be extracted where it naturally occurs, the loss of stream habitat within the quarry footprint cannot be wholly avoided. The design avoids direct effects on the high-value Stream 1 main channel and minimises stream loss outside the SPQZ. However, the Project will result in the permanent loss of approximately 2,392 m of intermittent and permanent streams across four catchments and will change flows in some of the remaining stream reaches.

Management measures will reduce the adverse effects of fauna injury and mortality, sediment discharge, augmentation water quality, and scour and erosion to minor or less than minor. These measures include the FMP, ESC measures, an upgraded WMS with a constructed treatment wetland, and flow augmentation of Streams 1 and 3 and augmentation water quality managed through the ARMP.

Residual effects on stream values will be addressed through a comprehensive offset and compensation package of riparian planting and restoration planting within the Stream 3 catchment. The package comprises approximately 16.6 ha of riparian offset planting along 4,510 m of stream and 40.4 ha of freshwater compensation planting. Together with 10.6 ha of terrestrial offset planting, it provides a total of 67.6 ha of legally protected native planting in perpetuity via covenants and conditions of consent. This will establish a forested corridor linking the Wairoa River to the Hunua Ranges, retire the upper catchment from plantation forestry, and improve stream shading and habitat. The planting will be monitored, with additional management measures implemented where required, in accordance with the EMP and the proposed consent conditions.

Overall, taking into account the management measures and the offset and compensation package, it is considered that the adverse effects of the Project on freshwater ecological values will be appropriately managed. However, these effects will remain more than minor, principally due to the permanent loss of stream extent, which cannot be offset or compensated. Residual effects on stream values from non-augmentable reaches are addressed through the freshwater compensation package, with the overall adverse effects of changes to stream flows considered to be minor.

7.3.12 Terrestrial ecology

The proposed Quarry Expansion will involve clearance of vegetation and earthworks, which will result in the loss of terrestrial vegetation and habitat, and potential effects on native fauna and flora located within these areas and the immediate surroundings. The potential adverse effects due to the proposed works comprise the following:

- Permanent loss of 6.1 ha of native regenerating tree fern/broadleaf forest.
- Permanent loss of 0.5 ha of tree privet-kānuka treeland.
- Edge effects on native vegetation outside the quarry footprint.
- Loss of ‘At Risk – Declining’ king fern during vegetation clearance.
- Injury or mortality of native fauna.
- Disturbance of native fauna during vegetation clearance and quarry operation.

Most of these effects are expected to be managed to be less than minor. However, the permanent loss of native vegetation and associated habitat is expected to result in a more than minor adverse effect. The terrestrial ecological values of the site, and the actual and potential effects of the Project on those values, are assessed in the EcIA (Technical Report I, Volume 2). A summary of the assessment is provided below.

A suite of management plans has been developed to address the effects on terrestrial ecology. These include a Vegetation Management Plan (VMP), Avifauna Management Plan (AMP), Bat Management Plan (BMP) and Residual Effects Management Plan (RMP) (Technical Report I, Volume 2). Together, these form part of the overarching EMP (Technical Report I, Volume 2). In addition, as outlined in Section 5.1, a terrestrial offset package comprising approximately 10.6 ha of restoration planting has been developed to address the residual effects on terrestrial ecological values that cannot be avoided, remedied or mitigated, and is designed to achieve a net gain in biodiversity values.

7.3.12.1 Permanent loss of terrestrial vegetation and fauna habitat

As detailed in Section 3.5.9.1, the proposed works will result in the permanent loss of terrestrial vegetation and fauna habitat across the LoQ footprint. Vegetation will be removed progressively across five indicative stages over the 50-year expansion. The quarry design has sought, where practicable, to avoid areas of ecological significance, including SEA_T_5588, which encompasses the regenerating tree fern/broadleaf forest within the impact area. Despite these design measures, some vegetation loss is unavoidable. All vegetation types within the impact area are well-represented in the surrounding area and at a regional scale. Accordingly, vegetation loss is considered to have a moderate magnitude of effect.

7.3.12.1.1 Regenerating tree fern/broadleaf forest

The Project will result in the permanent loss of approximately 6.1 ha of regenerating tree fern-broadleaf forest within an SEA overlay. This vegetation is dominated by native species. It includes a nationally and regionally 'At Risk' plant species (king fern) and provides habitat for a range of native bird species, and foraging habitat for long-tailed bats. If suitable nesting cavities develop over time, the vegetation may also provide habitat for 'At Risk' native birds, including North Island kākā. Given the high ecological value of the regenerating tree fern-broadleaf forest and the moderate magnitude of effect associated with the permanent removal, Technical Report I assesses the overall level of effect as high. Therefore, the Project is considered to have significant adverse effects on native vegetation within the Project footprint that cannot be remedied at the point of impact. These are addressed through the offset package described in Section 5.1, which is anticipated to result in a net gain in biodiversity values.

7.3.12.1.2 Other types of vegetation within the Project footprint

The Project will also result in the loss of other types of vegetation, including:

- Cutover pine.
- Tree privet-kānuka treeland.
- Exotic shrubland.

Cutover pine is dominated by exotic species and has been significantly modified through forestry activities. It provides no habitat for indigenous fauna. Its negligible ecological value, combined with a moderate magnitude of effect, results in a low overall level of effect. No effects management is recommended.

Tree privet-kānuka treeland and exotic shrubland are both assessed as having low ecological value, providing potential nesting habitat for native birds. Combined with a moderate magnitude of effect, this results in a low overall level of effect for each. To address the loss of tree privet-kānuka treeland, 600 m² of native vegetation will be planted along the true left riparian margin of Stream 1. This mitigation was required under Conditions 50 and 51 of the 2018 Consent and is carried forward under this Quarry Expansion consent. No effects management is proposed for the loss of exotic shrubland.

The overall potential adverse effects on cutover pine, tree privet-kānuka treeland and exotic shrubland are considered to be less than minor.

7.3.12.2 Edge effects

The clearance of regenerating tree fern-broadleaf forest required for the Quarry Expansion will create new forest edge and increase the exposure of retained native vegetation within the SEA overlay to wind and sunlight. Native vegetation at the newly created edge may experience increased moisture stress, canopy dieback and changes in understorey composition through reduced recruitment. Increased wind exposure can also cause tree fall and branch breakage, while changed light conditions can favour disturbance-tolerant exotic species over native species.

Vegetation within the SEA overlay also comprises common pioneer species that are adapted to growing in exposed conditions. This vegetation is less likely to be impacted than mature forest. Any potential edge effects are only likely to be apparent in the first 10 m from the edge. In addition, the newly created SEA edge at the end of Stage 5 is expected to be around 600 m in length, with minor edge effects potentially present across an area of approximately 0.6 ha. However, given there is over 100 ha of regenerating tree fern/broadleaf forest in the immediate vicinity of the Site, the magnitude of edge effects on retained native vegetation is considered low. The high ecological value of native vegetation within the SEA overlay, combined with low magnitude of effect, results in a low level of effect. Therefore, no effects management is recommended to address edge effects and the overall adverse effects are considered to be less than minor.

7.3.12.3 Loss of 'At Risk' plants

As detailed in Section 7.3.12.1.1 above, the nationally and regionally 'At Risk - Declining' king fern, which has a high ecological value, has been recorded within the potential impact area. In order to minimise adverse effects specifically on these 'At Risk' plants, individual plants will be transplanted, where practicable, to appropriate habitat within contiguous forest outside of the impact area or within offset plantings. This will be undertaken where a suitably experienced ecologist considers the plantings are sufficiently mature to provide a suitable environment for the species.

With the implementation of these mitigation measures, the loss of individual plants within the impact area will not have an adverse effect on the species at a population level. The magnitude of effect of vegetation clearance on king fern is considered low, combined with a high ecological value, resulting in a low overall level of effect. Therefore, the overall adverse effects on the 'At Risk' king fern plants are considered to be less than minor.

7.3.12.4 Injury or mortality of indigenous fauna

As detailed in the EcIA (Technical Report I, Volume 2), vegetation clearance activities and earthworks have the potential to cause accidental injury and mortality to indigenous fauna. A range of indigenous fauna has been identified as present or likely to be present across the LoQ footprint, including a suite of common ('Not Threatened') native birds, 'At Risk – Recovering' kākā, 'At Risk – Declining' Hochstetter's frog and 'Threatened – Nationally Critical' long-tailed bats.

Without effects management measures in place, there is potential for bird and bat injury or mortality during vegetation clearance. For common and widespread bird species, injury and mortality are unlikely to affect population-level outcomes, resulting in a low unmitigated magnitude of effect. The unmitigated magnitude of effect for bats is considered high, as works could potentially impact a moderate proportion of the known population. The EcIA confirms that no frog habitat will be directly impacted due to vegetation clearance or stream reclamation. There is therefore no risk of Hochstetter's frogs being killed or injured during the work.

All indigenous birds and bats are protected under the Wildlife Act 1953 regardless of conservation status. Therefore, mitigation measures to avoid injury or mortality immediately prior to and during vegetation clearance and construction are recommended. Specific mitigation measures proposed to minimise these adverse effects on native birds and bats are detailed in the below sections.

7.3.12.4.1 Birds

The regenerating tree fern-broadleaf forest, exotic shrubland, and tree privet-kānuka treeland provide potential foraging and nesting habitat for a range of bird species, which may be killed or injured during vegetation clearance. Adult birds are mobile and able to move away from works, so are unlikely to be injured or killed. However, eggs and chicks in nests are at risk of direct harm if works are undertaken during peak bird breeding season between September and January inclusive. Without any effects management measures in place, the magnitude of effect on native birds is determined as low.

To manage potential effects on native bird species prior to and during the works, an AMP will be implemented, which sets out a range of best practice measures for bird management, including:

- Undertaking vegetation clearance outside of peak breeding season (September to January inclusive).
- If it is not possible to avoid peak breeding season, nest surveys will be undertaken within 48 hours prior to vegetation clearance to minimise the risk of damaging an occupied nest.
- The AMP will be reviewed no more than 6 months before each substantive phase of vegetation clearance. Where required, the AMP will be updated to ensure management measures are appropriate for the habitats and bird species present at the time.

With these measures in place, the magnitude of effect reduces to negligible. The overall level of effect on native birds is low and the adverse effects are considered less than minor.

7.3.12.4.2 Bats

As detailed in Section 3.5.9.2.2 and the EcIA (Technical Report I, Volume 2), only one tree within the impact area may contain low-quality potential roost features for bats, in the form of flaking bark, small cracks and crevices. Trees within the regenerating tree fern-broadleaf forest do not currently provide roosting habitat. However, potential bat roost features may develop within this forest between granting of this consent and vegetation clearance. Without any effects management measures in place, the magnitude of effect on native long-tailed bats is determined as high.

A BMP will be implemented to manage potential effects. Key measures include:

- Vegetation clearance will be undertaken in accordance with DOC Bat Roost Protocols (2024) to reduce the felling of occupied trees.
- Surveys for potential bat roost trees will be undertaken no more than 6 months prior to each substantive phase of vegetation clearance.
- The BMP will be updated to ensure management measures are in line with current best practice.

With these measures in place, bat injury and mortality from vegetation clearance will be largely avoided, resulting in a low magnitude of effect. Therefore, the overall level of effects on native long-tailed bats will be less than minor.

7.3.12.5 Disturbance effects on indigenous fauna

In addition to the direct habitat loss resulting from vegetation clearance and earthworks, there is potential for indirect disturbance effects on native fauna from noise, vibration and light during the proposed works. These are assessed by species group below.

7.3.12.5.1 Birds

The native bird species identified as present or likely to be present across the LoQ footprint are frequently found in urban areas, indicating high tolerance for disturbance. Disturbance effects on native birds may arise from both vegetation clearance and the ongoing operation of the quarry, including noise, vibration, and light associated with quarrying activities. The proposed Quarry Expansion is not anticipated to result in an increased level of disturbance to these native birds using habitats on the edge of the quarry. Therefore, the magnitude of effect of disturbance on birds is considered negligible and the overall level of adverse effects will be less than minor.

7.3.12.5.2 Frogs

The EcIA indicates that no potential frog habitat in the southern tributary will be directly impacted by the Project. However, the groundwater drawdown has the potential to reduce baseflows in the Stream 1 main channel and the southern tributary, particularly in summer, which may reduce habitat quality for Hochstetter's frog. Without effects management in place, the magnitude of effect of potential groundwater drawdown on frog habitat is considered as moderate.

In order to minimise potential adverse effects on instream and riparian habitat that may support Hochstetter's frog, Stream 1 main channel is proposed to be augmented to maintain baseflows in accordance with the relevant consent conditions (attached as Appendix G).

Taking into account the implementation of effects management, the adverse effects of disturbance on frogs will be less than minor.

7.3.12.5.3 Bats

Acoustic surveys have confirmed that long-tailed bats use habitats around the existing quarry footprint, indicating the local population has adapted to the current disturbance conditions. Any additional disturbance caused by light and noise from overnight works has the potential to cause further adverse effects. In a worst-case scenario, bats may temporarily abandon habitats surrounding the quarry as they are forced to find alternative foraging grounds and commuting routes. Without any effects management in place, the magnitude of the effect of disturbance on long-tailed bats is considered to be moderate.

To manage potential light disturbance effects on native long-tailed bats, a number of lighting management measures, in addition to the proposed lighting consent conditions, will be implemented as detailed in the QMP (cc). These include:

- Lighting will be designed and operated to minimise light spill into the Stream 1 riparian margin and the Stream 3 offset area.
- Lighting design will incorporate DOC guidance on minimising impacts of artificial light on bats.

