Civil Quarries Ltd - Everett Road Quarry

Monitoring Programme

Annual Report

2022-2023

Technical Report 2023-24

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Taranaki Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

Civil Quarries Ltd (the Company) operates a quarry located on Everett Road at Everett Park near Inglewood in the Kurapete catchment. The Company holds two resource consents, one for stormwater discharge (R/2/1113-5.1) and one for groundwater take (R2/10247-1.1). These two consents include a total of 25 conditions which set out the requirements that the Company must satisfy (Appendix I). The quarry is passively dewatered, with intercepted groundwater and stormwater treated through a series of settlement ponds before being discharged into an unnamed tributary of the Kurapete Stream.

This report for the period 1 July 2022 to 30 June 2023 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring conducted and assesses the environmental effects of the Company's activities.

During the 2022 to 2023 monitoring period, Civil Quarries Ltd demonstrated a good level of administrative performance and overall level of environmental performance that required improvement.

A change in Company ownership occurred during the 2022-2023 monitoring year. Thus, the overall performance of the site in relation to administrative and environmental performance has been influenced by previous management practise.

The Council's monitoring programme for the year under review comprised four scheduled monitoring inspections, which involved the collection of stormwater discharge and stream samples for physicochemical analysis. In addition, a site meeting was held, a resampling inspection and an office assessment were undertaken. A biomonitoring survey of receiving waters was also conducted during the summer season. As part of their consent conditions, the Company is required to commission independent groundwater monitoring to elucidate the potential impacts of quarry activities upon the surrounding aquifer. Baseline data for the 2022-2023 monitoring year has been supplied by the Environmental consultant. Discussions between the Environmental consultant and the Council are currently underway in relation to finalising the content of the independent monitoring report which will be made available upon request.

During the year under review, there was one incident of non-compliance which related to unacceptable turbidity limits in the receiving waters. An infringement notice was issued which indicated that further improvement in stormwater management was required. A letter requesting an explanation for water take exceedance was also sent to the consent holder. The scheduled biomonitoring survey showed that all sampled sites had a moderate taxa richness. Taxa richness was lower than the historic median at all three sites, and has been so for at least the last five surveys at all three sites. As this decrease in richness is also evident at the control site, it is unlikely to be related to quarry activities. For this reason, it was concluded that the quarry discharges did not have a significant effect on the macroinvertebrate community immediately downstream of the point of discharge to the Kurapete Stream.

While there has been a noticeable improvement in abstraction and discharge rates since a change in Company ownership, a review of the flowmeters is required to supply more accurate information, particularly in relation to groundwater abstraction rates. Although their consent conditions did not require the Company to undertake independent surface water monitoring, this was conducted alongside the groundwater monitoring schedule and has provided points for further discussion with respect to the Council's surface water monitoring programme. These will be addressed in the 2023-2024 monitoring year.

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environment performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor.

In terms of overall environmental and compliance performance by the consent holder, this report demonstrates that an improvement in site management since a change in ownership is evident, however, the consent holder's environmental performance remains at a level that requires further improvement with respect to abstraction rates in particular.

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1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report which was written by Taranaki Regional Council (the Council) for the period 1 July 2022 to 30 June 2023, describes the monitoring programme associated with resource consents held by Civil Quarries Ltd (the Company). The Company operates a quarry situated on Everett Road at Everett Park, near Inglewood.

This report covers the results and findings of the monitoring programme implemented by the Council with respect to the company's consents for groundwater abstraction and discharge to the Kurapete Stream in the Kurapete catchment. This is the 28th annual report to be prepared by the Council to cover the water discharges from the site. It is the first report produced under the Company's current management.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by the Company in the Kurapete catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted in the Company's site/catchment.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2023-2024 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
b. physical effects on the locality, including landscape, amenity and visual effects;
c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each

activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

1.1.4 Evaluation of environmental and administrative performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating related to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environment performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor. [1]

1.2 Process description

The Company's quarrying operation is located adjacent to the true right bank of the Kurapete Stream at the corner of Everett Road and Bristol Road near Inglewood (Figure 1). The current site is approximately 10 ha in area and includes active excavation areas, stormwater treatment ponds (Photo 1 to 7), stockpiling and processing areas. Processing facilities include machinery for dry crushing and a washing and screening plant, however aggregate is no longer washed on site. The potential effects of quarry discharges upon the receiving environment is actively monitored with water samples collected at four locations (Figure 1).

The site has both a primary and a secondary 'emergency' stormwater system. Groundwater from the excavation area, the lowest point of the quarry (Photo 1), is pumped to the first of the settling ponds, Pond A (Photo 2). Water is then actively pumped from Pond A through the primary treatment system - Ponds B, C (Photo 4) and up to Pond D where it flows through piping to Pond E and then F under the influence of gravity (Photo 5 to 7). Discharge from Pond F to the unnamed tributary of the Kurapete Stream occurs via a steel pipe access culvert. The tributary flows approximately 600 m before joining the Kurapete Stream upstream of the Everett Road Bridge. In an emergency (e.g., during a sustained heavy rain event), Ponds B and C are bypassed as water is pumped directly from Pond A to Pond D where it travels through the system to Pond F. Contouring and bunding of the site directs stormwater to Ponds A and A1 to A3 (See Appendix III for a detailed Stormwater Management map). Ponds A1 to A3 form a closed system in which water retained in these ponds does not discharge to the stream. Gravel-filtered surface runoff from the Everett Road entrance to the quarry and the upstream farm drainage enter the northern boundary drain and also discharge into the unnamed tributary.

[1] The Council has used these compliance grading criteria for more than 19 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

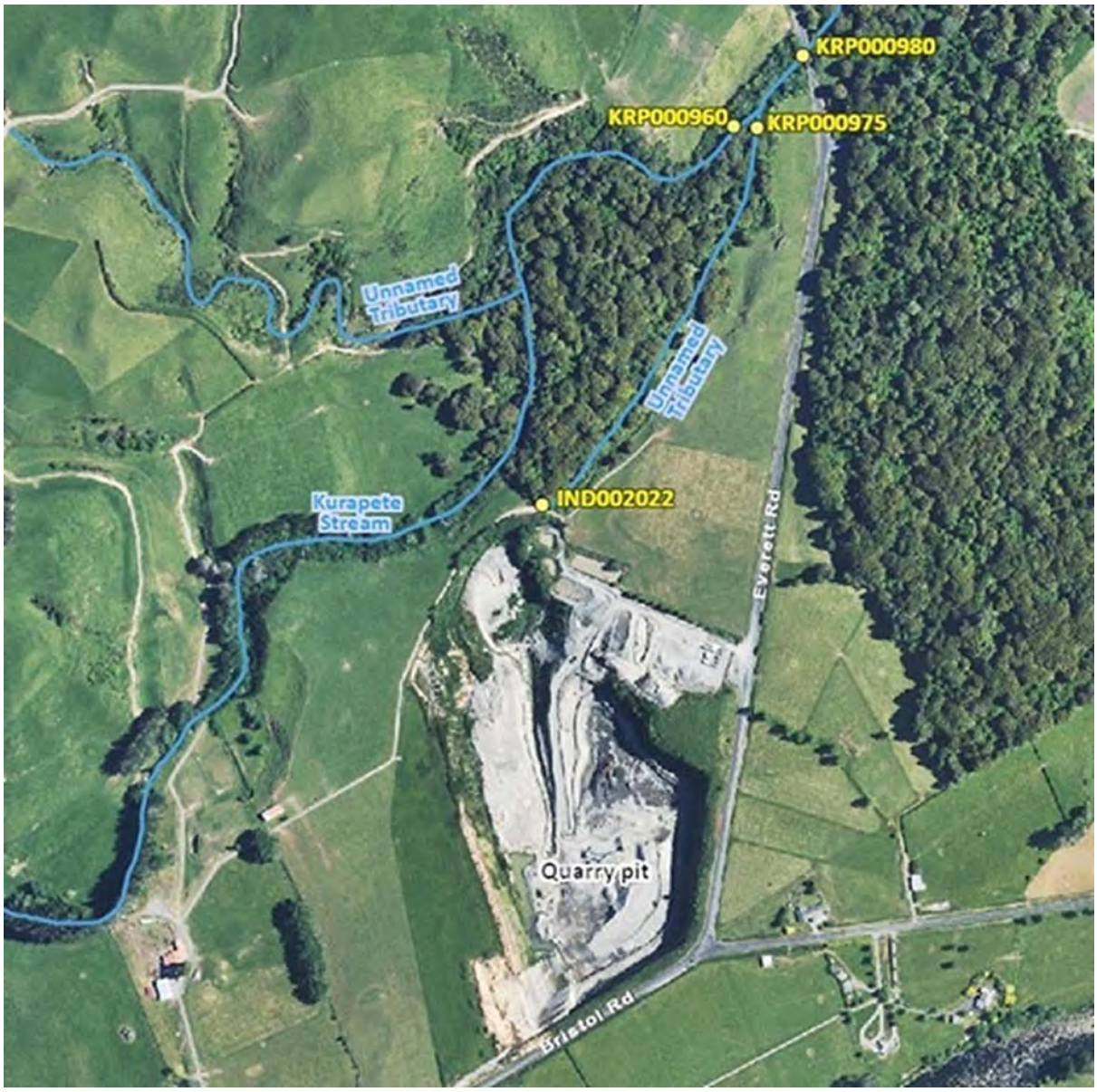

Figure 1 Everett Road Quarry location and sampling sites

Photo 1 Excavation area west of Pond A, September 2023

Photo 2 Stormwater Pond A in the foreground, with the wash water ponds A1 to A3 in the background October 2021

