PAUA PLANNING

ASSESSMENT OF EFFECTS
PROPOSED OVERBURDEN & MANAGED FILL ACTIVITY
RIVERVIEW ROAD HUNTLY

Bundled application to Waikato Regional Council and Waikato District Council for regional and district resource consents to import and deposit managed fill into three vacant gullies north of the Gleeson Quarry, Riverview Road Huntly.

FOR PUBLIC NOTIFICATION

Report date: 12 July 2022 **Report Version: Rev04**

Gleeson Managed Fill

DOCUMENT CONTROL

Client	**Gleeson & Cox Ltd, Gleeson Managed Fill Ltd & Gleeson Quarries Huntly Ltd** CEO – James Gleeson
	April 2022
Project	*Resource Consent Applications under s9, s13, s14 and s15 of the Resource Management Act 1991 and the National Environmental Standards for Freshwater Management (NES-FM) and National Environmental Standards for Assessing & Managing Contaminants in Soil to Protect Human Health Regulations 2011 (NES-CS)*
Paua File No.	PAU405
Document	Assessment of Environmental Effects
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Abbreviations

ACM:	Asbestos-containing material
EcIA:	Ecological Impact Assessment
ESCP:	Erosion and Sediment Control Plan
SFMP:	Site & Fill Management Plan
GQ:	Gleeson Quarry
GMFL:	Gleeson Managed Fill Limited
ODBA:	Overburden Disposal Area
RMA:	Resource Management Act, 1991
SNA:	Significant Natural Area
WDC:	Waikato District Council
WDP:	Waikato District Plan
PWDP-DV:	Proposed Waikato District Plan – Decisions Version
WRP:	Waikato Regional Plan
WRPS:	Waikato Regional Policy Statement

LIST OF APPENDICES

1 EXECUTIVE SUMMARY

The following assessment of effects on the environment is submitted in support of a bundled resource consent application to Waikato Regional Council and Waikato District Council by Paua Planning Limited (on behalf of Gleeson Managed Fill Ltd) who are seeking consent to establish and operate a Managed Fill operation in identified gullies (referred to as Fill Areas 2-4) on a site legally described as Pt Lots 9 and 10 DP 1278 and Lot 1 DP 25272 comprised in Certificate of Title SA922/109. This includes the importation and deposition of both cleanfill (including overburden material from the adjacent Gleeson Quarry) and managed fill.[1]

The resource consent applications seek to undertake to the following activities:

- To undertake a staged fill operation, commencing in Fill Area 2 and progressing to Fill Areas' 3 and 4, as identified on the accompanying maps. The activities in each stage are:
- To remove all vegetation and topsoil to expose a competent subgrade; and
- To reclaim existing ephemeral and intermitted watercourses and wetland areas and install drainage and recommended erosion and sediment control measures, including stormwater/sediment control ponds; and
- To import managed fill and deposit the fill into Fill Areas 2, 3 and 4 in accordance with geotechnical engineering recommendations; and
- To progressively stabilise the gullies once fill is placed in accordance with geotechnical recommendations; and
- To upgrade existing internal access roads to provide stable operational access to the fill areas; and
- To discharge clean water from sedimentation ponds into ephemeral streams; and
- To undertake ongoing restoration, rehabilitation, and enhancement of 3.3ha of a biodiverse ecosystem, including 3600m² of natural wetland and 730m of stream length and riparian habitat which is 3.9ha in total and to be covenanted; and
- To rehabilitate the land impacted by the managed fill activity on completion of each fill area and plant in forestry.

The assessment of effects provided with this application establishes that overall, the proposed managed fill activities are discretionary activities under the provisions of the Waikato Regional Plan and the Waikato District Plan, discretionary and non-complying activities under the National Environmental Standards for Freshwater Regulations 2020 (NES-FW) and a controlled activity under the National Environmental Standards for Contaminated Land.

This application addresses the subject site and its context, history and associated consent(s), and the proposed identified fill areas. The corresponding assessment of effects on the environment (and suite of expert reports) conclude that the actual and potential adverse effects of the proposed activities are no more than minor.

The assessment confirms that proposed managed fill operation is consistent with the relevant objectives and policies of the Waikato Regional Plan/Waikato District Plan and national freshwater legislation and promote the sustainable management of natural and physical resources as required by Part 2 of the Resource Management Act**. In accordance with s95A(3)(a) the applicant is requesting that the application be publicly notified, and therefore under s95A(2)(a) the consenting authorities must proceed to public notification.**

[1] The term 'managed fill' in this AEE encompasses both cleanfill and overburden – see section 6 for explanation.

2 APPLICANT AND PROPERTY DETAILS

2.1 Applicant

2.1.1 A completed application form is enclosed as **Appendix 1.** A summary of the details relating to the applicant and the site of the proposal are as follows:

2.1.2 The applicant is Gleeson Managed Fill Ltd, being a division of Gleeson & Cox Group 17 Aerovista Place, Wiri PO Box 97 034, Manukau City, Auckland 2241

2.1.3 The site address is (310) Riverview Road, Huntly, Waikato (**Appendix 2 Site plan)** and is referred to as Gleeson Quarry (GQ)

2.1.4 The legal description of lots associated with this application are as follows:

Legal Description	Size	Notes
Lot 9 DP 1278 and Pt Lot 10 DP 1278 (RT SA149/243)	68.9628ha	Fill Areas 2 - 4
DP 25272 (RT SA656/223)	23.0949ha	
Pt Lot 9-10 DP 1278 (RT SA922/109)	45.8678ha	
Lot 1 DPS 75436 (RT SA57C/382)	374.7741ha	Compensation Site
Pt Lot 11 DP 1278 (RT SA200/118)	4047m²	Quarry Site and Access
Pt Lot 11 DP 1278 (RT SA200/119)	50.5857ha	

2.1.5 The Certificates of Title are attached in **Appendix 3**. There are no interests on the titles that impact on these applications.

2.1.6 The quarry and managed fill operations will operate as separate entities (Gleeson Managed Fill Ltd and Gleeson Quarries Huntly Limited); however, the Managed Fill operation will utilise the existing entrance and haul roads that serve the quarry. The land subject to this application will remain in the ownership of Gleeson Quarries Huntly Ltd.

2.1.7 Gleeson Quarries Huntly Ltd owns the entire landholdings depicted in the map below – total area being 527.9392 hectares (the active quarry operation is approximately 61.1075 hectares)

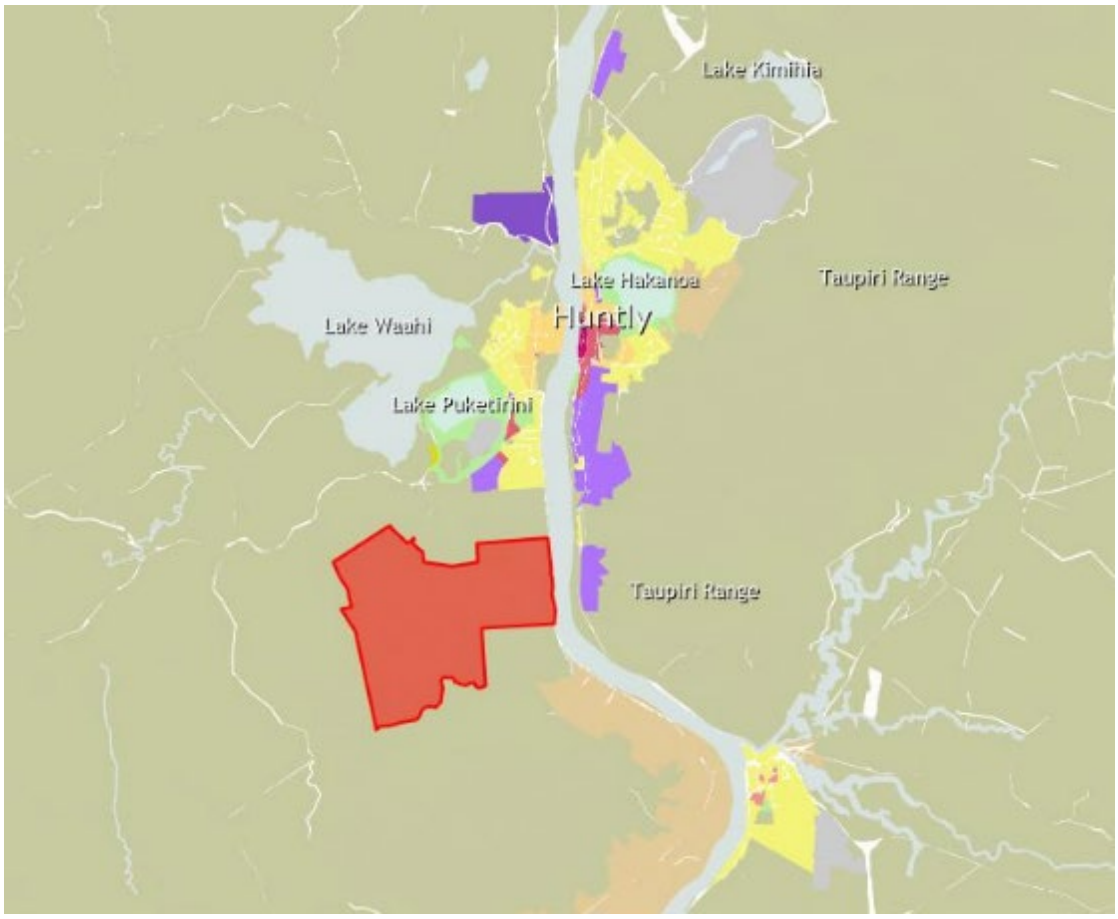

Figure 1: Locality Map of Gleeson Quarry Landholdings (Source: WDP GIS Maps)

3 WAIKATO REGIONAL PLAN INFORMATION/CONSENTS REQUIRED

3.1 WRP Information

3.1.1 The site is located within the Lower Waikato Catchment Management Zone - Priority 1 sub-catchment.

3.1.2 The adjacent Waikato River is identified as being subject to a Significant Indigenous Fisheries and Fish Habitat Water Class (Trout Habitat). There is a single Water Classification layer: 'Surface Water (Unnamed River)'.

3.1.3 The site is not within a Priority 1 Stock Exclusion Layer.

3.2 Regional Consents required:

3.2.1 Regional Land Use Consents - *s9(2) of the RMA*

- Rule 5.1.4.15 Soil disturbance and vegetation clearance in high-risk erosion areas, as a **discretionary activity**.

3.2.2 Regional Stream Reclamation Permit – *s13(1)(b), (d) & (e) of the RMA*

- Rule 4.3.4.4 Bed disturbance activities including excavations and deposition of any substance in, on or under the bed of ephemeral and intermittent streams, as a **discretionary activity**.

3.2.3 Regional Water Permit – *s14(3)(a) of the RMA*

- Rule 3.6.4.13 Diversion and subsequent discharge of water, as a **discretionary activity**.

3.2.4 Regional Discharge Permit – *s15(2A) of the RMA*

- Rule 3.5.4.5 Discharges General – Discharge of contaminants into water or into/onto land, as a **discretionary activity**.
- Rule 3.5.11.8 Discharge of stormwater into water, and into/onto land, as a **discretionary activity**.
- Rule 5.2.5.3 Large scale overburden disposal onto land, as a **discretionary activity**.
- Rule 5.2.5.6 Cleanfill disposal in high-risk locations (discharge onto land and into air), as a **discretionary activity**.

*A Table of existing district and regional consents is included as **Appendix 5**. The detailed regional and district rules relevant to this application are included in **Appendix 7**.*

4 WAIKATO DISTRICT PLAN INFORMATION/CONSENTS REQUIRED

4.1 Public Notification

4.1.1 Regarding the steps outlined in s95A of the RMA, the applicant is requesting the application be publicly notified (s95A(3)(a)). Therefore, the remaining provisions of s95A-G are not relevant.

4.2 Relevant Information - Operative Waikato District Plan (WDP):

4.2.1 The subject site is within the Rural Zone of the WDP, and is subject to the following constraints and overlays:

- Aggregate Extraction Policy Area (FA2 is partially located within this area)
- Aggregate Resource Policy Area (FAs are not within identified resource areas)
- Landscape Policy Area (adjacent to Waikato River only)
- Transmission Line (adjacent to FA4 location)
- Waikato River Catchment

4.3 Relevant Information - Proposed District Plan – Decisions Version (WPDP-DV)

4.3.1 The subject site is located within the General Rural Zone of the WPDP-DV and is subject to the following constraints and overlays:

- Aggregate extraction area (FA2 is fully located within this area)
- Aggregate resource area (FAs are not within identified resource areas)
- Flood plain management area (adjacent to Waikato River only)
- High risk flood area (adjacent to Waikato River only)
- National grid (adjacent to FA4 location)
- Outstanding Natural Landscape (adjacent to Waikato River only)
- Significant Natural Area (not located within identified Fill Areas)
- Sites and areas of significance to Maaori 245 S14/14 Paa Kupakupa Paa, Riverview Road, Huntly Defensive scarp, transverse ditch, five well preserved rectangular pits. Site is in pasture and unmodified. Waikato River edge location.
- Waikato River catchment

4.4 Other Relevant District Council information

4.4.1 Pre-Application Reference: Previous meeting for original application: 1 March 2019, File number PRE0098/19 *(refer to Pre-application meeting notes in **Appendix 4**)*

4.4.2 Proposed District Plan – Appeals closed on 1 March 2022.

4.5 District Land-Use Consents Required

4.5.1 District Land Use Consents - *s9(3) of the RMA*

Waikato Operative District Plan:

- Rule 25.10.2 Type of Activity (being importation and disposal of managed fill, deposition of overburden material associated with quarrying (extractive industry) and potential sales of overburden material), as a **discretionary activity**.
- Rule 25.25.2 Earthworks (cut/fill greater than 1000m²/1000m³ and cut/batter faces greater than 3m in height), as a **discretionary activity**.
- 25.27.2 Earthworks filling using imported fill (where the anticipated fill volume will exceed the volume of 200m^3 and a depth of 1m), as a **discretionary activity**.
- Rule 25.43A Indigenous Vegetation Clearance, as a **restricted** discretionary **activity**

Proposed Waikato District Plan (Decisions Version):

Part 2: District-wide matters / General district-wide matters / EW – Earthworks

- EW-R21 & EW-R22 Earthworks – general (GRUZ), as a restricted discretionary activity.

Part 3: Area-specific matters / Zones / Rural zones / GRUZ – General rural zone

- GRUZ-R40 An extractive activity or waste management activity located within an Aggregate Extraction Area, Coal Mining Area or Extractive Resource Area, as a restricted discretionary activity. Fill Area 2 is located within an Aggregate Extraction Area
- GRUZ-R41 A waste management facility located outside an Aggregate Extraction Area, Coal Mining Area, or Extractive Resource Area, as a discretionary activity.
- GRUZ-R45 An extractive activity located outside an Aggregate Extraction Area, Coal Mining Area, or Extractive Resource Area, as a discretionary activity. (The deposition of overburden from the adjacent quarry is an extractive activity and will occur in part outside the areas listed above).

Part 2: District-wide matters / Natural environment values / ECO – Ecosystems and indigenous biodiversity

- ECO-R3 Earthworks in a Significant Natural Area for purposes other than the maintenance of existing tracks, fences or drains, as a restricted discretionary activity. (Earthworks within the offered Compensation Area associated with weed species removal, planting and fencing).
- ECO-R11 Vegetation clearance outside a Significant Natural Area, as a restricted discretionary activity.
- ECO-R15 Clearance of manuka or kanuka outside a Significant Natural Area, as a restricted discretionary activity. The Ecological report identifies some of these species, and removal is not to maintain productive pasture or for domestic firewood purposes.
- ECO-R16 Indigenous vegetation clearance outside a Significant Natural Area for any reason not specified in Standards ECO-R11 to ECO-R15, as a restricted discretionary activity.
- Part 2: District-wide matters / Energy, infrastructure and transport / AINF – All infrastructure
- AINF-R8 Earthworks activities associated with infrastructure, as a restricted discretionary activity.
- AINF-R9 Removal of vegetation or trees associated with infrastructure, as a restricted discretionary activity.
- AINF-R10 Pipe and cable bridge structures for the conveyance of electricity, telecommunications, water, wastewater, stormwater, and gas (stormwater piping will exceed 25m in length) as a restricted discretionary activity.

Part 2: District-wide matters / Energy, infrastructure and transport / WWS – Water, wastewater and stormwater

- WWS-R3 Below ground pipelines for the conveyance of water, wastewater, and stormwater, as a restricted discretionary activity.
- WWS-R5 Pump stations for the conveyance of water, wastewater, and stormwater (the pump and associated tanks required for storing and testing groundwater in FA3 may exceed 10m² in area and 3m in height), as a restricted discretionary activity.

5 NATIONAL STANDARDS - REASONS FOR CONSENT

5.1 National Environmental Standard (for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS)

5.1.1 Fill Area 3 has more likely than not been subjected to an activity on the Ministry for the Environment's (MfE) Hazardous Activities and Industry List (HAIL) - category E7 – storage of hazardous waste dumps or dam tailings and constitutes a 'piece of land' under Regulation 5(7) of the NES-CS.

5.1.2 In accordance with s9(1) of the RMA, land use consent as a **controlled activity** is required under Regulation 9 of the NES-CS for the proposed soil disturbance activity.

5.2 National Environmental Standards for Freshwater Regulations 2020 (NES-FW)

5.2.1 In order to deposit managed fill within FA's 2-4, the reclamation of approximately 415 lineal metres of ephemeral stream and 40 lineal meters of intermittent stream is required.

5.2.2 In accordance with s13(2) of the RMA, a stream-works consent as a **discretionary activity** is required under Regulation 57 of the NES-FW, (reclamation of the bed of any river).

5.2.3 Note: Ecological Peer Review[2] of the status of the wetlands in FA2 & 4 has determined that the wetlands in the gullies are artificial as defined by the NPS-FW 2020, having been constructed for stock watering and hunting purposes. The pond in FA3 has previously been accepted as being artificial. Therefore, the provisions of the NES-FW is not applicable to the wetlands within the FA's, as they are not natural.

5.2.4 The proposed earthworks and discharge of water from FA2 are further than 100m from the nearest natural wetland[3] and therefore Regulations 52 and 53(c) do not apply to the artificial wetland within FA2.

5.2.5 The discharge point from the sediment retention ponds that will service FA3 and FA4 are a minimum of 35m (approximately) from an identified natural inland (induced) wetland[4]. In addition, the discharge point from the deep drainage proposed for FA3 will be approx. 60m from an identified natural inland (induced) wetland, (noting that it is proposed to then pump this water back to a holding tank for testing before discharging to the sediment retention pond.

5.2.6 Therefore under Regulation 53(c) the discharge of water is within 100m setback from a natural inland (induced) wetland and is considered a **non-complying activity.**

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[2] *Wetland review: Gleeson Managed Fill Ltd wetland areas Prepared for WRC by Ecological Solutions, dated 1 March 2022*
[3] *Refer to Watercourse Assessment in SNA, Envoco, March 2022 for details*
[4] *Refer Report: Ecological Assessment of wetlands north of Fill Area 3 at Gleeson Huntly Quarry, Envoco, July 2022*

5.2.7 *Note: The existing surface water flow in FA3 is away from the wetlands via the existing channel and engineered flow path to the Fill 4 gully. That has been the existing environment prior to the NES-FW 2020 coming into force and therefore diversion of water within a 100m setback from a natural wetland under Reg.53(c) is <u>not</u> triggered. In addition, groundwater currently moves toward the east and does not service the wetland catchments.*

5.2.8 The Ecological Compensation Site offered with this application to mitigate effects and provide a net gain back to the catchment includes the ongoing restoration of 0.6 hectares of natural inland wetland together with 0.6 hectares of natural inland wetland buffer planting. Riparian restoration will be undertaken along 610 metres of stream and a total of 3.0 hectares of terrestrial indigenous habitats will be protected. The associated works are considered a **permitted activity** under Regulation 38 'Restoration of Natural Wetlands' of the NES-FW. Please see **Appendix 12.10** for a review against Regulation 38.

5.2.9 Overall, under the provisions of the NES-FW, the application is technically considered a **non-complying activity.**

5.3 Bundling of Application

5.3.1 It is considered that the activities for which consents are being sought overlap to such an extent that they cannot be realistically or properly separated, and therefore it is requested that WRC/WDC bundle the suite of applications together to assess as a whole, based on the most stringent activity classification – in this case, as a **non-complying activity.**

6 BACKGROUND

6.1 Introduction

6.1.1 Gleeson Group purchased the Stevenson's Huntly Quarry landholdings and operating quarry in late 2018. It has become evident to Gleeson's that there is potential within the northern land resource owned by GQ to deposit not only stripping (overburden) from the quarry operation, but also to deposit imported fill. This fill is known as 'managed fill' and does not cleanly fit within the definitions within the WRP for either 'clean fill', 'landfill', or 'municipal solid waste landfill'. Advice from Council, as well as reviews of previously consented similar sites has confirmed that it is the definition of 'cleanfill' that is to be relied upon for determining the information to be provided with the application. Therefore, it is noted that although the proposal (and company name) is for 'managed fill', it is interchangeable with the terminology associated with 'cleanfill' in the WRP.

6.1.2 There is a sound common sense strategy proposed by Gleeson's: currently, trucks are arriving empty to collect aggregate from the quarry. By providing a managed fill disposal site adjacent to the quarry, this enables customers (and Gleeson's own fleet of trucks) to arrive fully laden, deposit their load of managed fill material, and depart with a load of aggregate for the return trip. This allows for efficient and sustainable vehicle movements on regional road networks.

6.1.3 While it is recognised that the Waikato Region is committed to waste minimisation wherever possible, managed fill sites are important for the disposal of end waste products, particularly from the construction industry.

6.1.4 Within the WDC 2018-2024 Waste Management and Minimisation Plan (WMMP) Section 4.1 'Future Demand' states that:

In general, the factors that have the greatest influence on potential demand for waste and resource recovery services are population and household growth, construction and demolition activity, economic growth, and changes in the collection service or recovery of materials.

- The population of Waikato District is projected to grow 27.5% by 2033, with 22.2% of the population aged over 65 years of age by that time (compared to 12.2% in 2013). To achieve effective and efficient waste management and minimisation, an assessment of what could change and what services and facilities would be needed was undertaken as part of the 2017 Waste Assessment. The following potential issues for the Waikato District were identified:
- Insufficient systems in place for obtaining waste data from private operators in the district.
- Increasing population affecting waste streams and waste reduction messaging
- Infrastructure to manage increased quantities and some waste streams may be insufficient to meet future demand

- Potential for improved services targeting the rural sector and construction and demolition waste
- Opportunities for improved sub-regional, regional, and national collaboration to achieve reduction and minimisation of waste
- Insufficient leadership from central government to address national waste issues

The Actions in this WMMP are anticipated to address these issues and meet future demand for waste services and facilities, to the extent possible within regional, national, and international influences; and while ensuring effective and efficient use of council funds.

6.1.5 This AEE sets out to assess whether Fill Areas 2-4 are appropriately located to receive a mix of overburden and managed fill materials to meet regional demands of the construction industry and associated economic growth. In addition, the AEE will assess potential adverse effects on the environment to determine whether they can be appropriately avoided, remedied and/or mitigated, and, on balance, no more than minor. The application is being lodged as **publicly notified**, as the Waahi Whaanui Trust have voiced their opposition to the application.

6.2 Consenting Background

6.2.1 The resource consent granted to deposit overburden from the quarry in Fill Area 5 (APP141137) and the regional renewal application for the quarry (APP141755-APP141755) may be referred to for more information regarding the current quarry operations and history of activities on the site.

6.2.2 Separate regional and district consent applications to import managed fill to the subject site were initially lodged on 18 November 2019 (APP1411283) and 28 November 2019 (LUC0233/20) respectively. Both were accepted under s88 of the RMA for processing.

6.2.3 Further information requests under s92 of the RMA were received on 18 December 2019 (APP1411283) and 22 December 2019 (LUC0233/20). Responses were also provided in emails on numerous dates, with all queries satisfied (to the best of our knowledge).

6.2.4 The introduction of the national freshwater legislation in September 2020 resulted in the withdrawal of FA2 and FA4 applications, due to WRC determining that *"the evidence provided is not strong enough to support the applicant's position that the wetlands are artificial. I recommend that the Activity Status of the wetland drainage proposal at FA2 and FA4 is assessed as a Prohibited Activity under NESF regulation 53 until such time as evidence demonstrates otherwise."*[5]

6.2.5 Regional and district consents[6] for overburden deposition and associated activities in FA5 were granted in March 2021, noting that WDC gave consent in October 2020 to fell FA5 trees (works needed to occur before bat breeding season began in November).

[5] [5] *Email from Emma Cowan, Resource Officer, Land Development WRC dated 22 January 2021*

[6] AUTH141137.01-141137.04 (WRC) and LUC0167/21 (tree felling) & LUC0176/20

6.2.6 An updated AEE and supporting documents package was provided to WRC for the importation and deposition of managed fill to FA3 only in late February 2021. WRC and WDC continued to raise further queries over the course of 2021, which were all addressed. During this time, several hui were arranged and attended to discuss the applications, and initially both Waahi Whaanui Trust and Waikato Tainui indicated they would not be opposing the application. However, after a final hui in July, the Trust sent a formal letter to WRC stating that after a special meeting on 4 August 2021, they resolved to oppose the application.

6.2.7 This has resulted in the following:

- Further investigation to demonstrate that the wetlands in FA2 and FA4 were constructed and therefore artificial; and
- Gleeson determining to lodge a new comprehensive application for public notification which includes all three gullies, as per the original application.

6.2.8 It is noted that the scope or nature of the proposed activities has not changed in this time, and therefore most expert reports do not require updating or amending, however where required this has been done. This AEE includes amendments related to previous s92 information requests and information to provide a public notification pack which is comprehensive and thorough.

7 SITE AND LOCALITY DESCRIPTION

7.1 Site description

7.1.1 Gleeson Quarries Huntly Ltd is located just south of the main Huntly Township on the western side of the Waikato River, 3.1km south of the Tainui Bridge roundabout. The entrance of the site is located on the western side of Riverview Road and has a formed and sealed 12m wide vehicle crossing which provides access to the quarry site as well as to the proposed managed fill operation. Riverview road runs parallel to the Waikato River, and undergoes a name change to Hakarimata Road a further 0.6km south of the quarry entrance.

Table 1: Fill Areas – Land Area and Capacity

Fill ID	Fill Area (hectares)	Projected Fill Volume (m^3)	Fill Material
Fill Area 2	3.8	632,600	Managed fill with ACM, cleanfill and overburden
Fill Area 3	4.2	576,600	
Fill Area 4	5.1	800,000	
TOTAL	13.1	2,009,200	

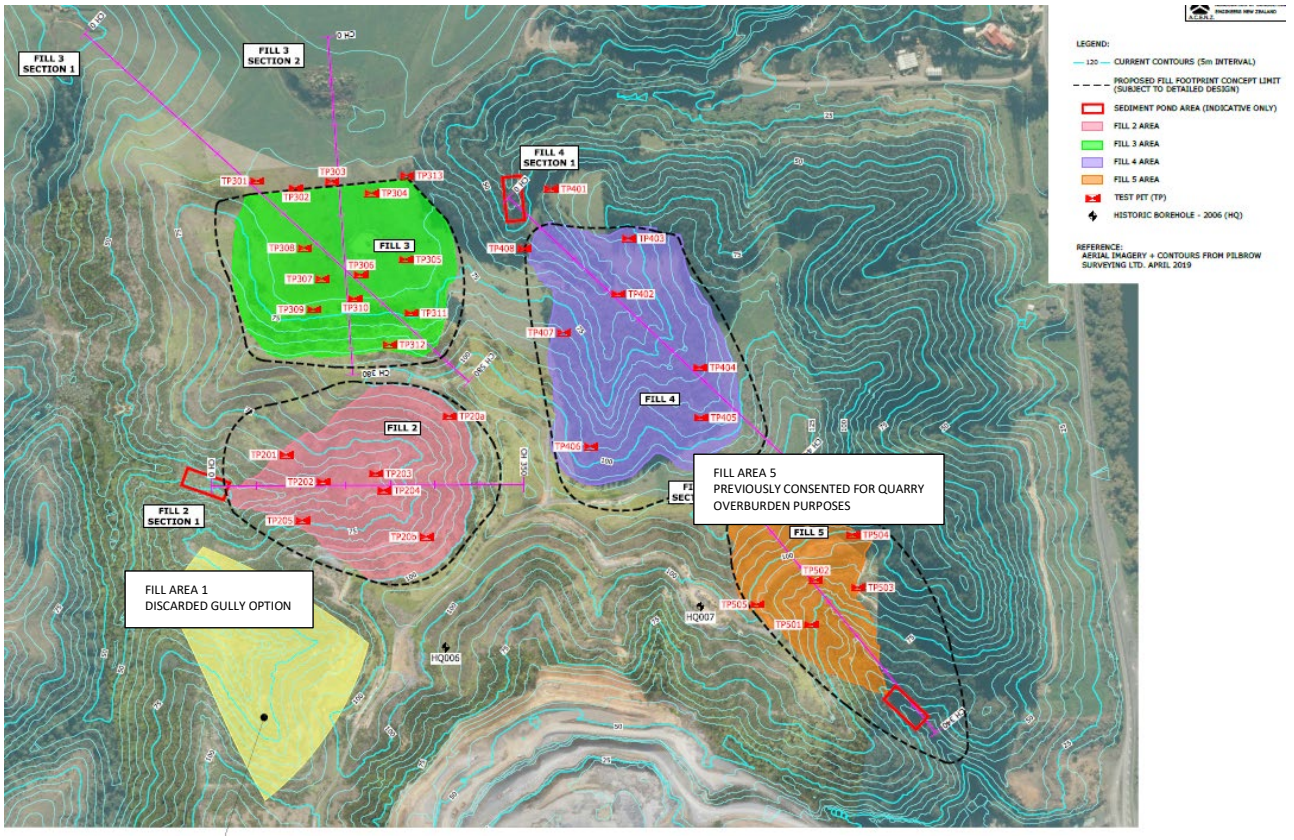


Figure 2: Site Layout with Current Contours (Source - Gaia Engineers 2325-12-01 dated 01/11/19)

7.1.2 The existing landform relating to the proposed Fill Areas 2-4 rises steeply towards the west from the front boundary with Riverview Road, creating a natural physical landform buffer from the proposed Fill Areas. From this ridgeline, the Fill Areas comprise of a series of steep gullies and ridges, rising to a height of 100m above sea level, with the lowest point of the gullies being 50m above sea level. The ridgelines run both east to west and north to south, creating five distinct depressions in the landform. Fill Areas 2, 3 and 4 are located north of the existing quarry pit.

