

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of a resource consent Application by GBC Winstone to Whangarei District Council for land use consents for its Pegram Overburden Disposal Area.

**STATEMENT OF EVIDENCE OF
CHRISTOPHER KEITH EDMONDS
ON BEHALF OF GBC WINSTONE AGGREGATES**

MAY IT PLEASE THE HEARING PANEL:**INTRODUCTION****Qualifications**

1. My full name Christopher Keith Edmonds. I am employed by GBC Winstone ("**GBC Winstone**") as the Northern Operations Manager, a position I have held since 2010. I have over 20 years' experience in similar roles in New Zealand and 31 years' experience in the quarry industry.

Background

2. I am responsible for GBC Winstone's Northern operations, including Otaika Quarry and I have visited the Otaika Quarry and Pegram project site on numerous occasions. My involvement in the resource consent process to date has been to provide Operational input, assistance with consultation, site safety and financial.
3. I have overarching responsibility for GBC Winstone application for the establishment, operation, maintenance and eventual closure of the overburden disposal area on the Pegram Block ("the Overburden Disposal Area"). I am authorised to give this evidence on behalf of GBC Winstone.

The Need for Aggregate

4. Although aggregate is a commodity upon which everyone depends, the importance of aggregate resources to district and regional economies are not always fully appreciated. The aggregates industry provides a number of economic, social and environmental benefits to the community. Quarried products are essential to roading, construction and other infrastructure. They are also extensively used in manufacturing, including ready-mixed and asphaltic concrete, pre-cast concrete beams and panels, masonry, pavers, pipes and other products.
5. There are a substantial number of construction projects currently underway in the Northland Region and environs, which require considerable volumes of aggregate are:

- a. State Highway upgrade at Akerama (just about complete);
 - b. Rehabilitation of Kokopu/Pipiwai Roads (complete);
 - c. Upgrade of State Highway 1 (through Whangarei to Puhoi. Tawera Road - now under construction);
 - d. State Highway 15 to Marsden Point (waiting tender);
 - e. Supplying sealing chip (high grade product) as far as Kumeu; and Kerikeri
 - f. Roothing products consume 50% of product produced; and
 - g. Building and construction – concrete aggregates (now consuming 30% of product produced).
6. Nationally, over half the aggregate produced is used on roads and a further 21% is used to construct commercial and residential buildings. A unique characteristic of the aggregate market is that the vast majority (75%) of annual production is sold to and used by local authorities.¹ Local authorities stand to be the most affected by any price increase as a result of uncertainty of supply or higher transportation costs.
7. The relatively high costs of transporting heavy aggregates or bulky rock means that the needs of a community for aggregates are best served when quarries are located close to where that material is used. For example, Otaika Quarry is a very significant source of aggregate for Whangarei (supplying approximately 80%) due to its close proximity to State Highway 1.
8. It is important to note that aggregates (like all minerals) must be quarried where they lie. Unlike many other activities quarrying (and associated activities such as overburden disposal) are unique in that they cannot be shifted to a more convenient location. District Councils need to make allowance for these activities in order to provide for growth.

¹ According to the Aggregate and Quarry Association New Zealand.

The demand for Aggregates

9. Aggregate demand is essentially driven by population growth and infrastructure development and maintenance, both of which Whangarei is currently experiencing at unprecedented levels. To provide for this growth, a sustained supply of aggregate will not only be required to provide for building, construction and roading projects associated with this growth, but will also be needed to maintain and redevelop existing infrastructure, which is key to unlocking regional economic potential.
10. At present, what I would call base demand of the regional market for aggregate is of the order of 6.51 tonnes per capita annually (based on the figures from the 2013 Census and resource data from *“New Zealand Coal, Industrial Minerals and Metallic Minerals Production Survey.”* This is slightly above the national average of 6.5 tonne per capita. Based on 2013 census, Whangarei District had an estimated population of 76,995,² and Northland Region a population of 151,692³ this works out at an annual district demand of approximately 500,467.5 tonnes and a Regional demand of approximately 985,998 tonnes. In Otaika Quarry provides a large amount of this aggregate, for example, in 2016 Otaika Quarry supplied 608,000 tonnes and we are currently heading for 700,000-tonnes this year.
11. By 2031, the population in the district is expected to increase by 2.6%⁴ and Northland Region is predicted to increase by approximately 20%⁵ which would result in further increase in demand for aggregates in the district and wider region within the lifetime of the consents sought.
12. These figures do not allow for any significant demand spikes created by major infrastructure projects such as the Roads of National Significance, which could increase demand by a further 1.0 -1.5 tonne per capita during periods of growth (as reflected in the national average). The Northland region is expected to experience a sustained period of infrastructure growth for many years ahead. We expect regional demand for rock and concrete to rise,

²http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=13068&tabname=

³http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=13068&tabname=

⁴ WDC website.