Photo 3 Ponds A1 to A3 are used to capture stormwater as aggregate is no longer washed on site

Photo 4 Stormwater Ponds B & C, September 2023. The discharge meter is visible in the foreground

Photo 5 Pond D, the first of the gravity fed stormwater ponds, September 2023

Photo 6 Pond E, the second of the gravity fed stormwater ponds, September 2023

Photo 7 Final Pond F before the water flows through culvert piping into the unnamed tributary of the Kurapete Stream, September 2023

1.3 Resource consents

The Company holds two resource consents, the details of which are summarised in Table 1. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

A summary of the various consent types issued by the Council is included in Appendix II, as are copies of all permits held by the Company during the period under review.

Table 1 Resource consents held by the Company during the 2022-2023 monitoring period

Consent number	Purpose	Granted	Review	Expires
Water abstraction permits				
10247-1.1	To take groundwater incidental to quarry operations and for aggregate washing purposes	11 Jun 2019	Jun 2024	1 Jun 2033
Water discharge permits				
1113-5.1	To discharge treated stormwater and treated groundwater into an unnamed tributary of the Kurapete Stream	11 Jun 2019	Jun 2024	1 Jun 2033

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The Council's monitoring programme for the Everett Road Quarry site consisted of four primary components. An independent monitoring programme was commissioned by The Company to fulfil the requirements of condition 6 of consent R2/10247-1.1.

1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.4.3 Site inspections and office assessment

The Everett Road site was visited six times during the monitoring period. This included four routine compliance monitoring inspections, one resample inspection and one site visit which involved the quarry owner, an independent environmental consultant and Council officers. The main focus of the site visit centred on the consents for the abstraction of or discharge to water, plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Flowmeters measuring the amount of groundwater abstracted and the rate at which water is discharged from the quarry were also inspected. Sources of data being collected by the Company were identified and accessed so that performance with respect to operation, internal monitoring, and supervision could be reviewed by the Council. As part of their consent conditions, Civil Quarries is required to commission independent groundwater monitoring. The site meeting involved discussion around data obtained from recently installed groundwater bores and the positioning and functionality of flow meters. The neighbourhood was surveyed for environmental effects.

1.4.4 Chemical sampling

The Council conducted sampling of both the discharges from the site and the water quality upstream and downstream of the discharge point and mixing zone.

The stormwater discharge was sampled on five occasions; the samples were analysed for electrical conductivity, pH, total hydrocarbons and total suspended solids. The Kurapete Stream was sampled on five occasions, samples were analysed for electrical conductivity, pH, total hydrocarbons, total suspended solids and turbidity. The results of the physico-chemical analysis are presented in Table 5 to 8.

1.4.5 Biomonitoring surveys

The Council collected streambed macroinvertebrates on the 1 March 2023 from three established sites in the Kurapete Stream (Table 2 and Figure 2). The sampling was conducted to ascertain if the discharges originating from the quarry have had a detrimental effect upon the macroinvertebrate communities of the stream during the 2022-2023 monitoring year. Macroinvertebrates were identified and the number of different types of taxa counted (taxa richness); MCI and SQMCI scores were calculated for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of nutrient pollution in streams. It is based on the presence or absence of pollution-sensitive taxa. More sensitive macroinvertebrate communities occupy less polluted waterways. The SQMCI considers taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities. Significant differences in either the MCI or the SQMCI between sites indicate the degree of adverse effects (if any) of the discharges being monitored and enable the overall health of the macroinvertebrate communities to be determined. Sensitivity scores for certain taxa have been modified to reflect conditions specific to the Taranaki region.

Table 2 Coordinates of biomonitoring sites in the Kurapete Stream sampled in relation to Civil Quarries Limited – Everett Road

Site No	Site code	Grid reference	Location
1	KRP000960	E1710640 N5668709	Upstream of quarry tributary stream
2	KRP000980	E1710695 N5668758	Everett Road bridge, d/s of tributary stream
3	KRP000983	E1710759 N5668874	150 m d/s of Everett Road bridge

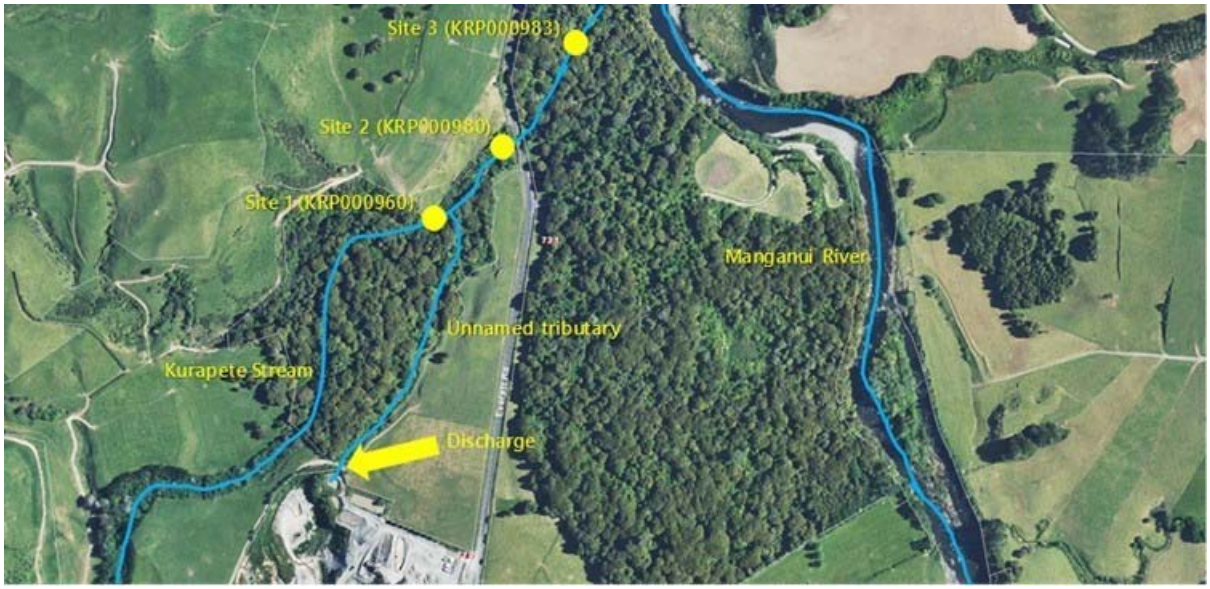

Figure 2 Sampled biomonitoring sites in the Kurapete Stream, 1 March 2023, Civil Quarries Limited – Everett Road

1.4.6 Independent ground and surface water monitoring

An independent monitoring programme which addresses condition 6 of resource consent 10247-1.1 was established by the Company to provide a more robust assessment of potential environmental effects of abstraction upon the groundwater level and quality of the surrounding aquifer. This involved drilling three bores (GND 3096, GND 3097 and GND 3098) at agreed locations around the quarry site (Table 3 Figure 3). Rainfall data from the Manganui at Everett Park site is considered alongside water level data to help

distinguish a climatic response from one that was induced by quarrying activities. Ultimately, the data will provide the foundation to identify long-term trends, to assess the effects of the quarry on ground and surface water at discrete times and to determine appropriate forms of mitigation (Browne, 2019). Annual low flow monitoring is also conducted at four sites related to the Kurapete Stream (Figure 3). Although not required by their consent conditions, the Company engaged an Environmental consultant to undertake independent surface water monitoring in addition to the sampling which is conducted by the Council as part of the compliance monitoring programme.