In relation to noise disturbance, the EcIA identifies evidence that bats can habituate to noise, and that activity levels recover quickly once noise ceases, indicating that any behavioural response is temporary. Overnight works are already provided for under the existing 2018 Consent and operate within the lower noise limits set in the proposed consent conditions (Appendix G)**.** Should bats temporarily avoid habitats adjacent to the quarry, sufficient alternative habitat exists to the north and south to support continued foraging and commuting without material impact. The magnitude of noise disturbance effects is considered negligible, resulting in a low overall level of effect.

With the proposed lighting and noise management measures in place, the overall adverse effects of disturbance on long-tailed bats are considered less than minor.

7.3.12.6 Conclusion

Due to the nature and scale of the Project, and because aggregate can only be extracted where it naturally occurs, the permanent loss of terrestrial habitat within the quarry footprint cannot be wholly avoided. Management measures will reduce the adverse effects of loss of 'At Risk - Declining' king fern, injury or mortality of indigenous fauna and disturbance effects on indigenous fauna. These measures include the transplantation of individual king fern plants to appropriate habitat (where practicable) within contiguous forest outside of the impact area or within offset plantings where suitable, bird and bat management measures set out in the AMP and BMP respectively, augmentation to maintain baseflows within Stream 1 main channel that support Hochstetter's frog habitat, and noise and lighting management via the QMP (cc) and proposed conditions of consent.

Residual effects on terrestrial values will be addressed through the terrestrial offset package of approximately 10.6 ha of restoration planting described in Section 5.1, which will be completed prior to the relevant vegetation clearance occurring and legally protected via vegetation covenants.

Overall, taking into account the management measures and the terrestrial offset package, it is considered that the adverse effects of the Project on terrestrial ecological values can be appropriately managed. The permanent loss of regenerating tree fern/broadleaf forest is addressed through the terrestrial offset package, which is anticipated to result in a net gain in biodiversity values. All other terrestrial adverse effects are considered to be less than minor.

7.3.13 Cultural values and impacts

As set out in Section 3.4.6, in total, nine iwi groups have been identified as having interests over the Site. Of these, Ngaati Whanaunga has provided a CVIA dated 11 September 2026, and Ngāi Tai ki Tāmaki has provided a letter dated 30 September 2026 (attached as Appendix E). Where this assessment refers to the cultural values, cultural impacts or concerns of Tangata Whenua, this reflects SAL's interpretation of those concerns expressed in the CVIA and the letter or during consultation.

The Ngāi Tai ki Tāmaki letter (Appendix E) does not identify site-specific cultural impacts or recommend consent conditions. It confirms Ngāi Tai ki Tāmaki support for continued engagement with SAL throughout the consenting process and, where appropriate, during the ongoing management and development of the Project. The letter also supports a formalised ongoing engagement framework, potentially through a Memorandum of Understanding (MoU), to establish clear expectations, processes and responsibilities for ongoing Mana Whenua input and cultural guidance.

As stated in the CVIA prepared by Ngaati Whanaunga (Appendix E), the iwi historically quarried stone for tools, weapons, building material and waka in accordance with tikanga, taking only what was needed. Quarrying is therefore not inherently inconsistent with Ngaati Whanaunga tradition, provided it is undertaken with respect for te taiao. The CVIA identifies cultural values associated with the Site, as detailed in Section 3.4.6.2 above.

The CVIA acknowledges that the Project will result in environmental and cultural impacts. The potential effects identified relate to land instability, surface water and flooding, groundwater, stream depletion, landscape, visual and natural character, blasting, erosion and sediment control, noise, traffic, freshwater and terrestrial ecological effects. These effects are assessed in Section 7 of this AEE report and are informed by the technical reports in Volume 2. The CVIA's recommendations focus on ongoing monitoring, water quality protection, ecological restoration, cultural heritage management, Mana Whenua involvement and long-term environmental accountability. Most of these matters are reflected, where practicable, in the proposed mitigation and management measures and conditions of consent.

Ngaati Whanaunga considers that these effects can be avoided, remedied, or mitigated through robust consent conditions, ongoing monitoring, ecological restoration and cultural participation. Overall, Ngaati Whanaunga has provided conditional support for the Project, expressing its willingness to work collaboratively with SAL throughout the life of the Project.

SAL is committed to continuing to engage with Tangata Whenua throughout the Project and ongoing operation of the Quarry.

7.3.13.1 Conclusion

Overall, a range of robust environmental management and mitigation measures are proposed in this application that will assist in addressing cultural impacts associated with the Clevedon Quarry Expansion. SAL has undertaken and will continue to actively engage with Tangata Whenua.

The level and extent of cultural effects are to be determined by Tangata Whenua. However, SAL has sought to address known and identified effects where practicable and is committed to maintaining an ongoing, constructive and responsive relationship with Tangata Whenua throughout the life of the Project.

7.3.14 Overall effects conclusion

The Clevedon Quarry Expansion will deliver significant positive effects, securing approximately 150 MT of greywacke aggregate for up to 50 years and avoiding an estimated $489.2 million to $1.5 billion in transport, emissions and social costs relative to out-of-region supply (refer to Section 7.2).

Most adverse effects will be less than minor or minor. Effects on archaeology, air quality, geotechnical stability, surface water and flooding, erosion and sediment control, groundwater, vibration and traffic will be managed through the quarry design and the management plans proposed as conditions of consent. Predicted noise levels remain compliant with the AUP limits at all receivers, with the change in the noise environment considered minor for the north cluster and 49 Mathis Road during Stage 1 and Stage 3 and less than minor for all other receivers. Effects on landscape character and natural character will be no more than minor, and visual amenity effects on public viewing audiences will be less than minor. Visual effects on private viewing audiences were assessed, but have been disregarded under section 104(1A)(f) of the RMA.

There are two areas where effects are more than minor. The permanent loss of approximately 2,392 m of stream habitat and 6.1 ha of regenerating tree fern/broadleaf forest within an SEA cannot be avoided given the in-situ nature of the aggregate resource and is more than minor at the point of impact. These residual ecological effects are addressed through the 67.6 ha offset and compensation package (refer to Section 5), which is anticipated to achieve a net gain in terrestrial biodiversity values and positive effects that outweigh the residual adverse effects on freshwater ecological values, consistent with the compensation principles of the NPS-FM.

In regard to cultural effects, SAL has received support in principle from Ngaati Whanaunga and Ngāi Tai ki Tāmaki. The proposed mitigation and management measures, and proposed consent conditions, generally address the concerns raised, and SAL is committed to ongoing engagement with Tangata Whenua.

Overall, having regard to the quarry footprint design, the management and mitigation measures, and the ecological offset and compensation package, the Project's adverse effects will be appropriately avoided, remedied, mitigated, offset or compensated.

7.4 Front of House consent[53]

The potential effects of the FoH consent are limited to the proposed change and any cancellations of consent conditions, and the effects of that change (rather than the consent as a whole).

As outlined in Section 4.3, this consent variation seeks to reduce the scope of the 2018 Consent, so it functions as a standalone FoH consent authorising the ongoing operation of ancillary quarry activities at the base of the quarry associated with mineral extraction activities. The variation does not seek approval for any new activities within the FoH area, nor does it seek to increase the scale or intensity of activities already authorised under the existing consent.

As set out in Section 4.3.5, the proposed variation is intended to take effect upon SAL notifying the Council that it is implementing the replacement consents for the Quarry Expansion. The associated surrender of the existing regional permits, and the requirement for commencement, are addressed in proposed conditions 5–7 of Appendix G of the Expansion consent.

7.4.1 Conditions to be varied

The 2018 Consent condition set is structured to include general conditions that apply to the bundled application (i.e., both Regional and Land Use consents), together with specific land use consent conditions and specific regional discharge consent conditions.

The intention of the s127 application is to vary only the land use consent aspect of the bundled decision. However, because the 2018 Consent includes general conditions applying to all consents, amendments to some of those conditions are also required.

Condition 1 of Part A – General Conditions has been varied to limit the scope of reports to FoH activities and updated to reflect the most recent and more applicable technical reports.

Amendments are also proposed to the QMP (cc) condition to align its administrative and monitoring requirements with those proposed under the Expansion consent, enabling a single plan to be prepared and implemented. This will streamline monitoring and compliance, avoid the complexity of operating under two separate sets of conditions, and ensure that the administrative and monitoring requirements for the QMP (cc) are consistent across both consents.

Condition 17 is proposed to be amended to remove reference to the 35-year term applicable to the water, air and discharge permits, as this term will be superseded by the Quarry Expansion permits, if granted.

7.4.2 Conditions to be cancelled – associated with Quarry Expansion Activities

Due to the proposed varied conditions which reduce the scope of what the consent authorises, there are subsequent conditions relating to blasting, vibration, expansion-specific noise monitoring, landscape rehabilitation associated with Quarry Expansion, vegetation clearance, long-tailed bat management and stream monitoring that are no longer necessary and are proposed to be cancelled from the 2018 Land Use Consent. These broader extractive components will instead be authorised through the new proposed Quarry Expansion consent if granted, including any conditions that are necessary to address these potential effects. As a result, the effects arising from activities authorised by the FoH consent will either remain unchanged or be reduced.

Importantly, as outlined in Section 7.1, dust, noise and landscape and visual effects have been assessed on a whole-of-project basis and should be read as addressing the overall quarry operation, rather than the activities of either consent in isolation.

[53] LUC60291842

7.4.3 Air quality

The air quality effects associated with the FoH consent are primarily limited to dust generated from ancillary FoH activities, including aggregate processing, crushing, stockpiling and the movement of material within the Site. As discussed in Section 7.3.2, the Air Quality Assessment has considered the effects of the Project as a whole, including both the proposed Quarry Expansion and FoH activities, and concludes that adverse air quality effects will be less than minor with the proposed mitigation measures in place. Given the Front of House consent will authorise a reduced scope of activities compared to the existing consent, the potential air quality effects associated with the variation are expected to be no greater than those currently authorised and are anticipated to be less than minor.

7.4.4 Noise and vibration

The proposed variation retains the core noise conditions from the 2018 Consent. Conditions 35 and 36, which set the noise limits and measurement requirements applicable to the FoH area, are retained unchanged. Condition 37, which required stage-by-stage noise monitoring commencing from Stage 3 of the 2018 quarry expansion, is proposed to be removed from the 2018 Consent and replaced by an equivalent condition under the proposed Quarry Expansion consent.

Consistent with the approach described in Section 7.1 above, noise effects have been assessed on a whole-of-project basis, encompassing both FoH activities and the proposed Quarry Expansion. The Assessment of Noise Effects (Technical Report D, Volume 2) considers the potential for adverse effects from the overall quarry operation across the entire LoQ extent. Vibration from blasting is addressed separately in the Drilling & Blasting Vibration Assessment (Technical Report L, Volume 2).

As assessed in Section 7.3.9 above, the quarry operation is predicted to become louder at most receiver locations as a result of the Quarry Expansion, while continuing to comply with the relevant AUP standards at all assessed receivers. The detailed findings by receiver cluster and quarry stage are set out in that section and are not repeated here.

Based on the nature of activities undertaken in the FoH area, effects from this area are expected to be limited to noise from ancillary activities, such as aggregate processing and vehicle movements. The Assessment of Noise Effects concludes that noise from the FoH area will comply with the relevant AUP limits and the proposed consent conditions, including the 55 dB LAeq daytime limit at all assessed receivers, with the highest FoH predicted level being 49 dB LAeq at 498 McNicol Road and 520 McNicol Road. As assessed in Section 7.3.8 above, vibration from blasting and associated air overpressure levels are predicted to comply with the relevant AUP standards and consent conditions at all nearby residential receivers. The detailed findings, including management measures through the BlaMP, are set out in that section and are not repeated here.

Taking into account the whole-of-project noise and vibration assessment, and noting that the proposed consent variation reduces the scope of activities authorised under the 2018 Consent, the potential adverse effects on sensitive receivers associated with this section 127 variation are considered to be less than minor.

7.4.5 Traffic

A Transportation Assessment (Technical Report C, Volume 2) has been prepared to assess the potential traffic effects associated with the Project. The present traffic generation of Clevedon Quarry represents a combination of aggregate transport movements associated with the quarry trucks travelling to and from the Site, and day-to-day staffing.

The FoH consent will not change the nature of off-site traffic movements which were comprehensively addressed through the previous consent process (including the Environment Court's consideration and expert conferencing between the parties including Stevenson, Auckland Council and AT). Critically, no changes are proposed to the limitations on truck movements granted under the 2018 Consent, which are considered to remain relevant and effective[54].

Given the Project will not result in any additional effects and the existing consent conditions will be retained (as shown in Appendix H), off-site traffic is not considered to be within the scope of this application. The findings of the Transportation Assessment are included below for completeness.

7.4.5.1.1 Quarry entrance

As demonstrated by the road safety review included in Technical Report C, Volume 2, the existing McNicol Road entranceway design and configuration is operating effectively and safely. The entrance was designed and has been progressively upgraded over time to serve the extent, scale and intensity of current traffic movements. As the existing traffic upgrade conditions[55] will be retained, the entrance will also be able to handle the ongoing traffic numbers up to the consented limits. Accordingly, the existing layout and design remains appropriate from both an operational and safety perspective.

7.4.5.1.2 Trip generation

As set out in Sections 3.4.3.3 and 4.3.4.3, current operations are within the maximum traffic generation cap under Condition 22 of the 2018 Consent (90 tmph and an average of 900 tmpd) and within the interim threshold of 45 tmph imposed by Condition 28(b), which applies until the road widening and upgrading works required by Conditions 60(a)–(f) have been completed.