7.1.3 The geological basement foundation consists of greywacke rocks of the Hakarimata Formation, being part of the Triassic aged Newcastle Group. This is generally described as comprising indurated siltstone with fossiliferous sandstone within its upper parts. Overlying the basement rock are members of the Tertiary aged Te Kuiti Group including erosional remnants of the Waikato Coal measures, overlaid by Recent Taupo Pumice ash. As there is little exposure of fresher greywacke in this area north of the existing quarry extension plan, it has been deemed generally the least suitable for future mining prospects.

7.1.4 The land has historically been used for both farming, quarry associated activities and forestry logging. Farming has been limited due to the steepness of the terrain, which is predominately covered in rank pasture and weed species such as gorse. Small pockets of both native and exotic vegetation are dispersed over the site, tending to cluster in the existing valleys and adjacent to overland flow paths and small streams. The hillside and ridgeline closest to Riverview Road is clad in a pine plantation, most of which has been harvested. Towards the quarry entrance (northern side) there is an area of Eucalyptus trees and regenerating natives, planted by the quarry for screening purposes.

7.1.5 To the west of Fill Areas 2 and 3 the Proposed Waikato District Plan identifies a Significant Natural Area (SNA), which essentially runs parallel to the western boundary of Pt Lots 9 and 10. It is a 10-hectare regenerating bush area which is approximately 1km in length and has an existing stream which runs along this length, within the bush area.

7.1.6 Fill area 2 is a natural closed valley with a west facing gully exit. The face of the hill slopes starts at a gradient of 1:2 and reduce to 1:4 at the ridgeline, and the elevation of the gully rises from 49 mRL to 110.5 mRL. In more general terms, the gully has a steep amphitheatre which rises to the east and lowers towards the western side where the toe of the fill area will be. There is an existing small ponding area at the base of the gully which eventually flows into an existing stream catchment. The original ecological investigation (Boffa Miskell 2019, see **Appendix 12)** recorded an area of wetland of 450m² at the base of the gully. The presence and location of a man-made farm dams within Fill Area 2, along with associated ponded areas, were noted by Gaia during geomorphic mapping.

7.1.7 The vegetation for Fill area 2 generally comprises of a mixture invasive namely Gorse (Ulex europaeus) and native plant species namely Toetoe (Austroderia). A few older pine trees are also present in this area. The fill area is predominantly exotic species.

7.1.8 Fill Area 3 is located further North West of Fill Area 2 towards the northern boundary of the existing Gleeson landholdings. This fill site is to accommodate overburden, cleanfill and managed fill (containing traces of asbestos).

7.1.9 The area is located on one land parcel legally described as PT Lot 9 DP 1278 owned by Gleeson Quarries Huntly Limited. Fill Area 3 is adjacent to the old O'Reiley's coal mine, which is not in operation, the site having been rehabilitated to open pasture.

7.1.10 The fill area is 4.2ha in size and will be able to accommodate an estimated fill volume of 576,600m3. There is currently an access road that leads to the fill area. This road will be used to access the area and will be lengthened and upgraded to meet the required specifications such as gradient and width.

7.1.11 Fill Area 3 is mostly flat with some natural topographical buffers. The natural hill slope on the southern side buffers it from Fill Area 2 and the hill slope on the western side buffers it from the SNA as identified in the Proposed Waikato District Plan.

7.1.12 There originally was a small pond located on Fill site 3 with an overland flow path flowing towards the north. This was drained in early 2020 during geotechnical investigations, and a drainage channel created to collect the flows and discharge towards the east, with the ultimate receiving waterbody being the Waikato River. The remainder of Fill Area 3 is predominantly covered in grass in the flatter areas and the hills are covered in gorse. The naturally covered slopes provide a good buffer from the quarry.

7.1.13 Fill area 4 is located immediately north from the existing quarry operations. This fill site will overburden, cleanfill and managed fill (containing traces of asbestos). The area is located on one land parcel legally described as PT Lot 1 DP 25272 owned by Gleeson Quarries Huntly Limited, a division of Gleeson & Cox.

7.1.14 The fill area size is 5.21ha and will be able to accommodate an estimated fill volume of 800,000m3. There is currently an access road that leads to the fill area. This road will be used to access the area and will be lengthened and upgraded to meet the required specifications such as gradient and width.

7.1.15 Fill Area 4 is a natural gully that runs south towards the north. The area is predominantly exotic species and covered with a pine trees and gorse. The pine trees provide a good buffer to the east. The fill area is steep on the south-eastern side and lowers towards the north-west where the sedimentation pond is proposed.

7.1.16 From the western ridge there is a clear view of the Waikato River, State Highway 1, industrial buildings and the quarry located on Tregoweth Lane, Huntly. The noise from the traffic traveling on SH1 and the plant operating at the Wedding Huntly Quarry can be heard from Fill Area 4 with wind coming from the east.

7.1.17 There is pond on Fill Area 4 within the lower area between a cluster of pine trees. There is also a drainage stream located at the northern section of the fill area. The stream is classified as ephemeral and in some areas an intermitted stream was also identified. A wetland is located at the toe of the fill area. Fill Area 4 is in close proximity of a 110kV transmission line and pylon HAM-MER B0233 is the closest to the fill site.

7.2 Description of Compensation Area

7.2.1 The proposed compensation site (c.3.9 hectares) encompasses a gully and wetlands located on a rural property owned by Gleeson Quarries Huntly Ltd. The property lies approximately one kilometre to the northwest of the quarry; a series of vegetated gullies between the proposed compensation site and the quarry form stepping-stone linkages between the sites.

7.2.2 The compensation site includes wetland, gully and tree-land habitats that are heavily impacted by grazing of cattle and is located on the western side of the Waikato River within a highly modified agricultural landscape. Pest plant and animal species are also present at the site.

7.2.3 The stream that flows through the gully has been dammed at the downstream (northern) end of the proposed compensation site to create an irrigation pond. The dam has altered the hydrology of the stream, which has led to the formation of an induced wetland system that extends along most of the gully floor. A wetland is also present north of the dam.

7.2.4 The proposed compensation site has been identified as a Significant Natural Area (SNA_16743) and therefore has legal protection under the Waikato Regional Council Regional Policy Statement 2018.

7.2.5 Subsequent to the overburden consent for FA5 being granted, works commenced within the compensation site (as per conditions of consent), as well as works required to mitigate the loss of the pond/wetland in FA3. Gleeson determined to progress the restoration of the compensation site holistically, and works are nearly complete, including planting 14,200 plants in and around the SNA, stock proof fencing around the perimeter, control of pest plants and establishment of pest control and monitoring.

Figure 3: Map of compensation site - fence line (green) planting areas (white) Source: Envoco Monitoring Report - see Appendix 20

7.3 Wider Locality Description

7.3.1 Huntly Quarries Limited is located north-east from the Gleeson Quarry site on the opposite side of the Waikato River next to State Highway 1. Huntly Quarries Ltd which is owned by I H Wedding & Sons is still operational. It supplies all grades of metal, sand and clay and is visible from State Highway 1.[7]

7.3.2 The Rotowaro open cut mine is located (approximately 6km distance when measured on the aerial image), west of the GQ site. The Rotowaro mine was purchased by BT Mining a joint venture of Bathurst Resources Limited in 2018 from Solid Energy[8]. The Rotowaro mine is operational and based on the 2018 Annual report the coal production in the main pit should be completed in the early part of financial year 2019 and planning is in an advanced stage for the Waipuna West Extension[9].

7.3.3 Further West, (approximately 9km distance when measured on the aerial image) Puke Coal Limited is located. Puke Coal Limited is medium sized privately owned and operated mine[10]. Puke Coal Limited also provides landfill services and can take certain types of waste including bunker end of life tyres[11].

7.3.4 To the north lies Lake Waahi and Lake Puketirini. Lake Puketirini is a former open cast coal mine (referred to as being Weaver pits) which operated between 1954 and 1993 by State Coal (Mindat, 2020). Lake Puketirini was formed when the former Weaver's Opencast Mine Pit was naturally flooded. The outflow at the western end of the lake discharges though a canal into Lake Waahi. Two one-way gates have been installed at the outlet of the canal into Lake Waihi to prevent water from Lake Waihi entering Lake Puketirini.

7.3.5 In 2006, Solid Energy New Zealand Limited gifted Lake Puketirini to Waikato District Council, and currently the lake is managed by Waikato District Council for swimming and recreational purposes (WDC, 2009). Overall, the lake has been artificially created and is heavily engineered and its original intended purpose was to be a contact recreational reserve, rather than an ecological sanctuary. The water clarity within the lake is very good, with a Secchi disc visibility of between 0.4 to 9.31 m (average of 4.1 m).

7.3.6 Lake Waahi is known to have low water quality values due to nitrate levels, which are a result of poor farming practices within the immediate region.

7.3.7 As illustrated by Figure 2, the wider receiving environment (including water catchments) includes GQ and other mining industries in the area, along with existing effects associated with these mining activities, such as vegetation clearance, land, air and water discharges.

[7] https://www.ihwedding.co.nz/bulk-supplies/huntly-huntly-quarries-ltd/
[8] Bathurst Resources Limited Annual Report 2018
[9] Bathurst Resources Limited Annual Report 2018
[10] http://www.pukecoal.co.nz/about-us.html
[11] http://www.pukecoal.co.nz/constructiondemolition.html

Figure 4: Permitted activities in receiving environment (Google images, 2019).

7.3.8 A groundwater extraction bore search through WRC has indicated there are no bores within the site or between the managed fill and the Waikato River. The closest bore (use unknown), which is located between the main entrance to the quarry pit and the Waikato River to the southeast of the proposed fill areas, was presumed to be abandoned during a previous investigation undertaken by PDP in 2015.

8 DESCRIPTION OF PROPOSAL

8.1 Summary description

8.1.1 In brief, a staged fill operation is proposed, commencing with Fill Area 2 and progressing to Fill Areas 3 then 4. Each stage involves:

- The removal of all vegetation and topsoil to expose a competent subgrade; and
- Reclamation of existing ephemeral and intermitted watercourses and artificial wetland areas and installation of drainage and recommended erosion and sediment control measures; and
- Construction (and maintenance) of sediment retention ponds at the base of each Fill Area with a water holding capacity of between 1300m³ and 1563m³ to retain and treat site runoff.
- Deposition of imported managed fill in accordance with geotechnical engineering recommendations with maximum deposits of 300,000m³ per annum.
- Importation of managed construction & demolition material which may include asbestos containing soil and material, peat, marine sediment, and acid sulphate soils.
- Restriction of exposed surfaces to a maximum of 3.0ha at any one time.
- Stabilisation of each gully in accordance with geotechnical recommendations before opening the next Fill Area for operation, with site rehabilitation occurring with 6 months of each Fill Area being completed and stabilised.
- Washing out of trucks within an identified and contained wash area located centrally to Fill Areas 2, 3, and 4 prior to trucks being loaded with aggregate from the operational quarry.
- Construction of necessary supporting infrastructure such as site office, parking/turning areas and inspection platforms.
- Formation and upgrades to existing internal access roads to provide stable and operational access to all Fill Areas.
- Discharge of treated (clean) water from sedimentation ponds into ephemeral streams which eventually discharge to the Puketirini Lake to the north (Fill Area 2) or the Waikato River to the east (Fill Areas 3 and 4).
- Generation of traffic movements associated with the importation of fill of up to 24 additional vehicle movements per day (over and above movements approved under the Gleeson Quarry land-use consent).
- Staged ecological enhancement of a 3.9ha compensation gully west of the subject site.
- Rehabilitation of the land on completion of each fill area with forestry, with natural overland flow paths formed to match the completed contours.

8.2 Quarry Operations

8.2.1 The current quarry operations consist of a series of activities which will remain the same. The first quarry activity undertaken is the removal of the overburden to expose the underlying rock resource. The exposed rock is then extracted, processed through the crushing plant into various rock products, stockpiled as required and then sold out the gate. The quarry operations will continue to be undertaken in the same manner as they presently occur. Excavated material will either be waste overburden or the ongoing extraction of rock. All material removed will be natural soil or rock.

8.2.2 The quarry has an ongoing need to dispose of overburden. It is estimated that within the currently consented quarry limit, there is 674,940m³ of overburden that will require to be stripped. A dedicated volume of 182,600m³ will be placed in Fill Area 5, and the balance of 492,340m³ of overburden is proposed to be placed in the Managed Fill Areas 2-4 or to be exported from site.

8.3 Contaminants in Managed Fill

8.3.1 The type of managed fill material to be imported to site includes construction and demolition fill (as defined and listed as acceptable materials in Section 4.2 of the Cleanfill Guidelines) with accepted low levels of contaminants including asbestos, soils containing acid sulphate and marine sediment. Typically, the fill will contain soil, rock, concrete, bricks, and glass, with less than 5% timber. Peat, a naturally occurring material is also to be accepted. Please refer to Schedule Three, attached to the draft set of conditions in **Appendix 19** for the full list of acceptable wastes.

8.3.2 Prohibited wastes are also listed in Schedule Three and include any material that exceeds the criteria in the Waste Acceptance Criteria agreed with Council. All green waste, tyres, bulk liquids, batteries, hazardous waste, coal ash or domestic/municipal waste are listed as prohibited.

8.3.3 Rather than provide a detailed description of each aspect of the proposal in this section, it is intended to address each area of the operation in a separate section, detailing the specific activity proposed, the methods to avoid/remedy/mitigate effects and whether there are any adverse effects over the RMA 'no more than minor' threshold.

9 CONSIDERATION OF APPLICATIONS – S104 RMA

9.1 Introduction

9.1.1 Section 104(1)(a) and 104(1) (ab) of the RMA requires the council to have regard to any actual and potential effects on the environment because of the proposed activities. This includes both the positive and the adverse effects and any measures proposed for the purpose of ensuring positive effects that offset or compensate for any adverse effects on the environment.

9.2 Positive Effects

9.2.1 The proposed managed fill sites play a critical role for the current and future development which includes highway and expressway expansions, railway infrastructure development and the wider regional construction and demolition industry. Three main areas of where potential positive effects can be achieved have been identified as described below:

9.2.2 Ecological Effects: While some minimal ecological mitigation has been recommended by ecologists for the loss of wetland area (1:1 ratio) and bat habitat, the Compensation Area offered for permanent protection and restoration is holistic and not only provides for the calculated mitigation recommended, but extensive additional stream, indigenous bush, and faunal habitat (by pest and weed control) which is considered over and above the minimum mitigation required. This is an extremely important positive effect, as it ensures that a 3.9ha indigenous ecosystem is rehabilitated and covenanted to ensure a net gain ecological 'betterment' back to the catchment.

9.2.3 Efficient and economical truck movements: Currently, trucks are arriving empty to collect aggregate from the quarry. By providing a managed fill disposal site adjacent to the quarry, this enables customers (and Gleeson's own fleet of trucks) to arrive fully laden, deposit managed fill material, and depart with a load of aggregate for the return trip. This promotes sustainable transportation methods and results in efficient vehicle movements and potentially reducing truck numbers on regional road networks.

9.2.4 Responsible fill facilities: While it is recognised that the Waikato Region is committed to waste minimisation wherever possible, managed fill sites are important for the disposal of end waste products, particularly from the construction industry. Taking into consideration the proposed population growth of Waikato District and major upcoming projects (including construction and demolition), the proposed fill sites will enable responsible fill activities at sustainably engineered sites that is unlikely to have a significant adverse effect on the environment.

9.2.5 Visual Attributes: The Assessment of Landscape and Visual Effects (ALVE) has described the existing surroundings as highly modified which enables the proposed fill sites to positively contribute to the overall long-term visual environment. The assessment comments on page 21 that "*long term there will be positive effects on amenity and amenity values through the improvements to the site, proposed works and reinstatement of productive pasture within the site which will bled and integrate well with the surrounding land with positive visual attributes*."

9.3 Adverse Effects

9.3.1 In considering adverse effects, the council:

- may disregard those effects where the plan permits an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect; and
- must disregard trade competition or the effects of trade competition; and
- must disregard those effects on a person who has provided written approval to the application.

9.3.2 Adverse effects are assessed in Sections 10-18 of this AEE.

9.4 Permitted Baseline (s104(2))

9.4.1 Under s104(2) of the RMA, a consent authority may disregard an adverse effect if the plan (or a national environmental standard) permits an activity with that effect for the purposes of forming an opinion as to whether there are any actual or potential effects on the environment of allowing the activity.

9.4.2 Although mineral extraction and associated filling activities are anticipated in the Rural Zone they are not regarded as a permitted land use. Further the activities proposed under this application, particularly in relation to importation and deposition of managed fill exceed all permitted standards (e.g., earthworks and filling standards etc.) as allowed for in the WRP/WDP and therefore the permitted baseline has limited relevance in this case.

9.5 Receiving Environment

9.5.1 The receiving environment beyond the subject site includes permitted activities under the relevant plans, lawfully established activities (via existing use rights or resource consent), and any unimplemented resource consents that are likely to be implemented. The effects of any unimplemented consents on the subject site that are likely to be implemented (and which are not being replaced by the current proposal) also form part of this reasonably foreseeable receiving environment. This is the environment within which the adverse effects of this application must be assessed.

9.5.2 The GQ site operates under several resource consents. The current operation is compliant with these consents. It is considered that all effects associated with the lawfully established activities form part of the foreseeable receiving environment and therefore can be discounted – such as associated effects from noise, visual effects, traffic generation, etc.

9.5.3 In addition, it is noted that WDC consent LUC0035/11 approved a northern overburden disposal site, subject to conditions of consent – this is in what is now identified as Fill Area 2. Fill Area 2 has comparable ecological features (native regenerating bush, ephemeral stream), and it is presented to WDC that the disposal of overburden in this location could be actioned subject to detailed engineering design being approved by Council. This therefore forms part of the credible receiving environment and should be taken into consideration when assessing adverse effects (particularly regarding ecological effects).

9.5.4 As this resource consent application relates to the deposition of managed fill material, the closest comparable operations within the surrounding receiving environment and wider Waikato Region are listed below:

- Drury Quarry – Quarry Road Runciman (takes clean and managed fill) - within lower Auckland Region.
- Hampton Downs Landfill (also takes managed fill)
- Ridge Road Quarry Pokeno (also takes clean and managed fill)
- Puke Coal Landfill Pukemiro
- Broadlands Road Landfill Taupo
- Waitomo Landfill Te Kuiti
- Tirohia Landfill Paeroa
- Tokaroa Landfill Tokoroa

9.5.5 These operating activities establish a level of effects previously approved by WRC and therefore provide a baseline relevant to this application, and these are adopted for the purposes of s104(1)(a).

9.6 Trade Competition

9.6.1 Council is reminded to disregard trade competition and the effects of trade competition when deciding if adverse effects are likely to be more than minor (s104(3)(a)(i)).

9.7 Written Approvals

9.7.1 In terms of written approvals to the application, such approval has been provided by the owner/occupier of 0 Riverview Road (Mr Mike O'Reilly) – this property is located directly north of the subject site (adjacent to FA3 and 4).

9.7.2 Written approval has also been provided by Transpower (as asset owners of the high voltage transmission lines near FA4). Therefore, all adverse effects on Mr O'Reilly and Transpower may be discounted (s104(3)(a)(ii)). Please refer to **Appendix 18** for details.

10 ASSESSMENT OF EFFECTS – GEOTECHNICAL/NATURAL HAZARDS

10.1 Site Stability

10.1.1 Both a preliminary Geotechnical Assessment (for FA2, 3 and 4) and detailed design (for FA2 and FA3) has been undertaken by GAIA Engineers (refer to **Appendix 8**). The information below is a summary of the findings of these reports, including the proposed geotechnical design recommended for FA2 and FA3, followed by an assessment of potential adverse effects.

10.1.2 The overarching general assessment considered the suitability of the site, detailed analysis of the findings of the on-site investigation (that includes test pits) and analysed the long-term stability of the placed overburden landform including rehabilitation measures.

10.1.3 FA2 and 4 are in separate gully features while FA3 is on flat land created by an historic filling operation. FA2 is a westerly orientated steep sided gully and FA3 is a flat area with gentle ridges to the west and east and northerly orientated back slopes. FA4 is moderately sloping gully that drains northward. The geomorphology of the site is predominantly controlled by the underlying geology. The large amphitheatre valleys of FA2 and FA3 (partially obscured by historic fill) and FA4 are characteristic of the Waikato Coal Measures.

10.1.4 Two characteristics identified during the initial geotechnical investigation potentially influence the stability of the fill sites, namely (1) the fill areas being located on Waikato Coal Measures geology and (2) FA3 being hydraulically conductive.

10.2 Fill Area 2

10.2.1 While the original geotechnical report surmised that the toe of FA2 would consist of Waikato Coal Measures material, the detailed design investigation focused on more difficult to reach areas near the toe of the proposed fill site to confirm the foundation conditions. It was discovered during the detailed design investigations that founding and toe conditions for FA2 were better than originally reported on at the concept stage. The narrower and incised western end of FA2 is underlain by weathered soil and rock of the Newcastle Group Greywackes.

10.2.2 The general design of the fill consists of:

- A 2m deep toe-key into the in-situ Newcastle Group Formation at the toe of the fill
- Inter-bench external batter angles of between 2H:1V and 4H:1V
- 5m wide external benches (a typical bench or bund is 5m in height, with the maximum height of bench being 10m (required initially due to steep slopes of gully)
- 0.4m thick drainage blankets every 10m vertical distance

10.2.3 In addition to the proposed drainage blankets installed within the fill, a basal drainage blanket with a network of underfill drains consisting of a main carrier drain and smaller collector drains will be necessary to ensure the long-term stability of the fill.

10.2.4 In Section 9 of the Fill Site 2 Geotechnical Design Report (Rev B), Gaia Engineers concludes that:

10.2.5 Based on the results of the existing information review, test pit investigation, fill design and stability analysis undertaken in preparation of this report, we are satisfied that the proposed fill will be sufficiently stable. Stability of the fill is reliant on the correct implementation of the design including installation of the drainage blankets, control of external batter angles and adherence to the appropriate fill specifications.

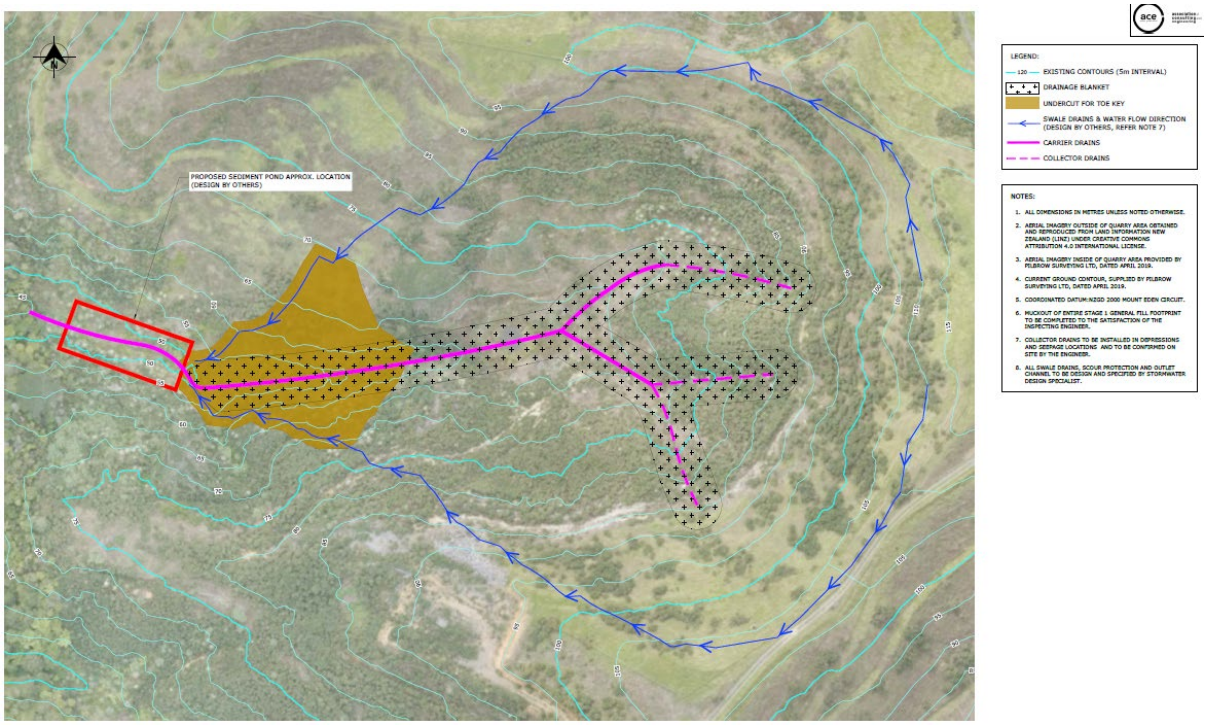


Figure 5: Drawing 2325-23-04 Rev A 'Underfill Drainage Plan' Source: Gaia Report on FA2 (Appendix 8)

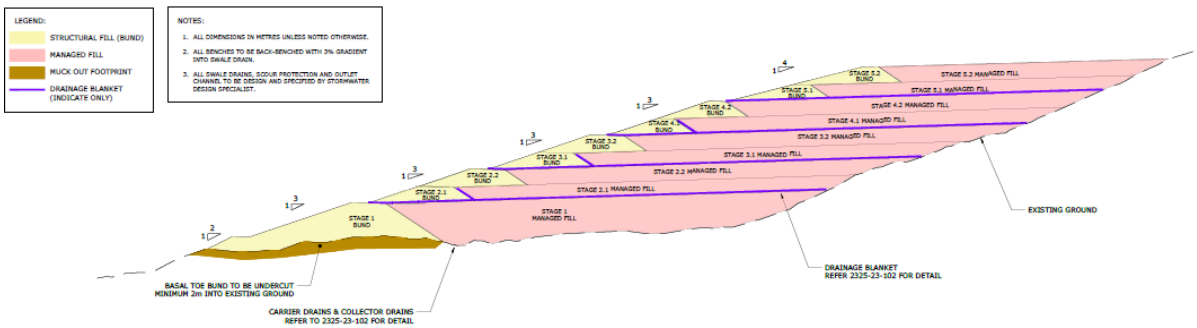


Figure 6: Drawing 2324-23-101 Rev B 'Typical Bund and Managed Fill Arrangement' Source: Gaia Report on FA2 (Appendix 8)

10.3 Fill Area 3

10.3.1 Site investigations for Fill Site 3 have been undertaken in two stages. The first stage involved the excavation of test pits during June 2019 to the maximum reach of the available excavator. The results of this investigation were presented in the above-mentioned concept report – 2325-12-GQ-01 (Huntly Quarry Disposal Sites - Geotechnical Assessment), Rev C. It was found that the site comprises a similar gully system to FA2 and FA4, but that FA3 is buried under a significant volume of historic mining fill. The test-pits were unable to reach the base of the mining fill.

10.3.2 Additional borehole investigations indicated that the invert of the buried gully and the ultimate toe of the Historic Mining Fill is likely founded on basement greywacke material. The stability design of the fill however does not rely on the presence of basement greywacke material.