Table 3 Key features of groundwater monitoring bores GND 3096, GND 3097 & GND 3098

Well ID	Well depth (m)	Screen depths (mbgl)	mE	mN	mASL	Static water level (mrgl)	Drill Date
GND 3096	69	52-62	1710620	5668180	106.626	8.84	21/09/20
GND 3097	63	31-37 55-61	1710195	5668015	115.654	11.98	02/10/20
GND 3098	112	39-45 69-81	1710633	5667920	115.187	3m dropped to 15 m	09/10/20
NB GND 3096 & GND 3098 contain volumes of gas. GND 3098 required a 10 m concrete plug to facilitate its construction							

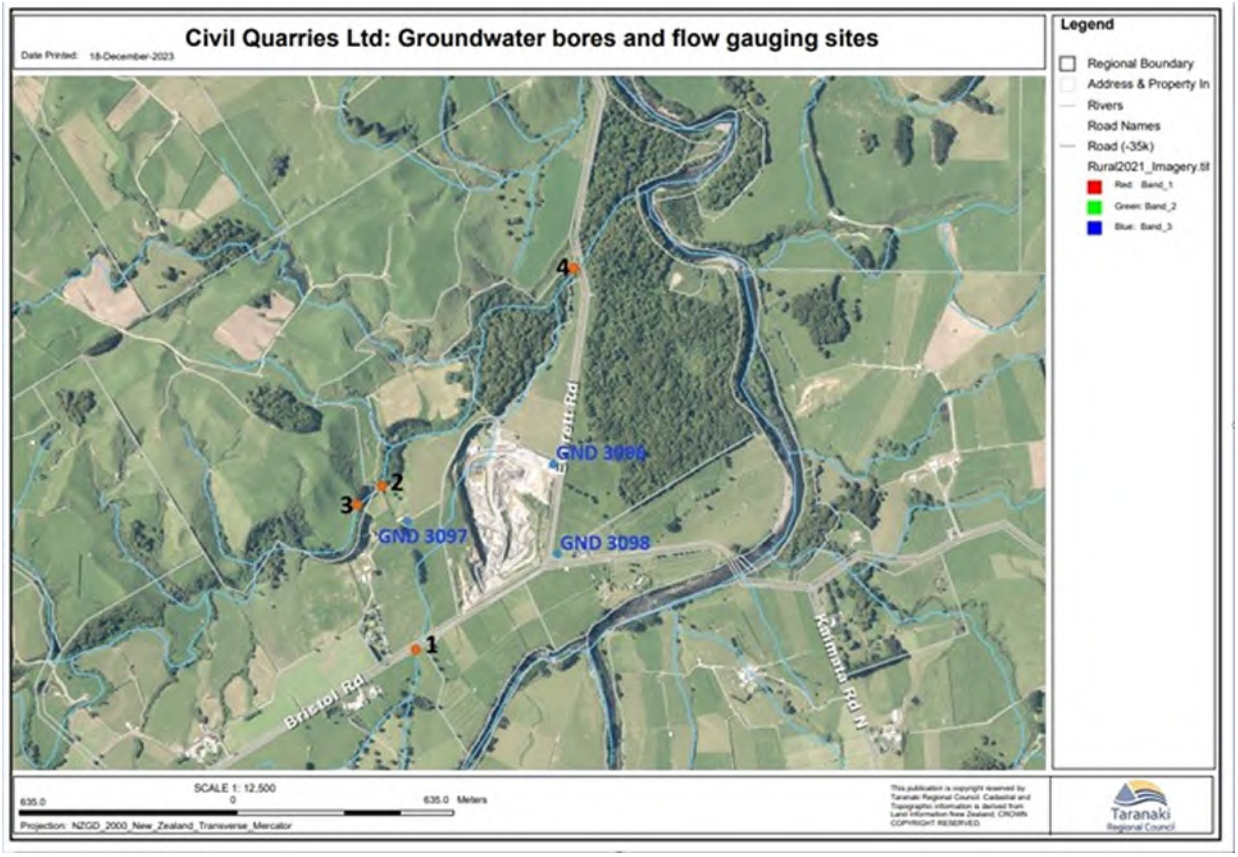

Figure 3 Civil Quarries independent groundwater monitoring (blue) and flow gauging sites (orange)

2 Results

2.1 Water

2.1.1 Compliance monitoring inspections

27 September 2022

The inspection was conducted during fine weather; no rain had fallen for approximately 3 days. The Inspecting officer noted that the groundwater pond level was high and that the settlement ponds were all discharging. The water from the discharge point and the receiving tributary appeared cloudy, however visual clarity improved 25 m downstream. The flow meter near the groundwater pond did not appear to be working therefore this condition was unable to be assessed. The flow meter near discharge point was exceeding the discharge limit and was found to have been moved without prior consultation with the job manager. It was noted that the consent holder would be contacted to discuss the flow meters.

19 January 2023

This inspection was conducted during fine weather as part of routine compliance monitoring. No rain had fallen recently. There was minimal activity and the site was due to close the next week. The tributary and its downstream reach was visually clear.

15 March 2023

The site appeared relatively quiet at the time of inspection and no personnel were onsite. Samples were collected from the designated locations upstream and downstream of the discharge point.

12 June 2023

Minimal activity was occurring on site at the time of inspection and no heavy machinery was operating. The site appeared well bunded on both the lower and upper levels. There were multiple sediment ponds to filter water from quarry operations. There was no indication that untreated stormwater or groundwater was bypassing these treatment ponds and entering the receiving environment. The upper level ponds were discharging at the time of inspection and the final pond was discharging to the tributary. Samples were collected from the discharge point, a downstream location of the unnamed tributary and at upstream and downstream locations the along the Kurapete Stream. The water visually appeared clear.

2.1.2 Additional monitoring activities

16 December 2022

A meeting was held with the consent holder and the environmental consultant to discuss details of the biomonitoring programme and the independent groundwater monitoring programme. The position of the site's flow meters was raised as a concern as was the difference between outlet flows of the 650 culvert and the two meters. It was agreed that a stormwater engineer would be approached to provide an assessment. There were discussions around the realignment of the flow meter on the wash water system so that it could act as a second 'take' meter at Pond A in addition to the 'take' meter on the emergency line. This would satisfy condition 2 of consent 10247-1.1 and enable the Council to obtain a more accurate representation of the combined rate of take from Pond A. To further assist real time discharge monitoring, the installation of a levelled staff gauge into Pond D was discussed. It was noted that consideration needed to be given to determine the best method to flow gauge the outlet pipe after rainfall.

5 April 2023

Additional sampling of the discharge point and upstream and downstream sites was conducted on the 5 April 2023 in response to non-compliant laboratory results related to the 15 March 2023 inspection. The

results are presented in Table 5 to 8. Given that the Company had previously been issued with an abatement notice (EAC-24687), which related to elevated turbidity levels, Infringement Notice EAC-25100, was issued on the 20 April 2023 for the contravention on 15 March 2023.

20 April 2023

Following the 15 March 2023 inspection where the flowmeter was observed to record a discharge rate of 25 L/s, an office assessment was conducted to ascertain compliance in relation to discharge and abstraction rates. Historically, the site has been non-compliant with respect to the limits stated in consents R2/10247-1.1 and R2/1113-5.1. Analysis of telemetered data revealed that discharge rates continuously exceeded 20 L/s while water take rates continuously exceeded 20 L/s for the period under review. A letter requesting explanation was sent. Further information received from the consent holder indicated that the flow meter may have been recording inaccurately. The Council is working with the Company to achieve compliance.

2.1.3 Chemical sampling

Sampling locations are described in Table 4 and are indicated on the map in Figure 1.

Discharge and surface water results from the 2023-2023 monitoring period are presented in Tables 5 to 8. The range of historical results at each site are also presented for comparison.

