MINUTES of the Raglan Wastewater Treatment Plant Discharge Consenting Process meeting (public) held on **MONDAY 27 JULY 2020** commencing 7.00pm through **ZOOM** Video Communications.

Present: Cr Aksel Bech (Chairperson), Ian Cathcart, Special Infrastructure Projects Manager (WDC), Carole Nutt, Waters Contract Relationship Manager (WDC), Teresa Hancock, Senior Communications & Engagement Advisor (WDC)

Steve Howard (Watercare), Sharon Danks (Watercare), Richard Pullar (Watercare)

Chris Rayner, John Lawson, Tony Oosten, Ella van Gool, Charlie Young, Rick Thorpe, Angeline Greensill, Nicole Hancock

1. OPENING MEETING

1.1 Cr A Bech, Chairperson, opened the Raglan Wastewater Treatment Plant Discharge Consenting meeting (public) at 7.00pm.

The Chair outlined protocols for the Zoom meeting:

- The meeting would be recorded and posted on Council's web page.
- Chats can be seen by all meeting attendees. Use the chat function to record questions, and Steve would answer at the end of the presentation or offline at a later date if not appropriate to answer at the meeting.
- To get the Chair's attention, use electronic hand function.
- If asking a question, have camera on as courtesy to Steve.

1.2 The purpose of the meeting was to hear Steve Howard's presentation on the Raglan Wastewater Treatment Plant (WWTP) Discharge Consent Application Project.

2. PRESENTATION/TOPICS - Steve Howard, Watercare

Steve circulated a newsletter to everyone which covered a lot of the queries that included:

- Broad-brush cost estimates for the options covered.
- Methods for the best practical option determination.
- Timelines for when the application will be submitted.

(Outcomes sought – Provide a satisfactory update on progress/cost estimates/next steps for the Project team)

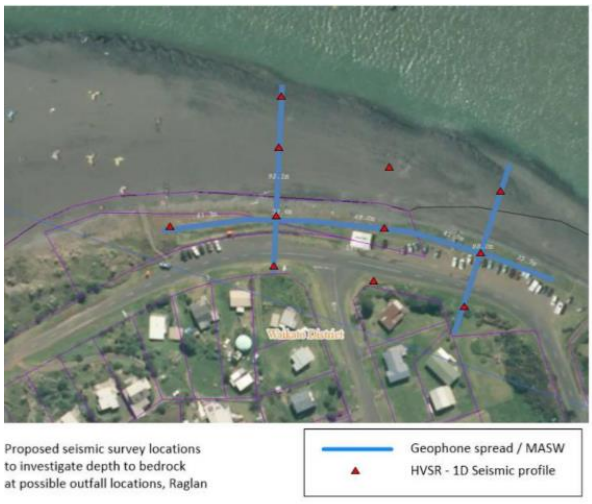
2.1 Slide 1 – Work Stream Updates (Snapshot)

Stream	
A/B	Existing and extended outfall *(TREATMENT: Pond/TSS Membrane/UV)*
C	Stream Recharge *(TREATMENT: MBR treatment)*
D	Deep Bore Injection – *No Project Team progression*
E	Non-deficit irrigation with winter storage *(TREATMENT: Pond/TSS Membrane/UV)*
F	Non-deficit irrigation with winter alternative disposal (Marine) *(TREATMENT: Pond/TSS Membrane/UV)*
G	Re-use: Habitat (Nitro eel) and cropping
H	Bio solids Management

- Stream E - Discharge to land.
- Stream F - Discharge to land, also alternative disposal – a marine and winter option.
- Stream G - G & H are more of sidestream works, which is the reuse options which is habitat and biodiversity enhancement and also cropping.
- Stream H - is biosolid management which is very important part of the project.

