

Thursday, 28th June 2018.

Mr Chris Birt
Director
MANAAKI GROUP HOLDINGS LTD
Taupo Aotearoa New Zealand

Dear Chris

PROPOSED ACCOMMODATION MOERANGI VALLEY

Thank you for sending a copy of the Department of Conservations (DoC) letter dated 14th June. You've asked for my comments in relation to the questions regarding wastewater services and water supply for the proposed accommodation in the Moerangi Valley.

The relevant sections of the DoC letter are:-

d) In relation to waste water and water supply:

- (i) Please provide a statement from the Hawkes Bay Regional Council that satisfies the Department that a wastewater treatment and disposal system proposed in relation to the development will:
- Comply with the Hawkes Bay Regional Council's permitted activity rules and exceed them; or
 - Be approved under a resource consent from the Hawkes Bay Regional Council's and all adverse effects will be adequately avoided, remedied or mitigated.

The application states that the Wastewater treatment and disposal system design is a work in progress. The Council mentions that the proposed Wastewater treatment and disposal system design is not currently permitted based on preliminary design and a Resource Consent is likely to be required. The Department needs to be satisfied that if approval is given to the application, that an appropriate wastewater treatment and disposal system can be installed.

- (ii) Please provide a statement from the Hawkes Bay Regional Council that satisfies the Department that a Water Supply system proposed in relation to the proposed development will:
- Comply with the Hawkes Bay Regional Council's permitted activity rules and exceed them; or
 - Be approved under a resource consent from the Hawkes Bay Regional Council's and all adverse effects will be adequately avoided, remedied or mitigated.

The application states that the Council has concerns they won't meet the permitted activity rules as the rate of stream take shall not exceed 10% of the instantaneous flow at the point of take-which is 1.2 L/s. They suggest rain take. The Department needs to be satisfied that if approval is given to the application, that an appropriate water supply system can be installed.

a) Wastewater

Hawkes Bay Regional Council (HBRC) are not in a position to state categorically that a consent will be granted for this development just like DoC are not in a position to state that a lease will be granted for this development proposal. As we said in the lease application to DoC, the design of the system is a work in progress so HBRC don't yet have the detail they need to make such a statement. However I have asked the HBRC Consents Planner that has been handling our enquiries whether she saw any "fatal flaws" in our proposal to date. Her response is as follows:-

"As discussed during our phone conversation this afternoon, while I am unable to comment on the likelihood or probability of consents being granted for this project, I am happy to continue working with you as we have done to date to try and find solutions that will work for this site.

My comments in my email to you on 10 May 2018 regarding the proposed wastewater discharge and the proposed surface water take still stand.

As stated in that email, I still strongly recommend that you get in touch with one of our accredited wastewater designers. They will be able to help you with the design of the wastewater system and will hopefully be able to provide more assurance than I am able to that the system can be designed in such a way that it meets HBRC's requirements/that any adverse effects on the environment will be no more than minor. This should also address DoC's questions under d) below.

I am glad to hear you will be installing rain water tanks at the site. The proposed surface water take may need more discussion with our hydrologists but this can occur once an application has been lodged with Council."

The full email is attached. As she has suggested, I have also been in touch with one of HBRC's accredited designers, Steve Crockford who is the Technical Director of EMS (Effluent Management Systems) and Biorock (NZ) Ltd. He has stated:-

"Based on the information provided it looks like a totally powerless system is achievable (see attached concept) and I have no doubt that provided HBRC receive an accurate Consent Application covering environmental and cultural considerations a consent for this project would be granted."

The full email is attached. Biorock have recently installed wastewater management systems at other accommodation facilities operating on DoC leases (Pureora Timber Trail Accommodation being one close by) and I have seen effluent test results from these systems that are very impressive. Suspended Solids and BOD₅ concentrations around 5mg/l (or parts per million). These numbers suggest that the "Biorock" system is a high quality advanced secondary treated system, and are achieved with a "powerless" system which is what is needed at Moerangi. Some of our large scale community schemes in Taupo District struggle to achieve this quality of effluent. You'll note that Steve "...has no doubt that.....a consent for this project would be granted." and he is one of HBRC's accredited designers and installers.