Table 4 Locations and details of sampling sites

Site	Location	GPS coordinates	Site code
Quarry stormwater	At discharge outlet	1710431E 5668301N	IND002022
Kurapete Stream	100 m upstream of Everett Road bridge (upstream of quarry tributary)	1710640E 5668709N	KRP000960
Unnamed tributary	5 m upstream of the Kurapete Stream confluence (600 m downstream of discharges at quarry)	1710658E 5668713N	KRP000975
Kurapete Stream	At the Everett Road bridge (approximately 100 m downstream of quarry tributary)	1710695E 5668758N	KRP000980

Table 5 Stormwater discharge monitoring results (IND002002), 2022-2023

Parameter	Unit	Consent limits	July 2000 to June 2023		27-Sep-22	19-Jan-23	15-Mar-23	5-Apr-23	12-Jun-23
			Min	Max	12:12	11:02	14:02	nd	12:00
Electrical conductivity	mS/m	-	8.8	60.2	33	35	33.3	33.9	34.1
pH	pH	**6-9**	6.3	8.1	7.6	8.1	7.8	8	7.7
Suspended solids	g/m^3	**100**	4.0	650.0	<3	4	<3	<3	<3
Total hydrocarbons	g/m^3	**15**	-	-	<4	<4	<4	<4	<4

Table 6 Kurapete Stream monitoring results for the upstream site (KRP000960), 2022-2023

Parameter	Unit	July 2000 to June 2023		27 Sep 2022	19 Jan 2023	15 Mar 2023	05 Apr 2023	12 Jun 2023
		Min	Max	10:53	10:30	13:15	nd	11:20
Electrical conductivity	mS/m	7.3	31.2	11.9	13.4	14.1	13.1	11.8
pH	pH	7.0	7.9	7.5	7.6	7.7	7.7	7.4

Parameter	Unit	July 2000 to June 2023		27 Sep 2022	19 Jan 2023	15 Mar 2023	05 Apr 2023	12 Jun 2023
		Min	Max	10:53	10:30	13:15	nd	11:20
Suspended solids	g/m^3	2.0	650.0	<3	<3	<3	<3	<3
Turbidity	FNU	0.7	710.0	0.7*	1.17*	1.02*	1.12*	1.1*
Total hydrocarbons	g/m^3	-	-	<0.7	<0.7	<0.7	<0.7	<1.4

Table 7 Monitoring results for the confluence of the Kurapete Stream and unnamed tributary (KRP000975), 2022-2023

Parameter	Unit	July 2000 to June 2023		27 Sep 2022	19 Jan 2023	15 Mar 2023	05 Apr 2023	12 Jun 2023
		Min	Max	10:55	10:23	13:05	nd	11:06
Electrical conductivity	mS/m	11.1	48.8	28.9	32.5	31.7	31.8	31.6
pH	pH	6.8	7.9	7.4	7.5	7.5	7.9	7.6
Suspended solids	g/m^3	3	79	8	10	4	<3	<3
Turbidity	FNU	1.9	65	4.7	5.6	3.3	3.2	3
Total hydrocarbons	g/m^3	-	-	<0.7	<0.7	< 0.7	< 0.7	<1.4

Table 8 Kurapete Stream monitoring results for the downstream site (KRP000980), 2022-2023

Parameter	Unit	July 2000 to June 2023		27 Sep 2022	19 Jan 2023	15 Mar 2023	05 Apr 2023	12 Jun 2023
		Min	Max	10:45	10:15	12:52	nd	10:54
Electrical conductivity	mS/m	7.9	37.6	15.1	16.8	17.8	16.3	16
pH	pH	7	7.8	7.4	7.6	7.6	7.7	7.5
Suspended solids	g/m^3	2	170	<3	<3	6	3	<3
Turbidity	FNU	0.93	150	1.02 (1.05)	1.76 (1.76)	3.4 (1.53)	1.29 (1.68)	1.56 (1.65)
Total hydrocarbons	g/m^3	-	-	< 0.7	< 0.7	< 0.7	< 0.7	<1.4

Green = compliant results as they are within the allowable limit (brackets) based on KRP000960 results

Red = non-compliant results as they are not within the allowable limit (brackets) based on KRP000960 results

Condition 14 of consent R2/1113-5.1 requires that the turbidity value for the downstream sample (KRP000980, Table 8) is no more than 50% greater than that of the upstream sample (KRP000960, Table 6). On 27 September 2022, 5 April 2023 and 12 June 2023 monitoring results from the downstream sampling points were compliant with consent conditions at the time of sampling. The sample taken on the 19 January 2023 was just compliant. Downstream samples taken on 15 March 2023 exceeded the turbidity limit which instigated a resample on the 5 April 2023. The resample result was within acceptable limits. The values for all other analytes were within consented limits.

2.1.4 Water discharge data and groundwater abstraction

The Company provides discharge (Figure 4) and groundwater abstraction data (Figure 5) via telemetry. The discharge flowmeter is currently located between Ponds C and D (Photo 4) and not at the point of discharge as per the consent conditions. The current location of the discharge flowmeter is believed to be a point at which the representative discharge of water actively pumped by the site is captured. Some infiltration of

stormwater through the base of the gravity-fed ponds (Ponds D to F) is likely to occur which would reduce the volume of the discharge from what is recorded in the flow meter between Ponds C and D. The flow meter is therefore reading a worst case scenario discharge volume. The position of the flow meter at Pond D does not account for the discharge contribution from the emergency line which also constitutes a groundwater take from Pond A. The discharge from the main flow line is presented graphically (Figure 4), for the 2022-2023 monitoring year however, further discussion is required around the emergency contribution.

Flow meters which record abstraction rates are located on the emergency line between Pond A and Pond D and on an outlet which discharges to the sand wash ponds. Since there are three pathways by which groundwater leaves Pond A, the Council deemed it necessary to merge data from the emergency line, sand wash and the main abstraction line (also discharge) from Pond A to yield a more accurate representation of the combined abstraction rate. Abstraction data is presented graphically in Figure 5 . This reveals that although there has been an improvement in the rate of abstraction prior to November 2022, there are multiple instances of significant non-compliance with respect to the 20 L/s consent limit. The Council is currently working with the Company to address this.

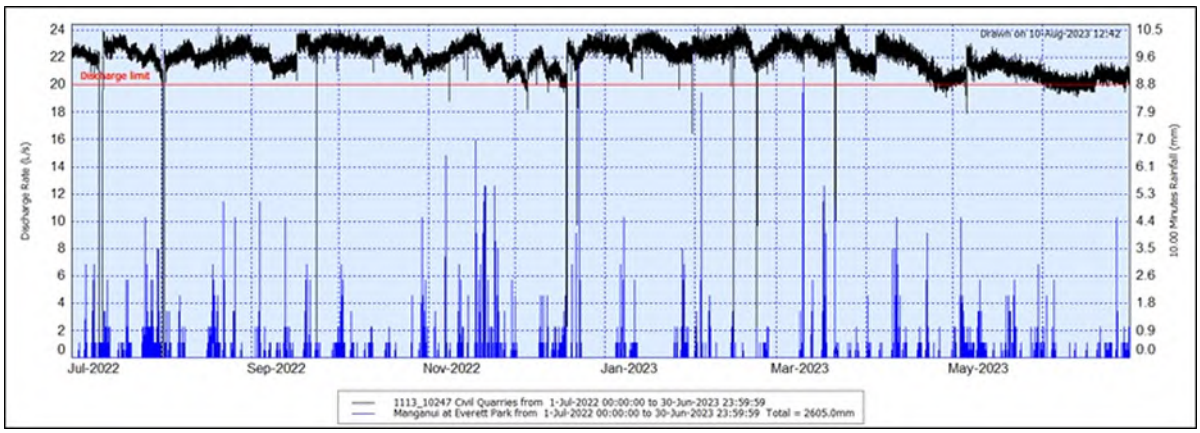

Figure 4 Discharge rates from Civil Quarries stormwater system plotted against rainfall in 10 minute interval totals. The red line is the consented discharge rate limit

Figure 4 shows discharge rates plotted against rainfall at Everett Park in 10 minute intervals during the monitoring period. This is to assess compliance against special conditions 1 and 2 of consent 1113-5.1, which specify a discharge rate limit of 20 L/s unless during times of "heavy rainfall". The rainfall is shown in 10 minute intervals with a maximum of 10.7 mm to align with "heavy rainfall" limits set in special condition 4 of consent 1113-5.1. The discharge can exceed 20 L/s during high rain events, but this is limited to initiation of no more than 15 hours after the event and a reduction to 20 L/s must occur within 36 hours of the main rain event (condition 2). The data indicate that the discharge has almost consistently exceeded the limit for the period July 2022 to May 2023. The rate shows a declining trend from May 2023 to June 2023. This has been attributed to an improvement in site management during the latter part of the 2022-2023 monitoring year. Further discussion around the emergency contribution is required as the flow meter recording discharge is not located at the point of discharge.