10.3.3 The general design of the fill consists of:

- A 2m deep toe-key into the existing mining fill at the toe of the lowest structural bund
- Inter-bench external batter angles of 3H:1V for structural bunds and 6H:1V for Managed Fill
- 5m wide external benches
- 0.4m thick drainage blanket at the base and between stage 1 and 2 of the fill

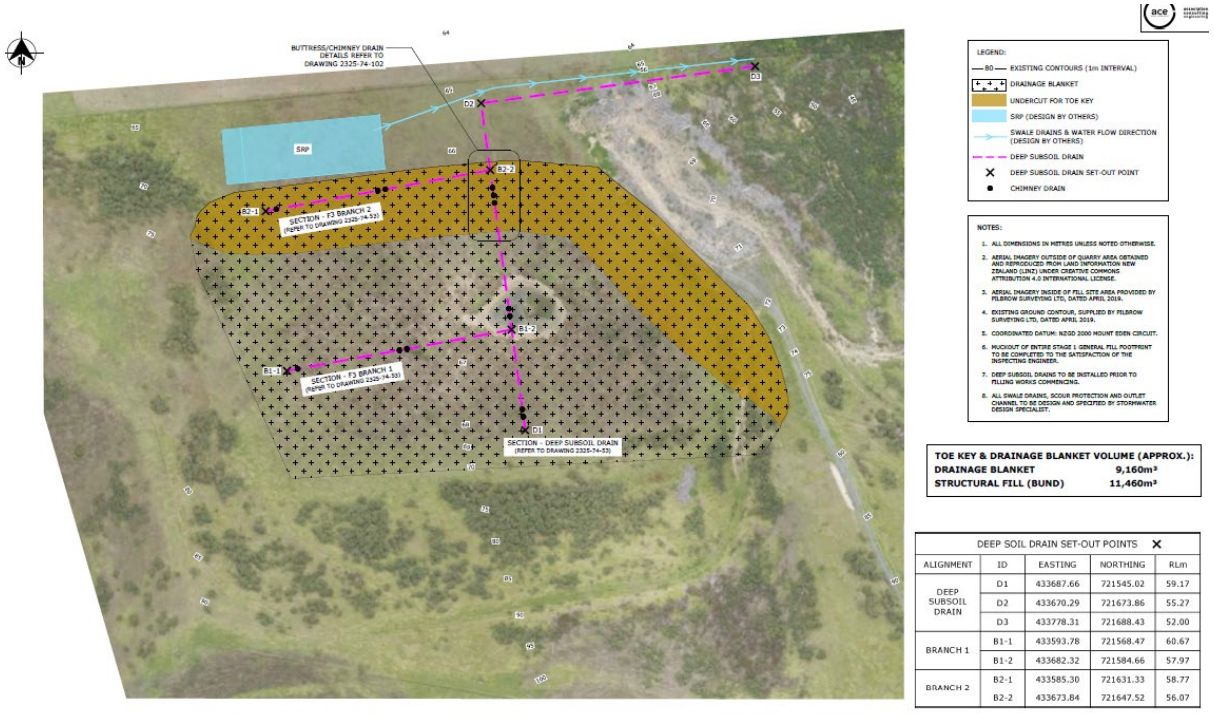


Figure 7: Drawing 2325-74-09 Rev A 'Toe Key Area, Basal and Underfill Drainage Plan' Source: Gaia Report on FA3 (Appendix 8)

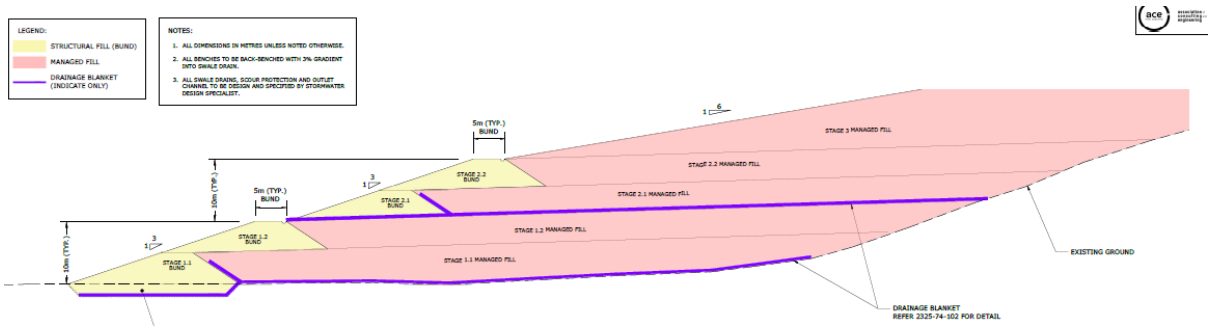


Figure 8: Drawing 2324-74-101 Rev A 'Typical Bund and Managed Fill Detail' Source: Gaia Report on FA3 (Appendix 8)

10.3.4 Like FA2, drainage blankets and a network of underfill drains will be required for long term stability.

10.3.5 In Section 9 of the Fill Site 3 Geotechnical Design Report (Rev A), Gaia Engineers concludes that:

10.3.6 *Based on the results of the existing information review, test pit investigation, fill design and stability analysis undertaken in preparation of this report, we are satisfied that the proposed fill can be constructed and be sufficiently stable. Stability of the fill is reliant on the correct implementation of the design including installation of the subsoil drains, drainage blankets, control of external batter angles and adherence to the appropriate fill specifications. Sensitivity of the fill to instability within the underlying Waikato Coal Measures material has been assessed and found to remain stable under worst credible conditions.*

10.3.7 *The proposed deep subsoil drain will provide a suitable drainage path for perched groundwater tables and excess pore-pressures developed in the Historic Mining Fill due to the surcharge loading of the proposed fill. Success of the deep subsoil drains will be monitored through surface displacement monitoring of markers placed at the toe of the fill and on subsequently completed fill stages. Excessive or accelerating displacements will result in a slowing of the rate of filling.*

10.3.8 Additional details and assessment regarding the proposed subsoil drainage is provided in section 11 of this report.

10.4 Fill Area 4

10.4.1 While detailed design for FA4 has not yet been undertaken, the overarching initial geotechnical investigation considers that FA is geotechnically suitable for the proposed fill activity and that stability of the fill operation was achievable by the preliminary slope stability analysis undertaken. As it is the last gully proposed to receive fill, the outcomes in FA2 and 3 will largely dictate the geotechnical response, with the initial report providing enough comfort that the soil type and design proposes no great stability risk, and there are no evident geotechnical constraints.

10.5 Potential Adverse Effect - Stability

10.5.1 The effects associated with the placement of the manged fill material into FA2 - FA4 are land instability and potential slips due to WCM geology and a high-water table (specifically at FA3). Potential risks and mitigations strategies have been identified which include:

- Mitigation of effects by undertaking detailed design 'up-front', which has determined the constraints in FA2 are lower than anticipated, and in FA3 enabling responses to deal with the historic mine tailings to be formulated and agreed;
- Sufficient contingency in the construction budget for additional drainage measures should the groundwater table occur higher than observed or other groundwater springs are encountered; and
- Mitigating possible landslips during construction and operation due to weathered soils in the existing valleys through bottom-up filling, maintaining positive drainage across all active earthworks sites and re-directing catchment stormwater away from active earthworks areas.

10.5.2 The Geotechnical Reports provided establish that the suitability and stability of the proposed fill areas are largely governed by the specific construction of the fills more so than the underlying geology. The specific designs thus far during the detailed design reporting have been able to mitigate unfavourable bedding direction and buttressing effect by improving the stability of the natural slopes.

10.5.3 The geotechnical assessments conclude that the proposed fill sites will not unduly impact the existing area in terms of land stability subject to appropriate specific design and careful construction monitoring. Implementation of all recommendations given to maintain the stability of the existing and future fill slopes at the proposed fill sites ensure that any potential effects on land stability arising from the disposal of overburden and managed fill material in the identified gullies will be no more than minor.

10.6 Potential adverse effects on groundwater (regarding site stability)

10.6.1 Geotechnical advice is that the groundwater aquifer table is expected to be lower in this area due to the proximity of the quarry pit, and therefore deeper than the zone of influence impacted by the proposed fill operation.

10.6.2 It is the perched groundwater within the subsoil, which is likely to seep from the natural subgrade, requiring a network of drainage to be installed prior to any filling occurring and to ensure a stable base for the fill operation. It is noted that these areas of perched groundwater are discontinuous and are addressed further below. In FA3 specifically, deep subsoil drainage is intended to allow for pore-pressure and perched groundwater dissipation from the historic mining fill. This shallow groundwater (which may contain elevated levels of contaminants from the historic fill), is to be pumped to a tank and tested before being either discharged into the SRP or removed from site.

10.6.3 Furthermore, internal drainage blankets are required to relieve pore-water pressure from the fill material as it is placed and to provide preferential drainage paths for any shallow perched discontinuous groundwater that is able to infiltrate into the fill structure.

10.6.4 The memo provided by Mr Parviz Namjou (PDP, 28 June 2022)[12] is relied on in relation to groundwater effects, which summarises that: *based on the available hydrogeological data, there is no shallow aquifer (continuous zone pf saturation) below the proposed Fill area and the laterally discontinuous lenses pr pockets of perched groundwater minimise lateral groundwater flow away from the site. This is supported by the logs and ephemeral nature of the tributaries at the site (lack of baseflow). Considering the lenses are discontinuous and are bounded by low permeability sediments, the perched groundwater is considered to be predominantly stagnant. Vertical infiltration from the perched groundwater lenses to the regional groundwater in the greywacke is possible. However, considering these lenses of perched groundwater are underlain by clays and silts (e.g. completely weathered coal measures) with low vertical hydraulic conductivity, the infiltration is likely to be low.*

10.6.5 *Following rainfall some minor discharge from the perched groundwater lenses to the watercourses is possible if any of these perched groundwater lenses intercept the ground surface. However, considering widespread occurrence of clay and silt at shallow depths, these ephemeral tributaries predominantly act as run-off watercourses and surface water drainage system rather than a discharge zone for groundwater.*

10.6.6 Overall, relying on expert investigations, reporting and design as detailed above, the gullies can be filled and stabilised without resulting in adverse effects that are more than minor.

[12] See s92 information for copy of this memo

11 ASSESSMENT OF EFFECTS – STORMWATER, EROSION AND SEDIMENT

11.1 Introduction

11.1.1 Two separate Erosion and Sediment Control Reports have been prepared in support of this application, one addressing methodologies to avoid, remedy and mitigate effects related to stormwater runoff and potential erosion/sediment discharge in FA's 2 & 4, the other addressing the same for FA3. This is due to the unique characteristics of FA3, being the specific characteristics presented by the existing historic fill within the gully. These ESCPs are attached in **Appendix 9**. Updated versions of these ESCPs are included in the s92 responses, as well as the notification pack. The most current versions at the time of updating this AEE are: Fill 2 and 4 ESCP Rev C and Fill 3 ESCP Rev E.

11.1.2 A Site and Fill Management Plan (SFMP) is attached in **Appendix 6**, which seeks to manage operations at the identified gullies known as Fill Areas 2, 3 and 4. It demonstrates how the operations will be managed to ensure that any actual or potential adverse effects are avoided, remedied, or mitigated. It includes details on the proposed procedures and standards to show how compliance will be achieved with the relevant conditions of resource consents. It has been prepared in general accordance with the MfE and WasteMINZ guidelines. The most current version at the time of updating this AEE is SFMP Rev 8.

11.1.3 It is to be viewed as a 'living document' on its submission to WRD/WDC and may be updated during the consent and decision process to reflect best practice and most up to date requirements of the relevant authorities. In brief, the SFMP includes the following:

- Filling operations (including hours of operations, staging, access etc.)
- ESC management (in conjunction with the ESCPs)
- Contaminated soil management
- Noise management
- Traffic Management
- Dust Management
- Acceptance of fill
- Reporting and recording etc.

11.1.4 The proposed fill sites will be accepting asbestos soil and asbestos containing material. The operations of these type of fill materials will be managed by the Asbestos Fill Management Plan (AFMP) (refer to **Appendix 6**) that aims to ensure compliance with the asbestos legislation and regulations.

11.1.5 Other ESC related management plans that are currently in draft format include:

- Sampling and Analysis Plan (SAP) (Most current version is SAP Rev 7)
- Adaptive Management Plan (AMP) (Not published as yet)

- Chemical Treatment Management Plan (CTMP) (Example for FA5 provided in Appendix 6)
- Acid Sulphate Soils Management Plan (ASSMP) (Current version June 2022 – no revisions)

11.2 General ESC works

11.2.1 Once the required geotechnical enabling works have been completed, fill material will be brought to the site in trucks restricted to managed fill transported by the applicant's own trucking business (Gleeson & Cox Limited) and approved sub-contractors.

11.2.2 Trucks will either be arriving and depositing fill directly into the open fill area or within a designated area from where the fill material (e.g., marine sediments) will first be managed and then be moved by machinery to the relevant area of the fill. Placed fill will be compacted by track rolling, the movement of site machinery/trucks etc. or by compactor if required.

11.2.3 Filling will be staged to minimise the exposed areas within the overall fill site at any one time. Areas will remain undisturbed if possible, and the open area staging will be managed by progressive stabilisation of bare surfaces (topsoiled and grassed) on an ongoing basis as filling is completed. Straw/hay mulch, fabric or similar will be applied for temporary stabilisation as required. The staging is detailed in the ESCPs.

11.2.4 Work areas will vary depending matters such as the type of material received, the season and the state of filling on the overall site. Some areas may be opened and closed several times during the life of that Fill Area, and both temporary and permanent stabilisation measures will therefore be used.

11.2.5 Works are proposed to continue throughout the year i.e., no winter closures are proposed, and standard conditions of consent are offered around the authorisation of 'Winter Works' to provide WRC/WDC the ability to monitor such works.

11.2.6 A single fill area will be operational at any one time. Once FA2 (or 3) is half full, preparatory works on the next gully will begin to allow for continuous filling. The order of gullies will be FA2 first, followed by FA3, with FA4 being the final gully to receive imported fil.

11.3 Fill Areas 2 & 4

11.3.1 Each fill area will be serviced by a flocculated SRP. A silt fence will be installed at the toe of each fill area before the proposed Sediment Retention Pond (SRP), is constructed. Once the SRPs are built and external batters have been stabilised, the silt fences can be removed, and all and perimeter bunds and dirty water diversion channels will be installed to direct all runoff within the fill area to the SRP (to be sized to carry the 5% AEP event plus 300mm freeboard, as required by TR2009/02). The flocculation system will be commissioned, based on bench testing, and certified Flocculation Management Plan, prior to site stripping and filling commencing.

11.3.2 FA2 has a catchment of 4ha (to ensure that runoff from the adjacent access road and tip head is captured) and the SRP has a storage volume of 1,200m³. as well as additional 10% volume for the forebay. The SRP will discharge to a rock lined spillway into an unnamed stream west of FA2 located within an area of regenerating indigenous vegetation (Significant Natural Area).

11.3.3 The SRP will meet the TR2009/02 specification and will appropriately minimise sediment discharge from the site.

11.3.4 Once the SRP is in place, the existing stock pond will be dewatered and the gully be stripped, and underfill drainage installed (in stages). With the SRP system operational, any adverse effects associated with the land disturbance required to prepare the fill area to receive fill are mitigated. The design details and storage volume calculations are included in the ESCPs in **Appendix 9**. Undisturbed areas will be diverted away from the SRP using clean water diversions (perimeter bunds).

11.3.5 FA4 has a catchment of 5.1ha with the SRP having a storage volume of 1530m³. In both FAs 2 & 4, clean water diversions will be used to divert adjacent clean/stabilised area away from the SRP.

11.3.6 To further avoid adverse effects, the perimeter bunds/dirty water diversions will be a minimum of 650mm high and any areas prone to erosion will be further protected with rock lining.

11.4 Fill Area 3

11.4.1 Due to the historic mine tailings within the FA3 footprint, the first phase of development is to install deep drainage (up to 10m deep) to provide ongoing dewatering of the historic fill. Any discharge is to be collected in a manhole riser and pumped to a 30,000L tank, which provides up to 5.4 days' worth of storage (based on an estimated sub-soil discharge rate of 5.6m³/day). This water is to be tested for contaminant levels, and based on the results, either discharged to the SRP system, or exported from site and disposed of at an approved facility. Collecting this sub-soil groundwater and treating (or removing) it both **avoids and mitigates adverse effects** on water quality in the surrounding catchment.

11.4.2 FA3 will then be progressively stripped, and a clay liner and drainage blanket will be installed before fill is imported. Clay for the liner will be excavated from the southern part of the fill site.

11.5 Additional assessment

11.5.1 Erosion is a natural process that occurs gradually overtime. However, the disturbance to the land from earthworks activities can accelerate the process of erosion. Accelerated erosion can cause a loss of soil productivity, capability and versatility. An increase in erosion causes an increase in sedimentation.

11.5.2 Sediment is regarded as a serious pollutant that has many adverse effects on the receiving environment including high suspended sediment loads in streams that reduces water quality and increasing the rate of infilling of watercourses, rivers and wetlands. The proposed fill areas are regarded as a High-Risk Erosion area, (as defined by the WRP due to their proximity to water bodies and slopes exceeding 25 degrees in some parts) and are particularly at risk for accelerated erosion activities.

11.5.3 In order to reduce the likelihood of accelerated erosion a number of mitigation strategies will be implemented continuously throughout the preparation works and operation of the fill areas. Once the enabling works have been completed which, includes the stabilization of the fill area, the fill material will be brought to the site and once deposited into the fill area will be shaped and compacted. Long term, the filling of the gullies will reduce any future potential erosion as the final landform will have a gentler compacted grade.

11.5.4 Further, a maximum area of 3 hectares of land will be exposed at any one time and the bare surface will be temporary stabilised against erosion by using straw/hay mulch or fabric until area has been filled. This ensures the capacity of the ESCP is not put under pressure during times of higher rainfall, thereby avoiding potential adverse effects.

11.5.5 The proposed ESC approach as included in the ESCPs has been developed to ensure that the discharge treatment reflects the best practicable option (BPO) and mitigates adverse effects as required by Waikato Regional Plan Change 1. "*The effects of these controls will be to reduce the level of sediment discharged from the activity after treatment to the lowest possible levels"*

11.5.6 It is concluded that the managed fill activity will have less than minor adverse erosion or sediment related effects on the environment based on the ESCPs provided, the assessment above and the following additional measures:

- The SRPs are sized to accommodate flow from an area greater than that of the fill alone, therefore treatment will also be given to the undisturbed balance of the catchment.
- The natural annual sediment load will not increase as a result of the fill operation because the sediment yield from the fill site after treatment will be similar to or slightly less than current natural levels.
- The fill areas will be progressively stabilised and mulched/topsoiled/seeded as required.
- Any stockpiles will be located within the SRP catchment and stabilised and/or silt fenced as per the recommendations of the ESCP.
- Chemical treatment will be utilised in the SRP's to enhance settlement and sediment retention (chemical treatment causes any sediment laden water to sink to the base of the SRP, thereby decreasing the risk of sediment in the water discharged).

- After the fills have been completed, the land will be rehabilitated into farmland or forestry, leaving no exposed surfaces or unstable land that might result in any long-term sediment related effects on the environment.
- The proposed land-use does not impact on productive farmland (as is steep and has previously degraded soils due to forestry).

12 ASSESSMENT OF EFFECTS –DISCHARGE OF CONTAMINANTS TO LAND

12.1 Introduction

12.1.1 An Assessment of Effects relating to contaminants discharge and the development of a waste acceptance criteria for the proposed fill sites has been undertaken by Mr Andrew Rumsby of EHS-Support (**Appendix 10**). The most current version of this report is Revision 6 and included in s92 responses and the notification pack.

12.1.2 The assessment reviewed the acceptable human health and waste acceptance criteria for chemical contaminants and asbestos used at other consented managed fill facilities within the Waikato Region. The assessment also includes the development of the soil quality criteria for capping the material for the managed fill to allow for future rural residential or agricultural land uses.

12.1.3 The proposed waste acceptance criteria as outlined in this AEE and **Appendix 10** is similar to that of other disposal sites in the Waikato region and is discussed further below.

12.2 Methodology of Importing and depositing Managed Fill

12.2.1 It is proposed to complete a three-step criterion for the acceptance or rejection of contaminated material. The detailed process is outlined in the Draft Site and Fill Management Plan (SFMP in **Appendix 6**). An SFMP will ensure that the site operates to an acceptable standard and whilst appropriately managing a range of potential effects. In summary the three-step process will include the following:

12.2.2 *STEP 1*: The following material is accepted as Cleanfill if it meets the following definitions:

- Overburden sourced from the Quarry site; or
- Comply with the definition and table of 'cleanfill' material in the MfE guideline[13]; and
- Be solid material of an inert nature; and
- Not contain hazardous substances or contaminants above recorded natural background levels of volcanic soils of the site.

12.2.3 *STEP 2:* The following material is accepted as Managed Fill if it meets the following permitted parameters detailed in Table 3 below. Note: This table is taken from the most recent set of conditions that have been agreed between WRC and GMFL during the assessment process of previous applications to date.

[13] [13] A Guide to the Management of Cleanfills, Ministry for the Environment, January 2002.

Table 2: Proposed Waste Acceptance Criteria for the Managed Fill

Contaminant Type	Parameter[1]	Proposed Waste Acceptance Criteria (> 2 m) (mg/kg)	Proposed SPLP Leachability Limits (mg/L)[8]	Maximum Truckload Fill Concentrations Shallow (<2 m) Clean Fill (mg/kg)
Elements	Arsenic	100[2]	-	12[3]
	Boron	45[3,10] (260)[7]	2	45[3]
	Cadmium	7.5[4,9]	-	0.65[9]
	Chromium	400[4,9]	-	55[3]
	Copper	325[4,9]	-	45[3]
	Mercury	1.5	-	0.45[3]
	Nickel	65 (320)[7]	1	35[3]
	Lead	250[10] (1,000)[7]	1	65[3]
	Thallium	23[12]	-	1
	Zinc	400[10] (2,000)[7]	1	180[3]
BTEX Compounds	Benzene	0.2[10]	-	0.0054[9]
	Toluene	1.0[9]	-	1.0[9]
	Ethylbenzene	1.1[9]	-	1.1[9]
	Total xylenes	0.61[9]	-	0.61[9]
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo-a-pyrene (eq)	20[4]	-	2[9]
	Naphthalene	7.2[5]	-	0.013[11]
Total Petroleum Hydrocarbons (TPH)	C_7-C_9	120[5]	-	120[9]
	C_{10}-C_{14}	300 (1,400)[13]	-	58[9]
	C_{15}-C_{36}	20,000[14]	-	-
Others	DDT and isomers	8.4[4,6]	-	0.7[9]
	Aldrin	0.7	-	-
	Dieldrin	0.7[4,6]	-	-
	Tributyltin	6[15]	0.3[15]	
Asbestos	Refer to Table 2 of the Huntly Quarry – Asbestos Fill Management Plan (PDP, 2019).			

12.2.4 There are several clarifying technical notes associated with the table that are detailed on pages 7 and 8 of the WAC Report in **Appendix 10**.

12.2.5 All imported managed fill is to:

- Be placed at a depth of 2.0 m or more below the surface of the final cover.
- Be below the maximum chemical concentrations for managed fill as set out in Table 2 (above).

- Does not include acid sulphate soils unless they have been adequately lime stabilised/neutralised to pH greater than 6.5 pH units and total acid neutralising capability is greater than to acid generating capability.

12.2.6 *STEP 3:* The following will be regarded as Prohibited Material - fill that does not meet that does not meet the Acceptance Levels as indicated in Step 2 will not be allowed to be disposed of on site. Any vehicle entering the site that has not obtained preapproval or has material that has not be tested will not be allowed to dispose of their load on site. No rejected material will be accepted or stored on site.

Table 3: Prohibited Fill Material

Prohibited Waste
• Any material that exceeds the accepted criteria listed in approved Waste Acceptance Criteria. • No chipboard, will be accepted as part of the Construction & Demolition fill • No green waste – (Vegetation, bark and wood chips) any material that is compostable / biodegradable that could cause leachate. • No material from gas works will be accepted. • Containers, sealed drums, and gas cylinders • Bulk liquids • Tyres • Medical and Veterinary Waste • Coal Ash Waste • Lead acid batteries (lead acid batteries can be recycled in New Zealand). • Used oil. • Explosive, flammable, oxidising or corrosive substances - as defined under the HSNO Act. • PCB wastes. • Persistent Organic Pollutants wastes (as defined by the Stockholm Agreement). • Viscous materials-liquids/tars/paints and painted material. • Drums or containers containing hazardous chemicals (including agrichemicals, solvents, petroleum compounds or toxic chemicals (as defined under the HSNO Act)). • Household Hazardous Waste. • Municipal solid waste and domestic refuse. • Paper, cardboard, and fabrics • Electrical components, cabling, and insulation • Biosolids from municipal or industrial wastewater treatment plants

12.2.7 The contaminant list in Table 2 is not exhaustive. For managed fill containing other contaminants not listed in Table 6 the acceptance criteria shall be as follows:

- Contaminant concentrations shall not exceed the concentrations within TP153 Background Concentrations of Inorganic Elements in Soils from the Auckland Regional for volcanic soils.
- For organic contaminants not listed in Table 2 then CCME agricultural soils guidelines will be used an initial screening criterion. If no CCME agricultural soil guidelines exists or higher concentrations of contaminants are proposed to be deposited within the managed fill, then site-specific criteria will be developed and submitted to WRC for approval.

12.2.8 In the highly unlikely event any imported fill does not meet the acceptance criteria as specified in Table 2, it will be removed to a suitably consented off-site disposal facility within two weeks of receiving the laboratory test results confirming unacceptability.

12.2.9 It is also noted that that the mean concentration within the managed fills is likely to be less than the proposed waste acceptance criteria for the site (Section 4 of the WAC Report). This is because it is unlikely that most material accepted into the managed fill will be at the maximum concentration, therefore levels within the fill are expected to be significantly lower than the maximum concentrations in Table 2. This is based on experience by Mr Rumsby at other managed fill operations.

12.3 Pre-testing and Pre-Approval of Fill Material

12.3.1 Avoidance is the most important step and is achieved by the testing of loads before they arrive at site (to determine they meet the WAC), secondary testing of loads upon arrival to site (every 500m³, plus random testing and an annual audit – by samples and by x-ray). The details of this pre-approval process are explained in section 7 of the SFMP in **Appendix 6**, but include the following measures to **avoid adverse effects** BEFORE fill arrives to site or is deposited on site:

- Pre-approved account holders must inform GMFL of the source of the material and provide a report or relevant testing results to determine it complies with the WAC in Table 2 above
- All pre-approved loads will be inspected on arrival to site (at weighbridge and again at tipping point) Trained "spotters" will undertake a visual inspection, and if a load is suspicious (odour, staining, organic material etc), the load will be quarantined on site until further inspection and/or testing confirms it meets the WAC (or not).
- If the suspicious load does not comply with WAC, it is to be removed and disposed of at another facility certified to take it within two weeks of test results.
- Any vehicle entering the site that has not obtained pre-approval or has material that has not be tested will not be allowed to dispose of their load on site. No material that has been rejected will be accepted or stored on site.

12.4 Additional On-Site Testing for Specific Contaminants - Asbestos

12.4.1 An Asbestos Fill Management Plan has been provided with the application (see **Appendix 6**) which details the acceptance, handling, and placement of asbestos laden fill. In brief:

- Material will be deposited into an excavated hole in the fill site and the material immediately covered with adjacent soil. The location of the tipping areas/excavations will vary around the site.
- Trucks with loads wrapped in plastic will be tipped directly into the hole. This will usually apply when the level of asbestos is Class A or B. As indicated in the Asbestos Fill Management Plan loads wrapped in plastic do not require truck bodies to be cleaned once these materials have been tipped. The truck bodies do require a visual assessment confirming no remaining asbestos material to be completed by a Licensed Asbestos Assessor (LAA) or Competent Person and truck wheels will need to be cleaned if they have been in contact with asbestos impacted soils.

- Trucks with unwrapped material will also be deposited directly into the hole. In this case, the truck body will be manually hosed out at the point of deposition with the wastewater directed into the same disposal area. A water cart will be available for this purpose. As above, a visual assessment is required for clearance and truck wheels need to be cleaned if they have been in contact with asbestos impacted soils.

12.5 Additional On-Site Testing for Specific Contaminants – Other

12.5.1 Additional testing is proposed for soils that contain zinc, boron, lead, and nickel due to their mobility (i.e., potential to leach from soils into water). Any fill containing these elements (other than boron) at a level that exceeds the proposed SPLP trigger values outlined in Table 2 above will undergo a 'Synthetic Precipitation Leaching Procedure' (SPLP). This testing provides an additional level of assurance that if any discharges of these compounds occur, they will not have an adverse impact on the receiving environment. If SPLP testing criteria are met, then soils can be accepted into the managed fill up to the concentrations indicated in Table 2, as at these levels the elements will not mobilise under conditions likely to be present in the fill area.

12.5.2 Boron concentrations within the managed fill WAC are based on the Auckland background concentration (TP153). This is because the Waikato Coal Measures around Huntly are naturally elevated in boron, and in addition, some fill will arrive from the Auckland region.

12.5.3 Specific to zinc, SPLP testing is to be undertaken on all soils that contain zinc concentrations greater than 400mg/kg, with soils above this only being accepted if the leachable levels of zinc are lower than the SPLP criteria of 1mg/L. The WAC report states that *'the Waikato River has significant dilution capability for zinc. After reasonable mixing, there should be no significant change in zinc concentrations within the Waikato River'* (page 8). The assessment in the WAC is relied on in this AEE.

12.5.4 It is noted that GPS records are kept and maintained with the location of each truck load of fill, which enables the accurate location and extraction of fill if any non-compliance become evident. Any wet (sludge/ sediment) type of materials will be allowed to dry (adjacent to the filling area, but within the catchment area) prior to placement.

12.6 Discharges to Land Specific to FA3

12.6.1 A Soil Sampling Assessment to test the historic sub-soils in FA3, and subsequently a Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI), were undertaken by Mr Andrew Rumsby of EHS Support[14].