In summary, I am more than confident that a wastewater system can be designed and installed at the proposed accommodation in the Moerangi Valley which will meet and exceed the requirements of the HBRC and will perform in such a way as to fit well with your stated mission to provide a tourist operation which is in sympathy with the environment.

b) Water Supply

As detailed in Section 5ii) of my report dated 14th May 2018 which DoC have with your lease application, HBRC advised in their email of 10th May that:-

"If you wish to proceed with the surface water take as you have proposed, the following permitted activity rule (Rule 54) still applies.

- a. Except for takes occurring for a period of less than 4 weeks, the total volume taken shall not exceed 20 m³/d¹³⁴ per property; (or per work site where the activity relates to the take and use of water for the maintenance of road reserves) nor shall the total volume exceed the reasonable needs of the user, whichever is the lesser.
- b. For takes occurring for a period of less than 4 weeks within any 90 day period, the total volume taken by any person shall not exceed 200 m³ per 7 day period.
- c. The rate of take shall not exceed 10% of the instantaneous flow¹³⁵ at the point of take.
- d. The intake velocity shall not exceed 0.3 m/s.
- e. The activity shall not adversely affect any wetland.
- f. The take shall not adversely affect any lawfully established efficient groundwater take, or any lawfully established surface water take, which existed prior to commencement of the take unless written approval is obtained from the affected person.

I must stress that in order for the surface water take to remain permitted you will need to ensure you meet all of these conditions, particularly condition (c): the rate of take shall not exceed 10% of the instantaneous flow at the point of take. Council's hydrologists have estimated that the Mean Annual Low Flow (MALF) of the stream from which you are proposing to take is approximately 1.2 L/s. You will need to consider what your options are for water supply during summer dry when your rate of take will likely exceed 10% of 1.2 L/s and you will have to cease abstracting water. Based on the information you have supplied, and provided the above points can be addresses, then this take will be permitted and consent will not be required."

If you do the arithmetic regarding rule c), 10% of 1.2 litres per second over a 24 hour period is $0.12 \times 60 \times 60 \times 24 = 10368$ litres per day, approximately 5 times what we have calculated the demand will be. So, with your stated position that you will also supplement the water supply from the roof of the wharekai and as a further backup have a diesel or petrol driven pump available on site to supplement the supply by pumping from the nearby Moerangi Stream should that be needed, then I am very confident that the activity will comply with rule c). You will have noted from my report that the other rules (a, b, d, e, and f) can also be complied with easily.

To summarise, having spent 40 years designing and approving infrastructural engineering assets in and around the Taupo District, it is my view that an appropriate water supply and wastewater management system can be provided to serve the proposed accommodation development in the Moerangi Valley. I trust this eases DoC's concerns.

Yours sincerely



Mike Keys
Director
KeySolutions (2005) Ltd

Mike Keys

From: Amberley Gibson [Amberley.Gibson@hbrc.govt.nz]
Sent: Thursday, 21 June 2018 3:44 p.m.
To: Mike Keys
Subject: RE: Proposed accomodation in the Moerangi Valley, Whirinaki

Hi Mike

As discussed during our phone conversation this afternoon, while I am unable to comment on the likelihood or probability of consents being granted for this project, I am happy to continue working with you as we have done to date to try and find solutions that will work for this site.

My comments in my email to you on 10 May 2018 regarding the proposed wastewater discharge and the proposed surface water take still stand.

As stated in that email, I still strongly recommend that you get in touch with one of our accredited wastewater designers. They will be able to help you with the design of the wastewater system and will hopefully be able to provide more assurance than I am able to that the system can be designed in such a way that it meets HBRC's requirements/that any adverse effects on the environment will be no more than minor. This should also address DoC's questions under d) below.

I am glad to hear you will be installing rain water tanks at the site. The proposed surface water take may need more discussion with our hydrologists but this can occur once an application has been lodged with Council.

Hope this helps.

Kind regards

Amberley Gibson
Consents Planner
06 833 8092



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Let us know how we're doing, [give your feedback here](#) – many thanks

From: Mike Keys <mike@keysolutions.co.nz>
Sent: Wednesday, 20 June 2018 2:41 PM

To: Amberley Gibson <Amberley.Gibson@hbrc.govt.nz>

Subject: RE: Proposed accomodation in the Moerangi Valley, Whirinaki

Good afternoon Amberley, thanks for making yourself available for the phone call tomorrow

DoC (in relation to water and wastewater) have asked the following:-

d) In relation to waste water and water supply:

(i) Please provide a statement from the Hawkes Bay Regional Council that satisfies the Department that a wastewater treatment and disposal system proposed in relation to the development will:

- Comply with the Hawkes Bay Regional Council's permitted activity rules and exceed them; or
- Be approved under a resource consent from the Hawkes Bay Regional Council's and all adverse effects will be adequately avoided, remedied or mitigated.