The operations have not yet triggered the road widening and upgrading works required under Conditions 28(b) and 60(a)-(f). All relevant obligations triggered under the 2018 Consent to date have been complied with. The Transportation Assessment confirms the network has sufficient capacity to accommodate traffic within consented limits across the full 50-year operational period.

Overall, the proposed Front of House consent will not change the nature of traffic movements authorised by the existing 2018 Consent. All quarry-related traffic will continue to operate in accordance with the existing consented limits and route restrictions.

7.4.6 Conclusion

As noted at the outset of this section, certain effects have been assessed on a whole-of-project basis, encompassing both the FoH activities and the proposed Quarry Expansion. This reflects the fact that these effects arise from the overall quarry operation and cannot be meaningfully assessed by reference to the proposed consent boundaries alone.

Overall, while the variation will change the nature and scope of the activities authorised, the adverse effects arising from the activity such as air quality, noise, vibration, landscape, visual and traffic effects after the Front of House consent are considered to be less than minor or unchanged. The variation does not introduce any new activities or increase the scale or intensity of existing activities, and the removal of conditions relating to matters now addressed under the Quarry Expansion consent does not reduce the overall requirements of environmental management.

[54] Refer to conditions 21 to 27 and 28(b) of [2018] NZEnvC 96.
[55] Refer to conditions 28(b) and 60(a)-(f) of [2018] NZEnvC 96.

7.5 Relocation of ONF Planting Areas

SAL seeks to retain this consent due to it authorising the ongoing use of a short section of haul road in the ONF associated with mineral extraction activities.

As detailed in Section 4.4, four Planting Areas (parts of A and C, and the unplanted Areas B and E) are proposed to be relocated and delivered through the wider catchment-wide planting programme.

In effect, the proposed variation replaces the planting plan currently referenced in the consent with a revised planting plan. The effects of the proposed variation are limited to the landscape and visual effects of relocating the mitigation planting associated with the haul road widening. These effects are addressed below.

7.5.1 Changes to conditions sought

General Condition 1 is sought to be amended to refer to an updated Planting Plan titled "s127 – LUC60361560 Planting Areas – updated plan, Figure 22", prepared by Boffa Miskell Limited, dated 25 September 2026. Figure 22 is included in Appendix C and reproduced as Figure 7.1 below.

The existing planting plan reference is proposed to be removed and replaced with the revised planting plan, as follows:

General conditions

1. *The land disturbance activities shall be carried out in accordance with the documents and drawings and all supporting additional information submitted with the application, detailed below, and all referenced by the council as resource consent numbers LUC60361560.*

- *Application Form and Assessment of Environmental Effects prepared by Mark Tollemache of Tollemache Consultants Limited, dated July 2020.*
- *Clevedon Quarry Expansion Assessment of Environmental Effects Report prepared by Tonkin + Taylor Ltd dated 30 October 2026.*

Drawing title and reference	Author	Rev	Dated
…			
~~*Clevedon Quarry, Haul Road Extent – Planting Plan and Areas*~~ ~~*CQ-LPP006/2*~~	~~*Stevenson*~~	~~*-*~~	~~*14 January 2021*~~
s127 – LUC60361560 Planting Areas – updated plan, Figure 22	*Boffa Miskell Limited*	*0*	*30 October 2026*

Condition 5 is proposed to be cancelled as it relates to planting requirements that are no longer applicable.

~~5. That the final landform modification within 'Planting Area B' (as illustrated on the consented drawings CQ-LPP006/1 and CQ-LPP006/2) shall reinstate (as close as possible) the original contours of the land within this area, including to re-establish a landform peak at RL92. with all finished landform in this area to be of a slope that will accommodate new planting and that interfaces seamlessly with adjacent landform contours to achieve a natural landform appearance.~~

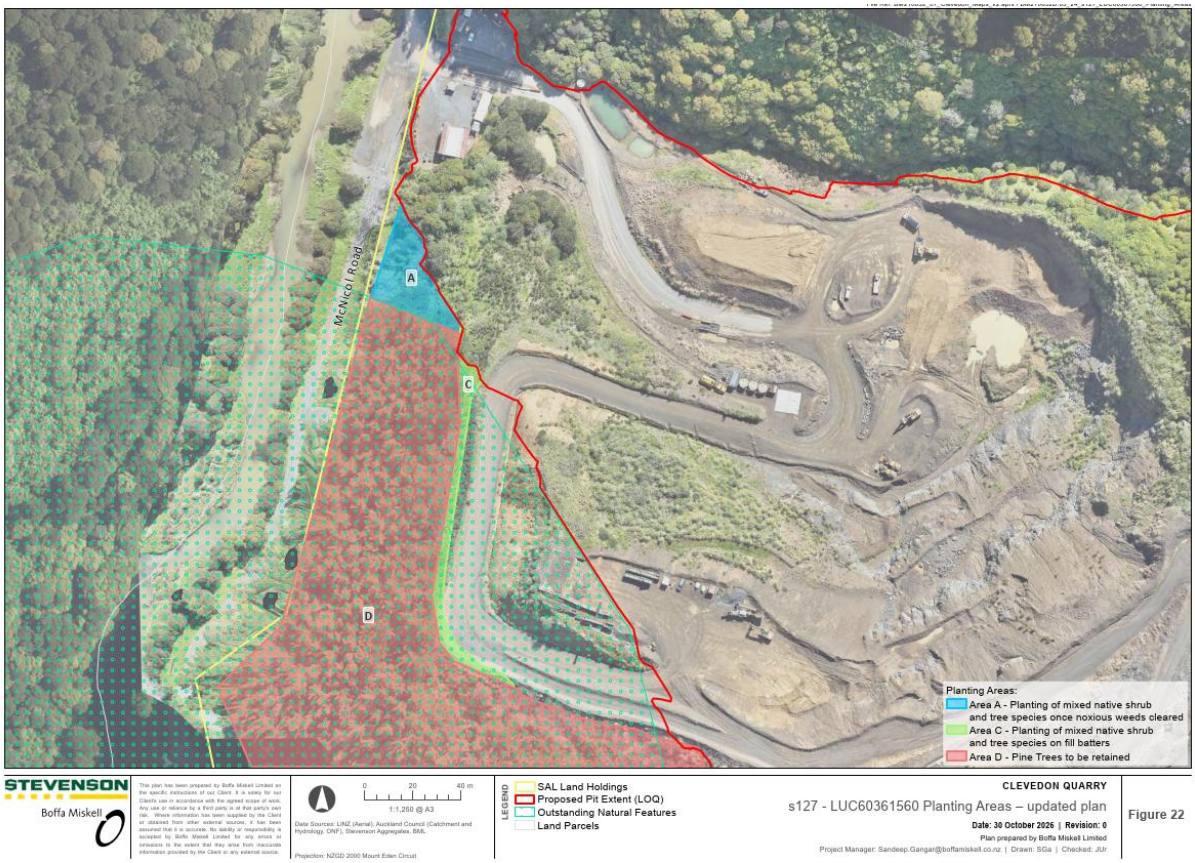


Figure 7.1: Proposed updated planting plan.

7.5.2 Landscape and visual

The LEA (Technical Report J, Volume 2) considers the change in extent of proposed planting can be appropriately addressed through the wider Project mitigation and offset and compensation package. The affected Planting Areas will be relocated and established in alternative locations, including areas adjoining the Wairoa River Gorge ONF.

As no physical works are proposed within the ONF, the variation will not result in direct landscape or visual effects within that overlay. The LEA also identifies visitors to the Wairoa Gorge Scenic Reserve as a public viewing audience and notes that views towards the Site from within the reserve are well contained by established vegetation, such that any visual effects on these users are considered neutral.

Accordingly, any adverse landscape and visual effects of the Relocation of ONF Planting Areas will be less than minor.

8 Consultation

Consultation as part of the Project has been ongoing both through the referral application process and as part of developing the substantive application.

A summary of the consultation undertaken to date is provided in the following sections. A log of all consultation undertaken to date and other relevant consultation documentation is included in Appendix D.

8.1 Auckland Council

Engagement with Auckland Council commenced on 29 January 2026, prior to the formal notification required under section 11 of the FTAA. This included a project briefing on 4 February 2026, a formal pre-application request on 17 February 2026, and formal notification issued on 5 March 2026.

Further correspondence with Auckland Council's Processing Planner occurred between 5 March and 1 April 2026, addressing queries regarding consenting pathways, technical assessments and the information proposed to accompany the referral application.

Following the acceptance of the referral application, Auckland Council provided comments to the Ministry for the Environment (MfE), including input from Auckland Council's Parks and Community Facilities Department (in its capacity as the owner and manager of the adjacent Hunua Ranges Regional Park), the Franklin Local Board and AT.

SAL responded to the comments on 17 August 2026, providing a response to each item, noting that a number of matters were considered outside the scope of the referral application or would be addressed in detail by the relevant technical specialists as part of the substantive application. SAL sought formal feedback from the relevant parties on whether the responses provided were satisfactory, and indicated its intention to maintain ongoing dialogue with Council ahead of lodgement of the substantive application.

On 7 September 2026, SAL confirmed that the outstanding comments had been reviewed and that responses to all matters had been provided, noting that the remaining technical matters would be addressed by the relevant specialists in the substantive application. SAL indicated its view that this correspondence had closed out the outstanding matters.

On 16 October 2026, SAL received the s30 letter from Auckland Council, confirming that there are no existing resource consents to which section 124C(1)(c) or 165ZI of the RMA would apply. The Council also confirmed that sufficient water is available in the Hunua Wairoa Greywacke Aquifer for the proposed groundwater take.

A full record of this correspondence is included in Appendix D.

8.2 Department of Conservation

A section 11 letter seeking formal engagement with the DOC was issued on 19 March 2026 ahead of lodgement of the referral application. Following payment of the required deposit, an initial meeting was held on 14 April 2026 during which SAL's consultant planner provided an overview of the Project and SAL's consultant ecologist provided an overview of the likely terrestrial ecology effects. At that time, a Wildlife Approval was being sought on a conservative basis for the potential direct or indirect effects on Hochstetter's frog habitat.

Following the approval of the referral application, SAL undertook additional ecological investigations, with a particular focus on Hochstetter's frogs. As set out in Section 3.5.9.2.4 above, no Hochstetter's frogs were detected within the impact area. On the basis of these findings, a Wildlife Approval is no longer required as part of the application.

SAL updated DOC on these findings in September 2026 and confirmed that no Wildlife Approval would be sought as part of the fast-track application. DOC confirmed that, in the absence of Conservation Approvals being sought, the matter had been passed to its RMA team, and that its Statutory Land Management Team did not wish to comment further until the substantive application is lodged and the full suite of documentation is available. A full record of this correspondence is included in Appendix D.

8.3 Tangata Whenua

Section 3.4.6 lists the nine iwi groups identified as having an interest over the Site, including those registered in the Auckland Council GeoMaps Cultural Heritage Inventory. Of these groups the following registered an interest in the Project and ongoing engagement is being undertaken:

- Ngāti Paoa Iwi Trust.
- Ngāti Whanaunga.
- Waikato-Tainui.
- Ngāi Tai ki Tāmaki; and
- Ngāti Tamaoho.

An overview of the consultation and engagement undertaken to date is included in Appendix D and is summarised below.

8.3.1 Ngāti Paoa Iwi Trust

The Site is located within the rohe of Ngāti Paoa which is shown on Auckland Council GeoMaps database as extending from north of Warkworth down to the Auckland Regional boundary, remaining generally eastwards of Pukekohe.

In response to the initial engagement in October 2025, Ngāti Paoa Iwi Trust responded to SAL requesting a tenure report to be completed as Ngāti Paoa hold the view that the land sits within their rohe. SAL confirmed they will commission this report and work with Ngāti Paoa to get this completed.

During this initial engagement, Ngāti Paoa advised SAL whom to contact. SAL subsequently made several attempts to engage with Ngāti Paoa's nominated agent but was unable to establish contact.

8.3.2 Ngaati Whanaunga

The Site is located within the rohe of Ngaati Whanaunga (refer to Section 3.4.6.2).

Following the initial email sent in October 2025, Ngaati Whanaunga responded on 19 February 2026 confirming their involvement in the consultation process. A site visit was also requested, which was subsequently undertaken on 12 March 2026. Following this, a request was made by Ngaati Whanaunga for a copy of technical reports to assist the preparation of a CVIA. The draft technical reports were provided to Ngaati Whanaunga on 18 August 2026. On 2 October 2026, Ngaati Whanaunga provided a CVIA (dated 11 September 2026), which assesses the cultural, environmental, spiritual and socioeconomic implications of the proposed quarry expansion from the iwi perspective and provides recommendations that can be incorporated into the Project design, consent conditions and long-term management. The CVIA is attached as Appendix E and summarised in Section 7.3.13.

The CVIA acknowledges that the Project will result in potential environmental and cultural effects, which are assessed in Section 7 of this AEE report. Ngaati Whanaunga considers that these effects can be avoided, remedied, or mitigated through robust consent conditions, ongoing monitoring, ecological restoration, and cultural participation. Most matters raised by Ngaati Whanaunga have been addressed through proposed conditions of consent and mitigation and management measures, where practicable.

Overall, Ngaati Whanaunga has provided conditional support for the Project, expressing its willingness to work collaboratively with SAL throughout the life of the Project.