12.6.2 Coal mine tailings and overburden material from the neighbouring former mine operation had been deposited in the northern half of the site and soil sample analysis by EHS support determined that the levels of inorganic elements are above published background concentrations but well below to soil contaminant standards of commercial/industrial end use (as in this case). This triggers a controlled activity consent under Regulation 9 of the NES-CS.

12.6.3 A Contaminated Site Management Plan (CSMP) has been prepared and previously submitted for approval to WRC and WDC. The CSMP documents management of the soil, reuse, and disposal requirements, as well as contingency measures if unexpected sources of contamination are encountered during earthworks.

12.6.4 Based on the above, it is considered adverse effects in relation to the historic fill can be remedied and mitigated by following the guidance and methodologies contained in the CSMP. Further assessment of effects on water quality and discharge are assessed below.

12.7 Acid Sulphate Soils (ASS) and Marine Sediment Soils (MSS)

12.7.1 Control measures for receiving ASS and MSS are detailed in section 7.1 of the WAC Report in **Appendix 10**. An Acid Sulphate Soils Management Plan (ASSMP) has been prepared by EHS Support and submitted to Council.

12.7.2 ASS that have been limed and stabilised are to be accepted without further treatment, provided a suitable laboratory report is provided detailing acidity/liming rate along with certification of neutralisation.

12.7.3 ASS that are untreated may be accepted if they are managed in accordance with the ASSMP, which requires specified liming requirements (to neutralise acids) that follow specified best practice procedures.

12.7.4 Marine sediments will only be received if they have a solids content of at least 20% (and liberate no free liquids when transported), meet the WAC in Table 2 above, and have undergone ASS testing and therefore are neutral.

12.8 Additional comments

12.8.1 The WAC Report also reviewed the acceptable human health and waste acceptance criteria for chemical contaminants and asbestos used at other consented managed fill facilities within the Waikato Region. The assessment also included the development of the soil quality criteria for capping the material for the managed fill to allow for future rural residential or agricultural land uses. The recommended cap is 2m of cleanfill with topsoil, and it is intended to undertake this cap at the completion of each stage of the fill operation.

Overall, it is considered that adverse effects associated with the discharge of contaminants to land can be avoided, remedied and/or mitigated by the measures discussed above, and any residual adverse effects will be no more than minor.

[14] Refer Appendix 10 for these reports

13 ASSESSMENT OF EFFECTS – DISCHARGE OF CONTAMINANTS TO WATER

13.1 Introduction

13.1.1 Potential adverse effects on water quality from overburden and managed fill disposal include deterioration in water quality and clarity because of increased levels of sedimentation, increase in contaminants discharged into watercourses, effects on instream ecological values and the mauri of water becoming devalued, impacting negatively on the relationship tangata whenua have with water.

13.1.2 Surface water and groundwater receptors are present near the proposed fill areas. Shallow (perched/discontinuous) and deep groundwater aquifers are present beneath the proposed fill areas, and surface water receptors are present.

13.2 Discharges & Groundwater quality

13.2.1 The Waste Acceptance Criteria (WAC) Assessment Report (see **Appendix 10)** comments in section 2.5 that "*the main aquifer at the main quarry pit is approximately 19 m RL, and approximately 12 m RL near the Waikato River. The gullies within the proposed fill areas have an elevation ranging from 47 to 66 m RL.*" Although groundwater seepage is currently experienced at the main quarry pit, the assessment indicated that the proposed fill areas will not intercept groundwater. The regional groundwater flow beneath the site is expected to be easterly towards the Waikato River, which runs in a northerly direction. In addition, the elevation of the gullies within the proposed fill areas are more than 49m RL, which is approximately 30m above the base of the quarry pit.

13.2.2 A groundwater borehole search indicated that there are no bores within the site or between the managed fill and the Waikato River. It is considered that although shallow and deep ground water aquifers are present beneath the proposed fill sites the WAC report states in section 2.5.2 that "*groundwater is not considered as a sensitive receptor".*

13.2.3 During previous applications queries were raised around groundwater plume modelling downgradient of the fill sites (in particular FA4). It was agreed that a condition of consent require an annual check for new water takes within the vicinity of the plume to check for any new bores within the vicinity of the fill sites. If any new water takes (such as groundwater bores) have been applied for or granted, the consent holder would be required to undertake further investigation of any potential effects of the groundwater plume to the water take activity and notify the WRC and the water take user/permit holder.

13.2.4 It is reiterated that deep sub-soil drainage in FA3 (10m in depth) are designed to collect shallow groundwater that may be contaminated from historic mine tailings, and divert to a holding tank for testing, before either discharging to the SRP, or if contaminant levels do not meet the WAC, exported from site.

13.2.5 In addition to this, The Groundwater Services Inc. Risk-Based Corrective Action (RBCA) software package has been used to model the fate and transport of contaminants in leachate generated by the historic fill (FA3) to the surface water receptor (Waikato River).

13.2.6 The results of the RBCA modelling indicate that discharge concentration from the proposed overburden and managed fill material for all parameters in Table 6 (after reasonable mixing) are likely to be less than 0.001% of the freshwater guidelines values (ANZG, 2018).

13.2.7 Therefore, except for arsenic (which already exceeds water quality guidelines (ANZG, 2018)), the predicted concentrations of elements within the Waikato River are likely to be below the 95% ecosystem protection guidelines (ANZG, 2018).

13.2.8 Therefore, it is considered that any discharge is highly unlikely to pose a risk to the ecological life of the Waikato River.

13.2.9 Based on the above assessment, it is considered that any potential effects on groundwater quality arising from the disposal of overburden and managed fill material in the identified gullies will be no more than minor. Please refer to s92 responses for additional assessment.

13.3 Discharges & Surface Water Quality – Point of discharge to unnamed streams

13.3.1 The Ecological Impact Assessment report (Boffa Miskell, 2019) indicated that FA2 is part of the Lake Waahi and Lake Puketirini catchment. Fill Areas 3 and 4 are part of the Waikato River catchment. There are no permanent streams within the proposed fill areas. Only ephemeral/intermittent streams are observed, indicating that the surface water bodies within the proposed fill areas are not fed by groundwater but by surface water runoff.

13.3.2 Wetland habitats (artificial under NES-FW) were observed within Fill Areas 2, 3 and 4. The proposed set of draft discharge conditions (**Appendix 19**) and design treatment systems (i.e., ESCP, SRP, chemical treatment, management plans and ongoing compliance and monitoring are designed to ensure that discharge of treated water will meet the required water quality guidelines. This is a standard approach for activities of this scale.

13.3.3 The sediment retention ponds have been designed to meet the requirements of the WRC erosion and sediment control guideline (TR 2009/02) and the proposed diversion systems are designed for a 100-year storm event. The design of the sediment pond plus the alum flocculate will remove 95% of sediment and inorganic elements and should slightly decrease the total sediment loads into the unnamed tributaries.

13.4 Discharges & Surface water quality – Waikato River

13.4.1 As per section 3.1 of the WAC Report in **Appendix 10**, the Groundwater Services Inc. Risk-Based Corrective Action (RBCA) software package has been used to model the fate and transport of contaminants in leachate generated by the deposited waste to the surface water receptor (Waikato River), as well as reviewing existing background contaminants information relating to the Waikato River.

13.4.2 The RBCA uses a Soil Attenuation Model to simulate the leaching of contaminants from the soil into ground water. Default soil parameters have been used based on information provided by WRC on typical soils within the Waikato Region. The model predicts both inorganic and organic contaminants advection (transport of contaminant in water), dispersion and adsorption[15]. The outcome is an estimate of contaminant concentrations in groundwater at selected distances from the source (allowing for mixing with the surface water body).

13.4.3 The potential discharge concentrations (of the contaminants of concern) into the Waikato River as predicted by the RBCA model are detailed in Table 6, section 3.1.1 of the WAC Report.

13.4.4 The Huntly Bridge monitoring site water quality records were used to assess the existing water quality of Waikato River, as most of the managed fill sedimentation ponds will be discharging into the river. The results of the RBCA modelling indicated that the discharge concentrations from the proposed managed fill material for all parameters in the Waste Acceptance Criteria (after reasonable mixing) are likely to be less than 0.001% of the freshwater guidelines values and with the exception of arsenic (which already exceeds water quality guidelines (ANZG, 2018)), the element concentrations of the Waikato River were generally below the 95% ecosystem protection water quality guideline for freshwater species.

13.4.5 Therefore, it is considered that any discharge is highly unlikely to pose a risk to the surface water quality and ecological life of the Waikato River and adverse effects will be less than minor on this waterbody.

13.5 Discharges & Surface water quality –Lake Puketirini

13.5.1 EHS Support has prepared a memo on the Impacts on Water Quality of Lake Puketirini (28/07/2020), which is attached to their WAC Report in **Appendix 10.** The memo is relied on for this assessment and concludes that:

13.5.2 Based upon the result of the RBCA monitoring and water quality testing undertaken it is highly unlikely that the discharge from Fill Area 2 will adversely impact the recreational water quality in Lake Puketirini. The following reasons are provided:

13.5.3 The predicted concentrations of inorganic elements in the discharge from managed fill area are several orders of magnitude below recreational water quality guidelines, even assume the unrealistic assumption of the entire managed fill containing soil at the maximum concentration allowable. Estimate of realistic worst case (RME case) and most probable cases predict even changes in water quality within the unnamed tributary of approximately one order magnitude lower than worst case scenario. In all scenarios modelled it is unlikely that there will be a measurable increase in the concentration of inorganic elements above current background levels caused by the discharges from the proposed managed fill. EHS Support believes that the proposed managed fill is compatible with Objectives 1 and 2 of the Waikato District Council (2009) Puketirini Management Plan.

[15] Adsorption is the adhesion of atoms, ions or molecules from a gas, liquid or dissolved solid to a surface. This process creates a film of the adsorbate on the surface of the adsorbent. This process differs from absorption, in which a fluid (the absorbate) is dissolved by or permeates a liquid or solid (the absorbent).

13.5.4 The operation of the sediment retention ponds will remove 95% dissolved and total metals from the discharge. It is likely that the stormwater treatment system will improve the water quality currently being discharged from the site. Once fill operations have ceased reinstatement of the fill area will reduce sediment discharge from the site.

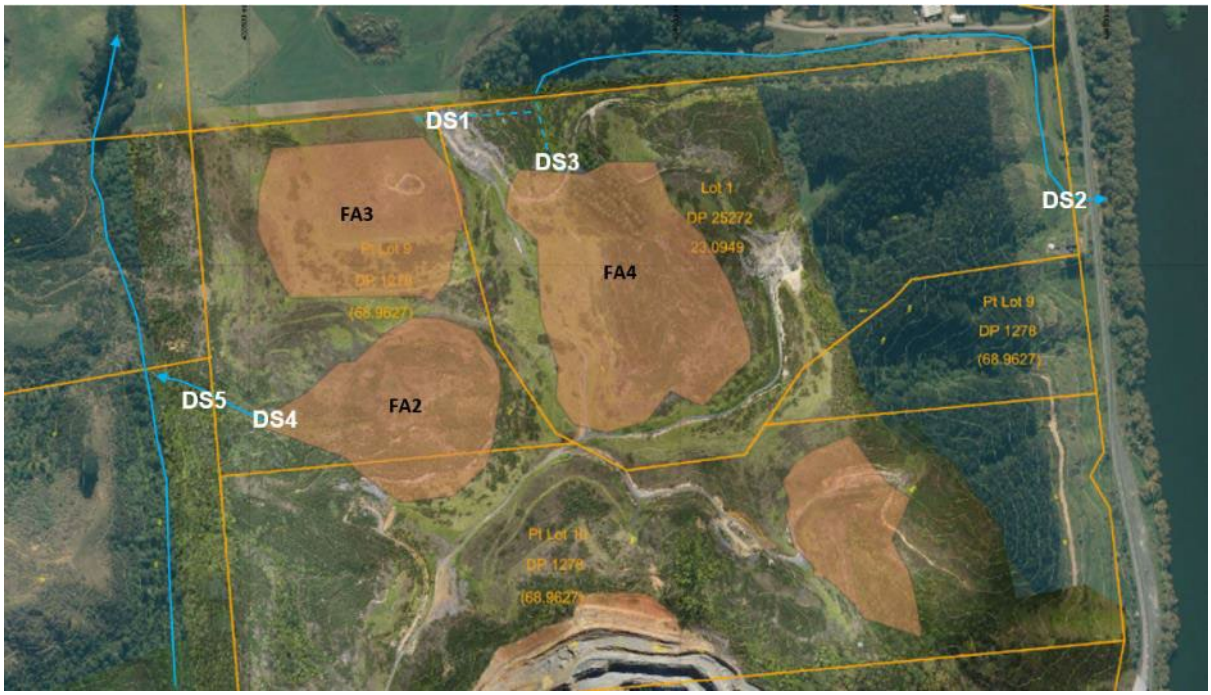
13.5.5 The operation of the managed fill in FA2 is likely to occur over a relatively short duration (2 to 5 years). The discharges from the stormwater ponds will only be infrequent – i.e., during storm events. Therefore, the total mass load discharged during the operational life of FA2 is very small in comparison to the total mass load from all other sources within the catchment.

13.5.6 Current water quality from the tributary is already impacted by existing farming and historic coal mining activities, however it does not appear to be having an adverse effect on water quality within Lake Puketirini. Based upon the Analysis of water within Lake Puketirini the concentration of metals within the lake waters are well below recreational water quality guidelines.

13.6 Surface Water Sampling and Analysis Plan (SAP)

13.6.1 As part of mitigating potential adverse effects on water quality, a draft SAP has been provided with this application (see **Appendix 6).** The intent of the SAP is to set out a surface water monitoring programme of stormwater discharges and the water quality of the receiving environment. The SAP (once the parameters are agreed with WRC) guides the managed fill operator (and technical experts) as to where agreed sampling locations from each fill site are, the correct methodology for collecting surface water samples, what contaminants to test for and the acceptable detection limits (after samples have been tested at an approved laboratory).

Table 4: Location of Sampling Points (DS1 – DS5) for FA3; DS2 will be used for FA4 also.



13.6.2 In addition, the timing and frequency is described in the SAP, in this case: Samples shall be collected of the discharges from the inlets and outlets of all sediment retention ponds on the site once per month and after rainfall trigger events (rainfall greater than ≥15mm in one hour; or ≥25mm in 24 hours in the preceding 24 hours), excepting times when there are no discharges.

13.6.3 It is proposed that receiving environment sampling (downstream of the discharge point from the SRP) is undertaken four times per year and that surface water discharge monitoring is undertaken five times per year (including two times that coincides with the receiving environment sampling programme).

13.6.4 Surface water sampling will be undertaken after the storm event (15 mm in 24 hours) as determined by the WRC rain gauge at Whangamarino Control Structure (WRC site number 1293.6) or on-site rain gauge.

13.6.5 The sampling of the Underdrain Discharge -Storage Tank (associated with FA3 historic fill) should be undertaken either weekly (or immediately before discharge if the tank is over 80% fill) to confirm if the water will meet discharge criteria (in which case it will be discharged to the SRP, or if it fails, be exported from site to an approved disposal facility).

13.6.6 The SAP, combined with all ESCP measures, and additional testing on managed fill material (see below) work together to ensure any adverse effects on water quality in the receiving environment will be no more than minor, subject to compliance with recommended conditions of consent and management plans.

13.7 Managed Fill Contaminants – potential effects on water quality

13.7.1 The discharge of contaminants onto or into land is an essential part of many resource use activities throughout the Waikato Region. The definition of a contaminant in the RMA is sufficiently wide and "*includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination when discharged onto/into land, air or water, changes or is likely to change the physical, chemical, or biological condition of land, air and onto or into which it is discharged."*

13.7.2 The discharge of contaminants into/onto land, air and water can cause contamination of soils and water (surface and groundwater), increase of downstream sedimentation. The latter can then potentially increase the risk of flooding, reduce productive capacity of soils and present significant risks to human health and the wider environment.

13.7.3 An Assessment of Effects relating to contaminants discharge and the development of a waste acceptance criteria for the proposed fill sites has been undertaken by EHS-Support (Mr Andrew Rumsby; refer to **Appendix 10**).

13.7.4 The proposed waste acceptance criteria (WAC) are detailed in Table 2 earlier in this report.

13.7.5 The following is relevant to the assessment of effects on water quality from any discharge associated with the deposition of contaminants:

- Synthetic Precipitation Leaching Procedure (SPLP) testing is undertaken on all soils that contain zinc concentrations greater than 400 mg/kg and that soils above 400 mg/kg are only accepted within the managed fill if leachable zinc is lower than the proposed SPLP criteria of 1 mg/L.
- Due to boron, lead, and nickel mobility, it is proposed that SPLP testing is required for any fill containing these elements at concentrations that exceed the proposed SPLP trigger values outlined in Table 5. It is noted that the use of SPLP testing provides an additional level of assurance that if any discharges of boron, lead and nickel occur, they will not have an adverse impact on the receiving environment. If SPLP testing criteria are met, then soils can be accepted into the managed fill up to the concentrations indicated within the brackets in Table 2 for these elements.
- Long-chain hydrocarbons (above C15) are mainly waxy solids (or waxy-like liquids for the C15-C17 paraffin compounds) and have very low water solubility or are insoluble in water; therefore, are not mobile in the environment.
- The BTEX and PAH criteria have been set to allow peat soils and low mobility heavily weathered/heavier end hydrocarbon material to be accepted, but avoid soils that have been significantly impacted by fresh petroleum hydrocarbons that are highly mobile (i.e. petrol, diesel or waste oil).
- The proposed WAC is like that of other disposal sites in the Waikato region with the exception of a few parameters (arsenic, lead, mercury, zinc and C15-36 petroleum hydrocarbons). The WAC report comments on page 7 that *"the higher criterion for C15-C36 hydrocarbons are based upon the MfE (2001) Oil Industry Guidelines for protection of groundwater greater than 4 m depth and these hydrocarbons is comprised of mainly waxy solids and have very low water solubility or are insoluble in water and therefore are not immobile and will not adversely impact on the local environment".*

13.7.6 In essence, the WAC is carefully calibrated to provide levels, criteria and testing regimes that restrict the importation of any compound that has higher solubility, thereby avoiding adverse effects on water quality in the receiving environment.

13.7.7 Appendix 22 provides a memo that details potential adverse effects on the water quality of two small induced natural inland wetlands located north of FA3, on Mr O'Reilly's land (neighbour). These wetlands are afforded protection under the National Environmental Standards for Freshwater, as any discharge within 100m of a natural wetland triggers a non-complying application process. Please refer to the memo in Appendix 22 (and associated attachments) for this assessment, noting that any adverse effects on these wetlands from the proposed discharges of treated water, will be negligible.

14 ASSESSMENT OF EFFECTS – AIR DISCHARGE

14.1 Introduction

14.1.1 An Air Quality Technical Assessment has been undertaken by Pattle Delamore Partners (refer to **Appendix 11**). WRC has previously confirmed that the activity does not trigger any reason of consent regarding air discharge, however in terms of the activity being discretionary overall under both WRP and WDP, and non-complying overall, potential adverse effects associated with air discharge have been thoroughly assessed. Please also refer to the Table of WRP Standards in **Appendix 7.**

14.1.2 The potential issues arising from dust producing activities are dust nuisance, human health impacts in the surrounding community, health of fauna and flora and may affect the relationship with tangata whenua. Dust nuisance is caused where dust has impacts on amenity and reducing visibility.

14.1.3 Air emissions may be generated from combustion sources associated with the operation of the managed fill site, including emissions resulting from the use of heavy equipment used in excavation and vehicles used to transport materials to and from site.

14.2 Proposed Activities resulting in dust emissions

14.2.1 Potential dust discharge from the proposed Fill and associated activities can occur from:

- Vehicle movements to and from the site on the main access road.
- Vehicle movements on unsealed haul roads within the site.
- Stripping topsoil for establishment of the Fill Area.
- Placement of clean fill, overburden, and managed fill (including Asbestos in soil and ACM).
- Rehabilitation of the Fill Area with topsoil; and
- Fugitive emissions from exposed surfaces.

14.3 Dust nuisance effects

14.3.1 To determine the sensitivity of the receiving environment, the location, zone, other activities and residential properties were identified. As previously mentioned, the proposed fill site is located within a rural zone. There are also existing activities (quarries, fill sites and the Huntly Power Station) near the proposed fill site that already discharges air emissions and forms part of the background ambient air quality. The proposed fill site is located outside of the gazetted Huntly Airshed and *"the proposed emissions are unlikely to have a significant impact on the airshed as the site boundary is approximately 200m from the airshed boundary"*.

14.3.2 The assessment identified approximately ten (10) residential properties that is located within a one-kilometre radius where people may be exposed to dust. The report states on page 8 that *"the nearest sensitive receptor is located within the property boundary at 232 Riverview Road which is owned by Gleeson Quarry Ltd and is occupied by a worker at the quarry. Other residences are located 400 metres or more from the proposed area."* It is however unlikely that these receptors further than 400m from the activity will be affected as *"impacts from even high levels of dust generation will be confined to 400 metres of the activities".*

14.3.3 To assess whether the proposed managed fill sites will cause any nuisance effects of dust emissions it was assessed by using FIDOL factors and the results in the report page 21 -23 states the following:

- **Frequency** – "the principal wind direction is from the west and southwest which means that properties to the east are most likely at risk of being exposed to windblown dust. Strong winds however blow infrequently and therefore there is limited potential for off-site dust nuisance effects to occur".
- **Intensity** – "due to the nearest sensitive receptors being at a distance 400m the concentration of dust is expected to be low".
- **Duration** – "the duration of dust discharges would be limited to periods of strong winds during dry periods, or periods of unmitigated dust-generating activities at the site, and any effects will be limited to near the site activities".
- **Offensiveness** – "The dust from the fill materials will likely be light in colour and inert in nature, and therefore in itself is of low offensiveness".
- **Location** – "Site is in a 'moderately sensitive' receiving environment according to the MfE (2016) classifications".

14.3.4 Further, to limit any possible dust emissions from the managed fill operations, Section 7 of the assessment lists various mitigation measures specific to site establishment and site operations. These mitigations have been included as part of the Site & Fill Management Plan (SFMP). Patches of remnant native forest occur primarily around the boundaries of the Site, which will likely serve as a mitigating feature for offsite dust effects in the form of vegetative screening.

14.3.5 As the proposed fill site is anticipating accepting asbestos in soil and ACM, a specific Asbestos Fill Management Plan has been developed [**Appendix 6**]. The Asbestos FMP focuses specifically on potential effects of ACM and the proposed operational processes have been set to achieve compliance with the asbestos regulations. Provided the measures in the AFMP are followed, asbestos is not expected to be an air contaminant.

14.3.6 Considering the FIDOL factors assessment and the proposed mitigations (within the Asbestos FMP and Air Quality Technical Assessment), the report concludes that the dust from the proposed fill sites is not expected to result in a significant dust nuisance or health effect. *"It is unlikely that there will be any exceedance of air quality assessment criteria at a location beyond the site boundary, or that there will be noxious, dangerous, objectionable or offensive dust to the extent that it causes an adverse effect at or beyond the boundary of the site".*

14.3.7 Based on the above, the potential air emissions and any potential adverse effects are less than minor.

14.3.8 The following matters were raised by WRC when the proposal was first lodged, and all the answers provided below were closed out before the application was withdrawn. There are no changes to this application that would cause this information to no longer be relevant.

Table 5: Previous s92 Matters addressed - Dust/Emissions to Air

Request for Information	S92 Response *Information provided by PDP (Deborah Ryan)*
Please provide comment on the applicability of meteorological data from the four air quality monitoring stations operated by Genesis Energy for the Huntly Power Station that are in much closer proximity to the Gleeson Quarry compared with the Ruakura and Whatawhata stations. The wind roses from the four monitoring sites and specifically the two sites around the Huntly airshed indicate in addition to the prevailing westerly direction additional secondary prevailing wind directions from southeast and north.	We have reviewed the metrological data shown as windroses in the *Huntly Power Station 2017-2018 Annual Compliance Monitoring Report*. We note that three of the four of the sites have short masts (less than 10 metres) or are obstructed. The Frost Road site has a 10-metre mast and is located around 9 km to the north of the quarry. Like the Gleeson Quarry site, the Frost Road meteorological station is located in the Waikato River Valley, which has the effect of channelling the winds in a predominantly north-south axis, in contrast to the predominant westerlies observed at Ruakura and Whatawhata stations. We would expect the predominant winds at the Gleeson Quarry site to be like that observed at the Frost Road meteorological station. Regarding the assessment of effects, the strong winds from the southwest would be of most concern, due to the proximity of the receptors at the north-eastern boundary of the site. However, we note that these residences are over 400 metres distant from the proposed dust-generating activities at the quarry, and so are unlikely to be significantly affected by dust, even when downwind of the activities.
Please clarify whether the caption for Figure 6 is incorrect as it refers to dry surface days data for Tauranga Airport?	This caption is incorrect – the data is from the Ruakura weather station.
Please provide some further clarification around the FIDOL assessment of Offensiveness with respect to the assessment that the fill material will be principally of inert inorganic material. It is noted that managed fill could contain quite elevated concentrations of contaminants that could be harmful to human health e.g., arsenic at up to 100 mg/kg and lead at up to 1000 mg/kg. While it is acknowledged that average concentrations over the longer term are going to be a lot lower than this, there is potential for elevated concentrations in dust in the short term after a specific load has been deposited. This section of the FIDOL assessment also refers to asbestos being enclosed in	Managed fill could contain elevated concentrations of contaminants that could be harmful to human health based on the proposed waste acceptance criteria for the managed fill. Average contaminant concentrations in the fill materials will be significantly lower than the acceptance criteria, however, there is potential for elevated concentrations in dust in the short term from depositing of individual contaminated loads. Similarly, the acceptance of ACM fill has the potential to result in dust if poorly managed e.g., if the ACM is not appropriately wrapped and/or covered.

impermeable packaging material which will prevent emissions of ACM to air. However, this doesn't account for disposal of soils containing asbestos fibers which typically won't be wrapped, although will be covered during transport. So there is potential for discharges of asbestos fibers from unwrapped soils as they are being tipped if not managed properly. Therefore, there is in my opinion, potential for offensiveness from dust discharges from soils with high levels of metals and soils containing asbestos fibers if poorly managed, but that this factor should be able to be mitigated through good dust control consistent with Industry best practice as set out in section 7 and adherence to the proposed controls identified in the Asbestos Management Plan.	These discharges will be mitigated by the industry good practice dust management measures as described in the air quality technical report and adherence to the proposed controls identified in the Asbestos Fill Management Plan and Dust Management Plan.
Please provide some further discussion on the proposed mitigation of avoiding earthworks activities during periods of strong winds (>10 m/s as a 10-minute average) For example, would it be necessary to cease works if the wind is blowing away from sensitive receptors or if the wind is blowing towards sensitive receptors, but the earthworks are being undertaken on the western boundary of Fill sites 2 or 3 where separation distances might be in the region of 800 to 1000 meters? Or should there be a lower wind speed alert if asbestos waste or soils with asbestos fibers is being deposited? Installation of an onsite wind monitoring sensor would also provide a more localised and accurate determination of wind conditions on site compared with reliance on wind data obtained from an offsite meteorological station.	We agree that a limitation on the operation ceasing when winds exceed 10 m/s could be applied so that earthworks cease when strong winds are from the west and south-southwest, and that this restriction also be limited to Fill Areas 4 and 5 as being nearest the sensitive receptors to the east and north-northeast. Application of controls within these parameters will provide sufficient mitigation of the potential effects. The separation distance of the dust-generating activities proposed at the site is sufficient that significant offsite effects are unlikely during periods of winds less than 10 m/s for all soils and associated contaminants, especially given the other proposed mitigations. We agree that installation of an on-site meteorological station, with capability for issuing text alerts at higher wind speeds, is good practice for managing the effects of wind-blown dust.

15 ASSESSMENT OF EFFECTS - TRAFFIC

15.1 Introduction

15.1.1 A Traffic Impact Assessment has been undertaken by Traffic Engineering & Management Ltd – TEAM Traffic (refer to **Appendix 12**). The most current version of this report is dated 27 May 2022, and included in s92 response to WDC and notification pack.

15.1.2 Imported fill will be restricted to managed fill transported by the applicant's own trucking business (Gleeson & Cox Ltd) and those of approved subcontractors. The subcontractors chosen will be dependent on market demand and contracts awarded to Gleeson & Cox.

Table 6: Summary of Assumptions from TIA

	Quarry Extraction Rate (tonnes per annum)	Maximum Tonnes per day exported from GQ	Capacity of most trucks (tonnes)	Number of Opening Days	Number of Trucks per day	Number of truck movements per day
Original TIA assumptions in Quarry consent	1,800,000	6,546	26	275	252	504
Updated assumptions (quarry)	1,800,000	6,522[1]	28	276[2]	233	466
Additional assumptions under proposed managed fill application	1,800,000 + 300,000m³ (imported fill)	6,522 + 1,087m³ (imported fill)	28	276	233 + 60	466 + 120[3]
Breakdown of 60 additional trucks per day:	Existing Gleeson trucks:				48	96
	Other contractors: ***(only additional trucks proposed with this application)***				**12**	**24**
TOTALS					233 + 12 = **245**	466 + 24 = **490**

Notes:

1. *Tonnes of aggregate exported per day has lessened, as truck capacity has been increased*
2. *Includes 52 Saturdays which are half days - statutory days are not included*
3. *An assumption has been made 80 percent of the trucks carrying managed fill will be owned by Gleeson and Cox whilst the remaining 20% will be owned and operated by other organisations (12 trucks). Therefore, it is anticipated that all 60 trucks will be laden when delivering fill however not all the third-party contractors will back load with aggregate, whilst all the Gleeson and Cox trucks will be expected to carry a backload.*

15.1.3 The additional truck trips per day to utilise the managed fill site is likely to add in the order of two additional trips per hour onto the local road network and this is less than the hourly variations that currently occur along Riverview Road.