The application states that the Wastewater treatment and disposal system design is a work in progress. The Council mentions that the proposed Wastewater treatment and disposal system design is not currently permitted based on preliminary design and a Resource Consent is likely to be required. The Department needs to be satisfied that if approval is given to the application, that an appropriate wastewater treatment and disposal system can be installed.

(ii) Please provide a statement from the Hawkes Bay Regional Council that satisfies the Department that a Water Supply system proposed in relation to the proposed development will:

- Comply with the Hawkes Bay Regional Council's permitted activity rules and exceed them; or
- Be approved under a resource consent from the Hawkes Bay Regional Council's and all adverse effects will be adequately avoided, remedied or mitigated.

The application states that the Council has concerns they won't meet the permitted activity rules as the rate of stream take shall not exceed 10% of the instantaneous flow at the point of take-which is 1.2 L/s. They suggest rain take. The Department needs to be satisfied that if approval is given to the application, that an appropriate water supply system can be installed.

I'd be keen to discuss with you what we can say to give DoC the comfort they are seeking that the project is actually do-able. There's a deadline for this request for further information from DoC of 12 July

Talk to you tomorrow, 3pm

cheers

Mike

From: Amberley Gibson [<mailto:Amberley.Gibson@hbrc.govt.nz>]

Sent: Wednesday, 20 June 2018 8:09 a.m.

To: Mike Keys

Subject: RE: Proposed accomodation in the Moerangi Valley, Whirinaki

Good morning Mike

I'm happy to answer questions you have but what in particular were you wanting to discuss? I'm not sure how much more information I can provide that would add to the information in my last email.

Kind regards

Amberley

From: Mike Keys <mike@keysolutions.co.nz>
Sent: Tuesday, 19 June 2018 1:06 PM
To: Amberley Gibson <Amberley.Gibson@hbrc.govt.nz>
Cc: Reece O'Leary <reece.oleary@hbrc.govt.nz>
Subject: RE: Proposed accomodation in the Moerangi Valley, Whirinaki

Good arvo Amberley.

The Whirinaki Team is getting together Thursday afternoon to put together a plan to respond to the Department of Conservation's questions regarding the lease application.

Would you be available to take a phone call from us this Thursday 21st at 3pm??

Regards

Mike

From: Amberley Gibson [<mailto:Amberley.Gibson@hbrc.govt.nz>]
Sent: Thursday, 10 May 2018 3:58 p.m.
To: Mike Keys
Cc: Reece O'Leary
Subject: RE: Proposed accomodation in the Moerangi Valley, Whirinaki

Hi Mike

Apologies for my delay in getting back to you.

I have spoken with one of our senior planners and Council's hydrologists in relation to your proposal. I have a question regarding alternative methods of water supply. Have you considered rain water tanks in addition to or in the place of the proposed surface water take? I would suggest looking into this if you hadn't already.

If you wish to proceed with the surface water take as you have proposed, the following permitted activity rule (Rule 54) still applies.

- a. Except for takes occurring for a period of less than 4 weeks, the total volume taken shall not exceed $20 \text{ m}^3/\text{d}^{1.34}$ per property; (or per work site where the activity relates to the take and use of water for the maintenance of road reserves) nor shall the total volume exceed the reasonable needs of the user, whichever is the lesser.
- b. For takes occurring for a period of less than 4 weeks within any 90 day period, the total volume taken by any person shall not exceed 200 m^3 per 7 day period.
- c. The rate of take shall not exceed 10% of the instantaneous flow¹³⁵ at the point of take.
- d. The intake velocity shall not exceed 0.3 m/s.
- e. The activity shall not adversely affect any wetland.
- f. The take shall not adversely affect any lawfully established efficient groundwater take, or any lawfully established surface water take, which existed prior to commencement of the take unless written approval is obtained from the affected person.

I must stress that in order for the surface water take to remain permitted you will need to ensure you meet all of these conditions, particularly condition (c): the rate of take shall not exceed 10% of the instantaneous flow at the point of take. Council's hydrologists have estimated that the Mean Annual Low Flow (MALF) of the stream from

which you are proposing to take is approximately 1.2 L/s. You will need to consider what your options are for water supply during summer dry when your rate of take will likely exceed 10% of 1.2 L/s and you will have to cease abstracting water. Based on the information you have supplied, and provided the above points can be addresses, then this take will be permitted and consent will not be required.