⁵ Source: Providing Solid Foundations for New Zealand; the Aggregate and Quarry Association of New Zealand; Undated.

based on the large roading and construction projects like the Puhoi to Whangarei State Highway 1 upgrade which will result in district wide benefits.

OTAIKA QUARRY

13. GBC Winstone's Otaika Quarry, located south of Whangarei (**see Appendix 1**) is the largest rock quarry in the Northland region. The quarry has been in operation since the 1950s and has been owned and operated by Winstone Aggregates since 1964. Otaika Quarry produces a variety of coarse and fine aggregate for the production of asphalt and concrete products and for the use in roading applications.
14. The life expectancy of the Otaika Quarry site at the present level of aggregate production is estimated to be approximately 100 years of available resource (subject to further consents), with levels of production being at 400,000m³ per year. This amounts to approximately 80% of the rock aggregates being produced in the Whangarei District. It is expected that levels of production will increase gradually over time in response to market demand for aggregate, fueled by infrastructure and growth projects such as roads and housing.
15. Otaika's scale and location in terms of proximity to Whangarei and State Highway 1 means the quarry represents a regionally significant aggregate resource. The aggregate is used throughout the Northland and Auckland regions in construction (roading, building, and concrete production) as well as in the surrounding rural areas for farm races, tracking etc.
16. The rock resource from Otaika is a greywacke deposit. It is of sufficient quality to produce high quality roading and building aggregates. The physical properties of the rock meet the necessary requirements for production of a full range of aggregates, including concrete aggregates and road sealing chip.
17. Manufactured products from aggregate include ready –mixed asphaltic concrete, pre cast concrete beams and panel, masonry, pavers, pipes and riprap.
18. The bulk of these products are used to construct and maintain roads, port or airport facilities, rail, hospitals, schools, homes, factories, farms or other significant structure. The average family home for example consumes about

250 tonnes of aggregate (around eight truck and trailer loads) and 4,000 tonnes of aggregate into every 2km of road.

19. The quarry's products also provide downstream employment for a great number of people as detailed in the evidence of Mr Copeland.
20. Otaika Quarry employs 14-18 FTE staff and 5-6 contractors depending on the market demand and has an estimated annual spend figure in the district economy of \$4 - 5 million in terms of wages / salaries and procurement of goods/service contracts from predominantly local based providers including spend on maintenance of fixed and mobile plant, Trucking operators, machinery hire, fuel and spare parts.
21. GBC Winstone has invested in fixed plant equipment at Otaika Quarry in the vicinity \$15M (not including the cost of land ownership).
22. As discussed by Mr Harris in his evidence, the opportunities for overburden disposal within the Otaika Quarry are nearly exhausted. This represents a serious constraint on the quarry. To enable the Quarry to continue to operate consent is required for a new overburden disposal area.

Other sources of aggregate in Whangarei

23. There are a number of small quarries that produce lower quality products and fill products in the district. These are Western Hills, Mountfield, A&S Contractors, Puhipuhi Rock and Broadspectrum.
24. While Dickson's Quarry does produce a small amount of higher quality product this is generally sold to a single customer (Virgin Aggregates). Other contractors (Firth, Allied concrete, Downers, Garry's concrete, Fulton Hogan, Broadspectrum, United Civil) in the district purchase product from Otaika Quarry. High quality aggregate product and the range of products offered at Otaika are not found at every quarry, and depend on the quality of the underlying rock resource and the ability of the individual quarry to manufacture those products (small the quarries tend to focus on low quality easy to manufacture products). In the event that there were future limitations placed on operations at Otaika Quarry, resulting in its closure consent for a new green field quarry would be needed or transport aggregate from further afield to meet this demand.