2.2 Slide 2 – Existing and Extended Outfall

(Work Stream A/B)

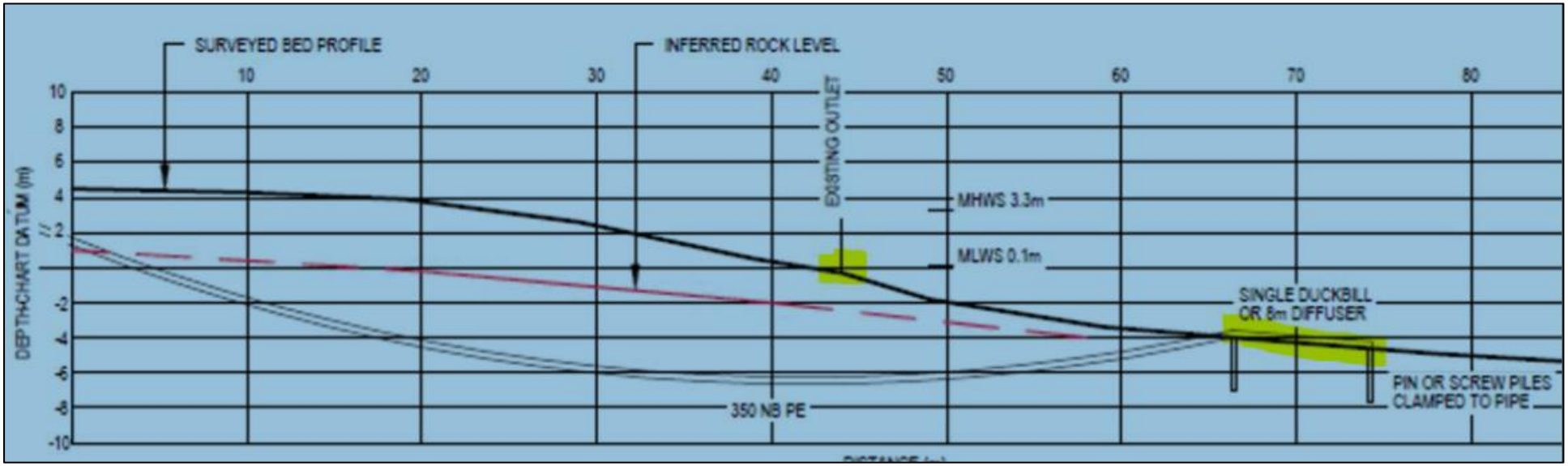


Notes:
- Geophysical testing is set for rock-bed establishment for late August;
- 2019 cost estimate for discharge soln $7M (NPV)

Time Line/Next Steps:
August Community Meeting:
- Provide advice on sonar results;
- Provide Lab testing results Emerging Organic Contaminant (EOC)

- Scantech carry out non-invasive testing of subsoils etc. In late August they will be undertaking some geo-physical testing to find out what the bed is doing under the sand.
- The extended outfall solutions - the 2019 costing would be $7M (NPV), which is the capital costs and some expenditure cost as well for 25 years.
- Delivery for this month should be the results for the emerging organic contaminant testing. These samples were taken in March but due to Covid-19 there has been a delay. Steve will report this to the next meeting.

2.3 Slide 3 – Existing and Extended Outfall



2.4 Slide 4 – Stream Recharge (MBR)

(Work Stream C)

Notes:

- June/July site visits undertaken (Engineer /Ecologist) completed, with a draft report under preparation (90%).
- Draft 2020 cost estimate **$24M** (NPV- including a diffuser contingency)

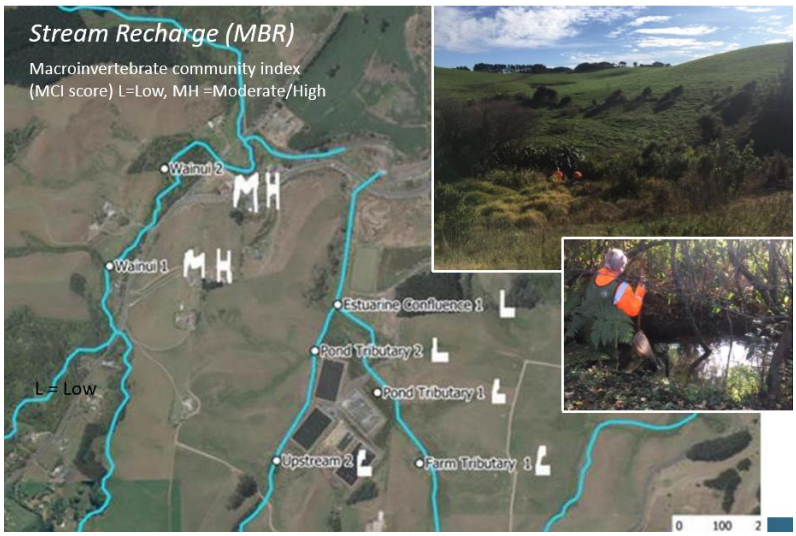
Time Line/Next Steps:

Prior August Meeting:

- Distribution of reporting (upload to website);
- Greater face/face engagement needed on concept (Hapu/KSH), site visit ?