Remaining matters raised in the CVIA, such as provision of funding for on-site monitoring and environmental reporting to iwi, are considered to be best addressed outside of the regulatory process. SAL will continue to engage with Ngaati Whanaunga throughout the processing of the application and, if consent is granted, during quarry operations, including on these remaining matters.

8.3.3 Waikato-Tainui

As mapped by Auckland Council GeoMaps database, the Site is located within the rohe of Waikato-Tainui. The rohe in the Auckland Region covers just north of the central business district of Tāmaki Makaurau, extending in all directions to the Council boundary.

A response to SAL's initial engagement email was received on 23 October 2025, outlining the position of Te Whakakitenga o Waikato. SAL confirmed receipt of the email and advised that Waikato-Tainui will be kept up to date.

During the processing of the referral application, Waikato-Tainui asked for a copy of the documentation, which was provided. However, no further action has been undertaken since then.

8.3.4 Ngāi Tai ki Tāmaki

The Site is located within the rohe of Ngāi Tai ki Tāmaki, encompassing from the top of Kohukohunui maunga to Otata on Great Barrier Island in the east, then to Kawau Island and south to Te Onewa down State Highway 1 to Mangatawhiri and back north to Kohukohunui.

Kōrero with Ngāi Tai ki Tāmaki has been ongoing for a number of years and has been more consistent since the details of a proposed expansion of the Clevedon Quarry started to be formed.

Ngāi Tai ki Tāmaki responded to the initial Project engagement correspondence in October 2025, stating that they wish to engage and have a hui. SAL confirmed willingness to have ongoing hui, with the first hui held on 11 December 2025. Hui were then held on 27 January 2026, 11 February 2026, 3 March 2026 and 30 March 2026, and engagement has continued through to September 2026. Matters discussed during the hui included possible options for ecological offsetting, possible preparation of a CVIA and opportunities to further develop the relationship between SAL and Ngāi Tai ki Tāmaki.

On 30 September 2026, Ngāi Tai ki Tāmaki provided a letter (attached as Appendix E) acknowledging SAL's engagement to date and confirming its support for continued engagement with SAL. Ngāi Tai ki Tāmaki considers that a one-off CVIA would not provide the most appropriate mechanism for ensuring meaningful and enduring Mana Whenua involvement. The iwi considers that a formalised ongoing engagement framework, potentially through an MoU, would provide greater value. SAL will continue to engage with Ngāi Tai ki Tāmaki throughout the processing of the application and the life of the Project and will progress discussions with the iwi on a formalised engagement framework, such as an MoU, outside of the consenting process.

8.4 Key stakeholders

Landowners, occupiers, requiring authorities and community groups located in proximity to the site were identified as key stakeholders by SAL. Since acquiring the site in 2019, SAL has maintained ongoing engagement with the local community and iwi. Engagement with the stakeholders listed below in relation to the proposed expansion and substantive application commenced at different times, as described in the consultation documentation attached as Appendix D.

The key stakeholders consulted on the Project include:

- Owners and occupiers of land adjacent to the Clevedon Quarry and SAL landholdings, including owners of private properties adjoining publicly owned land, and additional properties identified in the Assessment of Noise Effects (Technical Report D, Volume 2) and Air Quality Assessment (Technical Report F, Volume 2).
- Auckland Council, including Auckland Council Parks as owner and manager of the adjoining Hunua Ranges Regional Park.
- DOC, as manager of adjoining Crown land.
- Watercare Services Limited, as requiring authority for water supply designations on adjacent land (Designations 9500, 9501 and 9541).
- The Minister of Police, as requiring authority for Designation 5728 at 501 Otau Mountain Road.
- The Clevedon Quarry CLG.
- Friends of Te Wairoa; and
- The wider Clevedon community.

Engagement has included letter drops, emails, phone calls and meetings, quarterly CLG meetings, two Community Information Days held prior to lodgement of the referral application, and Project information and contact details provided on the Stevenson website. Feedback from surrounding property owners has been limited and has mainly related to road upgrades, the extent of the quarry expansion and truck access. Watercare has not sought a meeting at this stage and will review the relevant specialist assessments. The Minister of Police has advised that no further discussion is required at this stage.

Further details of the consultation undertaken, including a record of correspondence with each party, are included in the consultation log (Appendix D).

9 Statutory assessment

When undertaking an assessment of this application the requirements and information that must be considered as set out in sections 42 to 44 and Schedule 5 of the FTAA include:

- The purpose of the FTAA.
- The provisions of Parts 2, 3, 6 and 8 to 10 of the RMA that direct decision-making on an application for a resource consent (but excluding section 104D of the RMA).
- The relevant provisions of any other legislation that directs decision making under the RMA.

When considering applications under the FTAA, Schedule 5, clause 17 states that when considering a consent application, the panel must give the greatest weight to the purpose of the FTAA. Section 3 of the FTAA sets out its purpose which is:

The purpose of this Act is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits.

The relevant transitional consenting amendments introduced by the Planning Act 2026 are in force from 30 October. This assessment has therefore been prepared having regard to the amended RMA provisions that apply from that date, including section 104(1A) of the RMA and the related amendments to Schedule 5 of the FTAA.

9.1 Resource Management Act 1991

The provisions of the RMA that are required to be assessed are set out and assessed below.

9.2 Section 104 – Consideration of applications for resource consent

Section 104(1) of the RMA sets out the matters which a consent authority must have regard to, subject to Part 2 of the RMA, [56]and, where applicable, section 104(1A) of the RMA, when considering an application for resource consent. With respect to this Project, the relevant parts of section 104 include:

- Any actual or potential effects on the environment of allowing the activity, subject to the effects required to be disregarded under section 104(1A).
- Any relevant provisions of a national policy statement, a coastal policy statement, regional policy statements and plans.
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

These are set out below.

9.3 Section 104(1)(a) – Actual and potential effects on the environment

The proposed Quarry Expansion covers a range of activities. These activities will occur during both the construction and operational phases of the Project and may result in actual and potential effects on the environment which need consideration and assessment under section 104 of the RMA. For the purpose of the section 104 assessments, the identification of relevant effects (as proposed to be mitigated or offset) are comprehensively assessed in Section 7 of the AEE. That assessment has been prepared subject to the effects that must be disregarded under section 104(1A) of the RMA.

[56] Under the FTAA, Part 2 of the RMA is limited to sections 5, 6 and 7 of the RMA – see clause 17(2)(a) of Schedule 5.

Although the Project gives rise to a range of potential effects on the environment, overall, the majority of these can be appropriately managed through design and/or operational mitigation methods. Adverse effects resulting from the proposed works are summarised below:

- Quarry Expansion: It is considered that minor and less than minor adverse effects will occur for archaeology, air quality, geotechnical, surface water and flooding, groundwater, erosion and sedimentation, vibration, noise, landscape and natural character and traffic. Two effects have been identified as having more than minor adverse effects: the permanent loss of freshwater habitat and 6.1 ha of regenerating tree fern/broadleaf forest within an SEA. These more than minor residual effects cannot be avoided, remedied or mitigated at the point of impact and will instead be addressed through a comprehensive freshwater offset and compensation package described in Section 5, which is designed to provide for positive effects that outweigh the residual adverse effects on freshwater ecological values (refer to Section 7.3.11).
- 2018 bundled consent variation – scope reduction: It is considered that the proposed scope reduction will not introduce any new or additional adverse effects. The cancellation of conditions removing requirements for activities that are no longer required is also not expected to result in any adverse effects.
- Relocation of ONF Planting Areas: Replacement of the authorised Planting Plan will result in less than minor landscape and visual effects.

This has been achieved through careful consideration in regard to the design of the Quarry Expansion (as described in Section 4 of the AEE), the size of the landholdings owned by SAL, and management and mitigation measures offered as conditions of consent (Appendix G). The Project also gives rise to significant positive effects, which are assessed in Section 7.2 of the AEE, including the provision of a regionally significant mineral resource for Auckland, substantial economic benefits associated with local aggregate supply, and ecological gains delivered through the offset and compensation package.

9.4 Section 104(1)(ab) of the RMA – Measures proposed for ensuring positive effects on the environment to offset and compensate for any adverse effects on the environment

Under section 104(1)(ab) of the RMA, a decision maker must consider the positive effects on the environment to offset or compensate for any adverse effects on the environment that will result from the proposed activity.

There is a functional need for the expansion of Clevedon Quarry to be located within the area identified, as that is where the existing quarry and associated infrastructure is located and the resource resides in situ, and predominantly within an area zoned specifically for aggregate extraction. As set out above, avoidance of all adverse effects is not practicable. Where adverse effects cannot be avoided, they will be remedied and mitigated. Residual adverse effects on freshwater and terrestrial ecology are proposed to be addressed through a comprehensive ecological package (refer to Section 5 and Table 5.1) designed to achieve a Net Gain in terrestrial biodiversity values and provide for positive effects on freshwater ecological values. This includes restoration planting along 20 m riparian margins (with both banks planted) of approximately 4,510 m of Stream 3 and its tributaries as freshwater offset, freshwater compensation planting in the upper Stream 3 catchment, and terrestrial offset planting, all legally protected in perpetuity through vegetation covenants and conditions of consent. This will result in approximately 67.6 ha of restoration planting in total within the Stream 3 catchment, comprising approximately 16.6 ha of riparian offset planting, approximately 40.4 ha of freshwater compensation planting, and approximately 10.6 ha of terrestrial offset planting, the latter to address the loss of approximately 6.1 ha of regenerating tree fern/broadleaf forest. The overall package is of a quantum to address the residual adverse effects. The revegetation planting and enhancement have been designed to create a fully forested corridor linking the Wairoa River to the Hunua Ranges, connecting the existing vegetation fragments within the Stream 3 catchment and improving connectivity and buffering to the mature native forest and treeland within that catchment.

For these reasons, it is considered that in time, the ecological package is expected to result in long-term regional ecological benefits that offset the effects. In particular, the restoration and enhancement of retained aquatic habitats will provide for habitat creation, biodiversity gains and restore connectivity to existing habitats. From a terrestrial perspective, there will also be significant restoration of plantings across two restoration areas adjoining the quarry, where areas of vegetation will be reconnected and enhanced.

9.5 Section 104(1)(b) – Relevant provisions

Section 104(1)(b) and clause 5(2) of Schedule 5 of the FTAA require an application for a resource consent to have regard to any relevant provisions of documents listed in s104(1)(b)(i-vi).

The Project is subject to a range of planning documents:

- National Environmental Standards for Freshwater and Air Quality.
- National Policy Statements for Freshwater Management, Infrastructure, Natural Hazards and Indigenous Biodiversity.
- The AUP RPS.
- The regional and district components of the AUP.

The Project is assessed against these planning documents in the following sections, and a detailed assessment of the Project against the NPS, RPS and AUP is attached at Appendix F. These assessments conclude that the Project is overall consistent with the policy direction set out in these documents. However, in accordance with Schedule 5, clause 17 of the FTAA, this assessment does not reach a conclusion as to whether the Project is contrary to specific policies, as such conclusion is not required.

The detailed assessment of relevant AUP objectives and policies in Appendix F has been structured on a provision-by-provision basis and provides detailed comment on how Project elements engage with the relevant policy direction. The following assessment provides a summary of this assessment with a particular focus on the policy sets that apply to key Project activities and taking fair appraisal of the relevant objectives and policies, read holistically, interpreting them in their context.

For the Project, the provisions of the NPS Infrastructure, AUP and RPS which anticipate and enable quarrying and mineral extraction need to be considered alongside protections provided to freshwater systems, indigenous biodiversity and cultural values in the AUP, as well as the NPS-FM and NPS-IB.

Read together, the provisions of these documents recognise the significance of mineral extraction activities, and the highly constrained nature of their locations (i.e. the minerals *are where they are*), while requiring that effects on environmental values are either minimised, or where impact cannot be minimised, which is more likely, offset through other measures. The purpose of the offset measures is to avoid harm to the relevant values overall. The Project has achieved this requirement through a comprehensive package of mitigation measures, as well as an offset and compensation package, which ensure that the underlying values protected by the 'protective policies' are not materially harmed (and indeed, are generally enhanced).

9.5.1 National environmental standards

National Environmental Standards prescribe standards for environmental matters in accordance with section 43 of the RMA. Each local authority must enforce the National Environmental Standards. Where specified, a local authority can impose stricter or more lenient standards than those set out in a National Environmental Standard. The relevant National Environmental Standards are set out below.

Overall, the Project requires consent under a number of National Environmental Standards as set out in Section 6.1.1. These consents are included and assessed within this application and the Project is able to meet the requirements set down to enable the grant of consent.

9.5.1.1 National Environmental Standards for Freshwater 2020

The NES-F came into force in 2020 and is relevant as the proposed works involve reclamation of streams. Quarrying activity[57] is proposed within the beds of streams. Accordingly, SAL is seeking resource consent as a discretionary activity under Regulation 57 of the NES-F.

Regulation 57(2) of the NES-F provides that a consent authority must not grant resource consent under this regulation unless it has first: (a) satisfied itself that there is a functional need for the reclamation of the river bed in that location; and (b) applied the effects management hierarchy. SAL submits that both requirements are satisfied, as set out below.

Functional need — Regulation 57(2)(a)

As addressed in Section 2 of the AEE, the reclamation of streams at the Clevedon Quarry is required for the quarrying activities. As discussed in Section 7 of the AEE and in the Economic Assessment in Technical Report A, Volume 2, the quarrying activity at the Clevedon Quarry Expansion will provide significant regional benefits and is vital for the growth and maintenance of the region, both in regard to housing, business and infrastructure. There is a clear functional need for the quarrying to occur in the proposed expansion location as that is where the aggregate resource is located in situ. This is supported by the Clevedon Quarry Expansion area predominantly being zoned specifically for this purpose through the AUP.