15.1.4 The current internal haul roads (associated with quarry activities and previous farm/forestry activities) will be upgraded for heavy vehicles to access the various Fill Areas. The internal haul routes are attached as **Appendix 2**. The existing single entry and exit access point to Riverview Road will be used by both the quarry and managed fill trucks. Trucks will arrive by using the existing internal access road that goes into the quarry towards the ridgeline. Once trucks have tipped material into the Fill Area, the trucks will be washed/sprayed at the fill area. Upgrades of the existing internal haul roads to a minimum width of 10m will occur to accommodate two-way traffic and gradients of 1:10. The internal haul roads will not be sealed but will be compacted and stabilised.

15.1.5 The following traffic movements will occur on site:

- Trucks utilising haul roads to access open Fill Site.
- Trucks manoeuvring at toe of Fill Site to dump fill.
- Machinery within Fill Area spreading dumped fill.
- Trucks within Fill Area re-positioning dumped fill.

15.1.6 The method used will mainly be determined by the weather conditions, to ensure movement of material on site and within the Fill Area is minimised.

15.1.7 The existing upgraded wheel wash associated with the quarry at the quarry entrance will be used by all trucks to minimise sediment tracking out onto Riverview Road. The managed fill operation will not be open to the public, the gate will be locked outside working hours and no unauthorised dumping will be permitted.

15.1.8 The movements of vehicles required for the operation of the GMFL fill sites can be divided into two groups namely: (1) Operational Traffic which includes the operational plant at the fill areas such as excavators and compactors and (2) Transport Traffic which includes the trucks and truck and trailers transporting the managed fill to the site to the client/site.

15.2 Fill Area Operational Traffic

15.2.1 Heavy machinery within the active Fill Area will spread and compact the deposited fill, recontouring as further fill arrives. All the operational traffic movements associated with the proposed managed fill sites will be internal traffic movements, as all machinery and equipment, once it arrives on site remains on site.

15.2.2 The internal traffic movements associated with relocating overburden (cleanfill) material is an existing activity as the quarry has been undertaking similar activity since the quarry was first formed. The traffic movements associated with overburden material are therefore an existing movement, the only change being the location of where the overburden material is moved to. It is anticipated that there will be an increase in internal operation traffic movements due to the machinery operating at both the quarry and managed fill areas, however this is easily absorbed due to the scale of the operation, size of the landholdings and the privacy of the site from any public vantage point.

15.2.3 It should be noted that it is in the quarry's interest to design the internal roads as efficiently as possible to minimise wear and tear on the trucks and other machinery. The internal road will be constructed so that it will be a minimum of ten (10) metres wide and will have a grade not exceeding 10 percent. These parameters will ensure that the trucks and plant can easily move around on the site and trucks will be able to pass each other without incident. Detailed design will be provided at EPA stage (Engineering Plan Approval).

15.2.4 To wash trucks after they have deposited fill (if they are collecting a load of aggregate), a water cart will be accessible with a pump that the driver of each truck can utilise to clean the truck / trailer as required. This will occur within the fill area itself. It is expected that each wash will use about 200-300 litres of water (which will form part of the 10,000-litre water cart) and will be directed down to the lower sediment pond for treatment.

15.2.5 The trucks transporting unwrapped asbestos material will be washed out at the tipping area and the wash water will be directed to the hole of/area where the asbestos has been deposited, to ensure that the location of asbestos within the fill area is contained and easily identified within the recorded grid matrix of the fill area. It is noted that asbestos is inert and does not break down and become soluble in either water or soil.

15.2.6 The existing upgraded wheel wash associated with the quarry at the quarry entrance will be used by all trucks to minimise sediment tracking out onto Riverview Road. The managed fill operation will not be open to the public, the gate will be locked outside working hours and no unauthorised dumping will be permitted.

15.3 Traffic effects associated with importation of fill

15.3.1 Currently, trucks are arriving empty to collect aggregate from the quarry. By providing a managed fill disposal site adjacent to the quarry, this enables customers (and Gleeson's own fleet of trucks) to arrive fully laden, deposit their load of managed fill material, and depart with a load of aggregate for the return trip.

15.3.2 The quarry has a current district land-use consent to extract 1,800,000 tonnes of aggregate per annum (LUC0035/11.05). Condition PC14A states that *'the maximum number of vehicles into and from the quarry entrance shall not exceed 60 vehicles/hour',* with the original TIA stating a maximum of 504 truck movements per day (252 trucks) – refer to Table 6 above. The hours of operation related to truck movements to and from the site entrance are limited to:

1 October – 30 April

- Monday – Friday (inclusive): 5am to 8pm *(5-6am only 12 truck movements/6 trucks)*
- Saturday: 6am to 3pm

1 May to 30 September

- Monday to Friday (inclusive): 5am to 6pm
- Saturday: 6am to 3pm

15.3.3 As per Table 6 above, the anticipated importation of 300,000m³ of fill (per annum) equates to 60 trucks/120 truck movements per day considering the average capacity of a truck and trailer (28 tonnes) and the proposed operational days (276 days per year). It is anticipated that 80% of the trucks importing fill will be from the applicants own trucking business which at this stage are arriving empty on site to collect aggregate. This means that 48 trucks (out of the 60 trucks) form part of the already consented truck movements associated with the quarry and the extraction of aggregate. The remaining 20% is proposed to be imported by approved subcontractors which equates to 12 trucks (24 vehicle movements). The total vehicle movements associated with the quarry and managed fill operations is approximately 490 movements (245 trucks).

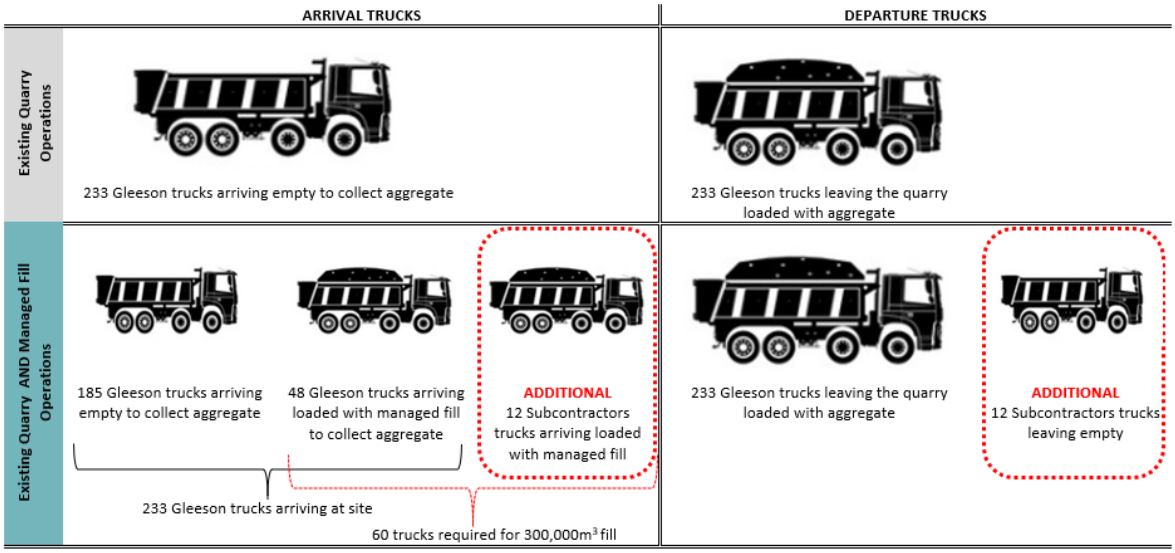


Figure 9: Visualisation of Existing and proposed truck movements

15.3.4 The TIA comments on page 13 that 'the additional trips per day is likely to add in the order of two additional trips per hour onto the local road network and this is less than the hourly variations that currently occur along Riverview Road'. The vehicle movements are anticipated to be spread throughout the day with the bulk of the movements occurring between 07:00am and 5:00pm.

15.3.5 Most of the traffic movements which are required to import the managed fill material are existing movements. The TIA concludes that overall, this proposal would result in traffic effects that are less than minor. There is therefore no traffic-related reason why resource consent should not be granted.

15.4 Capacity and Impact on roads and traffic

15.4.1 Once the trucks leave the site, they will become part of the wider traffic environment. The potential additional traffic is "*expected to be easily absorbed into the existing traffic flows."* The TIA concludes that as the number of additional trips per day is low, they are unlikely to have a significant impact on the safe and efficient operation of the local road network.

15.4.2 It is however noted that although the anticipated number of trips are relatively small when compared to the total number of truck movements, these trips were originally travelling with no payload to the quarry and with the proposed managed fill sites will now be fully laden and possibly contribute towards road degradation. The TIA comments on page 16 that "*this additional loading will need to be factored into the Heavy Vehicle Impact Fee".*

15.4.3 The Heavy Vehicle Impact Fees associated with the quarry activities was originally calculated as part of the land use consent LUC0035_11 dated 17 November 2010. PC16 of LUC0035.11 states that the HVIF was calculated based on a total resource excavation of 19.35MT. The relevant resource consent application (AEE - Burton Consultants) lists the Calculation for the HVIF as Annexure L. We have requested all applications and relevant annexures previously from the Council, but Annexure L is not included in the scanned copy that we have received. The only calculation that we have viewed was completed by the Waikato District Council as included in the WDC Planners Report relating to the s127 Variation application LUC0035/11.01. Please see **Appendix 16** for the Huntly Quarry Land Use Consent Extracts relating to Heavy Vehicle Impact Fees.

15.4.4 The HVIF has been updated a few times through variation applications as indicated in the table below. These changes were previously assessed and calculated by WDC.

Consent Reference	**PC 16 - HVIF condition**
LUC0035/11	$102,000.00 (plus GST) in 6 equal instalments over the next 3 years
LUC0035/11.01	$122,777.00 (plus GST) in 6 equal instalments over the next 3 years

Consent Reference	PC 16 - HVIF condition
LUC0035/11.02	$28,350.00 (in addition to the HVIF of $122,777 already paid) in 3 equal instalments over the next 3 years
LUC0035/11.03	$66,150.00 (in addition to the HVIF of $122,777 already paid) in 3 equal instalments over the next 3 years.
LUC0035/11.04	Not applicable
LUC0035/11.05	$66,150.00 (in addition to the HVIF of $122,777 already paid) in 3 equal instalments over the next 3 years.
	PC16A HVIF is to be reviewed and assessed every 19.35MT (approximately) of aggregate extraction, effective from the date the original consent (LUC0035/11) was granted.

15.4.5 Further, the trucks associated with the quarry activities and proposed managed fill sites are for the most part owned by Gleeson & Cox Transport and all Gleeson Trucks comply with all legal requirements for heavy vehicles including Road User Charges (RUC). Gleeson therefore already contributes and invests in local road maintenance and improvements through the contributions listed above as well as RUC charges which are allocated by the National Land Transport Fund.

16 ASSESSMENT OF EFFECTS – ECOLOGICAL

16.1 Introduction

16.1.1 The following ecological reports and memos (see **Appendix 12**) have been prepared on behalf of the applicant and are relied on in this assessment:

- Ecological Impact Assessment (EIA), Boffa Miskell Limited, Nov 2019
- Offset Location Assessment, Wildlands, Nov 2019
- Ecological Management Plan (EMP) for the Proposed Compensation Site, Wildlands, May 2020
- Bat Management Plan (BMP), Wildlands, Feb 2020 (FA's 4 & 5)
- SNA Watercourse Assessment, Envoco, March 2022

16.2 Vegetation Clearance

16.2.1 Vegetation clearance can impact on a range of ecosystem services such as erosion and sediment control, increase in stormwater flows, reduction in water quality, reduced amenity and natural character values, and natural hazards. Vegetation is a vital part of terrestrial and coastal ecosystems and helps maintain indigenous biodiversity.

16.2.2 With respect to values of the vegetation on site, the EcIA describes the vegetation types within the Fill areas of consisting predominantly of pasture, gorse dominated scrub and with some native broadleaved scrub, wetland vegetation and broadleaf forest[16]. The EIA identifies all these as having a low or low-negligible ecological value other than the broadleaf forest and wetland areas. The latter two areas are regarded as "*high or very high potential value for bats, avifauna and herpetofauna which meets the significance criteria outlined in the Operative WDP"*[17].

16.2.3 Prior to the initial vegetation clearance stage, effects on stormwater flow and water quality will be mitigated by the installation of subsoil drainage, drainage channels/bunding to direct water flows. This requires the drainage of the existing wetlands in FA's 2 and 4. It is noted that retrospective consent is required for the premature draining of the wetland in FA3. It is intended to construct detention ponds first to ensure that before each gully is cleared of vegetation, there is a stormwater system in place to treat the sediment laden water.

16.2.4 It is noted that the proposed fill sites will not result in a loss of dominant vegetation cover or clearance of indigenous bush cover contributing to the overall aesthetic coherence of the area. In addition, the vegetation is of low ecological value, excepting the potential for bat habitat, which is addressed further below.

[16] Ecological Impact Assessment, Boffa Miskell Ltd, November 2019, page 15
[17] Ecological Impact Assessment, Boffa Miskell Ltd, November 2019, page 41

16.2.5 Overall, adverse effects associated with the loss of vegetation clearance are no more than minor based on the ecological assessment by Boffa Miskell. In addition, in FA's 2 and 3, the Level of ecological effect on herpetofauna habitat is Low (Section 6.1.2). An effect level of low would not normally require mitigation, and therefore it is not proposed that a Lizard Management Plan is required before works commence in FA's 2 and 3.

16.2.6 Based on the EcIA, the only fill area that has the potential habitat for copper skink is Fill Area 4, and the applicant is accepting of a condition of consent requiring a Lizard Management Plan be prepared and approved before works commence in FA4.

16.3 Stream and Artificial Wetland Reclamation

16.3.1 In relation to water quality, the site visit Boffa Miskell undertook assessed the streams in-depth for the presence and ecological value of freshwater habitat, basing their assessment on the Waikato Regional Council Ecological Monitoring of Streams methods. This included looking at wetland and stream habitat, water and sediment quality, macroinvertebrate and fish communities and stream classifications.

16.3.2 Filling the gullies will result in the loss in lengths of ephemeral and intermittent watercourses – 415m and 40m respectively. The Ecological Assessment provided comments on page 32 that '*marginal parameters included the presence of sediment deposition throughout the assessed reach while the lack of diversity in velocity/depth regimes was assessed as poor;'* and on page 38: '*The overall ecological value for all ephemeral watercourses is negligible and for intermittent stream reaches observed in the mid-section of Fill Area 4 … is low*.' Overall, the level of effect from the proposed land change has been classified as low, with no significant adverse effects and no specific policy driver requiring mitigation for the stream loss. In addition, the report confirms on page 41 that the *'magnitude of effect on aquatic ecological values are likely to be negligible if well managed erosion and sediment control measures are designed and implemented.'*

16.3.3 It is accepted that a Fish Management Plan, similar to that prepared (and approved) for FA5 will be required as a condition of consent, however due to the watercourses being ephemeral and/or having seasonal flows, it is not considered the ecological value of the streams requires such a plan to be provided prior to consent being granted – and in any case, the plan prepared for FA5 demonstrates the applicant's commitment to this process, and quality of reporting.

16.3.4 As assessed earlier in this report, the ESC measures proposed provide sufficient comfort to ensure that adverse ecological effects during reclamation will be less than minor, and in light of the low value of the streams as assessed by an ecologist, overall, the loss of the streams will be no more than minor.

16.3.5 The filling of the gullies will also result in a total loss of approximately 830m² of two observed wetland areas (Boffa Report). An additional review by Stantec (see Appendix 12.6.2) determined that the area of wetlands in FA2 and FA4 were 570m² and 484m² respectively. In addition, the premature draining of the wetland/pond in FA3 was calculated at 815m². This results in a total wetland drainage area of 1869m². It is considered that the different size calculations were due to both seasonal change and ecologist subjectivity.

16.3.6 The Ecological Assessment provided by Boffa Miskell comments on page 42 that *'the wetland areas within the proposed fill areas 2… and 4 are of low ecological value; however, they are classified as a significant habitat…and requires mitigation…to minimize adverse ecological effects and facilitate a 'no net loss' or 'net gain' outcome*.' Potential compensation and mitigation measures are discussed further in the report.

16.3.7 During the geotechnical investigations for Fill Area 3 works were undertaken that led to the draining of 700m² (Boffa) or 815m² (Stantec) of artificial wetland habitat in FA3 (farm pond). This contravention of s14(2) of the RMA (damming and diversion of ground and surface water within the Waikato River Catchment) was addressed via WRC Compliance and Monitoring processes, and the unconsented works were remedied to avoid and mitigate any adverse effects.

16.3.8 This included implementing some of the ecological mitigation measures outlined in the EMP (provided with the original Managed Fill Application) and included fencing around the compensation site, pest plant control in some management units and planting of the natural wetland areas within the compensation area. At the time, it was accepted that these measures, while required as mitigation for the loss of the artificial wetland, was still intrinsically attached to the overall managed fill proposal, effectively 'bringing forward' that part of the required compensation. These works have been completed.

16.3.9 This left 570m² of wetland in FA2 and 484m² of wetland in FA4. It has been determined by ecological peer review (on behalf of WRC, see **Appendix 12**) that these wetlands are artificial and do not require consent under the NES-FW. However, they still hold some residual value under the WRP. The WRC peer reviewer of the original Boffa Miskell EcIA (Ms Lyndsey Smith, Aecom) stated that *It is considered that the exotic trees, scrub, grassland and wetland within Fill Site 2, 3 and 4 are of negligible or low botanical value as indicated in the EcIA.* (See **Appendix 12** – letter dated 26 Nov 2019). Therefore, it is considered that no further assessment of effects is required in this regard, however further discussion below is included regarding the overall compensation package offered for the holistic loss of low-value ecological habitat, designed more to provide a 'net gain' back to the catchment, rather than mitigate effects, as these are considered to be less than minor.

16.3.10 It is also noted that over the long term, the land will again be naturalized and restored to forestry and/or pasture, ensuring both the immediate needs of the quarry are thoughtfully balanced against the long-term health and well-being of the surrounding stormwater catchment. This rehabilitation may include naturalisation of the SRP's and any other treatment device.

16.4 Habitat – faunal and aquatic

16.4.1 Herpetofauna (Lizards): The proposed fill sites encompass vegetation communities which are modified, recently established, and predominantly exotic. The ecological values and significance are primarily associated with their habitat values for native fauna. Given the seasonal limitations to undertaking fauna surveys, the evaluation of ecological significance is based on 'reasonable likelihood' that threatened native fauna may inhabit or use Fill Area 2-4. The following information has been summarised from the Boffa Miskell Ecology Report provided:

16.4.2 Fill Area 2, 3 and 4 offers low-quality habitat for any native lizards and overall, the likelihood of 'Threatened' or 'At Risk' native lizards being present is low, non-threatened ground dwelling lizards may however be present at Fill Areas 2 and 4. The level of effect for herpetofauna is likely to be **Low** based on the level of disturbance in the fill area and the limited mobility of herpetofauna in the area.

16.4.3 Avifauna: Silvereye, fantail, and kingfisher were commonly observed amongst the gorse. Two native species classified as "At Risk" were also observed. A New Zealand pipit was seen in the retired pasture at Fill Area 3 while a Pied Shag was observed flying overhead near Fill Area 2. Although the wetlands observed on site are regarded as "*small in extend and extensively modified"*[18] they are the most valuable habitats for birds and may occasionally be used by 'Threatened' or 'At Risk' wetland species including fernbird, spotless crake, marsh crake, pāteke, and New Zealand dabchick. Consequently, the wetlands present in Fill Area 2, 3 and 4 have been assigned a **high** ecological value for native birds, despite being classified as 'artificial'.

16.4.4 Bats (pekapeka): The proximity to the Waikato River, secondary forest patches and areas of mature pine indicate potential for bats to be present. Long-tailed bats are classified as 'Threatened – Nationally Critical'. The Ecological Report provided states that:

'Long-tailed bats preferentially use linear features such as vegetation edges and waterways for foraging and dispersal such as the mature pines along the eastern boundary of the site and the secondary native remnants along the western and northern boundaries. Large exotic and native trees within these areas may provide bat roosting habitat, but suitable habitat features are generally limited…'

16.4.5 Under FA5, the Consent Holder is required to establish a 'Bat Reserve' within existing remnant pine forest east of FA5 (on the hilltop adjacent to the Waikato River). As works in FA5 have not yet commenced, compliance with this condition is not yet required. However, it was originally offered as compensation for loss of bat habitat in BOTH FA4 and FA5, and it is considered that the mitigation is suitable to compensate for the loss of low-level habitat in FA4, particularly when combined with the rehabilitation of the Compensation Area west of the subject site. The Bat Reserve is to be fenced, covenanted, undergo pest control, and have a number of artificial bat boxes and chainsaw hollows installed.

16.5 Proposed Compensation and Net Gain back to the Catchment

[18] Ecological Impact Assessment, Boffa Miskell Ltd, July 2019, page 20

16.5.1 Proposed works at the site will result in the loss of approximately 1054m^2 of highly modified wetland habitat present within the proposed fill areas (in addition to the 815m² previously drained in FA3). The original Boffa Miskell Ecological Impact Assessment (EcIA) (see **Appendix 12**) recommended creating or restoring wetland habitat at a ratio of 1:1 as compensation for wetland loss. Given there are no suitable locations at the quarry site to undertake these management actions, a gully on the adjacent farm (also owned by Gleeson Quarries Huntly Ltd) was identified as a suitable compensation location.

16.5.2 To offset the loss of 455m lineal metres of ephemeral/intermittent stream/associated habitat and 1054m² of highly modified wetland (1869m² including FA3), GMFL have confirmed they are willing to restore an area of bush/wetland/stream within the Waikato River Catchment.

16.5.3 A preliminary assessment of potential locations was completed by Wildlands Consultants Ltd (refer to **Appendix 12.2**) with the goal of achieving a net gain, or betterment, back to the catchment. The approach taken was holistic, with the goal of finding a degraded ecosystem with high potential for rehabilitation – this was to include both streams and wetlands, even though there is no WRP trigger for the stream protection.

16.5.4 The compensation area previously (and now again) offered to WRC/WDC is labelled 'Compensation Area 4'. It is approximately 3.9 hectares and includes six indigenous and four largely exotic vegetation types. Within this area, five wetland habitat types (two indigenous and three largely exotic) were identified, totalling 5,816 m^2, resulting in a restoration ratio of 8:1 (gain:loss). The compensation package will result in the restoration of 0.6 hectares of wetland together with 0.6 hectares of wetland buffer planting. Riparian restoration will be undertaken along 850 metres of stream and a total of 3.3 hectares of terrestrial indigenous habitats will be protected.

16.5.5 Due to previous mitigations being required (compliance in FA3 and conditions of consent in FA5), the following table demonstrates a breakdown of what compensation has already been allocated, and what is remaining – which essentially is still 3600m² of wetland habitat and 730m length of stream and riparian habitat. Fill Areas 2 & 4 have just 1054m² of wetland between them, and the compensation/gain offered is still over 4:1 (gain:loss). Again, stream loss associated with FA2 and 4 is low value and largely ephemeral (310m length), yet 190m of stream length within the Compensation Area remains for rehabilitation.

Table 7: Breakdown of Allocated vs Unallocated Ecological Compensation

	Identified Ecological Features Loss (see EcIA by Boffa Miskell and Review by Stantec in Appendix 12)					Total Ecological Compensation Area (3.9ha)	Previously Required Mitigation in Compensation Area	
	FA2	FA3	FA4	FA5	**Total**		FA3	FA5
Wetland m²	570	815	484	-	**1869m²**	6000m²	2400m²	-
Stream Length m	160	145	150	160	**615m**	850m	-	120
Other			Bat habitat	Bat habitat		6000m² wetland buffer planting	Pest plant control, fencing & planting	1.5ha bat reserve
	REMAINING COMPENSATION AREA							
Remaining Compensation Area (to mitigate/provide net gain for FA2 & FA4)	Wetland m²				**3,600m²**			
	Stream length				**730m**			
	Other				**3.3ha of terrestrial indigenous habitat protection** **Pest control (weed & animal)**			

16.5.6 The above compensation readily mitigates for the loss of vegetation, wetland, stream and faunal habitat in FA's 2, 3 and 4. The anticipated ecological gains of the compensation site as offered are considered positive effects, and therefore discussed further in this report.

16.5.7 The anticipated ecological gains (associated with the entire compensation area) include:

- improve water quality by reducing sediment and nutrient runoff into the aquatic habitats and minimise stream bank erosion. This is achieved by excluding stock and establishing vegetated buffers to streams and wetlands.
- Natural regeneration of an indigenous understorey within the tree land (achieved by construction of a fence around the gully to exclude stock thereby avoiding livestock damage to soil, roots, and small trees/trunks)
- Increased shading of the water surface (from riparian planting) will improve the in-stream environment for aquatic fauna by cooling the water.

- Improving the riparian vegetation will also have a positive effect on terrestrial invertebrates, which in turn provide food for indigenous fish such as giant kōkopu (Galaxias argenteus; At Risk-Declining), banded kōkopu (G. fasciatus; Not Threatened), and shortfin eel (Anguilla australis; Not Threatened).
- Lake Waahi, approximately one kilometre downstream of the restoration, is an important rearing ground for juvenile giant and banded kōkopu (David et al. 2019). The fish disperse out of the lake to populate other tributaries in the middle and lower reaches of the Waikato River. The proposed restoration will improve habitat and spawning success for the adult fish in the tributary at the study site.
- Pest plant control (eleven species identified, four of which are listed in the WRPMP (WRC2014)) and enrichment planting of 1,857 m^2 of Carex and Eleocharis sedgeland.
- Pest plant control and planting in 3,958 m^2 of degraded exotic wetland vegetation to create WF8 – kahikatea-pukatea swamp forest.
- Planting approximately 620 m^2 of appropriate indigenous vegetation to provide a 10-metre buffer to the Carex and Eleocharis sedgeland.
- Planting approximately 2,320 m^2 appropriate indigenous vegetation to provide a 10-metre buffer to the degraded wetland.
- Pest plant control and riparian planting upstream of the wetland to provide at a minimum 10-metre buffer on both sides of the watercourses that feed the wetland complex.
- Animal pest control of possums, rats, mice, hedgehogs, rabbits, pukeko, feral cats and mustelids will have a positive effect on vegetation health and growth and indigenous flora and fauna.

16.5.8 The proposed mitigations will be guided by the Ecological Management Plan (which includes a fencing plan and vegetation map)- **Appendix 12.3**. The implementation of this EMP will result in the protection and enhancement of ecological values and an increase in the extent and quality of indigenous wetland and forest habitats within the compensation site.

16.5.9 Even despite some previous mitigation being undertaken to compensate for wetland loss in FA3 and stream/habitat loss in FA5, the Applicant considers the mitigations outlined above and detailed in the EMP (**Appendix 12.3)** provide both mitigation (for the wetland loss) and a high level of betterment back to the catchment. The initial restoration ration proposed by the EcIA was 1:1, but a more holistic approach was considered and the proposed overall restoration ratio of 8:1 (gain:loss) (4:1 specifically related to this application) will not only compensate for the loss but will also assist to achieve a net gain. Compensation Area 4 will also contribute to rural character values enabling increased visual amenity as well as the ability to monitor the gully and success of additional vegetation growth more easily.

17 ASSESSMENT OF EFFECTS – AMENITY VALUES (LANDSCAPE, VISUAL & ACOUSTIC)

17.1 Landscape & Visual

17.1.1 An Assessment of Landscape and Visual Effects (ALVE) was undertaken by LA4 Landscape Architects (refer to **Appendix 14.1**). The assessment investigated the existing character of the site and locality, identified the key landscape features of the area, described those elements of the proposed fill sites that will be visible from outside the site and assesses their landscape and visual effects on the locality. An updated Landscape Memo was provided in June 2022 and is included within the s92 information and notification pack. It does not alter this assessment but provides comments against the decisions version of the Proposed Waikato District Plan.

17.1.2 "The assessment comments that the wider environment has been subjected to various degrees of modification and is not high in landscape character values"[19]. In terms of landscape effects, the proposed fill areas would permanently alter the landform of the gully areas resulting in gentler and more even slopes than currently exist. Following completion of the earthworks and reinstatement of the pasture, the finished landform will fit well into the surrounding landscape and improve the existing degraded amenity values of the gully areas and lower flat.