The Pegram Block

25. GBC Winstone purchased the Pegram Block; a 40.7ha block of farmland immediately adjacent to the quarry in 2006. This land had previously been in Winstone's ownership. Winstone first purchased the Pegram block in December 1985 and sold it to the Pegram family October 1992 (with "no complaint covenants" in place). The company then brought the block back again from the Pegram family in November 2006.
26. This land was re-acquired by the Company as part of its strategic landholding to safeguard the long-term life of the quarry, this land does not contain quarriable aggregate, so the purpose of acquiring this land was two-fold in terms of protection of the quarry from encroaching reserve sensitivity effects and it provided flexibility for long term planning in terms of additional space for associated quarry activities (such as overburden disposal) when/if required to extend the life of the quarry.

Other options

27. GBC Winstone provided a summary of alternative options available to it, for the disposal of overburden. This is attached at **Appendix 2 - Possible options for disposal of overburden at Otaika Quarry**.
28. I confirm that as part of the long term planning for Otaika Quarry, the company has considered a range of options for the disposal of overburden. I have personally been involved in assessing these options for the last 12 years.
 - a. The following matters were considered by the Company when assessing suitable options and the risks and costs associated with those options.
 - b. Proximity and accessibility to Otaika Quarry. Is the site within close proximity and is readily accessible to the Quarry?
 - c. Does the site have sufficient capacity to accommodate 35 years' worth of overburden disposal?
 - d. Does the Company own the land and/ or have guaranteed access and permission to use the land, if owned by a third party?

- e. Does the option allow for sustainable management of the Otaika Quarry in terms of allowing for full extraction of the aggregate resource?
- f. Commercial Viability: Does the option incur additional costs over and above the normal/reasonable operating costs of the quarry?
- g. External Transport: Does the option involve transportation out of the immediate quarry area and include public roads/areas?
- h. Potential Effects: Can the effects of overburden disposal on the site be avoided, remedied or mitigated to an acceptable level?

**Remaining Opportunities for Overburden Disposal at Otaika Quarry/
Disposal of overburden in the existing Otaika Quarry pit**

29. Overburden disposal is an activity closely associated with quarrying. It cannot occur anywhere, overburden disposal sites need to be located within close proximity to where the overburden is stripped from. The difficulties managing overburden at Otaika Quarry, and reasons why disposal of overburden in-pit at Otaika is not being pursued at this time has been explained by Mr Harris in his evidence.

Options for Overburden disposal on sites adjacent to Otaika Quarry

30. The Company also undertook an exercise whereby other sites adjacent to Otaika Quarry were evaluated for the suitability for overburden disposal. These included Otaika Recreation Ground – former Blue Goose land (owned by WDC), Pompellier Estate; and Conservation Land. All of these sites had sufficient proximity to the quarry and locations that would enable them to be accessed internally from Otaika Quarry, without using the public roading network and allow for the most efficient means of movement and placement of overburden, because quarry dump trucks can be used as opposed to road trucks.
31. GBC Winstone has explored the possibility of storing overburden on nearby **Otaika Recreation Ground (Blue Goose Land)**, owned by Whangarei District Council (WDC). Over the last 15 years, GBC Winstone has made a number of approaches to WDC in an attempt to secure the use of this site (at one point WDC proposed to sell this land for development as an industrial

area, and GBC Winstone entered into discussions with the potential purchaser regarding overburden disposal on the site). Ultimately GBC Winstone was unable to gain access to this land. WDC opted to retain the land and chose to further develop it for recreational uses. A high level assessment of the site indicated that considerably short of the 35 years of overburden volume needed).

32. **Crown land managed by the Department of Conservation** that is to the south of the quarry. This land has conservation values and is managed by the Department of Conservation as a public reserve. Use of this land for overburden disposal would require public access to be restricted and is incompatible with the purpose for which this land is held. GBC Winstone has been advised that use of this land would require additional permission and concessions under the Reserves Act 1977, which it would be unlikely to obtain.
33. GBC Winstone has also explored the possibility of storing overburden on the nearby **Pompellier Estate**, which is the area of land directly to the west of the quarry pit. The company does not own the land but has considered acquiring this property (which it has done due diligence on) and there are a large number of archaeological sites recorded as being present on this property. This land does not have the capacity required for the 35 years, and use of this land for overburden disposal may impede public access to the Council/ Department of Conservation reserve land.