Effects management hierarchy — Regulation 57(2)(b)

As detailed in Sections 7.3.11.2 and 9.3, the layout of the proposed Quarry Expansion has been designed to apply the effects management hierarchy. The following steps have been applied:

[57] Quarrying activities is defined in the National Planning Standards 2019.

Avoidance: The design avoids direct effects on the Stream 1 main channel due to its high ecological value. The proposed footprint has also been designed to avoid wetlands and minimise incursion into areas of significant native vegetation where practicable. The southernmost extent of the quarry pit boundary was also moved closer to the existing pit to reduce the extent of direct impacts on Stream 3 headwater tributaries and allow the entire Stream 3 catchment to be retained for offset and compensation. Despite these design measures, the permanent reclamation of approximately 2,392 m of stream habitat across four catchments, equivalent to approximately 1,182 m² of streambed area, cannot be wholly avoided given the in-situ nature of the aggregate resource.

Remedy and mitigation: Where stream reclamation cannot be avoided, adverse effects will be remedied and mitigated through the measures described in Section 7.3.11, including the FMP (salvage and relocation of freshwater fauna prior to instream works), erosion and sediment controls, the constructed wetland, flow augmentation of Streams 1 and 3, and the ARMP.

Offset and compensation: The Project has sought to work through the effects management hierarchy with avoidance and mitigation as the first priorities. Any residual adverse effects on freshwater are proposed to be offset and compensated through a comprehensive ecological restoration package designed to achieve catchment scale benefits to freshwater ecological values, as detailed in Section 5 of the AEE.

9.5.1.2 National Environmental Standard for Air Quality

The NES-AQ came into effect in June 2011. The NES-AQ sets out the ambient air quality standards for a number of contaminants for the protection of human health.

The standards specified in the NES-AQ are considered in the Air Quality Assessment (Technical Report F, Volume 2) and summarised in Section 7.3.2, which concludes that total cumulative PM10 concentrations will remain well below the NES-AQ criteria, the AAQG and the 2021 WHO AQGs, and that adverse dust effects will be less than minor with continued implementation of the DMP.

Overall, the NES-AQ does not cause any issues for granting of the proposed air discharge permit for the proposed Quarry Expansion at the Clevedon Quarry.

9.5.1.3 Resource Management (Measurement and Reporting of Water Takes) Regulations 2010

The Project includes an application for a water take permit, which will exceed a rate of 5 litres/second; therefore, the Water Take Regulations must be considered. Recommendations set out in Technical Report G and Conditions attached as Appendix G set out the proposed regime for measuring and reporting water use in accordance with these Regulations.

9.5.2 National policy statements

Overall, the Project is considered consistent with the relevant National Policy Statements, as set out below in more detail.

9.5.2.1 National Policy Statement for Freshwater Management 2020

The NPS-FM came into force on 3 September 2020 and provides direction on how local authorities should manage freshwater (including groundwater) under the RMA.

The central concept of the NPS-FM is ‘Te Mana o te Wai’ which "is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community".

The Resource Management (Freshwater and Other Matters) Amendment Act was passed in October 2024 which amends sections 92, 104 and Schedule 4 of the RMA to remove the requirement to consider the hierarchy of obligations contained in clauses 1.3(5) and 2.1 of the NPS-FM from resource consent applications, and resource consent decisions.

An assessment of the Project against the relevant provisions of the NPS-FM is set out in Table 6 of Appendix F.

The Project is consistent with all relevant provisions in the NPS-FM, and therefore consistent with the NPS-FM's overall policy direction, including with respect to Te Mana o te Wai, because:

- The operation and expansion of Clevedon Quarry will be managed to maintain the health and well-being of water bodies and freshwater ecosystems, with robust controls in place to manage sediment runoff and other contaminants.
- Human health needs are not adversely affected, given there are no known drinking water bores close to the Site and no bore drawdown interference effects on neighbouring groundwater users are anticipated.
- The Project provides significant regional benefit by securing a reliable and high-quality future supply of locally sourced aggregate from the Auckland Region to enable the efficient and cost-effective delivery of regionally and nationally significant infrastructure projects and urban development.
- Te Mana o te Wai is given effect through mitigation measures to avoid, minimise or manage effects on freshwater, as well as offsetting and compensation where that is not possible, including robust sediment controls, a WMS incorporating a constructed wetland for water quality treatment.
- The Project avoids any loss of natural inland wetlands, avoids direct impacts on natural streams to the extent practicable and provides for indigenous freshwater species through an FMP, including a fish salvage and relocation prior to instream works. Residual loss of freshwater habitat values will be offset through a comprehensive ecological offset and compensation package, designed to achieve catchment scale benefits to freshwater ecological values.

9.5.2.2 National Policy Statement for Infrastructure 2025 (NPS-I)

The NPS-I sets out the objectives and policies for infrastructure under the RMA and came into force on 15 January 2026, which recognises infrastructure as nationally significant and aims to support community wellbeing, health and safety, while ensuring environmental impacts are appropriately managed. It applies to all infrastructure activities and infrastructure supporting activities, except for activities specified under clause 1.3 of the NPS. Under the NPS-I, quarrying activities are considered ‘infrastructure supporting activities’, as they are needed to directly support other infrastructure.

The overarching objective of the NPS-I (Objective 1) is to:

a Ensure the national, regional and local benefits of infrastructure are provided for.

b Enable infrastructure to support the social, economic and cultural wellbeing of people and communities and their health and safety.

c Enable infrastructure to support the development and change of urban and rural environments to meet the diverse and changing needs of present and future generations.

d Ensure infrastructure is well-functioning, resilient and compatible, as far as practicable, with other activities.

e Ensure infrastructure is delivered in a timely and efficient manner while managing adverse effects from or on infrastructure.

It is considered that the Project is enabled and directly supported by the relevant objective and policies of the NPS-I for the reasons summarised below, with detailed assessment provided in Appendix F:

- The Project provides significant regional benefits by helping to secure a reliable and high-quality future supply of locally sourced aggregate for the Auckland Region, which supports the efficient and cost-effective delivery of housing, roading and infrastructure projects as well as urban development. These activities in turn will provide positive social and economic benefits for the region, as set out in Section 7.2. This directly supports Objective 1(a), (b) and (c) of the NPS-I.
- Broadly, the NPS-I reinforces that quarrying activities are of importance to the development of infrastructure, but there are locational requirements. Notably, there is a functional need for quarrying to occur in areas containing identified aggregate resources. There are also no practicable alternative locations for the proposed expansion given that the greywacke resource exists in situ within the existing Clevedon Quarry landholding and the ability to maximise the use of quarry FoH infrastructure at the Site.
- As the existing quarry site is an existing well-established operation, with the FoH area continuing to be used to process aggregate, the expansion will be delivered in a timely and efficient manner across proposed indicative stages while managing adverse effects as set out in Section 7 of the AEE. This is consistent with Objective 1(d) and (e) of the NPS-I.

As set out in Section 2.3.3, the Economic Assessment (Technical Report A, Volume 2) concludes that, even allowing for the other quarry expansions recently approved or being prepared in the Auckland region, locally sourced aggregate is insufficient to meet Auckland's requirements across all supply and demand combinations.

9.5.2.3 National Policy Statement for Natural Hazards 2025 (NPS-NH)

The NPS-NH came into force on 15 January 2026. This NPS manages natural hazard risk and applies to all activities managed under the Act, except for infrastructure[58] and primary production. As detailed in Sections 7.3.3 and 7.3.4, the quarry has been designed to respond to natural hazards, in particular slope stability (i.e., potential for landslips) and flooding.

The Project is considered to be consistent with the relevant objective and policies of the NPS-NH for the reasons summarised below, with detailed assessment provided in Appendix F:

- Natural hazard risk associated with the proposed Clevedon Quarry Expansion, including seismic risk, slope stability, geological uncertainty and flooding, has been assessed using best available and up-to-date hazard information, and managed using a risk-based proportionate approach.
- The quarry design has been amended to address potential slope instability risk associated with the upper residual soil and weathered quarry batters. The recommended slope geometry and bench/batter configuration has been incorporated into the design to provide acceptable levels of batter performance and appropriately manage the effects of slope instability.

[58] As defined by the RMA.

- The Project will not create or increase natural hazard risk on any other sites. A comprehensive suite of mitigation measures has been incorporated into the Project design to manage the potential effects of modification of existing drainage patterns and the resulting increase in contributing quarry catchment area, flooding risk and storm events up to and including the 100-year ARI, incorporating a 3.8°C climate change allowance. These measures comprise ESC measures, the quarry sump, the newly constructed wetland and the treatment train approach, and will ensure that post-development stormwater flows do not increase downstream flooding risks or result in degradation of downstream water quality.
- Collectively, the proposed mitigation measures manage natural hazard and flooding risks in a manner proportionate to the level of risk identified in the technical assessments.

9.5.2.4 National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB)

The NPS-IB came into force on 4 August 2023. It provides increased clarity and direction to councils on their roles and responsibilities for identifying, protecting and maintaining indigenous biodiversity under the RMA. An assessment of the Project against the relevant provisions of the NPS-IB is set out below.

Clause 3.10 specifies how adverse effects on significant natural areas (SNA) will be managed for new subdivisions, use and development. However, the NPS-IB also specifically sets out a list of exceptions under clause 3.11. Of relevance to this application is the following exception for aggregate extraction:

> *(1) Clause 3.10(2) does not apply, and any adverse effects on an SNA of a new subdivision, use or development must be managed in accordance with clause 3.10(3) and (4), if: […]*
>
> *(a) the new subdivision, use or development is required for the purposes of*
>
> *(iii) quarrying activities that provides significant national or regional benefit. and*
>
> *(b) there is a functional need or operational need for the new subdivision, use or development to be in that particular location. and*
>
> *(c) there are no practicable alternative locations for the new subdivision, use or development.*

This exception provides context to the consideration and assessment of quarrying activities under the NPS-IB. It reinforces the position that quarrying activities are likely to result in some adverse effects or loss of biodiversity due to their locational requirements. As set out in Sections 9.5.1.1 and 9.5.2.2, there is a functional need for the quarrying to occur in the proposed location, there are no practicable alternative locations, and the Project provides significant regional benefit.

The Project is consistent with all relevant provisions of the NPS-IB, and therefore consistent with the NPS-IB's overall policy direction for the below reasons:

- Through the application of the effects management hierarchy and the comprehensive terrestrial offset package, the Project will achieve the NPS-IB objective of at least no overall loss in indigenous biodiversity. SAL has sought to protect indigenous biodiversity by designing the proposed works on the site to avoid and minimise effects on SEAs, where possible. The Project proposes to set back from the regenerating tree fern-broadleaf forest as far as practicable. However, to facilitate the Quarry Expansion, a small area of this vegetation type will be removed (Objective 1).

- Due to the in-situ nature of aggregate, the ability to avoid indigenous biodiversity is limited. Where adverse effects on vegetation cannot be avoided or mitigated, the Project proposes to offset and compensate for vegetation loss. The offset and compensation sites are located in close proximity to the impact areas, providing a net gain in biodiversity values for terrestrial biodiversity values (Policy 9).
- The Project has been consulted on with a number of iwi groups. This has included discussion around how to protect indigenous biodiversity on the site and understanding the cultural values of this biodiversity. Tangata Whenua have given a strong preference for native planting to occur for any revegetation on site (whether for ecological or landscape purposes) and as close to the impact site as possible. This has been adopted by SAL (Policies 1 and 2).
- The quarrying activities at the Clevedon Quarry Expansion will contribute to New Zealand's social, economic, cultural, and environmental wellbeing, which are recognised and provided for as set out in this NPS (Policy 10).

9.5.3 Auckland Unitary Plan

The AUP is a combined regional and district plan as provided for under section 80 of the RMA and also includes the regional policy statement. FTAA, Schedule 5, clause 17(1)(b) requires Part 6 of the RMA (resource consents) to be taken into account and clause 5(2) requires an application for a resource consent to have regard to any relevant provisions of documents listed in s104(1)(b)(i-vi). Under section 104(1)(b)(v) and (vi) of the RMA, which is included in Part 6 of the RMA, an assessment of the AUP is required. The plan is set out in a clear hierarchy of provisions, beginning with the regional policy statement provisions first. These objectives and policies set the high-level framework and give the overview of the issues of the region. The subsequent objectives and policies within the regional and district provisions must give effect to these. In other words, the AUP is deliberately a vertically integrated plan, which is intended to be read and applied as such.

A provision-by-provision analysis of the Project against the RPS and AUP is contained at Appendix F.

9.5.3.1 Auckland Unitary Plan Regional Policy Statement

The AUP RPS is required by sections 59 to 62 of the RMA, to provide an overview of the resource management issues of the region and policies and methods to achieve integrated management of the natural and physical resources of the whole region. The AUP RPS must also give effect to any NPS. It also has a relationship with the Auckland Plan, which is prepared under sections 79 and 80 of the Local Government (Auckland Council) Act 2009 and sets out a long-term strategy for Auckland's growth and development.