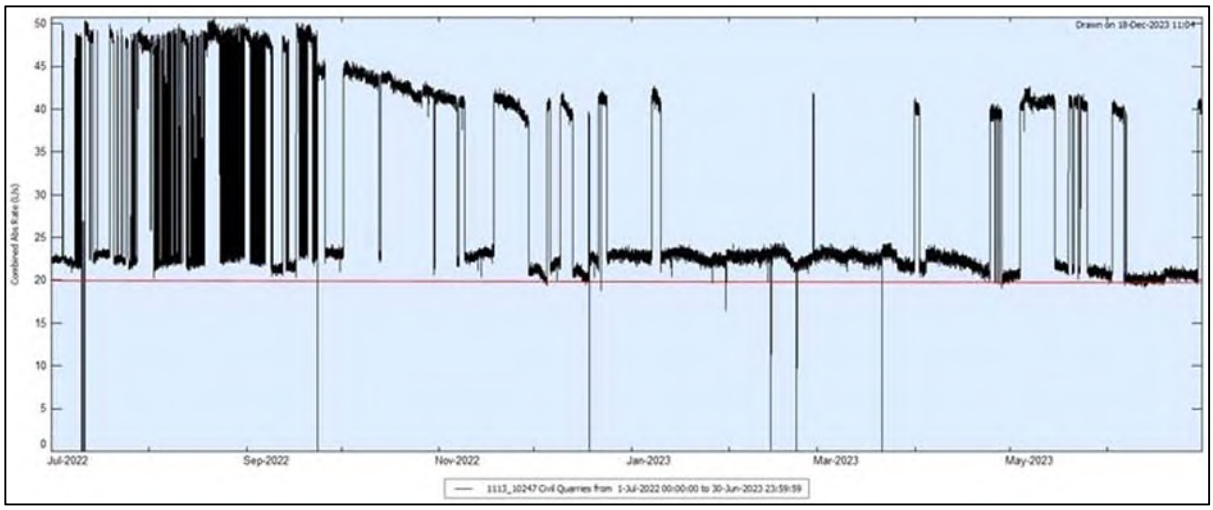

Figure 5 Abstraction rates from Pond A which is where groundwater from the excavation pit is pumped into (1 July 2022 to 30 June 2023)

Figure 5 represents the combined groundwater abstraction rates as recorded from the three flow pathways from settlement Pond A. Special condition 1 of consent 10247-1.1 states that abstraction is limited to 20 L/s at all times. This was significantly exceeded from July 2022 to January 2023. The data demonstrate that there has been an overall improvement in the abstraction rate, however, several significant non-compliances are still evident in the trend. Further discussion around the abstraction rates will occur during the 2023-2024 monitoring year.

2.1.5 Biomonitoring survey

All sampled sites had a moderate (“good”) taxa richness (Figure 6). Compared to the ‘control’ site, taxa richness decreased at the ‘primary’ impact site by one taxon and increased by one taxon at the ‘secondary’ impact site. Taxa richness was lower than the historic median at all three sites, and has been for a minimum of the last five surveys at all three sites. As this decrease in richness is also evident at the control site, it is not likely to be related to quarry activities.

Based on the MCI score, all the sites were determined to be in 'good' condition, with scores ranging from 103 to 104 units (see Table 9 for reference). The MCI scores were not significantly different from each other and were higher than the historical averages and previous scores. The SQMCI score indicated that site 1 and 3 were in 'good' condition, while site 2 was in 'fair' condition. However, the differences in SQMCI scores between sites were minor, ranging from 0.4 to 0.8 units. All sites had better scores compared to historical averages (significantly so for sites 2 and 3) but lower scores compared to the previous survey.

There was an 8% increase in the proportion of total EPT (mayflies, stoneflies, and caddisflies) species between sites 1 and 2, with the actual number of EPT species increasing by one. Additionally, there was a 5% decrease in the proportion of total EPT species between sites 2 and 3, although the actual number of EPT species remained the same.

Overall, the survey indicated that quarry discharges entering the stream from a small tributary draining the quarry area was not having a significant effect on the macroinvertebrate community immediately downstream of the quarry discharge.

Copies of biomonitoring reports for this site are available from the Council upon request.

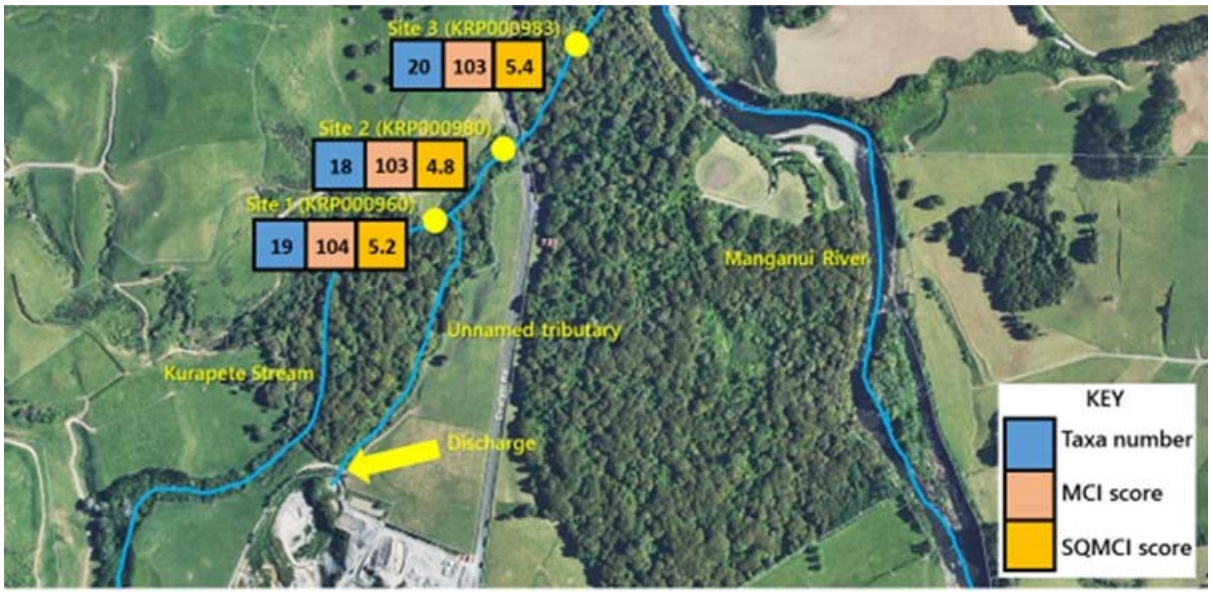

Figure 6 Biomonitoring sites in the Kurapete Stream in relation to the quarry discharge with taxa number, MCI scores and SQMCI scores presented for each site

Table 9 Macroinvertebrate community health based on MCI and SQMCI ranges. This has been adapted for Taranaki streams and rivers from Stark's classification (Stark, 1985 and Stark, 1998)

TRC Grading	MCI	SQMCI
Excellent	≥140	≥7.00
Very Good	120-139	6.00-6.99
Good	100-119	5.00-5.99
Fair	80-99	4.00-4.99
Poor	60-79	3.00-3.99
Very Poor	<60	<3.00

2.2 Independent Monitoring

2.2.1 Results of low flow gauging

Summer flow gauging is conducted annually at four sites upstream and downstream of the quarry to ascertain possible effects of quarry dewatering upon summer low flows in the adjacent streams. The gauging sites included the Kurapete Stream and one of its unnamed tributaries (Figure 3). The Council's Manganui at Everett Park and Kurapete Stream sites served as reference points for low flows. At the time of report publication, the Council and the Company were engaged in discussion to identify an alternative downstream site to replace site 4 (Le Lievre, 2023). The results of the 2022-2023 summer low flow gauging are presented in Table 10.

Table 10 Results of summer low flow gauging conducted on 27 April 2023

Site	Coordinates	Date	Time (NZST)	Results (LPS)
Site 1	1710221.86 E, 5667646.48 N	27/04/2023	11:50	48

Site	Coordinates	Date	Time (NZST)	Results (LPS)
Site 2	1710119.14 E, 5668119.15 N	27/04/2023	10:06	45
Site 3	1710038.76 E, 5668059.14 N	27/04/2023	09:31	641
Site 4	1710681.82 E, 5668750.45 N	27/04/2023	10:59	921

2.3 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data and liaison with the Company. During the year, matters may arise which require additional activity by the Council, for example, provision of advice and information, or investigation of potential or actual causes of non-compliance, or failure to maintain good practices. A pro-active approach that in the first instance avoids issues occurring is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

Whether compliant or not, the details of any incidents recorded and additional investigations or interventions conducted by the Council in relation to the Company's activities during the 2022-2023 period are presented in Table 11.

Table 11 Incidents, Investigations and Interventions summary table

Date	Consent	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
15/03/2023	R2/1113-5.1	Breach of Abatement Notice EAC-24687- turbidity contravention	N	Yes – Infringement Notice	The Company was issued Infringement Notice EAC-25100 for contravention of Abatement Notice EAC-24687 which was previously issued in response to the discharge of turbid stormwater into the unnamed tributary of the Kurapete Stream
18/05/2023	R2/10247-1.1	Exceedance of water take allowance	N	No	A letter requesting an explanation for the water take exceedance was sent to the Company. Further information received from the Company indicated that the flow meter was reading inaccurately. The Council is working with the Company to ensure compliance.