Off-Site Disposal Options further afield

34. The Company, has also considered off-site disposal options that are not adjacent to the Quarry. Overburden disposal further afield is very rare due to the high cost and effects associated with transporting overburden via the public roading network that quickly accumulate to make the activity unviable. The cost of disposing overburden at an off-site location up to 5km away, (which requires the use of road trucks as opposed to dump trucks in order to use public roads) is approximately six or seven times the cost of disposing overburden on the Quarry site, or on an adjacent site, with the largest costs being attributable to the use, running, loading and unloading of road trucks. I am unaware of any examples in New Zealand where off-site overburden

disposal of overburden is currently undertaken which involves the long term transport of overburden along the public roading network.

35. **Overburden disposal at an off-site existing landfill/ cleanfill.** To my knowledge there are now no suitable consented cleanfill or landfill sites within the district with sufficient capacity within viable carting distance of Otaika Quarry.
36. **The HEB Quarry.** This is the only unused quarry site that could potentially be consented as an OBDA. GBC Winstone does not own or have access to the site, it is not consented for this activity, and does not have sufficient capacity to take the overburden generated at Otaika Quarry. At approximately 5.6 km away from Otaika, transport via road truck is economically unviable.
37. **Develop and consent a new “out of area” – OBDA.** GBC Winstone does have access to part of a site adjacent to Portland Quarry, which it also owns. There is very limited fill capacity over and above what is required for the cement operations. Investigations have shown that it could only hold volume equivalent to one overburden campaign (providing overburden disposal for 3-5 years). The costs associated with transportation (it is 8km away from Otaika Quarry to the site access point) and consenting make OBDA disposal at this site uneconomic. In addition there is no long term certainty that this site can be secured as fill site available is also in the area proposed as one of the options for the current State Highway 1 upgrade.
38. While a number of submitters have raised the possibility of sites other than the Pegram Block, some of which have been considered by the Company, I note that investigations have shown that the sites suggested are not reasonable or proper alternative options for overburden disposal. GBC Winstone must have permission from the owners of those sites to access and use the land (which cannot be obtained or has not been forthcoming) or have the ability to purchase the site. Without this, they do not represent reasonable, secure or feasible options.
39. Even if access is secured (which at present it cannot), preliminary investigations by the Company into these other potential sites have also demonstrated that these sites have features which make them inherently unsuitable for the placement of overburden, would result in a higher level of

effects. Overburden disposal is resource constrained in that it can only occur within viable carting distance of the quarry from which it is from which is why adjacent sites are necessary. Disposal at off-site locations further afield is cost prohibitive. Consenting multiple smaller capacity sites would result in duplication in terms of consenting and operational costs, increased effects associated with the spread of the same amount of overburden over multiple sites as opposed to long term concentration on a single site.

40. Of all of the options considered by the Company, the Pegram Block was the only option that met all of the criteria and is considered to be the only viable/feasible option available at this time. GBC Winstone owns the land, can accommodate disposal of overburden on the site in the quantities needed and reports in the AEE have demonstrated that it is possible to keep any adverse effects to a minimum. The site can be internally accessed from Otaika Quarry in terms of keeping transportation costs low and avoiding wider traffic network effects associated with heavy vehicles used for the transportation of overburden. Its location enables overburden disposal to be carried out in efficient campaigns and initial assessments indicated that adverse effects could be kept to acceptable levels due to the size of the site.
41. While several possible sites were identified and investigated, none of the sites provided for met the quarries long term needs. Despite considerable efforts, GBC Winstone has been unable to secure access or permission to use any other site apart from Pegram (which it owns).
42. One crucial consideration is that overburden disposal cannot occur anywhere, the activity is closely associated with Quarrying. The cost of transporting overburden via road to a disposal area further afield makes it economically unviable. I am unaware of any significant quarry in New Zealand that does not dispose of overburden either on site at the quarry or on an adjacent site.
43. The Officers Report at paragraph [10.5] accepts my explanation as to the difficulties the company has in finding a suitable location, but queries the search criteria in terms of the quantity and duration of the consent sought.
44. I confirm that the amount of overburden a site could accommodate in terms of the sites ability to provide for the quarries long-term overburden disposal needs was one consideration, it is clear from my letter that there were no

sites within close proximity to the quarry that were discounted automatically on this basis alone. The Company has actively investigated overburden disposal in lesser amounts on adjacent sites for example, Otaika Sportsground. I also note that likely potential effects of OBDA on a site were also a key consideration.