The AUP RPS provisions set out a number of issues of regional significance, creating an over-arching framework which is given effect to in the regional and district plan sections of the AUP. The AUP RPS objectives and policies are concerned with managing effects, but also with supporting and enabling regionally significant infrastructure to operate efficiently to support the population. Of particular significance to this Project are the following sections of the AUP RPS:

- Urban growth and form – Auckland's growing population increases demand for housing, employment, business, infrastructure, social facilities and services. Growth needs to be provided for, including the provision and use of infrastructure in a way that is efficient, effective and timely.
- Infrastructure, transport and energy – the quality of the environment and the well-being of people and communities are affected by the management of and investment in infrastructure.
- Natural heritage – outstanding natural features and landscapes are identified and protected, ancestral relationships of Tangata Whenua and their culture and traditions with the landscapes are recognised and provided for.

- Natural resources – the combination of urban growth and past practices have placed pressure on land and water resources, including habitats and biodiversity, reduced air quality and increased demand for mineral resources.
- Issues of significance to Tangata Whenua – recognising Treaty of Waitangi, protecting Tangata Whenua culture and landscapes and recognising the interests, values and customary rights.

Analysis of the Project against the key RPS themes outlined above, alongside the associated regional plan and district plan provisions of the AUP is provided in Table 9.1 below. A detailed assessment of the Project against the specific objectives and policies of the AUP is provided in Appendix F.

Table 9.1: Key themes

Theme	Relevant objectives and policies	Comment
SPQZ		
Quarry zone character and adverse effects	H28.2(1) H28.2(2) H28.3(1) H28.3(2) H28.3(3) H28.3(4) H28.3(5) H28.3(6) H28.3(7)	The majority of the Clevedon Quarry Expansion (approximately 80%) is located within the SPQZ. This zone provides for significant mineral extraction activities to ensure that mineral extraction can continue in a manner that minimises adverse effects. The zone prioritises supply of mineral sources from within Auckland and seeks to ensure that demand for minerals can be met. The proposed expansion is located within the SAL landholdings and extends the existing Clevedon Quarry pit, containing significant in-situ mineral resource. The quarry will remain in continued operation throughout the expansion. The existing FoH, ancillary infrastructure and quarry plant will be retained and expanded, allowing for efficient use of established infrastructure and avoiding the need to establish new processing facilities at a greenfield location. The Clevedon Quarry Expansion is compatible with the existing land use within the SPQZ, being the existing quarry. The current wider landscape is already characterised by existing quarrying activities. Importantly, the Project has been designed to avoid, remedy or mitigate effects on natural and physical resources and where that is not possible to offset and compensate for them. For example, the southernmost extent of the pit boundary was moved closer to the existing pit to avoid removal of native treeland and reduce the direct impacts on Stream 3 headwater tributaries, allowing the entire Stream 3 catchment to be retained for offset and compensation. Overall, the proposed expansion is enabled by, and will achieve the outcomes sought within, the objectives and policies of the Quarry Zone.
Urban growth and form		

Theme	Relevant objectives and policies	Comment
Providing for population growth	B2.2.1(1) B2.2.2(2) B2.3.1(2) B3.3.2(2)	The population of the Auckland region is expected to grow by approximately one million people (400,000 households) by 2040. Aggregate resource is necessary to enable continued development in Auckland, both in regard to infrastructure development and construction of residential houses to support wider housing initiatives. The AUP also acknowledges in B2.2.2(2)(k) that aggregate can only be sourced from where it is naturally found in situ, stating urban growth areas should avoid locating where commercially viable mineral resources are located. The Project will secure additional mineral resources to provide for the ongoing supply of approximately 150 MT of aggregate to the Auckland market for an estimated 50 years. The expansion will ensure a continuous aggregate supply, enable better access to quality rock, more favourable overburden-to-useable material ratio, and a greater proportion of saleable material. The larger quarry floor will also support improved on-site storage and therefore responsiveness to market demand. The new proposed staging is also expected to maintain workable extraction areas and continuous access for plant and infrastructure, supporting stable production levels. The Clevedon Quarry Expansion will enable consistency of aggregate supply from the expanded footprint, allowing the existing quarry plant, the FoH area and ancillary infrastructure to be utilised and gradually upgraded. Accordingly, the expansion is an efficient use of an existing facility, which enables more effective provision of aggregate given the quarry's close proximity to the projected future growth areas in South and East Auckland. Overall, the expansion of Clevedon Quarry will enable the use of an existing commercially viable aggregate resource, which will directly support the growth of Auckland.
Health, safety and wellbeing of communities	B2.3.1(3) B3.2.1(2)	No public access to the Clevedon Quarry Expansion will be provided and there are no significant off-site health and safety effects. Potential adverse effects will be avoided, remedied or mitigated through the implementation of appropriate management and operation measures set out in the QMP (cc).
Infrastructure		
Enabling infrastructure	B3.2.1(1) B3.2.1(3) B3.2.2(9) B3.2.2 (6) B7.4.2(1) B7.5.1(2) E26.2.1(3) E26.2.1(4) E26.2.1(8)	Ensuring the seamless provision of infrastructure is vital for a resilient and well-functioning city and society. However, the design, consenting and development of large-scale infrastructure is not a straightforward exercise and often involves long timeframes. For this reason, the efficient development of infrastructure is recognised and enabled through these objectives and policies. While the proposed Clevedon Quarry Expansion is not infrastructure in itself (rather it is an aggregate extraction activity or infrastructure supporting activity), a large part of the need for continued aggregate supply is to support the maintenance and development of infrastructure. Without this

Theme	Relevant objectives and policies	Comment
		aggregate supply, it is likely that the provision of infrastructure would be compromised. Aggregate should be cost-effective to better facilitate development. Due to its accessibility and proximity to projected future growth areas in South and East Auckland, the Clevedon Quarry Expansion is expected to save costs on transport compared to alternative sources outside of the region. Overall, securing this future aggregate supply will assist in facilitating the delivery of infrastructure and development projects with significant regional or national benefits.
Mana Whenua		
Recognition of the Treaty of Waitangi	B6.2.1 (1) B6.2.1 (2) B6.2.2 (1)	SAL has undertaken consultation with iwi within the region who have interests in the site and continues to undertake consultation to ensure that their views regarding the Project can be taken into account, are recognised and can be addressed where at all possible. To date, this engagement has occurred via hui, visits to the Clevedon Quarry, discussions and social interaction. As described in Section 8.3, SAL has engaged with a number of relevant iwi groups. Out of these groups, SAL is working closely with Ngāi Tai ki Tāmaki and Ngāti Whanaunga. SAL has received a CVIA from Ngaati Whanaunga and a letter outlining the engagement to date with Ngāi Tai ki Tāmaki which has provided important background context and information about the places and values of importance on site. In recognising the role of Tangata Whenua as kaitiaki with specialist historical knowledge of the area, feedback received through the engagement process has been taken into account, specifically in regard to the use of a constructed wetland system for water quality treatment and to inform the proposed ecological restoration package. The proposed mitigation and management measures and consent conditions address the majority of the concerns raised by Ngāti Whanaunga.In addition, the principles of the Treaty, including rangatiratanga and partnership, have been adopted by SAL, and they have been working with Tangata Whenua to identify opportunities for kaitiakitanga to work together. The intention is to document these opportunities through an agreement outside the consent process.
Recognising Mana Whenua values	B6.3.1 (1) B6.3.1 (2) B6.3.2 (1) B6.3.2 (2) B6.3.2 (3) B6.3.2 (4) B6.3.2 (6)	As stated above, SAL has undertaken engagement in the last year with various iwi groups and has received a CVIA report and a letter outlining the engagement to date with Ngāi Tai ki Tāmaki. The effects on cultural values are assessed in Section 7.3.13 of the AEE, but the overall level of effect is to be determined by Tangata Whenua. The proposed stream augmentation to Streams 1 and 3 will ensure no decrease in stream base flows and will be from the same catchment and puna that naturally feeds the streams to help ensure that the mauri and wairua of ngā awa are maintained. Water used for augmentation is proposed to be treated prior to discharge to ensure no water

Theme	Relevant objectives and policies	Comment
		quality effects. The constructed wetland will provide water quality treatment prior to discharge to Stream 1. This system has been designed to achieve a target TSS removal efficiency of 90%. SAL proposes a robust range of environmental management and mitigation measures in this application, which will assist in addressing cultural impacts associated with the Clevedon Quarry Expansion. SAL has undertaken and will continue to actively engage with Tangata Whenua. The Project will result in residual terrestrial and freshwater effects, which could not be avoided, mitigated or remedied. However, these effects are addressed through a comprehensive ecological offset package which is designed to achieve catchment scale benefits to freshwater ecological values and a net gain in terrestrial biodiversity values.
Protection of Mana Whenua cultural heritage	B6.5.1 (1) B6.5.1 (2) B6.5.1 (3) B6.5.2 (2) B6.5.2 (8)	SAL recognises and acknowledges the relationship that Mana Whenua have with the land and their cultural heritage. As detailed in Section 7.3.1, no archaeological sites are recorded by NZAA within the LoQ extent or wider landholdings, but there are several in the wider Clevedon area. While no archaeological sites are specifically identified through the AUP and NZAA mechanisms, SAL recognises that engagement with iwi is an integral part of understanding the cultural values and wider site from a cultural heritage perspective. The engagement and consultation SAL has undertaken with Mana Whenua for this Project is ongoing and has been undertaken over the last year. This has provided information and helped identify values and matters of cultural significance, as outlined above and detailed in the AEE. Where practicable, the protection of these values has been reflected in the operation and management of the proposed pit.
Natural Resources		
Stormwater management	B7.4.1(4) B7.4.2 (9) E1.3(8) E1.3(10) E1.3(11) E1.3(13)	The management of stormwater on the site both during the construction and operation of the quarry is vital for managing effects on freshwater systems. The site will be managed to ensure that stormwater in contact with development areas will be passed through the quarry sumps and then treated by the proposed constructed water quality wetland system. The treatment system has been designed to achieve a target TSS removal efficiency of 90%, exceeding the standard GD01 design target of 80%, with turbidity sensors ensuring discharge only occurs once water quality targets are met. The quarry sumps have been designed to attenuate and retain stormwater up to and including a 100-year ARI storm event, incorporating climate change allowance. As stated in the ESCAR, best practice ESC measures will be implemented throughout all stages of the Project, including progressive quarry development, clean water diversions and chemically treated settling release ponds. It is consistent with the industry-leading approach that has appropriately minimised sediment discharges and

Theme	Relevant objectives and policies	Comment
		downstream effects on multiple projects throughout the Auckland region. Additionally, the proposed ESC mitigation measures manage stormwater discharges and flooding risks in a manner proportionate to the level of risk identified in the technical assessments. Overall, the proposed discharge of treated sediment laden water during earthworks, stream works, and subsequent quarrying activities is consistent with the relevant objective and policies and contributes to the outcomes they seek to achieve with respect to water quality and downstream environments.
Indigenous biodiversity	B7.2.1(1) B7.2.1 (2) B7.2.2 (1) B7.2.2 (5) D9.2 (1) D9.2 (2) D9.2 (3) D9.3 (1) E3.2(5) E3.2(6) E3.3(15) E15.3(2) E15.3(3) E15.3(4) E15.3(7)	The basis of the objectives and policies relating to areas of significant biodiversity within the AUP is to protect and maintain those areas where possible and to look to opportunities to enhance areas of degradation. As identified through the EcIA (Technical Report I, Volume 2), the area proposed for the Clevedon Quarry Expansion is primarily comprised of recently felled and re-planted pine forest with some areas mapped as kānuka scrub/forest, broadleaved species scrub/forest and a small fragment of taraire, tawa, podocarp forest. An area of the regenerating tree fern-broadleaf forest located at the northeastern corner of the Project footprint is identified as an SEA. It is noted that the relevant objectives and policies of the RPS (B7) and the SEA Overlay Chapter (D9) of the AUP relate to areas of significant biodiversity value in terrestrial and freshwater, or to the indigenous biodiversity within significant ecological areas. These require assessment at the "area-wide" or habitat level, and in some cases, such as this, the objective can be met despite there being a loss of some biodiversity on a more "micro" level (i.e., individual flora or fauna). Accordingly, the proposed Clevedon Quarry Expansion has been designed and developed, with particular attention being given to these natural values. Notably, the proposed pit expansion footprint within the regenerating tree fern-broadleaf forest was reduced to minimise the loss of this native vegetation and avoid direct impacts on streams. As discussed in Technical Report I, the Project will involve the removal of approximately 65.58 ha of terrestrial vegetation and habitat, both within and outside the SPQZ. Of this total, approximately 6.1 ha of loss comprises regenerating tree fern/broadleaf forest, which is identified as SEA and dominated by native species. Efforts have been made to avoid impacting this vegetation as much as possible, whilst achieving a safe and efficient pit footprint design. However, there are no further options to reduce the quantum of vegetation clearance and therefore an ecological offset and compensation package will be implemented to address residual ecological effects. The ecological offset and compensation package (Section 5) will achieve a net gain in terrestrial biodiversity values and provide for positive effects that outweigh the residual adverse effects on freshwater ecological values, through creation of