It will be your responsibility to ensure that any water abstracted is of suitable quality for its intended use. Where water is to be used for human consumption, you should have the water tested prior to use and should discuss these requirements with a representative of the Ministry of Health and should consider the following Drinking Water Standards (see link below): <https://www.health.govt.nz/system/files/documents/publications/drinking-water-standards-2008-jun14.pdf>

The proposal to discharge wastewater at the site is slightly more difficult. Given there is a kitchen facility and the accommodation facilities proposed each have an en-suite with a shower/toilet, it is more appropriate to design the system with a flow allowance for a fully serviced camping ground. Having also taken into account the potential insecurities of water supply in periods of summer dry, it is considered more appropriate to base the flow allowance on the recommended flow allowance for a fully serviced camp ground with on-site roof water supply (100 L/person/day). Based on your calculations of maximum occupancy = 22 people, this equates to a maximum daily discharge volume of 2.2 m³. This exceeds the permitted activity rule 37 (b). You will need to look at what type of system has the required capacity and is appropriate for the site.

The other issue is that in order to install surface irrigation, wastewater must be secondary treated (see 6.2.2 of Figure 6 in the RRMP), or consent is required. If you were to use a trench or bed system then gravity drainage is not permitted, unless a specifically designed siphon system is used to provide dose loading and even distribution. So either way, you will need to apply for resource consent to discharge wastewater to land.

I recognise there are some limitations at the site and would recommend speaking to one of our accredited wastewater designers/installers about your proposal. I have attached the accreditation register with the names of designers and the types of systems they are accredited for. They are used to filling out our forms but I have attached these as well in case you wish to fill them out yourself.

As always, let me know if you have further questions. We give an hour of free advice and then charge for our time on an actual and reasonable basis, just to let you know.

Kind regards

Amberley Gibson
Consents Planner
06 833 8092



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Let us know how we're doing, [give your feedback here](#) – many thanks

From: Mike Keys <mike@keysolutions.co.nz>
Sent: Sunday, 22 April 2018 10:00 AM
To: Amberley Gibson <Amberley.Gibson@hbrc.govt.nz>
Subject: Proposed accomodation in the Moerangi Valley, Whirinaki

Hello again Amberley, confirming our telephone discussion on Friday morning regarding the proposed accommodation in the Moerangi Valley, Whirinaki Te Pua-a-Tane Conservation Park.

Rainforest Experiences New Zealand have been operating single day and two day walks in the Whirinaki Conservation Park for 23 years and it has been a very successful operation. The company wishes to expand the range of tours it operates to incorporate a 3 day, 2 night experience following the recent opening of a 35 kilometre dual purpose (walking and mountain biking) track in that locality by the Department of Conservation. This 3 day option will involve the construction of new overnight accommodation in the Moerangi Valley, which will be home for the second night of the 3 day walk.

I attach a map showing the location of the proposed accommodation, a brochure and 2 powerpoint slides which will provide you with background information regarding the proposed development. As explained on the phone, I can send more detail of the proposal if you wish to help you determine if both the water take and the new sewage system fall into the Permitted Activity category as we discussed at length today.

One of the slides suggests there would be 8 x 2 person Sleeping Huts/wharemoae but the proposed Lease will provide for 10, consistent with the consent/lease recently granted for the company's other site in the Okahu Valley. In addition there will be accommodation for 2 on-site staff to host the clients, a total of 22 persons for a maximum for up to 8 months per annum. This does not however mean that the site will be occupied by walkers every night of the week as these products often take some years to get established in the international tourism marketplace.

There will be no electricity supply at the facility so neither water supply or wastewater infrastructure will incorporate an ability to pump or aerate.