OFFICERS REPORT

45. The Team at GBC Winstone are very disappointed with the recommendation in the Officers Report that the project be declined.

Sites with reduced capacity

46. The Officer questions whether in terms of alternative options, there is an alternative site that could accommodate less overburden for a shorter timeframe. I confirm that the company has thoroughly canvassed all sites within geographical proximity to the Quarry where overburden disposal could be considered. There is no alternative to Pegram. I note that two of these are classified as Reserve land, the statutory status of that land makes overburden disposal impossible on those sites.
47. Aside from Pegram, the only other adjacent site in private ownership is the Pompellier Estate land. The Company does not own this site, but has done due diligence on this land. The feedback received in consultation with iwi was that overburden disposal on this site would have far greater cultural effects than disposal on Pegram, it has a very high number of archeological sites and appears to share the same limestone topography as the Ruarangi Block. Therefore, disposal on Pompellier Estate (if it could be secured by the Company) is not an alternative means of overburden disposal that would avoid associated cultural effects.

Alternative Method /Staged consents

48. The Officer's query as to whether in order to avoid significant effect the Pegram Block could be consented using a staged approach – for example, whether the consent could be sought to dispose less overburden over a shorter period has been addressed from a technical perspective by Mr Harris and Mr Lines.

49. While I accept the Officer's comment that technology, options as to use or mean of operations may change over this time, if this is the case and more efficient options of disposal are available then I expect that the Company would adopt these. However, if another option course of the area arose, we would investigate it because there is still the need to plan for the long term disposal of overburden:
- a. The Pegram Block is the only site in within the vicinity of the Quarry suitable for overburden disposal. Due to the required proximity for this activity to the Quarry a "new site" is not going to suddenly appear in 10 or 15 years' time – if anything it will become more constrained;
 - b. In developing the Pegram Proposal, GBC Winstone has sought to be up front with the community and the Council as to its long term desire to use the site for overburden disposal and the amount of overburden sought in the consent reflects that;
 - c. The amount of overburden that consent is sought for provides a level of certainty and security that Otaika Quarry can continue, which is important in terms of re-consenting, future tendering and investment in that plant; and
 - d. 2.4million m³ of overburden which consent has seen sought is the amount which will provide for the Quarries on-going disposal needs at the current rate for 35 years (the duration of the NRC consents granted).
50. Further discussion as to the difficulties of staging and/or whether that would result in a project with lesser amenity effects (due to the need to undertake foundation works near the boundary) are discussed in Mr Harris' evidence.
51. Lastly in terms of viability, Pegram is the only site. If consents are not obtained to dispose of overburden on the Pegram Block then there is no other option but to commence in-pit disposal next earthworks season. This which will result in premature sterilization of the resource and early significant closure of the Region's largest Quarry.

RESPONSE TO SUBMITTERS

Other uses for overburden

52. As described by Mr Harris, overburden has little value. Where at all possible, overburden is used for fill, off-site; however, third party demand for this product is extremely low. This is not unique to Otaika; it is consistent with other parts of the country.
53. A number of submitters have made suggestions that overburden is a “product”⁶ and have cited the quarry price list. The reference to fill is a higher-grade product than overburden material. Overburden has been given away or sold for a nominal loading fee.
54. Overburden has been offered to contractors for free, with the Company bearing the cost of loading, and have even offered to contribute money to transport if those parties can utilize the greensands in their developments. No one has taken us up on this offer. Due to the nature of the material and the extra costs required to compact to engineering requirements for subdivision work. It is better value for them to buy brown rock and pay for their own transport.
55. There has been a lot of speculation regarding off-site projects that overburden could be used for. Submitters have suggested a number of⁷ alternative uses of the overburden including:
- To construct Dykes to contain farming waste and pollutants from entering our waterways in rural production environments;
 - NZTA to offer to construct noise bunds for the Whangarei to Marsden point highway project;
 - Overburden could be utilised by Semenoff Sand to replace the sand taken from Urititi Beach in order to stabilize the sand dunes;
 - Marsden Point Oil Refinery uses it to form bunds to contain oil spills.

⁶ [Mia Barton Boots submission says that ‘overburden is a product at the current price 2.4million c.u is worth over \$13m (she cites the Otaika Quarry Price list 1 July 2017 price for fill as being \$5.47/m3 excl GST).