Theme	Relevant objectives and policies	Comment
		new habitat and enhancement of existing habitat. Consequently, the areas of significant indigenous biodiversity will be better protected with the Project than without it, and the offset and compensation package proposed will ensure that no material harm occurs. The Project is therefore consistent with the policy direction in relation to indigenous biodiversity in the AUP, particularly within the SPQZ.
Freshwater systems	B7.3.1 (2) B7.3.1 (3) B7.3.2 (1) B7.3.2 (4) B7.3.2 (5) B7.3.2 (6) E3.2(1) E3.2(2) E3.2(3) E3.2(5) E3.2(6) E3.3(1) E3.3(2) E3.3(3) E3.3(4) E3.3(10) E3.3(11) E3.3(12) E3.3(13) E3.3(15)	The AUP has a clear directive to minimise loss of freshwater systems and avoid, remedy or mitigate adverse effects on freshwater systems. The AUP does not require that loss of freshwater systems be avoided in entirety. These directives flow from the AUP RPS down through the regional plan provisions. While there is a strong theme on protection of freshwater, the provisions also run in partnership with those relating to mineral extraction, which enable the development and operation of quarries, despite some of the unavoidable adverse effects of it on the environment, including freshwater systems. Despite the majority of the proposed LoQ footprint being zoned SPQZ, and therefore providing for this future land use, the overall SAL landholdings contain a large number of freshwater systems, including those streams within the quarry footprint area. As a result, there will be a loss of freshwater systems through reclamation of stream main channel and tributaries to enable the Quarry Expansion and continued quarrying of the pit to reach aggregate. The residual freshwater ecology effects are assessed as more than minor at the point of impact, and are addressed through the offset and compensation package described below. As detailed in the EcIA (Technical Report I, Volume 2), the loss of freshwater systems has been minimised where possible in the design process, including a reduction of the pit extent. This has resulted in a reduction in stream loss, while recognising that the nature of the activity and its locational constraints mean that complete avoidance of freshwater system loss is not achievable. Prior to any instream works, an FMP will be implemented to salvage and relocate indigenous freshwater fauna from affected streams. To address residual effects on freshwater ecology, the proposed offset and compensation package will enhance retained freshwater systems within the wider SAL landholdings through a comprehensive programme of riparian and catchment-wide restoration planting. The package (Section 5) is designed to achieve catchment-scale benefits to freshwater ecological values. Therefore, the Project is broadly consistent with the relevant objectives and policies.
Air Quality	E14.2 (1) E14.2 (2) E14.2 (4) E14.3 (1)	The proposed Clevedon Quarry Expansion footprint is primarily zoned SPQZ, with the surrounding area being rural zoning. The SPQZ is characterised as a low air quality environment under the AUP, and the rural zone areas are a medium air quality environment. The Air Quality Assessment

Theme	Relevant objectives and policies	Comment
	E14.3 (2) E14.3 (3) E14.3(5) E14.3 (6) E14.3 (8) H28.3(4) H28.3(7)	(Technical Report F, Volume 2) considers the surrounding land uses (rural production and forested land) as having low sensitivity to the amenity impacts of dust discharged from the proposed Quarry Expansion. It is also noted that the provisions of the AUP recognise that the operational requirements of mineral extraction activities are recognised and provided for. The policy framework acknowledges that higher levels of dust are expected within the SPQZ and aims to manage dust effects from quarrying activities on adjacent sensitive receivers from reaching unreasonable levels. As set out in Section 7.3.2 and Technical Report F, the potential air quality effects will be appropriately managed through the existing Clevedon Quarry DMP, which will be amended to include supplementary measures and additional dust monitoring to enable adaptive management of dust before off-site effects occur. When effectively implemented, these measures will minimise dust emissions and limit impacts to within 50 to 100 m of the sources, resulting in a low likelihood of dust effects on nearby sensitive receptors. Overall, it is considered that the Project is consistent with the relevant air quality objectives and policies.
Vegetation	E15.2(1) E15.2(2) E15.3(1) E15.3(2) E15.3(3) D9.2 (1) D9.2 (2) D9.2 (3) D9.3 (1)	The AUP seeks to preserve as much native vegetation as possible, while also providing for clearance of vegetation where necessary to enable mineral extraction activities. The vegetation within the Project footprint is described under Indigenous biodiversity above and in Section 3.5.9.1. As part of the development of the Project, areas of native vegetation have been avoided where possible, and enhanced through revegetation and additional planting. In total, approximately 65.58 ha of terrestrial vegetation and habitat will be lost as the quarry expands. The majority of the vegetation loss is cutover pine, and only approximately 6.13 ha is regenerating tree fern/broadleaf forest, which is identified as SEA and dominated by native species. Where at all possible, vegetation of significance has been retained and protected, including through reductions to the LoQ extent and setback from SEA, while still achieving an efficient and safe pit design to enable extraction of aggregate which is important to the functioning and growth of the region. In addition, where adverse effects cannot be avoided or mitigated, the Project proposes to offset and compensate for vegetation loss. The terrestrial offset (Section 5.1) is proposed entirely within the SAL landholdings in the Stream 3 catchment, directly adjacent to the impact sites and within the same ecological district, and will achieve a net gain in biodiversity values for terrestrial ecology. Therefore, the Project is considered to be consistent with the objectives and policies relating to vegetation.
Rural Environment		
Rural character and amenity	E14.2(4) E14.3(2)	The AUP aims to enable and support the use of rural areas for a range of associated activities. However, aggregate can only

Theme	Relevant objectives and policies	Comment
	E14.3(3) E14.3(6) E25.3(9) H19.2.1(1) H19.2.2(5) H19.2.3(1) H19.2.3(2) H19.2.4(2)(b) H19.2.4(3) H19.2.4(1) H19.3.2(1)	be sourced from where it is naturally found in situ. This is acknowledged in other provisions of the AUP, which seek to protect commercially viable aggregate from development. Due to the availability of aggregate at the site, much of the SAL landholdings are zoned SPQZ. The proposed design results in a relatively small proportion of the expansion (20%), extending into RPZ. The AUP Rural Zone policy framework explicitly acknowledges that mineral extraction activities are typical features of the RPZ and that noise, dust, traffic and visual effects associated with mineral extraction activities generally will not give rise to reverse sensitivity issues. It is noted that the encroachment into the Rural Zone is into an area that includes SEA vegetation that could not be easily used for rural development/activities. In terms of character, the LEA (Technical Report J, Volume 2) notes that the Project will progressively reshape the foothill landform into a stepped quarry profile, creating a noticeable but locally contained change that remains largely consistent with the zoning and existing quarry context. Additionally, vegetation removal will mainly affect exotic forestry, though there will be removal of approximately 6.1 ha of native SEA. However, extensive offset and riparian planting will, over time, reconnect indigenous vegetation and help naturalise the post-quarry landform, which will provide broader landscape benefits for the site. The offset and compensation package (Section 5) has been specifically designed to connect existing SEA fragments within the Stream 3 catchment. Visually, the proposed quarry footprint is well-contained by existing topography and vegetation. Visual effects from the Clevedon Quarry Expansion on public viewing audiences will generally be limited by the transient nature of their views and by intervening landform, vegetation and buildings. Views of the Site from public roads are also limited to particular sections of those roads, with no single road having visibility of the Site along its entire length. Visual amenity effects on these public viewers will generally be very low, increasing to low for road users in particular groups during Stages 3 and 4, and reducing to very low or neutral following completion of works and establishment of the proposed mitigation planting. Noise and dust effects are mitigated through measures set out in this report and in the draft conditions (Appendix G). The residual ecological effects resulting from the Project will be addressed through the ecological offset and compensation package. A condition of consent is proposed to permanently protect in perpetuity the total restoration planting package of approximately 67.6 ha. This is directly consistent with Policy H19.2.4(3) which explicitly provides for enabling opportunities to restore areas of existing SEA through creation of new habitat and enhancement of existing habitat. Overall, the Project is considered to be generally consistent with these relevant objectives and policies.
Land disturbance	E11.2(1) E11.2(2)	The quarry will be developed and quarried in stages, minimising the area of soil exposed at any one time. The

Theme	Relevant objectives and policies	Comment
	E11.2(3) E11.3(1) E11.3(2) E11.3(4) E11.3(5) E11.3(7) E11.3(8) E12.2(1) E12.3(1) E12.3(2) E12.3(3) E12.3(4) E12.3(5) E12.3(6)	overland flow paths will be diverted as the Quarry Expansion progresses. Any potential sediment runoff associated with overland flow will be managed through the ESC measures set out in Section 7.3.5 and treated in the Clevedon Quarry WMS. The proposed WMS incorporates an extensive sediment treatment train, including the quarry sumps and the newly constructed wetland, which manage sediment runoff at the site, as well as two SRPs constructed for the management of the OBDA. Erosion and sediment control measures will be implemented in accordance with an ESCP to minimise sediment generated on site. It is noted that the Project will involve the encroachment into the SEA, removal of indigenous vegetation and other natural features such as streams that could not be practicably avoided in their entirety. As stated above, where avoidance is not possible, mitigation followed by offset and compensation measures for residual effects have been proposed and are encapsulated through proposed conditions of consent. Therefore, the Project is considered consistent with the relevant objectives and policies.
Environmental Risk		
Natural hazards and flooding	E36.2(1) E36.2(4) E36.2(5) E36.3(3) E36.3(4) E36.3(16) E36.3(21) E36.3(22) E36.3(23) E36.3(25) E36.3(26) E36.3(29) E36.3(30) E36.3(31) E36.3(32) E36.3(33) E36.3(35)	The Quarry Expansion (including OBDA) has been designed to respond to natural hazards, in particular, seismic activity, slope instability and floodplains. As set out in Section 7.3.3, the quarry design incorporates the recommended slope geometry and bench/batter configuration to manage slope instability risk. The assessment against the NPS-NH in Section 9.5.2.3 applies equally to these provisions. In addition, a comprehensive suite of mitigation measures will be implemented to manage the potential effects of increasing upper surface water catchment area, flooding risk and storm events up to and including the 100-year ARI. These measures comprise ESC measures, the quarry sump, the newly constructed wetland and the treatment train approach, and will ensure that post-development stormwater flows do not increase downstream flooding risks or result in degradation of downstream water quality. This will ensure the potential risks from natural hazards and flooding be managed to the extent practicable. Accordingly, the works are considered consistent with the relevant objectives and policies.

9.5.4 Section 104(1)(c) – any other relevant matter

9.5.4.1 Ngāi Tai ki Tāmaki Statutory Acknowledgement

As discussed in Sections 3.4.6.1 and 8.3.4 of the AEE report, the Site is part of the Wairoa River catchment and Statutory Acknowledgement area, which is of significance to Ngāi Tai ki Tāmaki. However, the specific relevant plan in the Deed of Settlement Plan shows that the statutory acknowledgement area only applies to the riverbed or streambed owned by the Crown and does not directly apply to the Project Site.

9.5.4.2 Auckland Plan 2050

The Auckland Plan is a spatial plan that sets the direction for how Auckland will grow and develop over the next 30 years. The plan was last updated in 2018. The plan includes a number of outcomes and within these outcomes are directions and focus areas. While there are no directly relevant outcomes for quarrying, there are several focus areas, including directions which support development of homes and places, opportunities and prosperity for Auckland's residents and ensuring Auckland's infrastructure is future-proofed. The provision of high-quality aggregate resource for the region is an important component in supporting the outcomes sought by the Auckland Plan.

9.6 Conclusion on relevant plans and policy direction

As with any large-scale project that has been carefully designed, the Clevedon Quarry Expansion aligns well with the majority of regional and district plan objectives and policies in the AUP. Most notably, approximately 80% of the Project is located within the SPQZ, which specifically provides for mineral extraction and compatible activities to occur. In addition, there is direction to safeguard areas (such as those contained within the SPQZ) containing regionally significant extractable deposits to enable the benefits of the resource to be realised. This direction acknowledges the functional need for quarrying to occur in areas of identified resource as that is where the aggregate resource is located in situ. For this reason alone, the proposed Clevedon Quarry Expansion finds direct support in the policy direction of the AUP set down for mineral extraction activities and is anticipated to occur within the works area. Importantly, the quarry will remain in continued operation throughout the expansion. The existing FoH and ancillary infrastructure will be retained allowing for efficient use of established infrastructure and avoiding the need to establish new processing facilities at a greenfield location.

The Project layout has been amended through the design process to avoid and minimise direct impacts on streams and native vegetation where practicable. In particular, the Quarry Expansion footprint within the regenerating tree fern-broadleaf forest was reduced. The southernmost extent of the quarry boundary was moved closer to the existing extent to avoid native treeland and reduce impacts on Stream 3 headwater tributaries. Despite the avoidance of some natural features through design, the Project will result in modification of the environment, including terrestrial and freshwater systems. As a result, there are several AUP provisions that the Project is less aligned with such as indigenous biodiversity and freshwater systems when read in isolation. However, when considered in the context of broader mineral extraction directives of the AUP and the recognition of their potential to result in loss of natural areas, the Project remains consistent.

Where adverse effects cannot be avoided, they have been remedied, mitigated or offset. Residual adverse effects on terrestrial and freshwater ecology are proposed to be offset through a comprehensive ecological package designed to achieve a net gain in terrestrial biodiversity values and no net loss of freshwater ecological function. The package comprises approximately 67.6 ha of restoration planting in the Stream 3 catchment (refer to Section 5).

Overall, the expansion of the Clevedon Quarry will enable the use of an existing regionally important aggregate source, which will directly support the growth of Auckland. The Project has sought to work through the mitigation hierarchy with avoidance and mitigation as the first priorities, supplemented by an ecological offset and compensation package to manage residual effects. Accordingly, the Project is considered to be broadly consistent with the objectives and policies of the AUP.

9.7 Part 2 of the RMA

The following sections provide an assessment against the relevant Part 2 matters. Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the RMA is to promote the sustainable management of natural and physical resources.

9.7.1 Section 5 – Purpose

Section 5(1) states that the purpose of the RMA is to promote the sustainable management of natural and physical resources, with sustainable management defined in section 5(2).