3 Discussion

3.1 Discussion of site performance

The results of the physico-chemical analyses (Table 8) demonstrate that with respect to turbidity, the site was compliant on three out of four routine monitoring inspections. The non-compliant results from the 15 March 2023 inspection prompted the Council to issue an Infringement notice (EAC-25100) as the turbidity levels exceeded the limit and contravened the requirements of Abatement Notice (EAC-24687) issued on 1 August 2022. Resampling on the 5 April 2023 returned a compliant result. The results for all other analytes (Table 5 to 8) were within their respective limits.

Independent surface water monitoring conducted by the Company's Environmental consultant raised points for discussion. These related to surface water monitoring and the issue of high levels of deposited sediment in the tributary into which treated groundwater and stormwater are discharged (Le Lievre, 2023). Discussions between the Council and the Company will be held in the 2023-2024 monitoring year.

The discharge rate exceeded the consent limit (20 L/s) for the majority of the 2022-2023 monitoring year, however, a significant improvement was evident towards the end of the year (Figure 4).This has been attributed to an improvement in on site management since a change in ownership. The position of the discharge flow meter at Pond D does not account for the discharge contribution from the emergency line, therefore further discussion is required around this contribution. Given the position of the flowmeters which record abstraction rates, the Council deemed it necessary to merge the abstraction data to gain a more representative combined dewatering rate. While the rate of abstraction has improved noticeably since October 2022 (Figure 5), the consent limits (20 L/s) were significantly exceeded on several occasions. The Council aims to continue to work with the Company to resolve the issue of the flowmeters during the 20203-2024 monitoring year.

Results of the biomonitoring assessment demonstrate that the quarry discharge has not instigated significant compositional shifts in key ETP taxa within the Kurapete Stream.

As per the consent conditions relating to the independent groundwater monitoring programme, groundwater level loggers have been installed in three monitoring bores situated around the quarry site. This has supplied baseline data for the 2022-2023 monitoring year. The full independent monitoring report will be available upon request once it has been finalised.

3.2 Environmental effects of exercise of consents

The main potential environmental effect of quarrying activities upon waterways is associated with discharges of stormwater with high suspended sediment yields. Such discharges can discolour the receiving waters, smother benthic life forms, form barriers to fish passage and affect fish spawning habitats. This has been shown to be particularly relevant in the lower reaches of the Kurapete Stream, near its confluence with the Manganui River (Sutherland, 2019). The Civil Quarries site is particularly important as it is immediately upstream of the DOC Everett Park Scenic Reserve which is a popular location for swimming and fishing.

The MCI and SQMCI indexes are indicators of organic pollution but are also usually correlated with deposited sediment so that sites with high levels of silt tend to have lower MCI and SQMCI scores. This makes them useful for determining impacts of discharges that contain predominately fine sediment such as quarry discharges. However, macroinvertebrate sampling occurs in riffles which have high flow velocities compared with runs and pools and are therefore far less likely to accumulate deposited sediment. Over the 2022-2023 monitoring period, there was one instance during which the discharge could have had adverse effects upon the stream environment (Table 11). Prior to this incident, no major differences in deposited fine sediment were evident during the 1 March 2023 biomonitoring survey. The 'control' site showed a minor presence of silt (5%) in the substrate composition, while the 'primary' and 'secondary' impact sites had 10%

silt in their substrate. No silt coating was observed at either of the impact sites and the water was not significantly cloudier downstream of the quarry tributary with all sites recording a clarity of clear. Overall, the biological survey indicated that the quarry discharge did not have a significant impact upon the macroinvertebrate community immediately downstream of the unnamed tributary during the 2022-2023 monitoring year.

Due to the extensive nature of the quarry operation, there is potential for groundwater levels in the surrounding area to be affected by the dewatering operation onsite. This effect is now being monitored and future data will be compared against the baseline values reported for the 2022-2023 monitoring period.

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Table 12 to 14.

Table 12 Civil Quarries Ltd summary of performance for consent 1113-5.1

Purpose: ***To discharge treated stormwater and treated groundwater from quarry activities into an unnamed tributary of the Kurapete Stream***		
Condition requirement	**Means of monitoring during period under review/action points**	**Compliance achieved?**
1. Maximum discharge rate to not exceed 20 L/s	Telemetered data revealed that the discharge rate almost continuously exceeded the consented limit for a large portion of the monitoring year (Figure 4)	No
2. Exception of exceedance of condition 1 due to 'heavy rain'	Inspections and supply of water meter data	No
3. Provision of stormwater management plan by 1 August 2019	Plan accepted by Council. Updated December 2020	Yes
4. No wash water to enter stormwater unless due to 'heavy rain'	Inspections of stormwater and wash water treatment systems	Yes
5. Location of discharge point	Inspections of treatment system and discharge point	Yes
6. Company to adopt best practicable option	Inspections	Yes
7. Limits quarry catchment area	Inspections of site	Yes
8. Company to install and maintain water meter and data logger on discharge	Inspections	No
9. Specifications on discharge records	Auditing of discharge records	Yes
10. Measuring and recording equipment to be accessible for data retrieval	Inspection	Yes

Purpose: *To discharge treated stormwater and treated groundwater from quarry activities into an unnamed tributary of the Kurapete Stream*		
Condition requirement	**Means of monitoring during period under review/action points**	**Compliance achieved?**
11. Active quarry site to be contoured and bunded to direct water into treatment system	Inspections of treatment system and site	Yes
12. Discharge concentration limits	Physicochemical sampling	Yes
13. Discharge to not adversely affect receiving waters	Inspection and physicochemical sampling of receiving waters, biological sampling	Yes
14. Turbidity limit for receiving waters relative to discharge	Physicochemical sampling – Exceedance of turbidity limits on one occasion.	No
15. Contingency plan maintained	Plan received – Requires updating	Yes
16. Optional review of consent	Optional annual review for 5 years, 2-yearly intervals afterwards. Next review June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Improvement required**
Overall assessment of administrative performance in respect of this consent		**Good**

N/A = not applicable

Table 13 Civil Quarries Ltd summary of performance for consent 10247-1.1

Purpose: *To take groundwater incidental to quarry operations and for aggregate washing purposes*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Abstraction rate shall not exceed 20 L/s	Inspections and data review. Abstraction rate from emergency pump showed an almost continual exceedance until September 2022 (Figure 5)	No
2. Installation and maintenance of water meter and datalogger at water take	Inspections.	No
3. Abstraction data formatting and supply requirements	Abstraction data review	Yes
4. Flow meter to be verified	Inspection and certification to be supplied at least once every 5 years	Yes
5. Company to notify if recording equipment repairs are required	Notification if and when required – flowmeters were not working	N/A
6. Company to undertake groundwater monitoring programme	Monitoring programme has been initiated and data has been received from the Company's Environmental consultant.	Yes
7. Water meters to be accessible for data retrieval	Inspections	Yes

Purpose: *To take groundwater incidental to quarry operations and for aggregate washing purposes*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
8. Company to adopt best practicable option to minimise adverse effects on groundwater	Inspections, data review, groundwater level monitoring	No
9. Optional review of consent	Optional annual review for 5 years, 2-yearly intervals afterwards. Next review June 2025.	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**Improvement required** **Good**

Table 14 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2017	1113-5	-	-	1	-
	10247-1	-	-	1	-
2018	1113-5	-	-	1	-
	10247-1	-	-	1	-
2019	1113-5.1	-	-	1	-
	10247-1.1	-	-	1	-
2020	1113-5.1	-	-	1	-
	10247-1.1	-	-	1	-
2021	1113-5.1	-	-	1	-
	10247-1.1	-	-	1	-
2022	1113-5.1	-	-	1	-
	10247-1.1	-	-	1	-
2023	1113-5.1	-	-	1	
	10247-1.1	-	-	1	
Totals	-	0	0	14	0

During the year, the Company demonstrated a good level of administrative performance and a level of environmental performance that required improvement with respect to their resource consents, as defined in Appendix II. The discharge rate exceeded the 20L/s consent limit for a large portion of the monitoring year, however, this exceedance is noted to have reduced towards the end of the latter half of the monitoring year. While the abstraction rate showed marked improvement from September 2022, the merged abstraction data demonstrates that consent limits were exceeded on a number of occasions. The biomonitoring survey showed that the quarry discharge did not impact the ecological composition of the Kurapete Stream at the time of sampling.