I understand from our conversation on Friday that:-

- 1) You are happy to take over on this project from where we got to with Erin in February last year
- 2) The "Hawkes Bay Regional Resource Management Plan - Republished as at 1 October 2015" that Erin sent last year is still applicable today
- 3) With respect to the proposed Water Take, Rule 54 applies, we don't fall into any of the named (potentially under stress) catchments, so to be a permitted activity, requiring no consent, it needs to comply with the following 6 conditions:
 - a. Except for takes occurring for a period of less than 4 weeks, the total volume taken shall not exceed $20 \text{ m}^3/\text{d}^{1.34}$ per property; (or per work site where the activity relates to the take and use of water for the maintenance of road reserves) nor shall the total volume exceed the reasonable needs of the user, whichever is the lesser.
 - b. For takes occurring for a period of less than 4 weeks within any 90 day period, the total volume taken by any person shall not exceed 200 m^3 per 7 day period.
 - c. The rate of take shall not exceed 10% of the instantaneous flow¹³⁵ at the point of take.
 - d. The intake velocity shall not exceed 0.3 m/s.
 - e. The activity shall not adversely affect any wetland.
 - f. The take shall not adversely affect any lawfully established efficient groundwater take, or any lawfully established surface water take, which existed prior to commencement of the take unless written approval is obtained from the affected person.
- 4) The anticipated water usage will be very close to the estimated wastewater generation volume discussed further below. There may be some washing of tramping gear which would not find its way into the wastewater system but this would be minimal. No irrigation is proposed (it's not needed in a rainforest!!). So, using the volumes determined

in 10) below, the daily take will not exceed 20m³ as required by condition a). In fact it will be about 10% of this figure.

5) The proposed extraction system will be located in a stream south east of the proposed accommodation which feeds into the Moerangi Stream. This side stream can be seen on the location map attached. The intake would be a screened gravity inlet structure with a pipe approximately 25mm in diameter feeding storage tanks. The tanks will have enough capacity to cater for the daily peaks of usage and refill through the feed pipe in a "trickle feed" type operation. This un-named side stream has widely varying flows of course but the "trickle" extraction will mean that conditions c) and d) of Rule 54 can be met even when the stream flow is at its minimum. I've only visited the site once. There had not been a lot of rain beforehand as we were able to walk up the Moerangi Stream to get access to the proposed accommodation site, and there was a considerable flow in the side stream on that day, you can see from the topo map that it is fed by a sizeable catchment area. In addition water will be fed back into the stream from the tanks via overflow pipes, as has been the case on the company's existing site in the Okahu Valley since 1993. The company reports that the stream feeding its Okahu Valley site is smaller than that which it proposes to use at Moerangi so it is envisaged that there will be little impact on the stream.

6) And you can imagine that in this isolated rainforest environment, conditions e) and f) of Rule 54 are easily satisfied.

7) I believe we agreed that provided the actual physical extraction is designed as described in 5) above, the conditions of Rule 54 are met and no consent is required.

8) With respect to the proposed Wastewater System, we agreed that Rule 37 "New Sewage Systems" applies. Should we be able to meet conditions a) to r) then no consent is required, and I understand you are to use this email and notes you had taken from our telephone discussion to confirm (or otherwise) with your fellow planners that this was the case. A pdf of Rule 37 is attached (not that you need it).

9) The proposed accommodation will be made up of 10 Sleeping Huts/wharemoa each sleeping up to 2 people and including a shower, toilet and washbasin. A Kitchen/dining hall/wharekai will also be built where 2 staff will live and guests will dine. So as stated above, a maximum of 22 people can be accommodated at the site. Guests will arrive mid afternoon having walked across the saddle from Okahu Valley, and depart for River Road near Minginui the next morning.

10) We discussed the wastewater loading that this operation might generate and compared it with condition b) of Rule 37 which states:-

b. The rate of discharge of sewage (including greywater) shall not exceed 2 m³/d, averaged over any 7 day period.

Condition eA states:-

eA. The system shall be designed and installed in accordance with the requirements specified in Figure 6.

Figure 6 includes the following table as a basis for determining wastewater generation:-

Source	Minimum wastewater flow allowance in L/person/day	
	On-site roof water tank supply	Reticulated community/bore water supply
Households	180	200
Households (blackwater only)	60	60
Households (greywater only)	90	120
Motels/hotels		
- Guests, resident staff	220	220
- Non-resident staff	30	30
- Reception rooms	20-30	20-30
- Bar trade (per customer)	20	20
- Restaurant (per diner)	25-30	25-30
Community halls		
- Banqueting	20	30
- Meetings	10	15
Tea rooms (per customer)		
-Without restroom facilities	10	15
-With restroom facilities	15	25
School (pupils plus staff)	15-30	15-30
Rural factories, shopping centres	30	50
Camping grounds		
- fully serviced	100	130
-recreation areas	50	65