⁷ Ms Barton – Boots submission, page 9.

- Others suggest uses by Whangarei District Council for use in roading upgrades and NZTA for roading projects; and
 - Use of overburden to extend Whangarei Airport runway.
56. None of these projects currently exist. They require third parties willing to take and use the overburden. The frequency of projects that can utilize large amounts of overburden are few and far between and are reliant upon the agreement (and timing) of parties undertaking these works to commit to using overburden from Otaika Quarry. While the company continues to actively explore opportunities for off-site use of overburden material from Otaika, Pegram OBDA it still required to ensure continued operation of the Quarry.

Size of the proposed OBDA

57. A number of submitters have claimed that the Pegram OBDA is the largest overburden disposal site in the country. This is not correct. The proposed Pegram OBDA is a medium size OBD facility, and is of a size and scale that is not unusual in the industry. GBC Winstone has considerable experience at successfully developing, operating and rehabilitating OBDA at quarries all over the country. By comparison:
- a. GBC Winstone Belmont Quarry has placed in excess of 1 million m³ of Overburden and is currently placing another 900,000 m³ on top of this;
 - b. Whitehall Quarry has placed almost 2 million m³ into adjacent land;
 - c. GBC Winstone Hunua Quarry has placed in excess of 3 million m³ on land surrounding the quarry and the new Symonds hill pit has in excess of 8 million m³ to move;
 - d. Smyths Quarry in one campaign have moved 3 million m³; and
 - e. Holcim Bombay has placed 8 million m³ in surrounding land over the life of that pit.

Complaints about GBC Winstone's existing Otaika Quarry Operations

58. Several submitters have complained about the noise, dust and the way in which the Otaika Quarry operations have been run. The Company takes complaints very seriously. All GBC Winstone operations have an environmental management system, which is an electronic data base where any environmental incidents and complaints are recorded. All complaints received are entered into this register. They are then investigated and the actions are recorded in the system when completed. Otaika Quarry is proud of its track record. We have received 5 complaints since 2006. There are two noise complaints (one in 2006 and 2007) where truck and trailers on the entrance road are causing excessive noise early in the morning and three blast vibration complaints (two in 2008 and one in 2007). All were investigated and addressed.

Crystalline Silica

59. Submitters have also raised concern regarding Crystalline Silica and potential health effects arising from the presence of crystalline silica in dust from the OBDA, citing well publicized issues relating to crystalline Silica at GBC Winstone's Yaldhurst Quarry in Christchurch. There are a number of contributing factors in that case which make it unique. We do test for Crystalline Silica at Otaika Quarry –where aggregate is processed and it is well within safe levels. The testing that we have done at the quarry and the potential for this to be present in overburden has been discussed in detail by Mr Curtis.

Christopher Edmonds

Date: 2018

Appendix 1 – Otaika Quarry Location



Appendix 2 – Possible options for disposal of overburden at Otaika Quarry



12 March 2018

Mr Murray McDonald
Whangarei District Council
Manager RMA Consents

Mr Hartstone
Whangarei District Council
Consultant Planner

Dear Sirs

RE: GBC WINSTONE – PEGRAM OVERBURDEN DISPOSAL AREA – OVERVIEW OF OTHER OPTIONS CONSIDERED FOR DISPOSAL OF OVERBURDEN AT OTAIKA QUARRY

Please find below a discussion of other options considered by GBC Winstone (GBCW) for disposal of overburden from Otaika Quarry. It is important to note that while these options have been considered by the Company, GBCW does not own or have access to any of these other sites.

Use of overburden in third party projects

Submitters have been critical of the company for not finding alternative uses for the overburden generated at Otaika Quarry and have suggested using overburden to build a new runway at the Airport, filling in holes from sand mining at Urititi Beach or for noise bunds along roads of national significance. These projects do not currently exist. The company has made efforts over the years to provide overburden free of charge for use by third parties, but it is expensive to transport and is not geotechnically suitable for many projects for example subdivisions. In principal GBCW has no objection to providing overburden to third parties, but to date no-one has been willing to take it.

Possible options for disposal of overburden at Otaika Quarry

As part of the long term planning for Otaika Quarry, the company has considered a range of options for the disposal of overburden.