17.1.3 The following five (5) viewpoints were identified and the proposed visual effects from each of these have been assessed:

- Viewpoint 1: Properties on the eastern banks of the Waikato River
- Viewpoint 2: State Highway 1
- Viewpoint 3: State Highway 1 layby
- Viewpoint 4: Hillside Resort
- Viewpoint 5: Hillside Heights Road

[19] Huntly Quarry, Assessment of Landscape and Visual Effects, LA4 Architects, August 2019, page 10

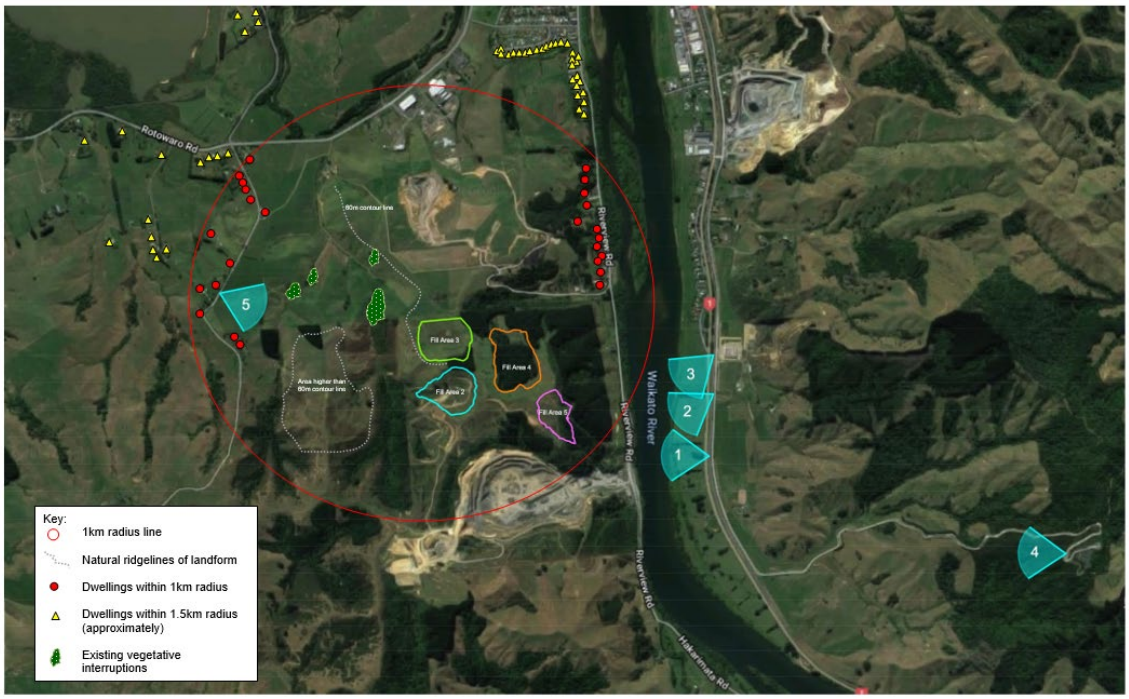


Figure 10: Viewpoints in Assessment of Landscape & Visual Effects 'ALVE' (See Appendix 14)

17.1.4 **None** of the fill areas will be visible from Viewpoints 1-4 as the fill sites and operations are visually contained within the gullies and screened by landform and vegetation.

17.1.5 From Viewpoint 5 (Hillside Heights Road) parts of Fill Area 3 and 4 will be visible to varying degrees. These have been annotated on the Viewpoint 5 photograph **Appendix 14.2** Managed Fill Viewpoints. The managed filling activities will be visible, although incremental, as work proceeds gradually over several years as per the proposed staging of these two areas. The landform will be altered through removal of the sparsely vegetated gully and lower lying flat, filling, and eventual construction of the final fill area. Once completed, the completed state of the fill areas would be integrated into the surrounding landscape by following natural contours and reshaping the fill to keep the appearance, form and location of existing rural character and amenity values.

17.1.6 WDC did previously query whether a ZTV (Zone of Theoretical Visibility) map could be developed to assist in the determining the indicative pattern of visibility. However, it was subsequently agreed that the development of a ZTV map for the purposes of visual simulation for the fill sites that are visible from the viewpoints would not add any value based on the purpose of a ZTV Map already being achieved by the ALVE and limitations outlined in the Best Practice Guide[20]. This is further addressed in the original s92 response to council (see **Appendix 14**).

17.1.7 The distance to Lake Waahi to the north is approximately 1.5km (measured from the northern boundary of Fill Area 3). Within a 1km radius, there are around 13 dwellings to the north and west, with a further 13 (approximately) within a 1.5km radius. Most dwellings along Hillview Road are located on contours between 20-30m above sea level, and those further out along Rotowaro Road at between 10-20m above sea level.

[20] Best Practice Guide, Visual Simulations BPG 10.2 page 4

17.1.8 While Fill Area 3 is located on contours 60-90m above sea level, there are contours of 50-60m east of Hillview Road that provide visual interruption to Fill Area 3, as depicted in Viewpoint 5 in the ALVE – only the very upper parts of the fill areas are visible. For those properties located north of Viewpoint 5 (approximately 8 dwellings within 1km radius and 5 dwellings within 1.5km radius), the dwellings themselves provide a degree of visual buffering from the distant views towards Fill Areas 3 and 4, in addition to natural rural features such as vegetation and hilly slopes.

17.1.9 At the base of Fill Area 3, a 10m high bund will be constructed out of structural fill to act as a 'toe' for the proposed fill. This will extend along the northern edge of FA3 for an approximate length of 200m. The bund will be formed, stabilised, and grassed, ensuring that any visual impact in this regard will be temporary and short-term.

17.1.10 More specifically, visual effects on owners/occupiers of dwellings along Hillview Road and Rotowara Road (north and west) are considered less than minor for the following reasons:

17.1.11 FA3 and 4 sits alongside and within a highly modified landscape, with historic mining operations to the north and existing mining operations to the south. The historic mine to the north has altered (and improved) the visual amenity of the landscape and this proposed fill operation provides an opportunity for the subject site to do the same.

17.1.12 The proposed FA3 and 4 do not impact on indigenous vegetation or sensitive landscapes – in addition, there are no identified archaeological or cultural values being impacted by visual effects associated with the application.

17.1.13 The existing landscape (within a not dissimilar distance) includes open cast mining operations with more long term and exposed visual effects than proposed by this application. The views towards FA 3 and 4 are relatively distant (1-1.5km) and are oblique rather than direct – in addition there are existing visual interruptions such as ridgelines and clumps of vegetation, being largely hidden from view because of the topography of the gullies and elevated ridge lines and the existing screening vegetation.

17.1.14 The visual impact is short term (2-5 years), incremental and not dissimilar in visual effects to other anticipated rural activities (such as cropping, forestry logging and cultivation); in addition, for the first year it is unlikely that much activity will be visible from the 1-1.5km radius until the fill is raised to a certain level.

17.1.15 The bunding at the toe of FA3 of 10m will provide additional visual separation. Furthermore, a series of bunds occur throughout the fill operation, meaning that in increments, bunds are formed, stabilised, and then fill is deposited behind these bunds. This means that all filling up to the level of each bund (approximately 10m in height) will be hidden from view until nearing capacity of that section of the gully. The north facing bund faces will be 10m in height, 5m in depth and run the entire width of the fill area (200m FA3 and 15-200m FA4). It should take 6 weeks for them to be stabilised by mulching and hydro-seeding, resulting in the following visual outcome:

17.1.16 The final outcome of landform will improve currently degraded visual amenity values by providing distant views over the rehabilitated land, rather than degraded erosion prone land.

17.1.17 If required, screening of these fills could easily be achieved through planting of a fast-growing shelter belt along the northern and western boundaries of the site. From a landscape and visual perspective this is however considered unnecessary as excavated earth is a common sight in the rural environment. In addition, a screening shelterbelt would disrupt the existing openness of this rural environment.

17.1.18 Overall, the project is expected to have less than minor landscape and visual effects, particularly in relation to the rural character and quality of the site and the surrounds. The ALVE concludes that *"long term there will be positive effects on the amenity and amenity values through the improvements of the site, proposed works and reinstatement of productive pasture within the site."*[21]

17.2 Acoustic (noise)

17.2.1 Noise is one of the principal factors that can adversely affect the appreciation of amenity. It can adversely affect people's health, interfere with communication, and disturb concentration. Although noise as a general term is defined in Appendix P in the Operative WDP, the Rural Zone rules makes a clear distinction between noise (general) and extractive industry. The noise generated by managed fill site will be a combination of the two as there will be overburden disposal associated with the quarry as an extractive industry that would need to comply with Rule 25.19.1 of the Operative WDP and the managed fill would need to comply with Rule 25.17 of the Operative WDP.

17.2.2 An Assessment of Noise Effects has been undertaken by Hegley Acoustic Consultants (refer to **Appendix 15**). The assessment investigated the noise on a busy day anticipated from the managed fill operations and was completed based on the maximum height of each of the fill areas which will be the noisiest stage of any fill activity. The anticipated noise can be divided into two groups: (1) Operational Noise and (2) Traffic Noise.

17.3 Operational Noise

[21] Huntly Quarry, Assessment of Landscape and Visual Effects, LA4 Architects, August 20 page 21

17.3.1 The operating noise is generating by the operations of the managed fill sites such as machinery and disposal of the managed fill. The assessment was completed based on the assumption that the current quarry activities will continue without change and the plant already operating at the quarry will also be used for the managed fill activities. The noise from this equipment has been based on measurements undertaken of the machinery operating in the field with the measured sound power level (LWA) [*Komatsu D65 Bulldozer, 114dB; Caterpillar 20 Ton excavator, 106dB; Caterpillar 16G grader, 102dB; 10,000 litre Watercart, 102dB; Compactor, 107dB and trucks delivering the fill material, 105dB*.]

17.3.2 The only anticipated change would be that the plant will now operate for the total daytime period to produce aggregate and to dispose of the managed fill.

17.3.3 In addition to the contouring, the noise has been calculated at the notional boundary of each of the 10 identified closer dwellings to the north, east and west of the proposed fill areas.[22] The noise received to the south of the managed fill sites is controlled by the noise from the activities at the quarry and not the managed fill work. The results indicate that the anticipated noise levels will be between 23 dBA L_{10} (lowest value) and 37dBa L_{10} (highest value) for the proposed Fill Areas 2 – 4. The noise assessment comments on page 16 that "*both the noise contours and spot levels at the notional boundary of the closer houses has been predicted and this shows the noise will not exceed 37dBA L_{10} at the most exposed notional boundary on Riverview Road and 34dBA L_{10} on Hillside Heights Road*." [23]

17.3.4 The results of the anticipated noise levels are below the noise limits for a permitted extractive industry activity in a rural zone (Operative WDP, Rule 25.19) and noise limits for a permitted activity in a rural zone (Operative WDP, Rule 25.17).

17.3.5 During the assessment process of the previous application, the hours of operation were also adjusted to avoid adverse effects on the receiving acoustic environment. Originally, to avoid confusion, the same operational hours as the quarry were applied for, which included opening at 5am during weekdays. Proposed hours of operation for managed fill activities (acceptance, disposal, compaction and moving of managed fill on site) are 7am-7pm Monday to Friday, and 7am-2pm on Saturdays.

17.3.6 It is emphasised that only one managed fill site will be operating at any stage, and the noise assessment (and hence predicted noise levels) was undertaken with plant at the maximum height of the fill operation. This is because the noisiest stage of any fill activity is when the fill is at its maximum height) – and still the anticipated noise levels were below the limits for activities in rural zones.

[22] Assessment of Noise, Hegley Acoustic Consultants, September 2019, Figure 10, page 15
[23] Assessment of Noise, Hegley Acoustic Consultants, September 2019, page 16

17.3.7 The requirements of Section 16 of the Resource Management Act have been considered when assessing noise effects. Careful selection of the plant machinery to be used seeks to minimise the noise at source. In addition, access roads are contained within the site, avoiding the use of public roads, which further minimises truck noise to the surrounding environment. Limiting the working area to 3ha and staging the fill operation also assists in minimising noise effects, with all these measures combining to satisfy the requirements of Section 16. The results of these effects are shown in Table 1 of the original noise assessment where the noise is controlled to well within the limits as set out in the District Plan rather than simply working to s16 RMA limits.

17.4 Traffic Noise

17.4.1 As discussed in the Traffic Effects section within this report, the only change to the truck numbers because of the proposed managed fill is an increase of 12 trucks a day to the already existing number of trucks on the road. The noise assessments comments on page 16 that the increase of trucks per day "*is insignificant and will not have any noticeable effect on the traffic noise that will be experienced by residents along Riverview Road".* [24]

17.4.2 The noise assessment concludes that the calculated results are below the existing measured background (LA_{95}) noise environment for the proposed hours of work so there will not be any adverse noise effects for the residents around the site.

17.4.3 Overall, the anticipated noise effects of the proposed managed fill will not noticeably alter existing noise levels as anticipated in the wider rural environment and will be less than minor.

[24] Assessment of Noise, Hegley Acoustic Consultants, September 2019, page 16

18 ASSESSMENT OF EFFECTS – ARCHAEOLOGICAL & CULTURAL VALUES

18.1 Archaeological Effects

18.1.1 An Archaeological Assessment was undertaken by Clough and Associates on behalf of the applicant in July 2019 (see **Appendix 13**).

18.1.2 An archaeological site, S14/14 (PA site) was identified within the most northern property (Lot 1 DP25272), however it is not located in proximity to the proposed Fill Areas and will not be adversely affected by the proposed works. The assessment considered it unlikely that any unrecorded archaeological sites are in the proposed area of works. However, if any unrecorded sites are exposed during the works, standard archaeological protocols will be followed, including ceasing of works, notifying Heritage New Zealand Pouhere Taonga and undertaking all record/information recovery required under the archaeological provisions of the Heritage New Zealand Pouhere Taonga Act 2014.

18.1.3 Adverse archaeological effects are therefore considered to be less than minor.

18.2 Cultural Effects

18.2.1 Waikato Tainui are the recognised rohe (tribal area) and have manawhakahaere (authority) over their lands and the Waikato River. The hapū in Huntly include Ngāti Kuiaarangi, Ngāti Mahuta, and Ngāti Whāwhākia. The local Huntly Marae include Kaitumutumu, Te Kauri, Te Ohaaki and Waahi marae. These hapū are represented by the iwi organisation Waahi Whaanui Trust.

18.2.2 Further background regarding consultation with Waikato Tainui and Waahi Whaanui Trust over the past 2-3 years is included in Section 19.

18.2.3 It is noted that a Cultural Impact Assessment was undertaken by Mr Norm Hill on behalf of Waahi Whaanui Trust in December 2019, which remains the intellectual property of the Trust and is now superseded by their opposition to the proposal. This CIA was originally supported by Waikato-Tainui. In brief, however, the following effects were raised in the CIA:

- Ecological impacts
- Water quality and aquatic life
- Landscape
- Geology
- Visual effects
- Environmental bond

18.2.4 Mitigation was discussed in the CIA, including partnering with Gleeson's to:

- Input into the development, implementation, and monitoring of Maatauranga Maaori
- Input into the development, implementation and monitoring of Landscape Rehabilitation Plan.
- Undertake cultural monitoring during topsoil removal.
- Monitoring performance of operations against the Managed Fill management plans
- Undertaking kaitiaki responsibilities on fill material entering the site in a facilitated manner:
- Monitoring water quality and/or discharge and
- Developing partnership outcomes

18.2.5 A Maatauranga Maaori Management Plan was drafted by Paua Planning for FA5 (as provision of this was a condition of consent) utilising example templates provided by Mr Hill. This was sent to Waahi Whaanui Trust for review and feedback, however, to date no response has been received. A similar plan was envisioned for this application; however, the applicant is now uncertain if this is what the Trust (as representatives of the six marae who have mana whenua over the site) are seeking going forward.

18.2.6 This assessment on cultural values has still sought to address the matters of concern to Waikato-Tainui as identified in the WRP Section 2.2.3.1 (**Table 8** below). These are included as a pre-cursor to any outcome, and do not presume to assess adverse effects on cultural values, but rather to provide a framework for discussion on cultural values in relation to the proposal for both Council and iwi consideration and response.

Table 8: Assessment of Waikato-Tainui matters of concern

Waikato-Tainui matters of concern		Application parameters
Waikato River	Waikato-Tainui are deeply concerned about the Waikato River. They therefore wish to ensure that they, through the Tainui Maori Trust Board or its successor, are consulted on any proposals which may affect the River.	**Section 19** of this report outlines all engagements and related correspondence to held to date with Waaihi Whaanui Trust. Fill Areas 2-4 drain to holding/treatment ponds to the north/west with treated water being controlled released into small streams, which then discharge into either Lake Puketirini (2km to the north) or to the east into the Waikato River (1km to the west). The construction of the sediment ponds is discussed in **Section 10** of this report. The sediment retention pond is sized to accommodate flow from an area greater than the Fill Areas and an undisturbed balance of the catchment will also be

Waikato-Tainui matters of concern		Application parameters
		treated which will reduce the level of sediment to *slightly less than current natural levels.*
River and Lake Beds.	Waikato-Tainui have concerns with dredging of the Waikato River beds, ownership issues and clarification on defining the extent of the riverbed. Specific concerns include the need for more monitoring of structures and policing of stock in waterways.	None of the activities associated with the proposal include the dredging of the Waikato Riverbed.
Water	The direct discharge of waste, effluent or other pollutants, whether treated or untreated, from land or boards is unacceptable and offensive to Waikato-Tainui. Concerns also relate to excessive permitted water takes from the Waikato River and the damming and diverting of water.	No effluent discharge except for stormwater which includes sedimentation is expected from the Fill Areas as the material deposited will be regarded as managed cleanfill. And in addition, as discussed in **Section 10** of this report, several sediment controls will be implemented in order to treat the site runoff and managed fill which includes a: 1. Sedimentation pond 2. Chemical treatment system. 3. Temporary erosion stabilisation measures – straw/hay No water take is required as part of this proposal. Runoff diversion bunds or channels are proposed to divert clean water runoff away from the Fill Areas.
Air	Waikato-Tainui require that no discharge of pollutants into the air will affect the wellbeing of their people, the people they host within their rohe, or put fauna and flora, which rely on clean air, at risk.	The only anticipated discharge into the air is dust generated by the exposed surfaces, trucks dumping and machinery spreading the overburden/managed fill material on site. The effects of discharge to air is discussed in detail in Section 13 in this report and **Appendix 11**.
Land	Concerns are expressed regarding soil disturbance activities which impact on cultural values, reduce soil productivity, and increase sediment discharges to water bodies. The adoption of good land management practices is required to reduce soil erosion.	Section 13.1 of this report discusses in detail the soil management practices and Section 13.2 discusses the proposed erosion and sediment controls.

19 ASSESSMENT OF EFFECTS – OTHER

19.1 Infrastructure

19.1.1 Fill Area 4 is the only fill area that is close to an established a high voltage transmission line. Section 19 discusses the consultation process undertaken with the relevant asset owners.

19.1.2 Transpower NZ Ltd confirmed that the Fill Area 4 is 50m away from the established structure and would not require a specific Earthworks Management Plan. Should Transpower require additional mitigations then this would be provided to Council. On that basis, it can be concluded the adverse effects on the established structures that are located near Fill Area 4 will be less than minor.

19.2 Cumulative Effects

19.2.1 Cumulative effects relate to a gradual build-up of consequences because of a combination of effects, sometimes referred to as "additive effects". Cumulative effects cannot be limited to those arising from the proposed activity but include the effects of the proposed activity in combination with any existing effects, whether arising from existing uses or consented and probable uses.

19.2.2 The anticipated cumulative effects arising from the proposed fill sites are air discharge, traffic movements, noise and effects associated with discharge on water quality in adjacent streams and the Waikato River/Lake Puketirini. The relevant expert reports however confirm the following:

- The contribution of dust from the proposed fill sites will be low compared to the already existing other resources identified in the surrounding area (Huntly Power Station, other quarries, and fill sites.)
- The cumulative effects arising from the traffic movements associated with the managed fill and existing movements from the operating quarry will be readily accommodated by the surrounding road network and will not create any operational problems[25].
- Cumulative effects related to increase in noise with quarry and managed fill operating simultaneously are avoided by (a) complying with WDP standards; (b) ensuring noise levels are reasonable and do not contravene s16 of the RMA (see Section x); and (c) reducing the hours of operation to start at 7am at the managed fill, rather than 5am as per consented quarry hours of operation.
- Sediment and erosion controls, the waste acceptance criteria and Site & Fill Management Plan all work together to minimise any additive effects from the managed fill operation combined with existing discharges from the quarry, ensuring that any cumulative effects in this regard will be no more than minor.

19.2.3 Based on the above, it is concluded the anticipated cumulative effects associated with the fill activities will be no more than minor.

19.3 Bond

19.3.1 As part of the mitigation package, payment of a bond (as a condition of consent) is offered up to the value of $250,000. This is for the duration of the consents, until such a time as all conditions have been complied with, including site rehabilitation at the closure of each fill area. Please see a confirmation letter to this effect in **Appendix 20.**

19.4 Overall Summary of Effects

19.4.1 Sections 9 - 19 detailed the actual and potential effects of the proposed managed fill operation. Several thorough assessments have been undertaken by experts to assess the potential effects, and all of these have been previously reviewed by experts at WRC and WDC, with all matters (to my knowledge) having been addressed to council's satisfaction.

19.4.2 The focus of where potential effects have been queried and further assessed relate to the types of contaminants (and levels) in the Waste Acceptance Criteria and how the fill is to be managed to avoid adverse effects, the potential downstream effects on water quality and habitats from both sediment and low-level contaminants, loss of ecological features including mitigating the loss of wetlands and bat habitat, traffic, noise, and visual landscape effects. These potential effects have been assessed in this report, relying on expert input, and are regarded as being no more than minor overall.

19.5 Public Notification Summary

19.5.1 Taking into consideration the steps set out section 95A, public notification is mandatory as it has been requested by the applicant.

19.5.2 It is concluded that these district and regional resource consent applications must be public notified.

[25] Gleeson & Cox Huntly Cleanfill, Traffic Impact Assessment, TEAM, September 2019, page 16

20 CONSULTATION

20.1 Adjacent properties

20.1.1 Properties with abutting lot boundaries were provided with a neighbour's consultation pack in January 2020 (as identified by red stars on the map below). These were delivered by hand by the quarry manager. A detailed table of consultation is included in **Appendix 18**, which includes reference to all emails/phone calls and a copy of the neighbour's consultation pack.

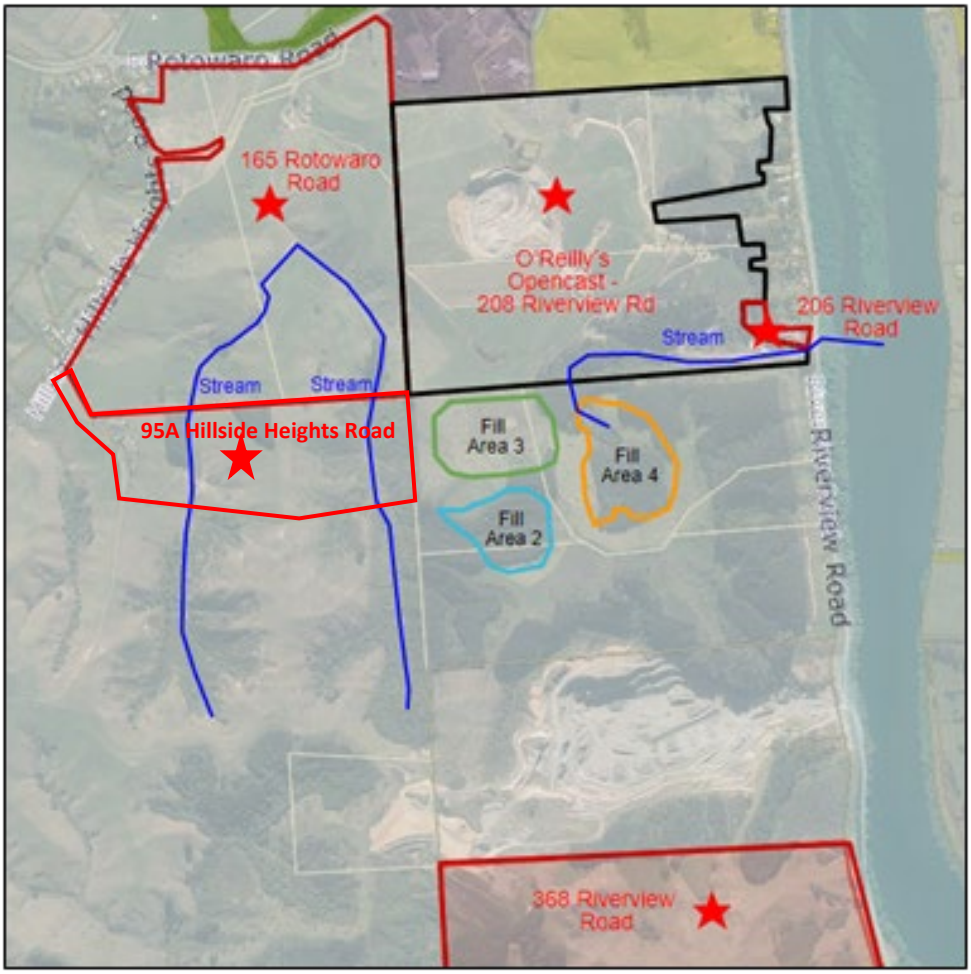


Figure 11: Location of neighbours with common boundary to subject site

20.1.2 No written responses were received (at this stage).

20.2 Asset Owners - Transpower NZ Ltd

20.2.1 Fill Area 4 is located 50m from the 110kV transmission line which extends in a north-south direction. Transpower NZ Ltd as the asset owner was engaged in order to confirm whether the proposed fill site will have an effect on the 110kV transmission line. In order for the Transpower NZ Ltd engineers to confirm the any effects and requirements for the proposed fill sites, the following documents were provided for review:

- Geotechnical Assessment
- Cross sections
- Indicative Haul Road plan
- Site plan and photographs

20.2.2 Transpower confirmed that no earthworks methodology will be required for Fill Area 4. The correspondence has been included in **Appendix 10.3 Transpower NZ Ltd Consultation. In addition, written approval to the proposal was provided on 16 December 2019.**

20.3 Department of Conservation (DOC)

20.3.1 In January 2020 a meeting and emails were held with DOC to discuss obtaining Wildlife Permits to 'Catch and Handle Wildlife' in response to bat surveys indicating the presence of indigenous at-risk long tail bats (Pekapeka) within Fill Areas 4 and 5. Subsequently, a Wildlife Authority was applied for and granted[26] to allow for the residual pine trees in FA5 to be felled in accordance with the permit. These works have been undertaken. There was some discussion as to whether FA4 should be applied for at the same time, however due to delays it was decided that a new permit would be applied for when FA4 stage of the managed fill was imminent. It is noted that Mr Norm Hill, as the liaison for Waahi Whaanui Trust attended the meeting with DOC and has been kept updated with progress in FA5 in this regard.

20.4 Huntly Community (and Huntly Community Board)

20.4.1 The Huntly Community Board (HCB) requested a copy of the applications in January 2020 and requested to meet. The timeframes for arranging to meet were delayed by the onset of COVID-19, and during this time information was circulated within the wider community through various channels (not Gleeson), including Facebook. It began to be referred to (incorrectly) as a 'dump' or 'landfill'.

20.4.2 Finally on 23 June 2020, Gleeson attended an HCB meeting with approximately 120 residents in attendance. The level of ill-will in the community towards the proposal (and Council in general) was unforeseen and exacerbated by the spread of misinformation. Due to the height of feeling, it was decided that any further public meeting of this sort would be unproductive. The approach taken was to send a weekly email update (over 4 weeks) answering the questions as tabled to the community board and any parties who wished to receive updates/information.

20.4.3 Over June and July 2020, four (4) mailouts were emailed to HCB and to residents (who provided their email addresses). Only two responses were received to any of the mail-outs (same respondent), in addition to a query from the local Water Ski Club. Copies of the mailouts and other information provided to the Community (including) are attached as part of **Appendix 18**. These queries were responded to (by email), and nothing further was received.

20.4.4 While there has been much interest in the application, it is not considered that the consultation process raised any adverse effects that (a) had not previously been considered and demonstrated to be either no more than minor on the environment and/or less than minor on persons; or (b) were outside the responsibility of the applicant (such as condition of local roads etc); or (c) were issues raised that were not factual or formed part of the application.

20.5 Summary of consultation

20.5.1 Overall, it is considered that adequate efforts were made by the applicant to consult with the wider community and stakeholders, however these efforts were not well received.

20.5.2 It is in part for this reason that the applicant is requesting public notification, in order to undertake a robust and transparent process, but also one that is bound by the timeframes of the RMA, in order that an outcome is achieved within the next few months.