- This stream would accompany the treatment of a membrane biological reactor.
- Site visits were undertaken in June/July by engineers and ecologists. The report is near completion and it will be distributed soon.
- The draft costing would be $24M. That would be minus 30 plus 50 percent accuracy. This includes a diffuser as a contingency plan, as well.
- Should have all information for review and scrutiny before the next meeting. Prior to this, Steve is planning to have greater face-to-face engagement with hapu and key stakeholders to explain the concept. Also, looking to do a site visit to show one in action.

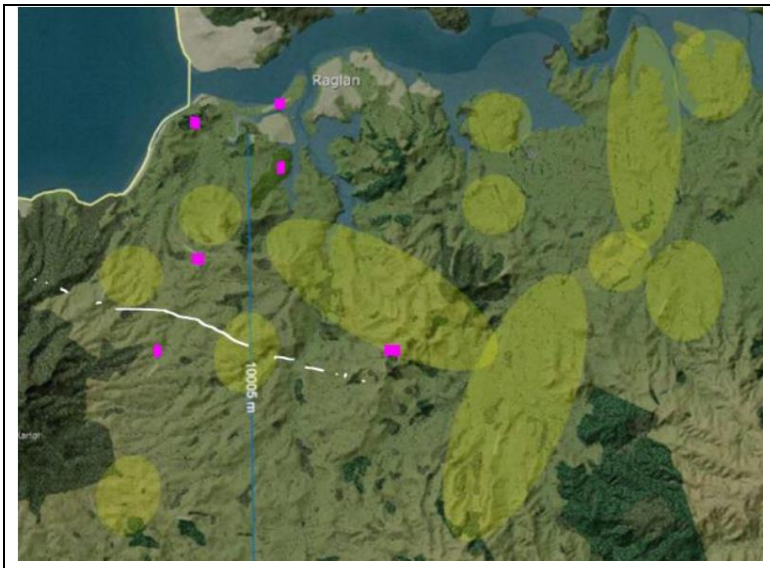
2.5 Slide 5 – Stream Recharge (MBR)



- The ecological work was done in late May, and some additional work was done on the Wainui Stream recently.
- It showed with the assessment of environmental effects, you do have to show mitigation and even offset mitigation where the opportunities lie.
- With the ecological studies there was water testing, macroinvertebrate testing and Ecologist habitat observation.
- It showed that the unnamed tributary that sits within our site and has neighbouring rural uses has room for enhancement.

2.6 Slide 6 – Non-Deficit Irrigation (to land)

(Work Stream E and F)



Notes:

- Necessary landowner contact made (yellow blobs)
- Ability to proceed with testing at pink locations in (July) for knowledge building. Broadly (a) Allophanic soils near Karioi and (b) Granular orthic soils exist nearer plant;
- 2019 Costing estimate for Maungatawhiri Road (Summer only/excluding land purchase) **$27M (NPV)**

Time Line/Next Steps:

Prior August Meeting:

- Thank land owners for opportunity to visit sites for knowledge building, then engage further on viable scenarios. No land MOU's in place
- Distribution of background report with maps should occur (be uploaded to website)

- What are the opportunities for non-deficit irrigation or to land? (In the June update)
- The top 20 sites have been identified by our specialists that showed the greatest land areas - the ones with potentially good soils.

2.7 Slide 7 - Non-Deficit Irrigation (to land)

Golf Club

- Photo above shows Soil Scientists identifying the characteristics of the soil at the Raglan golf course.
- It shows the granular type of soil that came up after the first little bit of topsoil - it's clay, very challenging, gets very boggy and the soil does not drain.