The following matters were considered by the Company when assessing suitable options and the risks and costs associated with those options:

- Proximity and accessibility to Otaika Quarry. Is the site within close proximity and is readily accessible to the Quarry?
- Does the site have sufficient capacity to accommodate 35 years' worth of overburden disposal?

- Does the Company own the land and/ or have guaranteed access and permission to use the land, if owned by a third party?
- Does the option allow for sustainable management of the Otaika Quarry in terms of allowing for full extraction of the aggregate resource?
- Commercial Viability: Does the option incur additional costs over and above the normal/reasonable operating costs of the quarry?
- External Transport: Does the option involve transportation out of the immediate quarry area and include public roads/areas?
- Potential Effects: Can the effects of overburden disposal on the site be avoided, remedied or mitigated to an acceptable level?

Remaining Opportunities for Overburden Disposal at Otaika Quarry

Overburden disposal is an activity closely associated with quarrying. It cannot occur anywhere, overburden disposal sites need to be located within close proximity to where the overburden is stripped from.

The challenge of managing overburden disposal at Otaika Quarry is finding sufficient space within close proximity to the area of extraction. For the last 30 years overburden has been placed on top of future areas to be quarried. On site options for disposal of overburden (without impacting on current quarry development, and without sterilising exposed rock) are extremely limited. The future development of the quarry is primarily constrained due to its ability to dispose of the overburden generated. At Otaika the overburden disposal options within the main quarry area are near exhaustion.

Currently overburden is being removed and placed in a small area to the north west of the pit. Storage capacity in this area is limited and can only accommodate a small amount of overburden. This area sits on top of unquarried aggregate resource, earmarked for future extraction. As a result, all overburden currently being placed in this area will need to be re-handled – placed and then moved when extraction reaches this point. This is only a very short-term option.

Disposal of overburden in the existing Otaika Quarry pit

Latest quarry design investigations show that the pit has not yet reached its final depth and (subject to obtaining further consents) that there is approximately 80-100 years (subject to market demand) of quarriable aggregate remaining at Otaika. If the company had to use the pit for overburden disposal (**in pit disposal**), quarrying would become uneconomic and the quarry would need to close in approximately 15 years (depending on market demand) because we would no longer be able to access the resource on site. In this context, it is important to note that the operational life of the quarry is reduced and becomes waste bound from the point at which it is decided to begin in-pit disposal (i.e 2019 if consents for Pegram are not obtained) as opposed to the date that the quarry closes because it sterilizes future resource. This is not an option at this time as it would drastically reduce the workable life of the quarry.

Options for Overburden disposal on sites adjacent to Otaika Quarry

The Company undertook an exercise whereby other sites adjacent to Otaika Quarry were evaluated for the suitability for overburden disposal. These included Otaika Recreation Ground – former Blue Goose land (owned by WDC), Pompellier Estate; and Conservation Land. All of these sites had sufficient proximity to the quarry and locations that would enable them to be accessed internally from Otaika Quarry, without using the public roading network and allow for the most efficient means of movement and placement of overburden, because quarry dump trucks can be used as opposed to road trucks.

GBCW has explored the possibility of storing overburden on nearby **Otaika Recreation Ground (Blue Goose Land)**, owned by Whangarei District Council (WDC). Over the last 15 years, GBCW has made a number of approaches to WDC in an attempt to secure the use of this site (at one point WDC proposed to sell this land for development as an industrial area, and GBCW entered into discussions with the potential purchaser regarding overburden disposal on the site). Ultimately GBCW was unable to gain access to this land. WDC opted to retain the land and chose to further develop it for recreational uses. A high level assessment of the site indicated that this site could only accommodate an estimated 0.7 million m³ of overburden (which falls considerably short of the 35 years of overburden volume needed).

Crown land managed by the Department of Conservation that is to the south of the quarry. This land has conservation values and is managed by the Department of Conservation as a public reserve. Use of this land for overburden disposal would require public access to be restricted and is incompatible with the purpose for which this land is held. GBCW has been advised that use of this land would require additional permission and concessions under the Reserves Act 1977, which it would be unlikely to obtain.

GBCW has also explored the possibility of storing overburden on the nearby **Pompellier Estate**, which is the area of land directly to the west of the quarry pit. The company does not own the land but has considered acquiring this property (which it has done due diligence on) and there are a large number of archeological sites recorded as being present on this property. This land does not have the capacity required for the 35 years, and use of this land for overburden disposal may impede public access to the Council/ Department of Conservation reserve land.