We agreed that we should be using the right hand column where in simple terms, the right hand column estimates loadings where the water supply is unlimited compared with the left hand column which details likely sewage flows where the water supply is restricted in some way. Whilst we did agree during our phone conversation that the right hand column was more appropriate, this will be an operation which will "practice what it preaches" in terms of conservation, and the Operator intends to place advice notices in the wharemoa regarding minimising water usage to reduce the impact on the environment. I am advised that this issue is always covered in pre-tour briefings as well. We agreed that the "Camping grounds - recreational areas" figure was the most applicable given the nature of the operation. Ignoring any water conservation measure which might be employed (and using the right hand column) the calculation would be $22 \times 65 = 1.4 \text{ m}^3/\text{day}$. If the operation was considered as "Camping grounds - fully serviced" (it won't be "fully serviced" considering it won't have laundry facilities or individual cooking facilities) I believe the fact that the 20 guests will not be at the camp for 8 hours of the day provides an argument for reducing the figure of 130 litres/person/day by 33%. Expanding on that $22 \times 130 \times 67\% = 1.9 \text{ m}^3/\text{day}$. Both figures fall under the $2 \text{ m}^3/\text{day}$ prescribed in Condition b) Rule 37, and you commented that you were happy for us to use the 65 litres/person/day figure.

11) The wastewater infrastructure proposed will comprise 2 standard septic tanks in series but with the ability to add a third should it prove environmentally and economically sensible to do so. Given that desludging tanks will require the use of a helicopter (expensive), the operation will be monitored closely to reduce the cost of maintenance and make it as efficient as possible. As I explained to you during our telephone conversation, during my 30 years with Taupo District Council, the last twelve as District Engineer, we operated many different wastewater systems. One type involved the retention of existing septic tanks on individual properties and collecting the effluent from these and treating that remotely. Council took over the maintenance of all those individual septic tanks so we developed some good systems for optimising the desludging regime. We used a portable electronic sensor to determine the depth of the solids mat on the surface of the tank and to determine the depth of sludge on the bottom. We intend to use a similar monitoring system at this facility. Both tanks will be designed with 24 hours retention of effluent and accommodate the ability to monitor sludge depths and thickness and also adjust the height that the outlet of each tank draws from so that it is producing the best effluent possible. I expect that the first tank in the series will trap much of the grease and fats, so the outlet will be set at around 70% of liquid depth, the second tank around 50%. As mentioned, these will be adjustable by the Operator to get the best performance out of the system.

13) The effluent disposal system will be a surface irrigation (dripper/dribbler) system meeting the requirements of Figure 6.2 of Rule 37. There is an undulating plateau, approximately 20m above the Moerangi Stream, and to the north of, and lower than, the proposed accommodation. This will be used as a dispersal field. Surface mounted "dribbler" pipes will connect to a larger diameter falling main and, like the septic tanks, will be monitored to ensure that the dispersal of effluent is as uniform as possible and no problematic concentration of effluent (ponding etc) is occurring. Provision will be made for a "balancing tank" should this prove necessary. This would accommodate the highs and lows of the daily effluent cycle by having a 90mm diameter inlet and a 20mm (may vary with final design of effluent dispersal system) outlet so that the disposal field is operating uniformly 24 hours a day. The surface irrigation pipes will be stapled in place as required by Rule 37 and covered by the leaf fall/ mulch which exists in abundance on the site.

12) I believe that this proposed operation can meet all the conditions (a to r) of HBRC Regional Resource Mgmt Plan Rule 37 with respect to wastewater management so no consent will be required. You undertook to confer with your fellow planners on this aspect of the operation to determine if this was the case.

As we discussed, should you determine that both operations will be permitted activities, you will advise accordingly. Or should you determine that Resource Consent is required for either or both of the operations you will also advise accordingly and perhaps indicate that the proposal does not have any "fatal flaws". Either way, I would certainly appreciate written advice that we can attach to the application to Department of Conservation for the 30 year lease of the Moerangi site. DoC will require confirmation that these issues have been thought about and a practical solution has been provided. If your reply could assist with that, that would be excellent.

Whether consents are required or not, am I right in concluding from our conversation that you were generally comfortable with the approach and the methodology we were applying to this project in terms of water supply and wastewater management, and even if both activities fall into the "permitted" category, you would like to be kept up to date with what was happening even though that would not be a specific requirement on the Operator?