3.4 Recommendations from the 2021-2022 Annual Report

In the 2021-2022 Annual Report, it was recommended:

1. THAT in the first instance, the monitoring of consented activities at Everett Road quarry in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT should there be ongoing issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the position of the flowmeters be relocated to fit the requirements of the resource consent, in agreement with the Council.
4. THAT the flow rate from the discharge and groundwater take pumps be closely monitored to ensure compliance with resource consent conditions
5. THAT the Environmental Monitoring Programme submitted by the Company be carried out in full, as agreed.
6. THAT the option for a review of resource consent(s) in June 2023, as set out in condition 16 of consent 1113-5.1 and condition 9 of consent 10247-1.1 not be exercised, on the grounds that aspects of the monitoring programme still need to be implemented to enable a full assessment of effects to be made.

The third recommendation had not been fulfilled at the end 2022-2023 review period.

3.5 Alterations to monitoring programmes for 2023-2024

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site(s) in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2023-2024.

3.6 Exercise of optional review of consent

Resource consent 1113-5.1 provides for an annual optional review of the consent until June 2024. Thereafter, the optional review may be exercised by the Council at two-yearly intervals. Condition 16 allows the Council to review the consent for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Resource consent 10247-1.1 provides for an annual optional review of the consent until June 2024. Thereafter, the optional review may be exercised by the Council at two-yearly intervals. Condition 9 allows the Council to review the consent for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; and/or requiring continuous measuring and recording of the flow immediately downstream of the take site.

Based on the results of monitoring in the year under review and in previous years as set out in earlier annual compliance monitoring reports, there were no grounds to warrant a review in June 2023.

4 Recommendations

1. THAT in the first instance, the monitoring of consented activities at Everett Road quarry in the 2023-2024 year continue at the same level as in 2022-2023.
2. THAT should there be ongoing issues with environmental or administrative performance in 2023-2024, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the location of the discharge and abstraction flow meters is resolved in the 2023-2024 monitoring year
4. THAT the flow rates from the discharge and groundwater take pumps continue to be closely monitored to ensure compliance with resource consents.
5. THAT the independent Environmental Monitoring Programme commissioned by the Company be carried out in full and continued as agreed.
6. THAT the points raised in the independent monitoring report which related to the Council's surface water monitoring programme be addressed as soon as is practicable
7. THAT should any significant adverse environmental effects arise as a result of quarry operations, the option for a review of resource consent(s) in June 2024, as set out in condition 16 of consent 1113-5.1 and condition 9 of consent 10247-1.1 be considered.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Biomonitoring	Assessing the health of the environment using aquatic organisms.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m.
EMP	Environmental Monitoring Programme
EPT (taxa)	Ephemeroptera, Plecoptera, Tricoptera Index (mayflies, stoneflies and caddisflies).
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
m^2	Square Metres.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
MPN	Most Probable Number. A method used to estimate the concentration of viable microorganisms in a sample.
mm	Millimetre.
mS/m	Millisiemens per metre.
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).

RMA	*Resource Management Act 1991* and including all subsequent amendments.
SMP	Stormwater Management Plan.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.

For further information on analytical methods, contact an Environment Quality Manager.

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Appendix I

Resource consents held by Civil Quarries Ltd

(For a copy of the signed resource consent
please contact the TRC Consents department)

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Discharge Permit

Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of Consent Holder:	Civil Quarries Limited PO Box 108 Inglewood 4347	
Decision Date (Change):	11 June 2019	
Commencement Date (Change):	11 June 2019	(Granted Date: 1 December 2016)

Conditions of Consent

Consent Granted:	To discharge treated stormwater and treated groundwater from quarry activities into an unnamed tributary of the Kurapete Stream
Expiry Date:	1 June 2033
Review Date(s):	June 2020, June 2021, June 2022, June 2023, June 2024, June 2026, June 2028, June 2030, June 2032
Site Location:	Everett Road, Inglewood
Grid Reference (NZTM)	1710454E-5668324N
Catchment:	Waitara
Tributary:	Manganui Kurapete

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. Subject to condition 2 the discharge rate shall not exceed 20 litres per second

2. The rate of discharge may exceed 20 litres per second if:

   a) it is initiated no more than 15 hours after 'heavy rain', as defined in condition 4 below; and
   b) it reduces to no more than 20 litres per second within 36 hours of the most recent 'heavy rain' event; and
   c) it is reasonably necessary to return the quarry to an operational state.

3. From 1 August 2019, the site shall be operated in accordance with a 'Stormwater Management Plan' (SMP) approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The SMP shall detail how the site is managed to achieve compliance with the conditions of this consent and shall include, as a minimum, details of:

   a) the treatment of stormwater, washwater and groundwater, including the pond configuration;
   b) management/recycling of washwater on site;
   c) disposal of recycled washwater;
   d) management of the pond treatment systems; and
   e) maintenance programme for the treatment system;

4. No washwater shall enter the stormwater treatment system, unless it is due to heavy rain within the previous 24 hours. For the purposes of this consent 'heavy rain' refers to rainfall recorded at the 'Manganui at Everett Park' rain gauge that exceeds any of the rainfall intensities listed below:

Rainfall Intensity
10.7 mm in 10 minutes
15.7 mm in 20 minutes
19.2 mm in 30 minutes
25.8 mm in 1 hour
41.5 mm in 3 hours
88.0 mm in 12 hours
109 mm in 24 hours
146 mm in 72 hours

5. The discharge into the unnamed tributary of the Kurapete Stream shall be located at (NZTM) 1710454E–5668324N.

6. At all times, the consent holder shall adopt the best practicable option (as defined in Part 2 of the Resource Management Act 1991) to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge, including by preventing the flow of uncontaminated water into the quarry.

7. The active quarry stormwater catchment shall be no more than 13.5 hectares.

8. Before 31 July 2019 the consent holder shall install, and thereafter maintain, a meter and a datalogger at the site of discharge into the unnamed tributary of the Kurapete Stream. The meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of the discharge to an accuracy of ± 5%, at intervals not exceeding 15 minutes. Records of the date, the time and the rate and volume the discharge, shall be made available to the Chief Executive, Taranaki Regional Council on request.

   Note: Meters must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters have a limited lifespan.

9. The discharge records required by condition 8 shall:

   a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;

   b) specifically record the discharge as 'zero' when no discharge is occurring; and

   c) be transmitted to the Taranaki Regional Council's computer system within 2 hours of being recorded.

10. All measuring and recording equipment required by this consent shall be accessible to Taranaki Regional Council Officers at all reasonable times for inspection and/or data retrieval.

11. The site shall be contoured and bunded so that all water is directed to the pond system for treatment prior to discharge. No water shall be discharged unless it has passed through the treatment pond system as detailed in the 'Stormwater Management Plan' required by condition 3 above.

12. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
pH	Within the range 6.0 to 9.0
suspended solids	Concentration not greater than 100 gm^{-3}
total recoverable hydrocarbons	Concentration not greater than 15 gm^{-3}

These standards shall apply prior to the entry of any discharge into the receiving waters of the unnamed tributary of the Kurapete Stream, at a designated sampling point approved by the Chief Executive.

13. Beyond 25 metres downstream of the confluence of the unnamed tributary with the Kurapete Stream, the discharge shall not give rise to any of the following effects in the receiving waters of the Kurapete Stream:

    a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; and/or
    b) any conspicuous change in the colour or visual clarity; and/or
    c) any emission of objectionable odour; and/or
    d) the rendering of fresh water unsuitable for consumption by farm animals; and/or
    e) any significant adverse effects on aquatic life.

14. Beyond 25 metres downstream of the confluence of the unnamed tributary with the Kurapete Stream, the discharge shall not give rise to an increase in turbidity of the Kurapete Stream of more than 50%, as determined using NTU (nephelometric turbidity units).

15. The consent holder shall maintain and regularly update a 'Contingency Plan' that details measures and procedures to be undertaken to prevent, and to avoid environmental effects from a spillage or any discharge of contaminants not authorised by this consent. The plan and any amended versions shall be provided to the Chief Executive of the Taranaki Regional Council.

16. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review annually for the first 5 years and at 2-yearly intervals thereafter for the purposes of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time, specifically including the turbidity limits set in condition 14.

Signed at Stratford on 11 June 2019

For and on behalf of
Taranaki Regional Council

_____

A D McLay
Director – Resource Management

Water Permit

Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of Consent Holder:	Civil Quarries Limited PO Box 108 Inglewood 4347	
Decision Date (Change):	11 June 2019	
Commencement Date (Change):	11 June 2019	(Granted Date: 1 December 2016)

Conditions of Consent

Consent Granted:	To take groundwater incidental to quarry operations and for aggregate washing purposes
Expiry Date:	1 June 2033
Review Date(s):	June 2020, June 2021, June 2022, June 2023, June 2024, June 2026, June 2028, June 2030, June 2032
Site Location:	Everett Road, Inglewood
Grid Reference (NZTM)	1710429E-5668228N
Catchment:	Waitara
Tributary:	Manganui Kurapete

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The rate of taking shall not exceed 20 litres per second.