The Project is consistent with the overall purpose of the Act and the reasons for this assessment are summarised below:

- The Clevedon Quarry Expansion will enable people and communities of the Auckland Region to provide for their social, economic and cultural wellbeing and for their health and safety by providing a secure continued supply of aggregate, which is a critical component in the construction and maintenance of infrastructure, housing and transport links for up to 50 years. As outlined earlier in this report, the demand for aggregate resource in Auckland continues to grow and there are distinct economic advantages to the community (including infrastructure providers) through the provision of rock from local sources.
- The life supporting capacities of air, water, soil and ecosystems will be protected by robust operating practices and monitoring regimes, consistent with best practice for quarry management. An extensive offsetting and compensation programme is proposed so that over time a net gain in terrestrial biodiversity values and no net loss of freshwater ecological function will occur.
- Potential adverse effects from the construction and ongoing operation of the quarry will be avoided, remedied or mitigated through quarry design, construction management measures, and operational procedures, and proposed conditions of consent.

9.7.2 Section 6 – Matters of national importance

Matters of national importance, which are to be recognised and provided for, are set out in section 6 of the RMA. The following matters are of particular relevance to the Clevedon Quarry Expansion project:

a The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.[59]

b The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.[60]

c The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.[61]

d The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.[62]

The management of significant risks from natural hazards.[63]

Preservation of the natural character of rivers and their margins.

[59] Section 6(a) of the RMA.
[60] Section 6(b) of the RMA.
[61] Section 6(c) of the RMA.
[62] Section 6(e) of the RMA.
[63] Section 6(h) of the RMA.

The preservation of the natural character of the Wairoa River and the streams adjacent to the LoQ footprint is a key matter of relevance to the proposed Quarry Expansion. Potential effects of the Project on the natural character of the river, streams and their margins have been considered throughout the Project's development.

Protection of outstanding natural features and landscapes

The location and design of the proposed Quarry Expansion has taken into account the ONF adjoining the site, as well as the adjoining SEA, native treeland and streams and has been designed to avoid or reduce directly impacting on these features where practicable. No works are proposed within the ONF to the west of the quarry.

Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna

The Project has been designed to minimise loss of SEA vegetation as far as practicable. Where loss cannot be avoided, residual effects are addressed through the ecological offset and compensation package (Section 5), which will establish a forested corridor linking the Wairoa River to the Hunua Ranges.

Relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga

On the basis of the assessment undertaken and the information received as at the date of preparing this application, the Project recognises the relationship of Māori with their ancestral lands and water and is consistent with section 6(e). Further consultation is underway and will be ongoing to better understand how this relationship can be recognised and provided for.

Management of significant risks from natural hazards

As set out in Sections 7.3.3, 7.3.4 and 9.5.2.3, the Project has been designed to respond to natural hazards, in particular seismic activity, slope instability and flooding, and the proposed mitigation measures will ensure that post-development stormwater flows do not increase downstream flooding risk.

9.7.3 Section 7 – Other matters

Section 7 of the RMA sets out other matters to which particular regard must be had when exercising functions and powers under the RMA. Of particular relevance to this Project are:

a Kaitiakitanga.[64]

b The ethic of stewardship.[65]

c The efficient use and development of natural and physical resources.[66]

d The maintenance and enhancement of amenity values.[67]

e Intrinsic values of ecosystems.[68]

f Maintenance and enhancement of the quality of the environment;[69] and

g Any finite characteristics of natural and physical resources.[70]

Having regard to these matters, the following points are noted:

[64] Section 7(a) of the RMA.
[65] Section 7(aa) of the RMA.
[66] Section 7(b) of the RMA.
[67] Section 7(c) of the RMA.
[68] Section 7(d) of the RMA.
[69] Section 7(f) of the RMA.
[70] Section 7(g) of the RMA.

- SAL is committed to working with Tangata Whenua throughout the life of the Project. It is intended that the relevant parties will enter into an agreement outside the regulatory process to establish a framework for how Tangata Whenua may exercise kaitiakitanga in relation to the Project.
- The ethic of stewardship is reflected in the comprehensive ecological offset and compensation package (Section 5), protected in perpetuity through vegetation covenants and conditions of consent. Pest plant control, enrichment planting and ongoing monitoring are proposed to ensure the long-term success of the planting and the care of the restored habitats over time.
- Amenity values and the quality of the environment will be managed through conditions of consent and Management Plans. Visual amenity effects from the Clevedon Quarry Expansion on public viewing audiences will generally be very low, increasing to low for road users in particular groups during Stages 3 and 4, and reducing to very low or neutral following completion of works and establishment of the proposed mitigation planting. Progressive landscaping works will ensure that the landform is softened and naturalised within the surrounding environment and over time will progressively integrate the Site with the landscape character and amenity of the surrounding area.
- Quarry operations are controlled through various Management Plans, including the QMP (cc), SSMP, BlaMP and DMP, to ensure that the quality of the environment is maintained.
- The Site is already operating as an existing quarry. Therefore, the Clevedon Quarry Expansion is an efficient use of an existing physical resource, located close to the Auckland market, and does not require the establishment of an entire new quarry operation, as would development of a brand-new greenfield quarry site. The revised quarry design will enable better access to high-quality rock, allow for the expansion of the quarry floor to operate more efficiently, resulting in a greater proportion of saleable material. The close proximity of the Clevedon Quarry Expansion site to the Auckland market allows the extraction of the rock resource and its delivery to the market to be undertaken efficiently.
- The Clevedon Quarry Expansion footprint is located on a site where aggregate is in situ and it has been zoned for this purpose under the AUP, recognising the locational constraint of this resource. The resource is not able to be replicated naturally elsewhere.

In summary, it is considered that the Project has had regard to the provisions of section 7 of the Act.

Overall, the Project is considered to be consistent with the purpose and relevant principles of the RMA.

9.7.4 Section 8 – Treaty of Waitangi

While assessment of section 8 of the RMA is not strictly required under the FTAA, the Project has taken the principles of the Treaty of Waitangi into account, particularly through extensive consultation with Mana Whenua over an extended period of time. Support in principle from Mana Whenua for the expansion Project is demonstrated in the CVIA and letter received from the relevant groups, attached as Appendix E.

9.8 Alternative methods for discharges – sections 105 and 107 of the RMA

Sections 105 and 107 of the RMA are relevant to applications for discharges under section 15 of the Act and Schedule 6, clause 1(c) of the FTAA.

Section 105 sets out additional matters which must be considered by a consent authority when considering an application for a discharge permit. Section 105(1) states:

(1) *If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—*
   a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
   b) the applicant's reasons for the proposed choice; and
   c) any possible alternative methods of discharge, including discharge into any other receiving environment.

The matters identified in section 105(1) have been addressed throughout this report. In particular, Section 3 which describes the receiving environments and Section 7 which assesses the effects on the environment. The methods proposed are considered to be appropriate, will ensure adverse effects are avoided, remedied or mitigated, and are consistent with accepted best practice.

9.8.1 Types of discharges

Discharge permits are being sought for diversion and discharge of stormwater, diversion and discharge of groundwater and discharges to air. Detailed consideration has been given to methods for addressing any potential adverse effects of these discharges, and appropriate methods have been adopted (including through design and construction methods) to ensure effects are appropriately managed. Further details are presented in the Air Quality Assessment (Technical Report F, Volume 2), Groundwater Assessment (Technical Report G, Volume 2), Surface Water Management Report (Technical Report H, Volume 2) and ESCAR (Technical Report K, Volume 2).

Stormwater and groundwater discharges

While a range of options have been considered in relation to the diversion and discharge of stormwater, the selected option takes into account topographical and space constraints. Section 4.2.6 sets out the proposed WMS. As set out in Sections 7.3.4 and 7.3.5 above, the proposed surface water discharge will not give rise to any of the effects identified above. The proposed approach is considered in accordance with best practice, as reflected in Council technical publications GD01 and GD05. Alternative methods and discharge locations for groundwater discharges were considered including locations outside the wider SAL landholdings. The proposed stream augmentation was considered the best practicable option as it will ensure streams are supplemented close to the location of predicted loss in stream base flows, within SAL landholdings and will not result in any temperature or pH change.

Erosion and sediment control

The initial establishment and construction works will be undertaken in accordance with the ESCAR (Technical Report K, Volume 2), which includes an ESCP, as well as ongoing monitoring throughout the LoQ. The monitoring will provide feedback to enable an iterative staged management approach to be used and allows for the required maintenance or improvements to control measures to be undertaken as required. Additional controls or measures will be used where there is a greater risk of sediment discharges and/or monitoring indicates that additional controls are required. Providing an iterative staged management approach is considered to be above the basic industry standard for best practice.

The alternative options would be less than the best standard and as such were not considered.

Discharges to air

The applicant proposes to implement best practice management of discharges to air, including meeting the requirements of the NES-AQ. The NES-AQ includes an assessment criterion for PM_{10}. SAL proposes to continue to utilise dust mitigation and management measures such as those outlined in the existing DMP. The DMP outlines the dust mitigation measures put in place to minimise dust emissions (refer to Section 7.3.2 and DMP). Visual dust monitoring is also proposed to aid on-site management and enable adaptive management to dust events before any off-site amenity effects occur. Other alternative options, which are not being considered, would be less than the best standard. The existing, and proposed, air discharge consent is also subject to a review condition, which will allow for consideration of alternatives over the life of the operations.

9.8.2 Section 107 of the RMA

Section 107(1) restricts the granting of discharge permits in certain circumstances, namely if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with other contaminants or water) is likely to give rise to any of the following effects in the receiving waters:

- The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials.
- Any conspicuous change in the colour or visual clarity.
- Any emission of objectionable odour.
- The rendering of fresh water unsuitable for consumption by farm animals.
- Any significant adverse effects on aquatic life.

As described in Section 7 of the AEE, the discharge of water and contaminants to water or to land in circumstances where it may reach water will not give rise to any of the effects listed above after reasonable mixing. Section 107 does not create an impediment to the granting of the necessary consents under the FTAA.

9.8.3 Summary

As described in this section, a range of alternative methods and locations for discharges of groundwater, stormwater and air discharges have been considered prior to arriving at the Project as it is described in this application.

10 Proposed conditions of consent

In accordance with Schedule 5, clause 5(1)(k), SAL proposes a suite of proposed draft consent conditions for the Quarry Expansion and varied consent conditions for the 2018 Consent (Appendix G and Appendix H). The proposed Quarry Expansion consent conditions largely align with the existing 2018 Consent conditions for the Site, but have been amended to reflect a better understanding of site conditions and data, and the larger quarry expansion, whilst taking into account section 83 of the FTAA, under which conditions are to be no more onerous than necessary. Where appropriate, SAL is also proposing to vary the 2018 Consent to ensure that any overlapping conditions (e.g. QMP (cc), dust and noise) have matching conditions across both consents.

Mitigation measures are recommended throughout the specialist reports and in the AEE above to ensure adverse effects are appropriately avoided, remedied or mitigated, or offset and compensated. In some instances, these involve the preparation of management plans at a stage when further details of the construction method have been determined. The conditions proposed by the applicant capture the key mitigation measures and management plans addressed in the specialist reports and assessment of effects. The proposed consent conditions for the Quarry Expansion and the varied consent conditions for the 2018 Consent are intended to support the conclusions in the specialist assessments, and to provide certainty to the Panel and Auckland Council for key issues.

11 Conclusion

This AEE has been prepared by T+T on behalf of SAL to accompany a substantive application to the EPA for the Clevedon Quarry Expansion (the Project) under section 42(1) of the FTAA.

The Project will provide access to approximately 150 MT of greywacke aggregate over 50 years to support Auckland's infrastructure, housing and urban growth. No increase is proposed to the existing 3 MT annual extraction limit, truck movements or hours of operation. Two consent variations are sought in relation to FoH consent and Relocation of ONF Planting Areas. The Project is a non-complying activity under the AUP. However, section 104D of the RMA does not apply.

Overall, the Project is considered consistent with the FTAA, RMA, relevant national policy instruments and the AUP, and will provide significant regional and national benefits. Subject to the proposed mitigation, offset, compensation and consent conditions, effects are generally minor or less than minor. More than minor effects are limited to freshwater and terrestrial ecology and will be addressed through a comprehensive ecological offset and compensation package. The proposed consent conditions are included in Appendix G and have been drafted in accordance with section 83 of the FTAA. They are no more onerous than necessary to manage potential adverse effects.

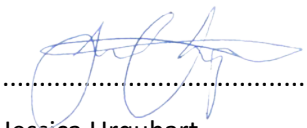
12 Applicability

This report has been prepared for the exclusive use of our client Stevenson Aggregates Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application under the Fast-track Approvals Act 2024 and that an Expert Panel as the consenting authority will use this report for the purpose of assessing that application. We understand and agree that this report will be used by the Expert Panel in undertaking its regulatory functions.

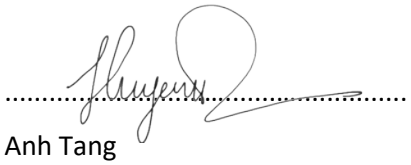
Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:



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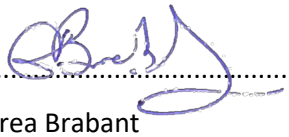
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Andrea Brabant
Project Director – Planning Technical Director

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Appendix A Adjacent landowners and occupiers

Appendix B Permitted Activity Assessment

Appendix C AEE drawing set

Appendix D Consultation documentation

Appendix E Cultural Values Documents

Appendix F Assessment of objectives and policies

Appendix G Proposed conditions of consent

Appendix H Proposed changes to FoH consent

Appendix I Quarry Management Plan

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