2.8 Slide 8 - Non-Deficit Irrigation (to land)

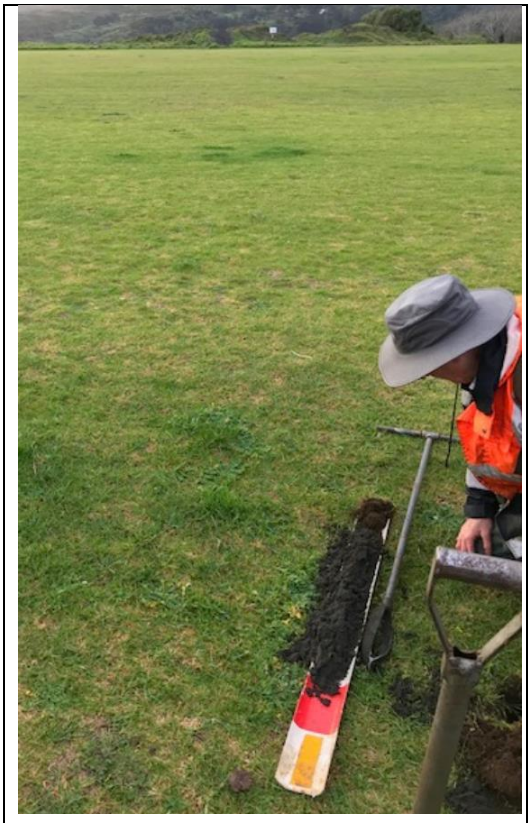
Mangatawhiri Road

View west toward free draining soil – rolling country limits useable area

- Soil is great for farming, as you dig it is clay, so it limits the usable land for irrigation.

2.9 Slide 9 - Non-Deficit Irrigation (to land)

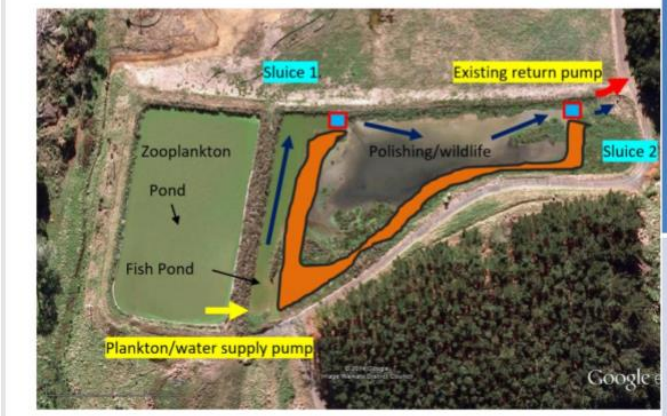
Air Strip – Knowledge Building



- Under a little topsoil it's just sand. Any theoretical application would be comparable to the existing point source discharge.

2.10 Slide 10 - Re-use: Habitat/Nitro Eel

(Work Stream G)



RAGLAN EELS

Notes

Liaison lead is Charlie. There will be enhancement opportunities aligned an MBR or pond/TSS membrane/UV system.

I understood that Charlie is satisfied that this work stream will take greater life after treatment decision making is closer.

Concept/principles

- Resource recycling/gaining benefit from an existing feature;
- 2014 concept update needed – key concept is that zoo plankton needed for bodyfat/migration pattern establishment;
- Contract/partnership arrangement would be needed

2.11 Slide 11 - Reuse: Cropping

(Work Stream G)

SUPPLIED

Darfield farm manager Bruce Knudsen, left, director of global sustainability, Carolyn Mortland, and regional farm operations manager Steve Veix.

stuff

https://www.stuff.co.nz/business/farming/121931088/fonterras-canterbury-hemp-crop-raises-eyebrows

Notes:
Land use assessment report is near completion covering irrigation/ biosolid application suitability for
(i) grazed pasture (ii) cut and carry
(iii) non-contact consumptive crop
(iv) non-consumptive crop

Time Line/Next Step
Finalised and distributable in August (uploaded to website). The draft report requires enhancement in:
- Government grant advice, and
- Non-consumptive crop advice (Hemphurd pulp – paper and construction material – *Hempcrete*)

- Watercare Waikato have commissioned a report from PDP which is due in August.
- The report shows workable scenarios for cropping using the by-products of treated wastewater from either the pond, TSS, Membrane, UV or from the MBR, alongside by-products.
- It shows that there are options to graze pasture, cut and carry, non-contact consumptive crops and non-consumptive crops - this is what they've considered.