2. Before 31 July 2019 the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking (or a nearby site in accordance with Regulation 10 of the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010). The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5, at intervals not exceeding 15 minutes. Records of the date, the time and the rate and volume of water taken shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

   Note: Water meters must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters have a limited lifespan.

3. The records of water taken shall:

   a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;

   b) specifically record the water taken as 'zero' when no water is taken; and

   c) be transmitted to the Taranaki Regional Council's computer system within 2 hours of being recorded.

4. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring equipment required by the conditions of this consent ('the equipment'):

   a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   i) within 30 days of the installation of a water meter;

   ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and

   iii) no less frequently than once every five years.

5. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

6. The consent holder shall undertake a monitoring programme that monitors the effects of this consent on the surrounding aquifer. The monitoring programme shall be submitted to the Chief Executive, Taranaki Regional Council for certification before 31 July 2019 and shall include the drilling and monitoring of a minimum of three bores at locations determined after consultation with the Chief Executive, Taranaki Regional Council.

7. All measuring and recording equipment required by this consent shall be accessible to Taranaki Regional Council Officers at all reasonable times for inspection and/or data retrieval.

8. At all times, the consent holder shall adopt the best practical option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of groundwater.

9. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review annually for the first 5 years and at 2-yearly intervals thereafter for the purposes of:

   a) ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; and/or

   b) requiring continuous measuring and recording of the flow immediately downstream of the take site.

Signed at Stratford on 11 June 2019

For and on behalf of
Taranaki Regional Council

_____

A D McLay
Director - Resource Management

Appendix II

Categories used to evaluate environmental and administrative performance

Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

Improvement required: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

Poor: Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

High: The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively

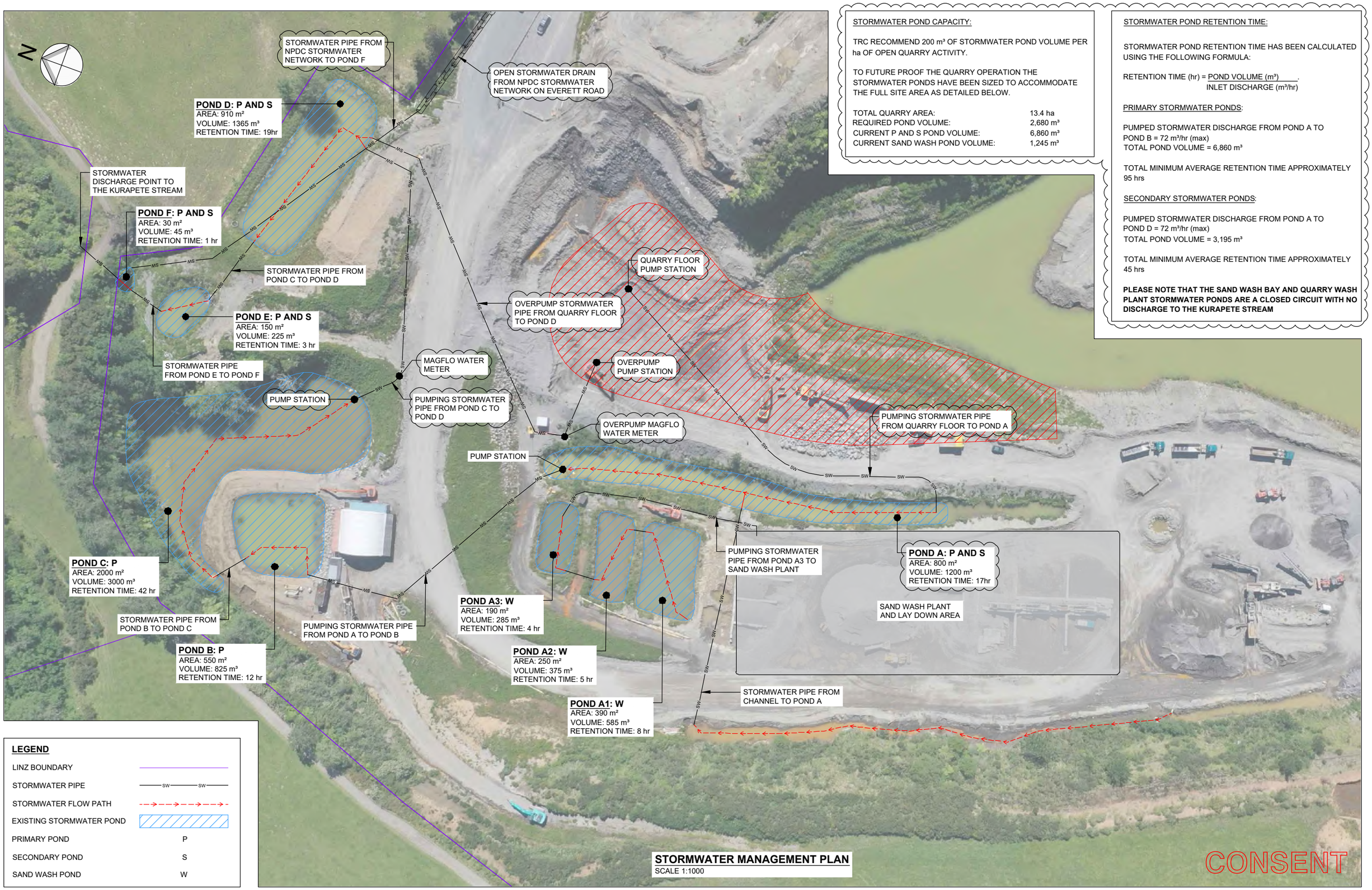
adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

Improvement required: Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

Appendix III

Map of stormwater and washwater treatment system December 2020



STORMWATER POND CAPACITY:

TRC RECOMMEND 200 m³ OF STORMWATER POND VOLUME PER ha OF OPEN QUARRY ACTIVITY.

TO FUTURE PROOF THE QUARRY OPERATION THE STORMWATER PONDS HAVE BEEN SIZED TO ACCOMMODATE THE FULL SITE AREA AS DETAILED BELOW.

TOTAL QUARRY AREA:	13.4 ha
REQUIRED POND VOLUME:	2,680 m³
CURRENT P AND S POND VOLUME:	6,860 m³
CURRENT SAND WASH POND VOLUME:	1,245 m³

STORMWATER POND RETENTION TIME:

STORMWATER POND RETENTION TIME HAS BEEN CALCULATED USING THE FOLLOWING FORMULA:

$$\text{RETENTION TIME (hr)} = \frac{\text{POND VOLUME (m}^3\text{)}}{\text{INLET DISCHARGE (m}^3\text{/hr)}}$$

PRIMARY STORMWATER PONDS:

PUMPED STORMWATER DISCHARGE FROM POND A TO POND B = 72 m³/hr (max)
TOTAL POND VOLUME = 6,860 m³

TOTAL MINIMUM AVERAGE RETENTION TIME APPROXIMATELY 95 hrs

SECONDARY STORMWATER PONDS:

PUMPED STORMWATER DISCHARGE FROM POND A TO POND D = 72 m³/hr (max)
TOTAL POND VOLUME = 3,195 m³

TOTAL MINIMUM AVERAGE RETENTION TIME APPROXIMATELY 45 hrs

PLEASE NOTE THAT THE SAND WASH BAY AND QUARRY WASH PLANT STORMWATER PONDS ARE A CLOSED CIRCUIT WITH NO DISCHARGE TO THE KURAPETE STREAM

LEGEND

LINZ BOUNDARY	
STORMWATER PIPE	SW
STORMWATER FLOW PATH	
EXISTING STORMWATER POND	
PRIMARY POND	P
SECONDARY POND	S
SAND WASH POND	W

STORMWATER MANAGEMENT PLAN
SCALE 1:1000

CONSENT

REDJACKET
3 DAVIDSON STREET
NEW PLYMOUTH 4310
Ph. 06 759 0999

DATE	REV	REV RECORD	BY	CHD	VER	APP
05.12.23	B	ISSUED FOR CONSENT	MM	LB	-	CM

Client: TARANAKI CIVIL CONSTRUCTION LIMITED

Project: STORMWATER MANAGEMENT EVERETT ROAD QUARRY INGLEWOOD

Sheet Title: STORMWATER MANAGEMENT PLAN

Drawing No.: 100-441 | A3 | REV. B

Job No.: 4147 | Sheet No.: C1-1

File Name: Z:\JOBS\h 4001-4500\4101-4150\4147 Everett Road Quarry - Stormwater Report\Drawing\100-441 RevB.dwg - C1-1 Plot Date: 05/12/2023 Plot Time: 15:52