Off-Site Disposal Options further afield

The Company, has also considered off-site disposal options that are not adjacent to the Quarry. Overburden disposal further afield is very rare due to the high cost and effects associated with transporting overburden via the public roading network that quickly accumulate to make the activity unviable. The cost of disposing overburden at an off-site location up to 5km away, (which requires the use of road trucks as opposed to dump trucks in order to use public roads) is approximately six or seven times the cost of disposing overburden on the Quarry site, or on an adjacent site, with the largest costs being attributable to the use, running, loading and unloading of road trucks. GBCW are unaware of any examples in New Zealand where off-site overburden disposal of overburden is currently undertaken which involves the long term transport of overburden along the public roading network.

Overburden disposal at an off-site existing landfill/ cleanfill. To my knowledge there are now no suitable consented cleanfill or landfill sites within the district with sufficient capacity within viable carting distance of Otaika Quarry.

The HEB Quarry. This is the only unused quarry site that could potentially be consented as an OBDA. GBCW does not own or have access to the site, it is not consented for this activity, and does not have sufficient capacity to take the overburden generated at Otaika Quarry. At approximately 5.6 km away from Otaika, transport via road truck is unviable.

Develop and consent a new “out of area” – OBDA. GBCW does have access to part of a site adjacent to Portland Quarry, which it also owns. There is very limited fill capacity over and above what is required for the cement operations. Investigations have shown that it could only hold volume equivalent to one overburden campaign (providing overburden disposal for 3-5 years). The costs associated with transportation (it is 8km away from Otaika Quarry to the site access point) and consenting make OBDA disposal at this site uneconomic. In addition there is no long term certainty that this site can be secured as fill site available is also in the area proposed as one of the options for the current State Highway 1 upgrade.

Concluding comments

While a number of submitters have raised the possibility of sites other than the Pegram Block, some of which have been considered by the Company, I note that investigations have shown that the sites suggested are not reasonable or proper alternative options for overburden disposal. GBCW must have permission from the owners of those sites to access and use the land (which cannot be obtained or has not been forthcoming) or have the ability to purchase the site. Without this, they do not represent reasonable, secure or feasible options.

Even if access is secured (which at present it cannot), preliminary investigations by the Company into these other potential sites have also demonstrated that these sites have features which make them inherently unsuitable for the placement of overburden, would result in a higher level of effects and/or have far less capacity for overburden disposal than the Pegram Block. Overburden disposal is resource constrained in that it can only occur within viable carting distance of the quarry from which it is from which is why adjacent sites are necessary. Disposal at off-site locations further afield is cost prohibitive. Consenting multiple smaller capacity sites would result in duplication in terms of consenting and operational costs, increased effects associated with the spread of the same amount of overburden over multiple sites as opposed to long term concentration on a single site.

Of all of the options considered by the Company, the Pegram Block was the only option that met all of the criteria and is considered to be the only viable/feasible option available at this time. GBCW owns the land, can accommodate disposal of overburden on the site in the quantities needed and reports in the AEE have demonstrated that it is possible to keep any adverse effects to a minimum. The site can be internally accessed from Otaika Quarry in terms of keeping transportation costs low and avoiding wider traffic network effects associated with heavy vehicles used for the transportation of overburden. Its location enables overburden disposal to be carried out in efficient campaigns and initial assessments indicated that adverse effects could be kept to acceptable levels due to the size of the site.

Method of placement

In terms of other ways of carrying out the activity on the Pegram Block, due to the nature of overburden placement, there are very few alternative methods/means of placing the material on the Pegram Block. GBCW has adapted its method of undertaking overburden placement from its extensive experience of placing overburden at Otaika Quarry and at its other quarries all around New Zealand, these have been further tailored to suit the characteristics of the proposed site. During the scoping and design stage of the project, GBCW considered several footprint designs and detailed technical feedback was provided from GBCW's experts and parties consulted in terms of how the project could best be designed to avoid, remedy or mitigate the effects to an acceptable level. These have been incorporated into the proposed design and suggested conditions of consent.

GBCW trust this provides Council with a better understanding of the difficulties of finding a suitable site for overburden disposal and the very limited options available to the Company.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Chris Edmonds', written in a cursive style.

CHRIS EDMONDS

GBC Winstone Northern Operations Manger