2.12 Slide 12 – Biosolids Management

(Work Stream H)

Notes:
Liaison lead – Rick. Able to initially cover the Raglan scenario with the WSL Resource Recovery Manager at XZW.

Time Line/Next Step
- Wastewater Biosolids Solids Strategy Preparation (Raglan and Meremere, Te Kauwhata Project Team Members to prepare);
- Consider NZ examples pros/cons/complexity/business models used;
- Present thinking to wider community/KSH/Hapu

- Watercare have had an initial meeting with Extreme Zero Waste where Watercare's Resource Recovery Manager was in attendance.
- The next steps for the Watercare Waikato team is to get a biosolid strategy.

3. QUESTIONS/DISCUSSION

3.1 Cr Bech

Workstream C Recharge - you will be looking at doing a site visit with key stakeholders and hapu specifically. Do you have any thoughts on where you would go for that? (Cr Bech said to progress with visit to Rotoiti. Give people plenty of notice to make themselves available.)

'River Hapu' have visited a site in Rotoiti. It was about 4 years ago in respect to the Te Kauwhata zone change. It was great to visit, see the product and listen to engineers. Everyone was proud of what they have achieved there. It opens your mind to the opportunities that the advanced technology might be able to bring in terms of re-use etc. Rotoiti is the plant we hope to visit.

Bio Solid Management – Is that effectively taking the sludge off the membranes themselves and putting them through like a hot compositing thing – or what is involved in that?

There are two scenarios:

- *A pond-based system where you would get the traditional sludge that needs removal and disposal, which we have currently at the bottom of the ponds, and that requires dredging periodically every 5-10 years. It is an expensive exercise.*
- *The MBR system is more of a continuous process. It just gets pumped out. In terms of how it can be used, this is where we look at vermiculture, worms – it could be good for topsoil. There are products that you can use it for.*

Rick said there are other experiences around the country. One in Palmerston North where they turn it into pellet form, and it can be used on land. You don't have to use it to grow food from. At the moment, it just about collecting information to see what is possible.

3.2 John Lawson

Statement:

In 2012 Wainui Stream had 69% native vegetation, so there is potential for mitigation to increase that –
http://docs.niwa.co.nz/library/public/WRCTR12-27.pdf.

Is cropping an option for summer only, or are there crops which take significant amounts of water in winter too?

Watercare are about to do a trial for a nursery in Ngaruawahia where they are going to irrigate from the pond at Ngaruawahia. Seedlings are going to be grown in pots during the winter months and will be irrigated with the pond water. There are potentially things like that that you could use winter irrigation for, but you would need quite a large nursery.

Can methane energy drive the treatment with all options, or only some?

At Mangere in Auckland the plant runs entirely off biogas that is recovered and runs turbines, and actually exports power back to the grid. Rosedale is much the same. For big plants you can run the entire treatment process off methane. It is more challenging on a small plant to produce methane for turbine operation. It is something that can be investigated further.

Which options, if any, could trap micro plastics? (Crops will take up or bind the micro plastics into the soil with their roots?)

The MBR will take out micro plastics in the treatment process. MBR will trap micro plastics or even a tertiary membrane.

Are composting toilets and stormwater reduction still options?
Steve has made a commitment that he is going to put a paper together about the Wellington example. These were the Wellington Regional Council's rules, so it's a different body to the district council. Again, it would be a district plan example, a district plan activity rather than the discharge consent activity that we are doing now.