[26] Reference 86143-FAU, October 2020

21 RELEVANT STATUTORY INSTRUMENTS Section 104(1)(b) & (1)(c)

21.1 Introduction

21.1.1 In accordance with Section 104(1)(b) of the Resource Management Act 1991 ('RMA'), this part of the report addresses the following statutory documents which are relevant to the assessment of this proposal:

- Operative Waikato District Plan – Relevant Objectives and Policies
- Proposed Waikato District Plan – Relevant Objectives and Policies
- Waikato Regional Plan – Relevant Objectives and Policies in Sections 1.2.3, 1.2.4, 2.3.2, 2.3.3, 3.1.2, 3.5, 3.6, 5.1 and 5.2, 6.1.2 and 6.1.3
- Waikato Regional Plan Change 1
- Waikato Regional Policy Statement
- Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010 – Vision & Strategy
- Waikato-Tainui Environmental Plan (Tai Tumu Tai Pari Tai Ao)
- National Policy Statement on Freshwater Management (NPS-FM)
- National Environmental Standards for Freshwater Management (NES-FM)
- National Environmental Standards for Contaminated Land (NES-CL)
- National Policy Statement on Electricity Transmission (NPSET)
- Other relevant sections of the RMA

21.2 Operative Waikato District Plan Objectives and Policies

21.2.1 This proposed managed fill activity includes disposal of overburden material thereby maintaining the lawfully established quarry within the rural area (*Objective 1A.6.1)*. By establishing fill areas, the GQ site will be able to operate efficiently and continuously extract minerals / aggregates (*Policy 1A6.7)*, while continuing to avoid, remedy and/or mitigate adverse effects with the managed fill expansion activity (*Policy 1A.6.4).*

21.2.2 The Boffa Miskell Ecology Report provided has assessed the ecosystems and describes the value of the vegetation types within the Fill areas of consisting predominantly of pasture, gorse dominated scrub and with some native broadleaved scrub, wetland vegetation and broadleaf forest. The EcIA identifies all these as having a low or low-negligible ecological value other than the broadleaf forest and wetland areas. The latter two areas are regarded as "high or very high potential value for bats, avifauna and herpetofauna which meets the significance criteria outlined in the Operative WDP". While these features are being lost, and therefore are not consistent with *Objective 2.2.1*, the compensation area as proposed will be maintained and enhanced with additional ecological features and values to those within FA2-4 and therefore the proposed ecological net gain may be considered to meet this objective.

21.2.3 The compensation area is also consistent with *Policy 2.2.2* as it seeks to enhance an indigenous ecosystem and provide ecological buffers and linkages by managing it as per *Policy 2.2.5* (fencing, planting, wetland rehabilitation and legal protection).

21.2.4 FA's2-4 are not within any landscape identified as having Outstanding Natural Features or Significant Natural Area (*Objective 3.2.1*). There is a Significant Natural Area as identified in the Proposed WDP immediately west of FA2, however the fill footprint (including ESC measures) is greater than 100m from the SNA; in addition, the SNA is not visible to the public due to the topography of the area and the proposed fill areas can therefore not affect the view of these areas (*Policy 3.2.6*).

21.2.5 The health and wellbeing of the Waikato River (*Issue 3.3A*) is protected because of stringent sediment and erosion controls, best practicable outcomes and in addition river (waterway) health is improved through proposed mitigation measures in terms of protecting indigenous vegetation, streams and improving pest control. This ensures that Te Ture Whaimana o Te Awa o Waikato (the Vision and Strategy for the Waikato River) is achieved.

21.2.6 The activity is considered appropriate use and development for its locality and will not impact on either the Waikato River or associated stream margins due to sufficient separation distances and commitment to best practice erosion and sediment control measures *Objective 3.6.1.* It is recognised that wetlands of significant value (under the WRP – considered artificial under the NPS-FW) and potential long tailed bat habitats will be impacted, however as indicated by the Offset assessment "*the proposed compensation areas will address the loss of wetland and long tailed bat habitat at the proposed fill locations*" *Policy 3.6.2*.

21.2.7 The soil resource within the gullies is not considered productive land (for farming or horticultural activities) due to the steep nature of the slopes, and therefore the proposed managed fill sites does not result in any impact on or loss of productive land (*Objective 4.2.1, Policy 4.2.2 & Policy 4.2.4)*. All topsoil will be removed and stockpiled for eventual use to rehabilitate the disposal sites. It is considered that the completed sites will have greater productive capability than the original steep sided gully (*Policy 4.2.3).*

21.2.8 It is considered that this application demonstrates consistency with *Objective 4.5.A.1, Policy 4.5.A.2 & Policy 4.5.A.3* as it enables utilization of a significant aggregate resource located in part within an Aggregate Extraction Policy Area (by providing areas to deposit overburden) where the effects on the adjoining land uses have already demonstrated to be minor. The quarry is a regional resource, and the regular removal and disposal of overburden will allow the continuation of rock extraction which is an essential part of the overall quarrying activity.

21.2.9 The proposed managed fill disposal is being appropriately managed to ensure that sediment and contaminants discharge into the stream network is reduced as much as possible by utilising best practice sediment and erosion controls and over the longer term, treatment methods and protecting and enhancing riparian and instream habitat (*Objective 4.6.1*, *Policy 4.6.2 & Policy 4.6.2A).* The works are not being undertaken within or adjacent to a flood plain, and ground and surface water flows will not increase because of the works, but rather they are being diverted, discharging into a stormwater pond for treatment before a controlled release to the natural stream network. It is recognised that wetlands of significant value and potential long tailed bat habitats will be impacted, however as indicated by the Offset assessment "*the proposed compensation areas will address the loss of wetland and long tailed bat habitat at the proposed fill locations*".

21.2.10 This proposal is consistent with *Objective 11.2.7* & *Policy 11.2.8* relating to retaining the social and cultural characteristics of the Huntly area. The proposal is in line with the wording of *Policy 11.2.11* stating that Huntly is known historically for mining and the proposal to establish fill areas that will include overburden disposal material will maintain the mining history sustainably. The growth of the mine is a sign of a healthy economy and enables the quarry to continue to provide employment opportunities within the local community.

21.2.11 The role of tāngata whenua as kaitiaki is recognised and provided for, as extensive consultation has been undertaken with Waikato Tainui and Waahi Waanui Trust, thereby respecting the cultural practices and beliefs of tāngata whenua (*Objective 11.4.1),* seeking to understand the cultural significance of the Waikato River, Lake Puketirini, and wetlands *(Policy 11.4.3),* and offering to cooperate with WWT in the creation of a Maatauranga Maaori Environmental Management Plan *(Policy 11.4.4)*.

21.2.12 It is considered that this application demonstrates consistency with *Objective 13.2.1, Policy 13.2.2, Policy 13.2.4, Policy 13.2.5, Objective 13.2.6 & Policy 13.2.7* as the amenity values of the receiving environment surrounding the proposed managed fill sites will be maintained and managed. Most of the direct effects associated with the fill operations are contained and managed on site including dust, noise etc. The proposed discharge from the associated activities is not expected to result in significant dust nuisance, amenity, or health effects subject to use of a water cart to suppress dust where required and implementing the recommended mitigation and monitoring methods.

21.3 Proposed Waikato District Plan (Decisions Version)

Part 2: District-wide matters / Energy, infrastructure and transport / AINF – All infrastructure

21.3.1 The proposed infrastructure comprises a site-specific erosion and sediment control system to avoid, remedy and mitigate potential adverse effects on water quality within the catchment. This includes diversion of clean-water (runoff) and treatment of water associated with the managed fill – both shallow groundwater and surface water. Detailed ESCP's have been provided with the application, and monitoring and compliance plans and conditions proffered with the application. These measures are consistent with **AINF-O1**, in that the proposed infrastructure has been developed and will be operated, maintained, and upgraded to enhance social, economic, cultural and environmental well-being, by ensuring that any water discharged into the receiving environment will be 'clean' water.

21.3.2 The proposed ESC infrastructure is protected from reverse sensitivity effects as it has sufficient physical separation from any rural-residential property, and works can comply with WDP noise standards. Therefore the establishment and ongoing operation of the managed fill is not in proximity to any existing land-use that would raise reverse sensitivity effects. It is not near any residential or countryside living zone that may expect heightened amenity values. (see **AINF-O2**). The proposed ESC infrastructure has been located in degraded gully areas, avoiding areas of SNA. (**AINF-O3).**

21.3.3 The National Grid is in proximity to FA4, however written approval has been provided by Transpower therefore the national significance of the National Grid has been protected **(AINF-O4 and AINF-P19).**

21.3.4 The proposed activity is consistent with Objective **AINF-O8** (Land Transport Network) in that it proposes sustainable use of the existing effective and efficient land transport network and strategic roads by 'back-loading' trucks that are already arriving at the quarry to collect aggregate. This usage enhances both economic well-being and supports growth and productivity with the Waikato Region and upper North Island. Use of an existing vehicle crossing is also sustainable, and this entrance (shared with quarry), continues to provide efficient and effective access to the site (**AINF-P29**). The TIA provided determines that the existing road hierarchy and function of the surrounding road network has capacity and is suitable for the intended activity. (**AINF-P30 & 31).**

21.3.5 Additional use of the existing road network provides for maintenance and repair etc of the network by additional payment of road user levies. (**AINF-P1**). Adaptive Monitoring plans/practices allow for the future operator to adopt new technologies within the ESC system, that have potential to further benefit the environment and/or increase the reliability of the infrastructure. (**AINF-P2**)

21.3.6 **AINF-P28** discusses stormwater and drainage infrastructure. THE proposal is consistent with this policy in that it is proposing a best-practice low impact design and managing the stormwater at the source. Impervious surfaces will not be created, and the predevelopment hydrological conditions can be maintained. The SRP's ensure there is no increase of the flow of stormwater onto adjoining properties, with discharge of clean water controlled and monitored.

Part 3: Area-specific matters / Zones / Rural zones / GRUZ – General rural zone

21.3.7 There are 4 objectives in the **General Rural Zone**, and the application is consistent with these, as it does not impact on high class soils, is associated with existing extractive activities, and will maintain rural character and amenity, due to the relatively discreet locality of the gullies. While the fill operation is not exclusively proposed for quarry use, it is required to protect the longevity of quarry operations (in part).

21.3.8 The policies support these objectives, by requiring that activities have a functional or operational need for a rural location – **GRUZ-P4** recognises that character and amenity values vary across the zone as a result of the physical resources present, and the scale and extent of land use activities, such as in this case. It is considered that the proposed activity has both a functional and operational need for this rural location (**GRUZ-P6**). In addition, the managed fill (and quarry) are not located within any Outstanding Natural Landscape/Feature/Character Area identified in the PWDP (**GRUZ-P10**).

21.3.9 There is adequate separation from site boundaries to enable adverse effects to be contained within the site, thereby avoiding reverse sensitivity effects (**GRUZ-P13**), and it is noted that the nearest potentially affected neighbour directly north of FA3 & FA4 has provided written approval to the proposed activities.

Part 2: District-wide matters / Historical and cultural values / MV – Maaori values and Maatauranga Maaori

21.3.10 The proposed activities have recognised Maaori values and had multiple hui with WWT in order to understand their concerns, recognising that only tangata whenua can determine effects on their values (et al) – **MV-O1.** Early and ongoing engagement was undertaken since 2019 **(MV-P2).**

21.3.11 Gleeson have sought to include WWT in the process, seeking input on the application and in particular the restoration of the compensation area and the establishment of a dedicated 'bat reserve'. Iwi representatives have visited the site on more than one occasion, meeting with experts and Gleeson representatives in order to acknowledge the connections between tangata whenua and their ancestral lands. (**MV-O2**)

21.3.12 A cultural impact assessment was originally prepared by Mr Norm Hill (as mandated by WWT), and it was confirmed that there were no sites of significance to iwi impacted by the proposal. Adherence to accidental discovery protocols is accepted. (**MV-P1**)

21.3.13 In regard to **MV-P3 to MV-P5**, the proposal seeks to understand and thereby manage the effects of the managed fill on Maaori values through the hearings process.

Part 2: District-wide matters / Natural environment values / NATC – Natural character

21.3.14 The wetland areas identified within FA's 2-4 have been determined to be artificial and therefore not subject to the provisions of the NES-FW, which apply to natural wetlands only. The assessed overall ecological value for all wetlands within FA2-4 has been determined as being 'low', despite their significance under criteria 4 and 6 of the WRC Regional Policy Statement. Criteria 4 relates to an ecosystem type that is under-represented in a district, region or nationally. It is widely accepted that wetland habitat is under threat nationally. Criteria 6 relates to wetland habitat that has not been created and subsequently maintained – in this case, the wetland habitat has been shown to have been artificially created, and maintained for its purpose – stock watering, fire-fighting (forestry) and recreational use. Therefore, the proposal is considered consistent with **NATC_O1** in that the development is not inappropriate for the surrounding (low value) natural character.

21.3.15 In terms of **NATC-P1 and NATC-P3**, the restoration and enhancement of almost 4ha of indigenous vegetation, stream and wetland habitat within an identified SNA recognises that rehabilitation of natural features has a high value – in the right location. The compensation area allows for biodiversity to flourish, water quality to be protected and enhanced and the landscape to revert from farmland to its natural state.

Part 2: District-wide matters / Natural environment values / NFL – Natural features and landscapes

21.3.16 The proposed managed fill activities do not occur within or adjacent to any land overlaid with outstanding natural features or outstanding natural landscapes.

Part 2: District-wide matters / General district-wide matters / EW – Earthworks

21.3.17 Under the **Earthworks Chapter**, it is evident from this AEE that while earthworks are to be enabled (for the importation of controlled cleanfill) the effects of earthworks must be managed to avoid and/or mitigate erosion and sediment loss, that the ground is geotechnically stable, that changes to natural waterflows are avoided/mitigated, and ecosystem restoration, rehabilitation or enhancement works are encouraged. The proposed managed fill activities meet these outcomes (**EW-P3**).

Part 2: District-wide matters / Natural environment values / ECO – Ecosystems and indigenous biodiversity

21.3.18 The managed fill is not within an area of SNA, and ESC measures ensure protection of the SNA adjacent to FA2 (**ECO-01**), as well as physical distance (greater than 100m). Furthermore, an indigenous ecosystem is being enhanced within the proposed compensation area (**ECO-02**). Biodiversity off-setting is required under **ECO-P3** where an activity results in more than minor residual adverse effects on an SNA. In this case, there are no (or negligible) adverse effects on the SNA adjacent to FA2, however extensive biodiversity off-setting is still being proposed. This is in excess of the requirements of the PWDP.

Part 2: District-wide matters / Hazards and risks / CL – Contaminated land

21.3.19 Regarding contaminated land, the proposal is consistent with **Objective CL-01** and **Policy CL-P1** in that a CLMP has been provided with the application which allows for the management of historic contaminated soils in FA3.

Part 2: District-wide matters / General district-wide matters / NOISE – Noise

21.3.20 The AEE and expert assessment provided on Noise effects is consistent with **Policy NOISE-P3** in that the predicted levels comply with the noise standards in the PWDP, and hours of operation have been set to appropriate limits. In addition, there are no existing noise sensitive activities in proximity to the subject site.

21.4 Waikato Regional Plan

21.4.1 Objective 2.3.2 – Tangata Whenua relationship with natural and physical resources: Consultation with iwi has been lengthy and it is recognised they need to give effect to kaitiakitanga. Every effort has been made by the applicant to understand and achieve the intent of this objective.

21.4.2 Objective 3.5.2 – Discharges: The assessment in this AEE demonstrates that the proposed discharges will not have adverse effects that are inconsistent with the water management objectives in 3.1.2 or the discharges to land objectives in 5.2.2.

21.4.3 Regionally, it is intended that discharges are managed to ensure an improvement in water quality. In this case, as all flows are to be diverted and held in a stormwater detention pond for treatment before discharge to the natural environment, the goal is to reduce sediment discharge to less than that occurring from natural stormwater runoff. This level of treatment (including chemical) and ongoing monitoring will assist WRC in achieving this objective. In addition, restoring and protecting the potential Compensation Area (Area 4), which includes the protection of indigenous fauna and flora and restoration of flow channels during the rehabilitation phase will provide a level of ecological benefit over the longer term.

21.4.4 Policies 1-7 seek to allow for discharges to water where adverse effects will be no more than minor ore resulting significant erosion or siltation. In this case, effective use of erosion and sediment control strategies can reduce any contaminants discharging into water by up to 95% - thereby minimising any impact on the catchment. Often larger managed discharges have less impact on the environment than smaller discharges, which are not monitored. Some discharge to land is required where the water exits the stormwater pond and travels through rip rap (to slow velocity) before entering the adjacent stream, this further allows for filtering of the water and a controlled discharge. Sustained effort has been made by the applicant to invite tangata whenua to provide input and feedback as guardians of the land.

21.4.5 Objective 3.6.2 – Damming and Diverting: The proposal involves diverting all surface water (including overland flows and streams) and creating a stormwater treatment pond at each site. There is no impact on fish due to the ephemeral/intermittent nature of the flows, and flow on effects because of the diversions allow for water to be treated before being discharged. It is not anticipated that there will be any increase or reduction in stormwater because of the proposed diversions.

21.4.6 The water diversion proposed does not impact on any perennial stream, and Policy 1 (Off-Stream Dams and Dams of Diversions on Ephemeral Streams) allows for diversions on ephemeral streams where there are no adverse effects on surface water bodies, structures in rivers and increase in flooding or erosion on neighbours, (relevant subsections referred to only) – therefore in this case it is considered that the proposed stream diversion is permitted and consistent with the outcomes sought by Policy 1. Regarding Policy 3 it is evident that there are no identified cultural heritage sites either within or in proximity to Fill Areas 2-4.

21.4.7 Objective 5.1.2 – Accelerated Erosion: The Geotechnical and Detailed Design Reports provided indicate that adopting geotechnical methodologies and design to deposit fill on the site will assist with improving the overall stability of the land and thereby enable future use of the land for other rural purposes, such as farming and forestry, or ecological gain by way of land rehabilitation.

21.4.8 Regarding Policies 1-4 (erosion), any risk of downstream sedimentation into watercourses has already been discussed, and methods/ongoing monitoring will provide certainty to WRC/WDC that the soil disturbance and vegetation clearance within the high-risk erosion areas are being managed to ensure adverse effects are minimised or avoided. The quarry, which implements similar ESC systems, has historically demonstrated a proven record of good environmental practice and performance, and a comprehensive suite of draft conditions (**Appendix 19**) can be tailored accordingly to ensure best outcomes are continued.

21.4.9 Objective 5.2.2 – Discharges onto or into land: The discharge of managed fill to land will not contaminate soil that may pose a risk to human health, and the discharge does not consist of waste or hazardous substances.

21.4.10 Policy 1: Low risk discharges onto or into land: The discharge of contaminants of the proposed accepted managed fill is unlikely to result in discharges containing hazardous substances that are environmentally persistent or have high levels of toxic effects. Any impact on water quality/ecosystems and air quality are considered acceptable and where possible have been avoided, remedied and/or mitigated. The proposed waste acceptance criteria are below human health guideline values. The calculated potential discharge concentrations are below ecological guideline values.

21.4.11 Objective 6.1.2 – Regional Land Local Air Management – Objectives 2 and 3: The air discharge associated with the proposed fill operations is of low impact compared to the other dust generating activities in the area.

21.4.12 Policies 1, 4 and 5 (air discharge): The dust from fill materials will likely be light in colour and inert in nature, and therefore in itself is of low offensiveness. The discharges of dust from the activities associated with the proposed fill sites are not expected to result in a significant dust nuisance or health effect relative to applicable air quality guidelines and standards provided the proposed mitigation and monitoring methods as discussed in this report and the FMP are implemented to control dust to an acceptable level. This will enable the fill operations to utilise the Best Practicable Option (BPO) in ensuring air discharge is minimised.

21.4.13 As the proposed fill sites are anticipating accepting asbestos in soil and ACM, a specific Asbestos Fill Management Plan has been developed which includes specific mitigations on managing asbestos. Provided the measures in the AFMP are followed, asbestos is not expected to be an air contaminant.

21.5 Plan Change 1 – Proposed Waikato Regional Plan

21.5.1 The proposed Waikato Regional Plan Change 1[27] (PWRP – Change 1) is applicable to the Waikato and Waipa River catchments and gives effect to the National Policy Statement on Freshwater Management (NPS-FM) and the Vision and Strategy. On 18 March 2020, the recommendations by the Hearings Panel for PWRP – Change 1 were adopted, and the decisions version was notified on 22 April 2020. There are still outstanding appeals, and therefore the plan change is not operative yet.

21.5.2 The purpose of the proposed plan change is to reduce point source and non-point sources of contaminants – nitrogen, phosphorus, sediment, and bacteria - entering waterbodies (including groundwater) within the Waikato and Waipa River catchments. Plan Change 1 is a catchment-specific change to the Waikato Regional Plan. The principal features are to add a new sub-regional chapter 3.11 specifically for the Waikato and Waipa River catchments and make consequential amendments to other chapters of the Waikato Regional Plan.

21.5.3 This application seeks to undertake best practicable options to avoid, remedy and mitigate potential adverse effects of sediment discharges entering the stream network and Waikato River. GMFL offers up (and accepts) that conditions of consent will be imposed, and regular monitoring will be necessary to ensure compliance with these best practicable options. The control measures proposed with this application seek to either meet or exceed Council standards, to ensure that sediment discharge after treatment is at the lowest possible levels and allow for both short term improvements in water quality and long-term restoration and protection of water quality (Objectives 1 and 3). This will be achieved by rehabilitation of Fill Areas 2- 4 once the fill placement is completed, as well as rehabilitation and ecological enhancement of the compensation site offered with this application.

21.5.4 It is considered that the fill material proposed for acceptance (in WAC) generates a low level of contaminant discharge that is treated before being discharged to water, and in addition, the volume of water runoff from the catchment will not alter because of the overburden disposal (Policy 1).

21.5.5 Plan Change 1 allows for activities with lower discharges to continue (Policy 4) – and in this case due to the existing overburden disposal site being completed, results in no cumulative effects within the sub-catchment because of sediment discharge. The enabling of diffuse discharges of sediment in this case, combined with BPO's being applied, allows for the continuing operation of the quarry.

21.5.6 Furthermore, Policy 11 recognises that some point source discharges of sediment to water (or land) provide for the continued operation of regionally significant industry – it is considered that the proposed fill sites will provide a highly engineered disposal facility that will allow responsible waste disposal for regionally significant projects, and therefore reflects the intent of this policy.

[27] *Note: Variation 1 to PC1 is not considered relevant to this application*

21.5.7 Policy 12 again requires that Best Practicable Options are adopted in relation to point source discharge to avoid/mitigate adverse effects, it also allows for offset measures to lessen any residual adverse effects of the discharges. In this case, the Sediment and Erosion report provided demonstrates that the natural annual sediment load will not increase because of the fill operation because the sediment yield from the fill sites after treatment will be slightly less than current natural levels, and therefore any offset measure is not required.

21.5.8 Policy 13 provides additional consideration for point source discharges in relation to water quality targets, including proportional contribution to the overall catchment load, monitoring/upgrades to reduce discharge, future mitigations, and investment into treatment plant processes/contaminant reduction. In this case, the proposed fill areas have relatively a small sub-catchment with a limited lifespan, as the fill capacity is relatively small. The treatment system proposed is designed to reduce discharge of contaminants to less than that generated in the existing environment, from surface runoff. Regular monitoring is proposed to ensure the system operates efficiently.

21.5.9 Policy 17 is met, as the proposal will restore and protect an identified area of wetland (within compensation site) and its surrounding ecosystem, improving its biodiversity value and health over set timeframes (see EMP)

21.5.10 And finally, Policy 19 considers the wider context of the Vision and Strategy – which is addressed below.

21.5.11 Overall, the proposal is consistent with the objectives and policies of Plan Change 1 for the reasons discussed above.

21.6 Waikato Regional Policy Statement (2016)

21.6.1 The Waikato Regional Policy Statement sets out the main resource management issues of the region, and policies and methods to achieve integrated management of the natural and physical resources. The Waikato Regional Policy Statement (RPS) is a high-level broad-based document containing objectives and policies the purpose of which is to provide an overview of the resource management issues of the regional and to achieve integrated management of the natural and physical resources of the Region.

21.6.2 The most relevant parts of the RPS as it relates to this proposal are the following objectives and policies:

21.6.3 Disposal of fill material, as an activity, must be managed in an integrated manner to achieve best outcomes – both economic and environmental. This application considers the interrelationship of the fill operator with the existing water catchment, ecological features and land topography and determines that the activity may be undertaken in a manner that avoids, remedies, and mitigates adverse effects to an acceptable level.

21.6.4 It is considered that GQ have already demonstrated a commitment to working with council for best outcomes and are committed to a collaborative process. In addition, as the managed fill operation is subject to the proposed Site & Fill Management Plan, the submission of this SFMP to council allows for an integrated approach to achieve quality outcomes over the initial consenting stage and over the long-term establishment and operation of the activities on site. (*Objective 3.1 & Policy 4.1).*

21.6.5 The proposed fill sites are considered to potentially be regarded as regionally significant and important for the future development and growth of infrastructure (and associated activities) within the Waikato Region, and therefore the proposal is considered to benefit the local economy, as well as the local community by providing employment and opportunities for sponsorship, scholarships, and such programmes as Gleeson's 'Safety Around Trucks' (in schools) (*Objective 3.2 & Policy 4.4).*

21.6.6 The health and wellbeing of the Waikato River is protected because of stringent sediment and erosion controls, best practicable outcomes and in addition river (waterway) health is improved through proposed mitigation measures in terms of protecting indigenous vegetation, streams and improving pest control. This ensures that Te Ture Whaimana o Te Awa o Waikato (the Vision and Strategy for the Waikato River) is achieved (*Objective 3.4 & Policy 8.3).*

21.6.7 The range of ecosystem services associated with the proposed fill activities are recognised and maintained. All freshwater bodies (including wetlands of significant value) and indigenous vegetation have been identified and potential compensation areas have been assessed and proposed to ensure a net gain where possible. Further the discharges to air will be monitored and mitigated through proposed management measures (*Objective 3.8).*

21.6.8 The role of tāngata whenua as kaitiaki is recognised and provided for, as discussed throughout this report (Objective 3.9).

21.6.9 The proposed discharge from the associated activities is not expected to result in significant dust nuisance, amenity, or health effects subject to use of a water cart to suppress dust where required and implementing the recommended mitigation and monitoring methods (*Objective 3.11 – Air quality & Policy 5.2).*

21.6.10 The stream network to be reclaimed under this application does not consist of any perennial or permanent watercourse. Wetlands have been observed on site, which are afforded some status due to their rarity, however, have been deemed artificial under the NPS-FW. Remaining stream margins will be enhanced and protected from sediment discharge by the stormwater detention pond and ESCP measures, and overland flow networks will be reinstated upon completion of the works. The filling of the gully will enable stabilisation of the land, thereby reducing the risk of natural hazard (erosion/slipping). An alternative area (Compensation Area) has been offered up as compensation, and will, over the long term, improve the riparian and stream network by protecting riparian areas, maintaining indigenous vegetation, and maintaining water and wetland quality (*Objective 3.16 & Policy 8.3*).

21.6.11 Regarding Objective 3.19 and Policy 11.1, the ecological integrity and indigenous biodiversity of the site will, on balance, be improved subsequent to rehabilitation and enhancement of the compensation site.

21.6.12 The gullies identified as Fill Area 2 - 4 are not visible from the road due to existing topography and vegetation cover and therefore any impact on amenity in the surrounding environment is almost non-existent. Parts of Fill Area 3 and 4 is visible from Hillside Heights Road. On completion, the proposed fill areas will reflect the surrounding rolling rural landform of the Waikato environment. In addition, the proposed use for fill disposal is consistent with the receiving environment, being a landscape already impacted by quarrying and fill activities, thereby a degraded amenity is already both visible and anticipated (Objective 3.21).

21.6.13 The activity is considered appropriate use and development for its locality and will not impact on either the Waikato River or associated stream margins due to sufficient separation distances and commitment to best practice erosion and sediment control measures. It is recognised that there are minor adverse ecological related effects, however the restoration of the compensation area will contribute to enhancing natural character values in the immediate locale and wider environment (*Objective 3.22*).

21.6.14 A supporting geotechnical report has been provided which demonstrates that subject to following geotechnical design recommendations, any impact on natural hazard risk from erosion and slope instability is manageable and will not result in adverse environmental outcomes. Detailed engineering design drawings is currently underway and will be submitted once completed to council for review and approval subject to works commencing (*Objective 3.24 & Policy 13.2*).

21.6.15 The soil resource within the gully is not considered productive land (for farming or horticultural activities) due to the steep nature of the slopes, and therefore the overburden/managed fill disposal does not result in any impact on or loss of productive land (*Objective 3.25*).

21.6.16 Overall, it is considered that application to deposit overburden and managed fill within Fill Areas 2-4 is consistent with the objectives and policies of the RPS.

21.7 Te Ture Whaimana o Te Awa o Waikato - Vision & Strategy for the Waikato River

21.7.1 The Vision and Strategy is the primary direction-setting document for the Waikato and Waipa Rivers and their catchments, and under the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010 and Nga Wai o Maniapoto (Waipa River) Act 2012 the Vision and Strategy is deemed to be part of the Regional Policy Statement in its entirety.

21.7.2 The Vision and Strategy is given effect through the plans administered by Regional and territorial authorities along the river. The settlement also provides for joint management agreements between Waikato-Tainui and the local authorities; participation in river-related resource consent decision-making; recognition of a Waikato-Tainui Environmental Plan provision for regulations relating to fisheries and other matters managed under conservation legislation and an integrated river management plan.

21.7.3 The Vision and Strategy objectives are included in section 2.5.2 of the RPS and represent a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River or threaten serious or irreversible damage.