Thanks again for your help on Friday, I look forward to hearing from you on your return from your break.

Regards

Mike

Mike Keys
KEYS SOLUTIONS
MIKE@KEYSOLUTIONS.CO.NZ
PHONE 07 3784415
MOBILE 027 4940125
66 WHAREWAKA RD, TAUPO

Mike Keys

From: Steve [steve@biorock.co.nz]
Sent: Saturday, 23 June 2018 10:49 a.m.
To: Mike Keys
Subject: One more
Attachments: Whirinaki EMS concept.pdf

Based on the information provided it looks like a totally powerless system is achievable (see attached concept) and I have no doubt that provided HBRC receive an accurate Consent Application covering environmental and cultural considerations a consent for this project would be granted. As I said I am a bit green around the edges and also a keen mountain biker so would be more than happy to complete a site visit to fully understand the lay of the land And maybe a quick ride. Then from there I would have enough information to tailor a complete design / build quotation for you to consider.

Thanks again for your interest and looking forward to catch up.

Kind regards

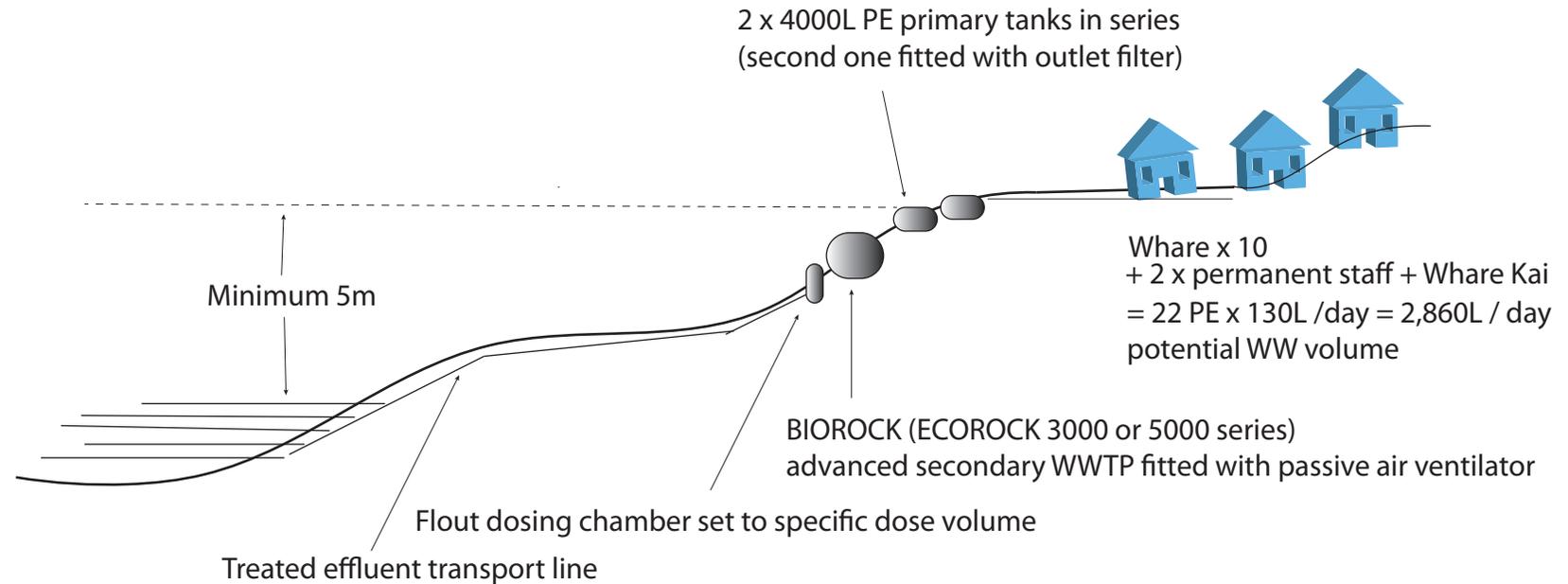
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Website: www.biorock.co.nz



Whirinaki Powerless EMS Concept



Low pressure dripline or LPED treated effluent
distribution network pinned to forest floor .

CLIENT :

PROJECT LOCATION :

PROJECT DESCRIPTION :

ABA # :

DP NO :

DRAWING NO :

DRAWN BY :

DATE :