3.3 Chris Rayner

Can you expand upon the water quality that is produced by a MBR compared to other treatments, regardless of where the water goes? Can you give us a bit of a more of an understanding of how close to potable water that is and if that may or may not in the future as water becomes more scarce become more of a resource so potentially for the first few years we might just dump it but then it may down the track actually become a resource and is that possible with an MBR?
Not potable but it is getting very close. The opportunities for potable reuse may come in time, and when you think about population predictions growth over the next 35 years, Raglan is going to get busy and need more water to start with. All this wastewater other than inflow and infiltration is coming from that spring and that spring is not going to last forever. There is going to have to be another water source somewhere. So, potential for water reuse, it will need some other sort of treatment for it to become potable (RO treatment). Not done in NZ, it would probably be a trial for a larger site in NZ. Likely to be a water scarcity happening in the next few decades. Need another treatment before it becomes potable.

Would Reverse Osmosis require MBR first?
Still need a MBR as well as a Reverse Osmosis (RO) plant. Pretty energy intensive as well at the moment. You can't just use a MBR for potable water. RO plants are not completely unknown. A lot of dairy factories use RO plants to treat their raw water before using it in the milk process. But it is just unknown on a municipal scale in NZ.

If we were to go with a MBR treatment, would that free up more of the ponds to be used as a wetland final polishing before discharge?
Yes, we would want to retain some ponds if we went to a MBR to use as a buffer storage. Highly unlikely we would need all the ponds. If we're in a full MBR as opposed to the polishing membrane that's been talked about as a solution for the suspended solids at the moment, it wouldn't free up much pond space at all.

Could some of the building stuff be amended? New houses have a stormwater retention tank that then goes slowly down the drain. Could it not be forced upon new builds to have those tanks supply the water to their toilets, rather than have the toilets connected to the aquifer water?
- *Yes, you can do this, but you need dual plumbing systems in the house which adds a cost. Commonly done overseas.*
- *This would fall under the district plan review. To do this it would be like looking at the green infrastructure chapter and what the levers are there for it to work. There is a plan review at the moment, and that is where queries should be directed.*

What is the population of the Meremere plant?
500 residents.

It is a much smaller community than Raglan. The current thinking is a discrete solution being investigated there rather than joining in with anybody else as we had previously explored. It is still in the early stages of where that is going to end up.

With a MBR would we be looking at one for Raglan's projected population in 20 years, 30 years, because we have quite a dynamic population base and so we wouldn't want to build one that's only good for today's population and be out of date.

MBRs are quite modular, so in some ways that is the beauty of them. As the population grows, we can invest in the additional membranes and things here.

Are there other examples in the district where hapu have been brought on board with the introduction of a MBR?

- *Different hapu have a different stance on it.*
- *We are currently just commencing. We had a first meeting with some hapu on the Te Kauwhata plant, and we are currently just really entering into the Meremere ones.*
- *They seem to accept a high-quality effluent from a MBR - they seem to be welcoming the step change.*
- *A lot of the communities are aware that the draft AMP is proposing a lot of MBRs along the river. It is very much a draft AMP, it hasn't gone through the consultative process yet. We are in the very early stages of consulting with iwi, but it has been quite positive so far.*
- *There are some different challenges along the river too. All the land around the river is obviously a flood plain and it's not suitable for land disposal so that adds some extra challenges to finding land disposal as well. Because often a lot of the plants along the river actually flood, which is a different challenge to what we have at Raglan.*
- *It's been pretty positive and a lot of the hapu that we have talked to have actually been to Rotoiti already and even drank the water.*
- *In Auckland we've managed similar iwi - Clark's Beach has got an MBR that discharges to the Waiuku channel into the Manukau harbour, and we had hapu support of that as well as a solution, and on Waiheke Island at the wastewater treatment plant. The western science type approach has demonstrated a high-quality effluent that can be discharged to sensitive environments.*

Chris – Question to Angeline

How 's your hapu feeling about at the end of the day making sure we have the cleanest water possible wherever its going, making sure that water is the cleanest it can be with the top money and technology we have available, even if that is for the next few years this means still going out to sea at least the water is really clean say for a MBR as opposed to putting potentially quite dirtier much dirtier water on a land that may then seep into the ocean or rivers.

Angeline Response

We have always been of the view that whatever you put on the land has got to be clean so it doesn't matter where you are putting it, the water needs to be treated to the highest level possible. I know people are saying if you put it to land you don't have to clean it up as much as if you're putting it in the ocean, but for us it means anything that you're doing the surplus stuff needs to go somewhere. It needs to be, in our view reused recycled, it's a resource, but it's got to be cleaned up and using membranes is a great way to do that.