21.7.4 The letter of opposition received from Waahi Whaanui Trust states that: *"The opposition is based on risks/issues associated with discharging contaminants into the tributary in Fill Area 3 and ultimately to the receiving water body of our Awa Tupuna Waikato River. This in turn compromises the long-term objective of Te Ture Whaimana for the health and wellbeing of the Waikato River…"*

21.7.5 In this case, the methodologies and treatments proposed for effects related to sediment and contaminants runoff into tributaries of the river demonstrate that there are no significant adverse effects – in fact:

- Sediment discharge levels should decrease overall due to the treatment pond, subject to regular monitoring and maintenance.
- The WAC Report determined that any discharge is highly unlikely to pose a risk to the surface water quality and ecological life of the Waikato River and adverse effects are less than minor on this waterbody.
- In addition, cumulative effects are not triggered, as previously discussed. The quarry has existed and operated for over 50 years with minimal impact on water quality in the Waikato River, which Council monitoring records will confirm.
- Furthermore, the applicant has offered to restore, enhance and covenant a substantial 3.9ha gully including regenerating indigenous vegetation, wetland and stream habitat on their adjoining farm in order to offset, mitigate and provide a 'net gain' back to the catchment.

21.7.6 It is considered that every effort has been made to avoid/remedy/mitigate adverse effects on the Waikato River, as well as provide betterment back to the catchment, and therefore to work with WWT to achieve the objectives of the Vision and Strategy for the Waikato River.

21.7.7 The Vision and Strategy is further discussed below in the context of the relevant River Settlement Act.

21.8 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

21.8.1 The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 was enacted in May 2010 with the purpose of implementing co-management of the Waikato River. The overarching purpose of the Act is to restore and protect the health and wellbeing of the Waikato River for future generations. Through this piece of legislation, it is intended to implement the 'Vision and Strategy' for the River.

21.8.2 The subject site is within the Waikato River Catchment. This application and supporting documents have proposed appropriate sediment and erosion control measures and a robust Fill Management Plan to ensure sediment and contaminants do not enter the tributaries that flow to the Waikato River. As a result, it is considered that the activity will be undertaken in such a way that ensures there is a less than minor adverse effect on the Waikato River and its catchments.

21.8.3 Regarding achieving some level of betterment that is proportionate to the level of effects generated by the proposal, it is proposed to permanently protect an identified gully on the adjacent farm which has been shown to contain wetland areas, stream, and bush habitat. The identified area is discussed in the appended report and EMP by Wildlands, and will be permanently retired from farming, fenced, undergo weed and pest management and enhancement planting. This mitigation not only offsets the loss of ecological values within the fill areas but provides additional habitat which will be protected in perpetuity by way of a private covenant on the title.

21.8.4 Extensive consultation has been undertaken with Waahi Wharanui Trust, as mana whenua, both through several hui with marae representatives and with the Trust's appointed liaison consultant, Mr Norm Hill. Over the past two years, no major concerns with impact on Iwi values (over and above those considered in this assessment) were raised with the applicant. In fact, most communications were positive and directed towards achieving a collaborative approach.

21.8.5 As a result of the consultation to date and acceptance of any reasonable consent conditions regarding the Waikato River Catchment that provide for mitigation of effects and betterment, the proposed activity is considered to be, to the best of our knowledge, consistent with the relevant provisions of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act and its Vision and Strategy.

21.9 Waikato-Tainui Environmental Plan (Tai Tumu Tai Pari Tai Ao)

21.9.1 The above plan was lodged with Waikato Regional Council on 6th September 2013. The purpose of the plan is 'to provide a map or pathway that will return the Waikato-Tainui rohe to the modern-day equivalent of the environmental state that it was in when Kiingi Taawhiao composed his maimai aroha'. The plan sets out the overarching position of Waikato-Tainui on the environment and seeks to describe and develop a consistent and integrated approach to environmental management, providing tools via a framework and mechanisms to see the restoration of the natural environment that enhance mana whakahaere and kaitiakitanga.

21.9.2 It is presented that this application has been assessed in relation to the WaikatoTainui-Environmental Plan (WTEP), but a detailed 'policy by policy' analysis is not presented in this report, largely since the WTEP covers essentially the same subject matter, and seeks very similar outcomes, as the policy and planning documents assessed in the previous sections of this report.

National Policy Statement on Freshwater Management (NPS-FM)

21.10 In regard to stream-works consent as a discretionary activity under Regulation 57 of the NES-FW:

21.10.1 The NPS-FM provides a nationally consistent framework for the management of New Zealand's freshwater resource. Objectives of the NPSFM centre on recognising the national significance of freshwater and the Te Mana o te Wai (the mana of the water). The NPS-FM is applicable to the proposed managed fill application in relation to the ephemeral/intermittent streams that have been identified in the fill areas; and discharges to freshwater bodies (Waikato River and Lake Puketirini). The managed fill activity will require the filling of and/or modification of existing ephemeral/intermittent streams.

21.10.2 It is acknowledged that there will be loss of instream habitat due to the reclamation and infilling of the ephemeral and intermittent watercourses, however their value has been assessed as low, with Boffa Miskell's ecology team confirming that the overall stream ecological habitat is limited in diversity and range of species (Objective 2.1 (a) including Policy 3,4,5 and 6).

21.10.3 Policy 1 (Section 3.7.3) of the Waikato Regional Plan controls the land drainage in areas adjacent to identified wetlands and within wetlands. The NPS-FW implements a mitigation hierarchy where the first step is to avoid, and where this is not possible, then remediation, mitigation and compensation will follow. In appraising the land for suitable fill sites, it was determined to avoid every gully on the farm that was identified as being within a Significant Natural Area (WDP). Fill Areas 2-4 were chosen for (a) their proximity to the quarry; and (b) the low ecological values and small areas of artificial wetland affected.

21.10.4 However, as the inherent design of a proposed managed fill activity is to 'fill' gullies (using the existing gully slopes to assist with stabilising the fill), avoiding the reclamation of streams and overland flows was not feasible, and therefore both mitigation and compensation measures were adopted.

21.10.5 The identified ecological loss of ephemeral/intermittent stream is offset by riparian restoration & permanent protection of 850 metres of stream in addition to 6000m² of wetland and wetland buffering planting. This is a total ecological mitigation/betterment package of circa 3.9ha. This provides holistic ecological improvements and protection that benefit the health and well-being of the associated freshwater system, from the headwaters of the stream, and downstream towards Lake Waahi and Lake Puketirini.

21.10.6 Due to the nature of works, the fill areas have the potential to impact on the quality of water discharged from the site. The proposed works will be undertaken with appropriate erosion and sediment controls in place to protect the quality of freshwater. The operation of the sediment retention ponds will remove 95% dissolved and total metals from the discharge. It is likely that the stormwater treatment system will improve the water quality currently being discharged from the site. Once fill operations have ceased reinstatement of the fill area will reduce sediment discharge from the site, while the sediment retention ponds can be naturalised and planted, providing additional filtering and treatment on an ongoing basis (*Objective 2.1 (b) including Policy 12,13 and 14*).

21.10.7 Based upon the result of risk-based monitoring and water quality testing undertaken it is highly unlikely that the discharge from Fill Area 2 will adversely impact the recreational water quality in Lake Puketirini. Further, no discharge from the site will adversely impact the health of people who utilise the Waikato River.

21.10.8 As previously discussed, the WDC Waste Management and Minimisation Plan (WMMP) outlines the potential issues of increased quantities of construction and demolition waste anticipated from the 'Future Demand'. The proposed managed fill areas are appropriately located to receive a mix of overburden and managed fill materials to meet district and regional demands of the construction industry and associated economic growth (*Objective 2.1 (c) including Policy 11 and 15*).

21.11 In regard to Regulation 53(c) the discharge of water within 100m setback from a natural inland (induced) wetland as a non-complying activity:

21.11.1 The objectives and policies below also encompass the hierarchy of obligations within the NPS_FW.

Objective 2.1 (a) Health and well-being of water bodies and freshwater ecosystems (including Policy 3,4,5 and 6)

21.11.2 The discharges as proposed do not result in any loss of extent of natural inland wetlands. The existing values of these wetlands are protected as surface and groundwater flows from the managed fill and discharge points do not recharge these wetlands, and while there is no intent to restore them (due to their small, isolated and induced characteristics), large areas of natural inland wetlands are being restored and enhanced within the compensation area – involving circa 6000m² of wetland within a 3.9ha indigenous ecosystem, which will be covenanted and protected in perpetuity.

21.11.3 In addition, the deep drainage proposed in FA3 may assist in improving the local freshwater ecosystem, as this water will now be treated before discharging back into the same catchment.

Objective 2.1 (b) Health needs of the people, such as drinking water (including Policy 12,13 and 14)

21.11.4 Due to the type of activities proposed, the fill areas have the potential to impact on the quality of water discharged from the site. The proposed works will be undertaken with appropriate erosion and sediment controls in place to protect the quality of freshwater. The operation of the sediment retention ponds will remove 95% dissolved and total metals from the discharge. It is possible that the stormwater treatment system will improve the water quality currently being discharged naturally from the site. Ongoing monitoring and compliance as laid out in the Fill Management Plan and other supporting management plans (such as an Adaptive Management Plan) allow for the proposal to respond to water quality testing results quickly and apply the most up to date methods to improve water quality at the point of discharge as best possible. Based on the above, no discharge from the site will adversely impact the health of the surrounding people.

Objective 2.1 (c) Ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future (including Policy 11 and 15).

21.11.5 The proposed managed fill areas are appropriately located to receive a mix of overburden and managed fill materials in order to meet district and regional demands of the construction industry and associated economic growth. The NPS-FM 2020 Policy 6 requires that "there is no further loss of extent of natural inland wetlands…" The proposed managed fill does not result in the loss of any natural inland wetlands, and therefore upholds this policy.

21.11.6 It is considered (on balance) that the development of the subject site to allow for the establishment and operation of a managed fill site that will be able to accommodate for the future growth and waste demand of the region without any loss of natural inland wetlands is appropriate, and consistent with the direction of the NPS-FM. The proposed compensation and restoration of 4ha of bush, stream and wetland will, in the long term, provide better (and more sustainable) opportunity for regeneration of natural inland wetland areas.

21.12 National Environmental Standards for Assessing & Managing Contaminants in Soil to Protect Human Health Regulations 2011 (NES-CS)

21.12.1 Due to the historic mine tailings in FA3, the applicant commissioned both a Preliminary and Detailed Site Investigation (PSI/DSI) to determine if consent was required under the NES-CS.

21.12.2 Soil sample analysis from the PSI/DSI investigation by EHS Support reported inorganic elements at levels above the published background concentrations but well below the Soil Contaminant Standards (SCS) for commercial/industrial end use. Accordingly, a controlled activity consent is required under Regulation 9 of the NES-CS for the proposed soil disturbance activity.

21.12.3 The DSI recommended a Contaminated Site Management plan (CSMP) be prepared to ensure that potential human health and environmental risks associated with residual contamination are mitigated during the proposed development works. This has been completed and is attached in **Appendix 10**. The Environmental Health Officer at WDC has already reviewed and accepted this management plan as mitigation for any potential contaminated soil effects.

21.12.4 The CSMP documents soil management, reuse and disposal requirements and outline contingency measures if unexpected sources of contamination are encountered during earthworks. Trace element data indicated that arsenic, boron, cobalt, nickel, and zinc may exceed Waikato Background levels (Moore, 2005) (Waikato Regional Council, 2019).

21.12.5 Any risk to human health on site is considered low due to workers predominantly being located inside earthmoving equipment with little direct exposure to soil, measures to control dust and good health and safety practices, and the fact that while the concentration of contaminants may be above background levels, they are still significantly lower than commercial or industrial outdoor worker contaminant standards.

21.13 National Policy Statement on Electricity Transmission (NPSET)

21.13.1 The NPSET (2008) sets out objectives and policies to enable the management of the effects of the electricity transmission network, including any constraints by the adverse environmental impact of third-party activities.

21.13.2 The primary objective of the NPSET (in part) seeks to manage adverse effects of other activities on the existing network. Policies 10 and 11 require that reverse sensitivity effects on the electricity transmission network are avoided and that the network is not compromised. Buffer corridors are determined to ensure any sensitive activities will be located outside of any buffer.

21.13.3 In this case, GQ have consulted with Transpower, who have confirmed that the works as proposed are acceptable and have provided written approval.

22 S104D Gateway Test

22.1 When dealing with non-complying activities, before granting an application a council must be satisfied that either the adverse effects of the activity on the environment will be minor (s104D(1)(a)), or the proposed activity will not be contrary to the objectives and policies of a proposed plan and/or plan (s104D(1)(b)).

22.2 The proposal satisfies the threshold test of s104D because the adverse effects on the environment will be no more than minor and the proposal will not be contrary to the objectives and policies of the Waikato Regional Plan, the Operative Waikato District Plan, the Decisions Version of the Proposed Waikato District Plan and the National Policy Statement for Freshwater Management, as discussed in this assessment and supporting expert reports. Specifically:

- The geotechnical assessments conclude that the proposed fill sites will not unduly impact the existing area in terms of land stability subject to appropriate specific design and careful construction monitoring. Implementation of all recommendations given to maintain the stability of the existing and future fill slopes at the proposed fill sites ensure that any potential effects on land stability arising from the disposal of overburden and managed fill material in the identified gullies will be no more than minor; and
- The erosion and sediment control reports and plans demonstrate that the managed fill activity will have less than minor adverse erosion or sediment related effects on the environment subject to compliance with expert recommendations and best practicable options; and
- The methodology of importing and deposition managed fill, the Waste Acceptance Criteria, the pretesting and pre-approval of fill material, the additional on-site testing for contaminants (including asbestos and acid sulphate soils) demonstrates sufficient avoidance, remediation, and mitigation to ensure potential adverse effects of contamination on land/water will be no more than minor; and
- It is unlikely there will be any exceedance of air quality assessment criteria beyond the site boundary or any adverse effect related to dust beyond the boundary; and
- The Traffic Impact Assessment determines that traffic effects are considered to be less than minor; and
- The ecological compensation proposed (and underway) mitigates for the loss of vegetation, wetland, stream and faunal habitat in FA's 2, 3 and 4 within the site, and potential adverse effects on ecological values beyond the site will be no more than minor as a result of water quality treatment, testing and monitoring, geographical distance from SNA's and natural wetlands on the wider site and neighbouring sites, and the directional flows of groundwater and surface water; and
- The visual landscape assessment concludes that the project will have less than minor landscape and visual effects, particularly in relation to the rural character and quality of the site and the surrounds; and

- The noise assessment concludes that predicted noise levels (both from the managed fill and cumulatively with the quarry) are within permitted levels and below the existing measured background noise environment, resulting in adverse effects that are less than minor; and
- There is no adverse effects on any identified archaeological/cultural heritage site of value or significance; and
- The proposed fill in FA4 will have less than minor effects on the Transpower infrastructure; and
- Potential adverse cumulative effects, particularly in regard to traffic movements, dust, noise and additive effects related to proposed sediment and erosion controls and discharge of contaminants combined with existing discharges from the quarry, will be no more than minor.

22.3 In regard to objectives and policies of the relevant plans:

- A summary of whether the proposal is consistent with the objectives and policies of district, regional and national legislative documents is provided earlier in this report, and on balance, considered that the proposal met this gateway test.
- Under the district plan(s), the managed fill activity provides support to an existing consented quarry operation, while continuing to avoid, remedy and/or mitigate adverse effects. Overall, while there is a loss of features that have some ecological value of significance (due to the scarcity of wetland habitat), the compensation area enhances a more suitably located ecosystem with better potential and opportunities for enhancement within an identified SNA – therefore while the proposal may be contrary to Objective 2.2.1 of the WDP, it is consistent with Policy 2.2.2 in this regard.
- In addition, the proposal is outside any identified landscape of value (natural features or significance), has no natural hazard overlay, and utilises recognised and reliable ESC design and monitoring to protect the health and well-being of the Waikato River catchment.
- Objectives and policies relating to the amenity values of the receiving environment are upheld in that effects such as noise, dust and traffic have been minimised and generally comply with the standards in the plan(s).
- Summarising the Waikato Regional Plan (including PC1) objectives and policies, the activities proposed are considered, on balance, to be more consistent than not with the direction these set.
- Any effects on air are negligible subject to ongoing compliance with air management plans (which the quarry have adhered to for years) with negligible adverse effects from dust beyond the property boundary or at a level that would present a more than minor threat to the health of humans, flora and fauna.

- The proposed discharges to land and water are controlled by restricting the level of contaminants accepted to site, installing best practice erosion and sediment control systems, regular monitoring and testing at the entrance to the fill site, within the fill area, at the point of discharge from SRP's and at identified points upstream and downstream (where possible) to determine compliance and adjust treatments and systems where needed. The activities will not noticeably increase or reduce stormwater flows within the catchment, and while there is some recognised loss of 'significant' wetland habitat, there is no loss of permanent streams, and the proposed compensation site provides holistic restoration and protection of an identified SNA.
- The activities proposed are consistent with the Waikato Regional Policy Statement, particularly in that the Site and Fill Management Plan allows an integrated approach to achieve best outcomes for the environment, based on the existing water catchment, ecological features and land topography, seeking to avoid/remedy/mitigate adverse effects to an acceptable level. The managed fill activity is important to the wider growth of the Waikato Region, and to the local economy. The proposal identifies all ecological features, and where these cannot be avoided, provides adequate compensation to mitigate their loss, and restoration to ensure a net gain back to the catchment. Consultation with Iwi has been ongoing and thorough.
- In regard to the Vision and Strategy for the Waikato River, it is acknowledged that Waahi Whaanui Trust consider the risk associated with discharging contaminants into a tributary (and ultimately the Waikato River) compromises the long-term objective for the health and wellbeing of the River. Respectfully, adopting best practice ESC methods and treatments may see an overall reduction of sediment into the receiving environment, and the WAC report determines that any discharge of contaminants is highly unlikely to pose a rsik to the surface water quality and ecological life of the Waikato River (and Lake Puketirini), with adverse effects being assessed as less than minor.
- In addition and in recognition of Iwi consultation to date (and acceptance of any reasonable consent conditions regarding the Waikato River Catchment that provide for mitigation of effects and betterment), the proposed activity is considered to be, to the best of our knowledge, consistent with the relevant provisions of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act and its Vision and Strategy.
- In regard to the objectives and policies of the NPS-FW, the discharge does not result in the loss of any natural inland wetland, and does not recharge the wetland areas, therefore the existing health and wellbeing of the wetland areas remains intact. The proposal considers the potential impacts on freshwater on a whole-of-catchment basis, providing best practice water treatment devices, a suite of monitoring and compliance measures and restoration of natural wetland areas within a nearby identified SNA.

- Information on water quality will be regularly reported to Council, utilising adaptive management and other management plans (as submitted) to improve results where possible. There is no adverse effect on the health needs of people from the proposed discharge, and there is no loss of natural wetland as a result of the discharge (or proposal). The activities are in response to a regional economic and social need to provide for the deposition of managed fill, which in turn allows for infrastructure creation and enables new housing areas to be established, without adversely impacting any natural inland wetland.
- Due to the nature of works, the fill areas have the potential to impact on the quality of water discharged from the site. The proposed works will be undertaken with appropriate erosion and sediment controls in place to protect the quality of freshwater. The operation of the sediment retention ponds will remove 95% dissolved and total metals from the discharge. It is likely that the stormwater treatment system will improve the water quality currently being discharged from the site.
- Based upon the result of risk-based monitoring and water quality testing undertaken it is highly unlikely that the discharge from Fill Area 2 will adversely impact the recreational water quality in Lake Puketirini. Further, no discharge from the site will adversely impact the health of people who utilise the Waikato River.
- The WDC Waste Management and Minimisation Plan (WMMP) outlines the potential issues of increased quantities of construction and demolition waste anticipated from the 'Future Demand'. The proposed managed fill areas are appropriately located to receive a mix of overburden and managed fill materials to meet district and regional demands of the construction industry and associated economic growth (Objective 2.1 (c) including Policy 11 and 15).
- Overall, the proposed managed fill activities are consistent with the relevant objectives and policies of the relevant legislation and therefore meet this limb of the RMA s104D threshold test.

23 OTHER RELEVANT SECTIONS OF THE RMA

23.1 Monitoring - s35/s108(4)

23.1.1 The draft suite of conditions proffered with this application have been formulated in liaison with WRC and combined with the Management Plans **(Appendix 6)** provide an extensive monitoring and compliance programme. All erosion and sediment control measures will be inspected on a regular basis. Site monitoring will also be undertaken before and immediately after rain as well as during heavy rain events. Any required maintenance or improvements to control measures will be undertaken. All erosion and sediment control measures will be maintained in accordance with best practice guidelines and the relevant conditions of consent.

23.1.2 Some of the more key monitoring measures proposed with this application include:

- Pre-Testing of managed fill before it arrives on site. Testing of fill material will ensure prohibited contaminants do not arrive on site. Testing is done by trained staff and sent to independent laboratories.
- When trucks arrive to site, they are logged, weighed, visually inspected, with random loads being screened with X-Ray. Loads that FAIL are rejected and either tested further or sent to Hampton Downs. Additional tests are done on arrival to site (every 500m³, + random testing + annual audit).
- Synthetic Precipitation Leaching Procedure (SPLP) testing will be undertaken on soils that contain elevated zinc levels, as well as boron, lead, and nickel (where triggers are exceeded). This is an additional test to safeguard from leachability.
- Regular on-site monitoring by geotechnical engineer to check slope stability.
- Sediment & retention ponds are monitored daily and regularly de-silted when it is no more than 20% full. The sediment removed goes back into the fill area.
- A monitoring and compliance team will be appointed, with an overall supervisor who will work at least part-time from the quarry/fill offices should consent be granted.

23.2 Matters relevant to discharge permits – s105

23.2.1 The proposal requires a consent to discharge contaminants under s15. Under section 105, the council must have regard to additional matters for any application for a discharge permit that would contravene s15 of the RMA. The proposal is considered to satisfy the matters set out in s105 because:

- During the preparation works and operation stage, best practice erosion and sediment control measures will be implemented.
- The ESCP as lodged with this application includes runoff diversion bunds or channels to divert off site runoff, and a sediment retention pond located at the bottom end of the fill site to retain and treat site runoff.

- The pond will be constructed and maintained in accordance with the council erosion and sediment control guideline (Technical Report 2009/02).
- A rainfall initiated chemical treatment system is also being proposed to supplement the treatment of the sedimentation retention pond that will assist with the quality of water that is discharged from the fill area.
- The above measures represent best practicable option (BPO) and mitigate adverse effects as required by Waikato Regional Plan Change 1, and an appropriately qualified expert has confirmed that: *The effects of these controls will be to reduce the level of sediment discharged from the activity after treatment to the lowest possible levels.*
- The proposed Waste Acceptance criteria limits/parameters have been assessed accordingly and the calculated potential discharge concentrations are below ecological and human health guideline values.

23.2.2 The provisions of s105 have therefore been met (subject to appropriate conditions of consent) to ensure there is no significant adverse effect on the receiving environment. The proposed waste acceptance criteria and measures to collect and treat sediment laden water are considered appropriate in the circumstances and there are no practical alternative methods of discharge applicable in this case.

23.3 Restrictions on discharge permits – s107

23.3.1 The adverse effects of the discharge of contaminants have been assessed above. The assessment found that the discharge is not likely to result in any of the effects identified in s107(c)-(g).

23.4 Duration of resource consents – s123

23.4.1 It is requested that a maximum period of 35 years be applied to all regional consents. The reason for this is as follows:

- Should the gullies not be utilised for the deposition of managed fill (due to lack of demand), these gullies should be available for long-term use by the quarry for overburden disposal. The quarry extraction has a land-use consent (which does not expire), permitting the extraction of all aggregate reserves within the Payne Block, which could take a further 50 years to extract.
- Therefore, the estimated 'life' of the managed fill activity is based on the annual rate of deposition ***not*** being maximised. In addition, time must be allowed for both initial site works and the site closure and rehabilitation activity.
- A 35-year duration is considered appropriate given there are no more than minor effects and the site will be subject to the agreed requirements of the Fill Management Plan in addition to a robust monitoring program.
- Further, it is considered that this duration is generally consistent with the Regional Council guidelines (and Plan Change 1) for consent durations for the types of activity proposed and will allow for the completion of the filling and the rehabilitation of the land.

23.5 Lapsing of resource consents – s125

Under s125, if a resource consent is not given effect to within five years of the date of the commencement (or any other time as specified) it lapses automatically unless the council has granted an extension. In this case, five years is considered appropriate to 'give effect to' the consent.

24 PART 2 OF THE RMA

24.1 Introduction

24.1.1 Part 2 of the RMA sets out the purpose (Section 5) and principles (Sections 6-8) of the RMA. It is noted that the Waikato-Tainui Environmental Plan is a relevant planning document of relevance to Maaori in relation to Sections 6-8 and has been addressed separately above.

24.2 Section 5 of the RMA

24.2.1 Section 5 focuses on the sustainable management of natural and physical resources and further details what is meant by sustainable management of natural and physical resources but specifically excludes minerals from this description.

24.2.2 It is considered that the granting of these consents will provide for the sustainable management of the Gleeson Quarry and provide for efficient long-term extraction and use of the mineral resource for the regions and surrounding areas. In particular:

- Section 5(2)(a) provides for mineral extraction outside of the requirement of the Act for sustainable management.
- The life-supporting capacity for air, water, soil and ecosystems is guarded by following best practice guidelines.
- Adverse effects relating to sediment runoff, contaminated discharges to land and water, vegetation removal, natural hazards and water quality have been appropriately avoided, remedied and/or mitigated.

24.3 Section 6

24.3.1 Section 6 of the RMA highlights the matters of national importance that needs to be taken into consideration. The following “matters of national importance” have been identified as relevant to this proposed variation application:

- 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.
- The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.
- The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

24.3.2 The existing quarry, associated activities and proposed managed fill activities are considered an appropriate and anticipated use of the site, and any adverse effects on the natural character values of the water resources have been shown to be appropriately avoided, remedied or mitigated, with no additional impact on, in particular, the Waikato River and Lake Puketirini.

24.3.3 The managed fill operation will not affect any outstanding natural features, outstanding landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna.

24.3.4 In addition, there is not considered to be any detrimental impact on the relationship of Māori with their ancestral lands, water, sites, waahi tapu, and other taonga (s.6(e)) of the RMA. The proposal is therefore consistent with section.6 of the RMA.

24.4 Section 7

24.4.1 Section 7 of the RMA details "Other Matters" that needs to be taken into consideration for the managing, use, development, and protection of natural and physical resources. The following "Other Matters" have been identified as relevant to the application:

- Kaitiakitanga.
- The ethic of stewardship.
- The efficient use and development of natural and physical resources.
- The maintenance and enhancement of amenity values.
- Maintenance and enhancement of the quality of the environment.
- Any finite characteristics of natural and physical resources.

24.4.2 The proposed overburden disposal will assist in the on-going and efficient extraction of a longstanding and established aggregate resource and will embed the principle of stewardship as it will enable GQ site to meet the demands for the resource within the Waikato and Auckland Regions. The proposed overburden disposal is an activity directly associated with quarrying activity. In addition, rehabilitation of the final landform will allow for the future use of the land resource for either farming and/or forestry. The introduction of importation and deposition of managed fill is to be carefully managed (as per the Fill Management Plan submitted) - which demonstrates stewardship – to ensure the existing quality of the surrounding environment is not permanently degraded. In addition, sufficient ecological mitigation is offered to offset the loss of habitat within the identified fill gullies.

24.4.3 The effects on amenity of residential properties adjacent to Fill Areas 2-4 (which are limited) have been considered. Any impact on amenity values is less than minor due to the gullies being largely invisible from neighbouring properties, the operations ability to comply with noise and dust standards, and the treatment of contaminated water before discharging into adjacent watercourses. Furthermore, geotechnical design ensures that any risk to instability or erosion leading to sediment impacts on adjoining sites have been mitigated. Overall, the proposal is consistent with section 7 of the RMA.

24.5 Section 8

24.5.1 Section 8 of the RMA requires the use, development, and protection of natural and physical resources to consider the principles of the Treaty of Waitangi. It is understood that the previous applications for overburden disposal/regional consents were not opposed by Iwi, however as this application introduces additional activities of a sensitive nature (being deposition of managed fill and asbestos, consultation outcomes have resulted in Waahi Whaanui Trust opposing the application. However, it is considered that the proposed fill operation will not impact on the Iwi in exercising their functions and powers under the Treaty, as the application is being lodged with WDC/WRC requesting it be publicly notified and therefore allowing WWT to exercise their functions and powers under the RMA notification process.

25 CONCLUSION

25.1.1 All activities required to establish and operate a managed fill on the subject site have been assessed in terms of the Waikato Regional Plan and Waikato District Plan(s) and relevant National Standards and overall adverse effects are determined to be no more than minor. It is noted that Waahi Whaanui Trust (as mana whenua) consider themselves an affected party and oppose the application.

25.1.2 The activities proposed have been assessed against the relevant statutory documents and found to be consistent with the underlying principals and objectives and policies of these documents.

25.1.3 An assessment in terms of Part 2 of the RMA concluded that the proposal is consistent with the purpose and principles of the Act.

25.1.4 Despite the above assessment GMFL request that under s95A(3)(a) the resource consents sought be **publicly notified.**