3.4 Tony Oosten

Do we have a feeling for the community's acceptance of tertiary membrane after man-made wetland then harbour outfall?

Tony is working with first gas and stuff like that on biogas in the Hamilton City Council digester so if you grow a green crop or in our case the green waste that Extreme is already collecting (not the garden waste) that is perfect to supplement biogas generation in a digester. The other one is the man-made wetland in the location of the existing disused ponds at the bottom of the property closer to the road and a feeling of effectively you are still getting land disposal after it's gone through a man-made wetland either after a MBR or from the existing treatment plant level then tertiary filtration and UV before harbour outfall.

There was the pond system that is near the road and that is where we are looking at. I think that's the disused sort of sludge pond. The closer parcel to the road was part of the last consenting which was the full pond as part of the prior consent for cultural planting. It has been planted up now, they just haven't matured yet.

3.5 Angeline Greensill

Angeline Greensill wanted to reiterate that they do not support another sea discharge. It's been there almost 50 years and the hapu is not going to move from that stance so looking at other solutions would be really good. They went to Auckland to look Dr Koh's invention. We haven't heard back about how that performed. Stephen do you know anything about that? I know Ngati Te Ata is quite keen to work with Dr Koh and I am quite keen to bring them to Raglan to actually introduce their technology to Raglan.

Steve spoke to Dr Koh when he was at Mangere at the Innovation Centre. Steve will get something back to Angeline on this, but it has been explored and it's not being continued for whatever reason. Beca did have a look at how it could be applied to Raglan and it was part of a drum technology for biosolids.

Angeline Response

It took everything in, and it turned the bio-solids into something like grey flour and the rest of it the water was then cleaned up to a certain level. I know that those types of things have been going on, they've been testing effluent from farms as well and this is from Ngati Te Ata who are our tribal relations further up at Manukau so I was just interested because they are quite keen on that type of technology. The thing is a lot of that is unknown to people down in this area, so we are stuck with the same contractors, Beca is still doing this. Years and years of the same old pipes' technology is what we get at the end of the day so I'm just hoping we're not wasting time again. There are technologies out there that really need to be looked at.

Cr Bech said we need to get up to speed with what sounds like was done at Watercare or at Watercare facility and whether it's got any applicability to our situation. The whole approach has been to start with a nice wide funnel and then gradually come down to the one or two or three options. We want to start with the funnel as wide as we can to make sure we've looked at everything.

Steve will follow up for the next meeting. It was part of the long list so Steve will just have to summarise the journey and then make it clear.

3.6 Progress at Meremere

Steve gave an update of the Meremere Wastewater Treatment Plant.

There is a placeholder consent in place for Meremere. Originally the intention was to pump the treated effluent to Pukekohe, however the budget set was about $5M (an insufficient amount). It was flawed in its approach, so we have had to relook at Meremere. The population is 500, and it is not proposed to grow much. There are challenges there and there's also WRC Plan Change 1 which is the Healthy Rivers Legislation to consider. The River Catchment is precedent now for the MBR. The application that's getting prepared is for a MBR plant which will be a good $7M for the number of people. The requirements are now to meet WRC Plan Change 1 – Healthy Rivers and to enter and to work on the Waikato Awa.

4. Closing of Meeting

- Ian Cathcart thanked everyone for a good open discussion, and for their contributions, and said it was good to see things being driven forward.
- He thanked Steve and the team for stepping up and really driving things post-covid which was an unfortunate delay on a lot of things but really impressive to see in the presentation all the work that's been going on to keep up the momentum on the project.
- We are starting to see Watercare's experience across our district, whether it be Meremere, Te Kauwhata or Raglan. Some really big challenges for us across all of those sites and it's great to see Watercare bringing the expertise which the Council and the community wanted to get involved in our district.
- The engagement and the communication are good.
- Questions will be reviewed and if there are any responses required, we will respond as appropriate.

Cr Bech thanked everybody for their attendance at this Zoom meeting.

Meeting closed at 8.00pm.