From: S7(2)(a) LGOI...
To: S7(2)(a) LGOIMA ...
Cc: Brian Richmond; S7(2)(a) LGOIM...; S7(2)(a) LG...
Subject: RE: Williamson Pond drawings
Date: Friday, 19 April 2024 9:30:19 am
Attachments: image004.jpg
image005.png
image006.gif
image007.gif
image008.gif

S7(2)(a) LGOIM...

That all sounds well thought out. No further comments from me.

S7(2)(a) LG...
[redacted]

S7(2)(a) LGOIMA 1987
S7(2)(a) LGOIMA 1987
[redacted] | S7(2)(a) LGOIMA 1987 Waikato 3265, New Zealand

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From: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Sent: Thursday, April 18, 2024 1:12 PM
To: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Cc: Brian Richmond <Brian.Richmond@waikatoregion.govt.nz>; S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>; S7(2)(a) LGOIM... <S7(2)(a) LGOIMA 1987>
Subject: RE: Williamson Pond drawings

S7(2)(a) LGOIM...

Thanks for getting back to me and sorry for missing your call earlier. Find responses to your comments below:

Lined vs. unlined wetland
We have decided to leave the wetland unlined to allow for soakage where possible. We anticipate that the wetland will still hold water due to the high groundwater table. We've observed that the water level in the existing pond has remained at about 2.2mRL or higher over the last year, even during periods of extended dry weather. This suggests that the pond is at least partially groundwater fed.

I also think the wetland plants should be able to tolerate some drying out. The NIWA wetland planting guide says all our deep marsh species can survive in 0-0.5m (approx.) of water. Let me know if your experience differs from this.

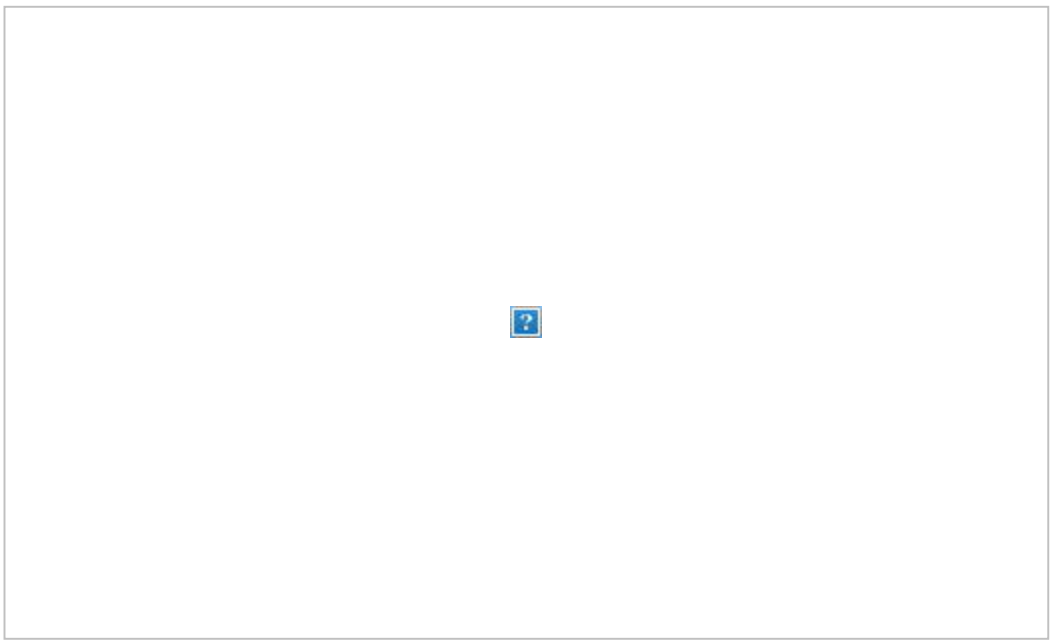
Storage

The wetland is anticipated to provide 2100m^3 of live storage between the permanent water depth (1.89mRL) and emergency spillway (3mRL). For the existing pond, the available storage volume between 1.89mRL and 3mRL is higher at 2500m^3. But note that the practically achievable live storage in current conditions is likely lower, as the pond water level is at least 2.2mRL.

As the wetland is at the downstream end of the catchment, we have not looked at detention volume in relation to ARI events. We've instead looked at two performance criteria:

- Reduction of tailwater level in Williamson Road pipes
- Freeboard to surrounding properties

On the first criterion, we've found that the wetland reduces the duration for which the inlet pipes are submerged. With the upgrade, for the 20yr+CC event, the inlet pipes are predicted to be completely submerged for ~4.25hrs over a 24hr modelled storm. In contrast, the inlet remains submerged for over 14hrs for the existing pond configuration. See figure below. For the 50yr+CC storm, duration of submersion is ~7hrs with the wetland configuration.



On freeboard to surrounding properties – the peak water level in the wetland is 3.32mRL in the 50yr+CC event. Nearby properties are at 3.9mRL or greater. So the freeboard is roughly 580mm.

The above design levels have been estimated assuming no soakage from the wetland base. This is a conservative assumption to account for potential high groundwater. There will still likely be some soakage observed, which will improve the wetland's hydraulic performance.

Hope this answers your questions. Happy to discuss more if needed. I can be available for a Teams call if that would help.

Ngā mihi,

S7(2)(a) LGOIMA 1987 (S7(2)(a) L...)
CMEngNZ CEng(UK) MICE MSc B.S.
[redacted]
S7(2)(a) LGOIMA 1987

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From: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Sent: Thursday, April 18, 2024 10:37 AM
To: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Cc: Brian Richmond <Brian.Richmond@waikatoregion.govt.nz>; S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>; S7(2)(a) LGOIM... <S7(2)(a) LGOIMA 1987>
Subject: RE: Williamson Pond drawings

S7(2)(a) LGOIM...

I've had a look at the drawings, and have a few comments / queries.

I think the wetland is a good solution subject to the wetland vegetation remaining viable given the long dry summers that are experienced in Whangamata. I guess there are two conflicting stormwater management objectives at play at this site. The first is wanting the base of the wetland to be impermeable so that water is kept in the wetland to keep the wetland vegetation alive. The second is wanting to lose runoff volume to ground via the permeable sands beneath the proposed wetland to reduce the amount of runoff that ends up at the beach potentially causing erosion and scour effects. What are your thoughts around these two items?

With the level of fill proposed to bring the base of the wetland up from existing profile to the proposed shallower wetland profile, what storage volume is provided in the wetland and what does this equate to in terms of a design event? Have you modelled the system to estimate design flood levels for the 2-, 10- and 100-year ARI events? Are you expecting to lose any volume to ground?

S7(2)(a) LG...
[redacted]

S7(2)(a) LGOIMA 1987
S7(2)(a) LGOIMA 1987
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From: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Sent: Tuesday, April 16, 2024 11:45 AM
To: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Cc: Brian Richmond <Brian.Richmond@waikatoregion.govt.nz>; S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>; S7(2)(a) LGOIM... <S7(2)(a) LGOIMA 1987>
Subject: RE: Williamson Pond drawings

S7(2)(a) LGOIM...

Thanks for the call last week. As discussed, we have updated the drawing set based on feedback from residents and TCDC. Please find the updated version attached. We'd greatly appreciate any design feedback you can offer us. Feel free to call if you'd like to discuss further. Thanks for the help!

Ngā mihi,

S7(2)(a) LGOIMA 1987 (S7(2)(a) L...)
CMEngNZ CEng(UK) MICE MSc B.S.
[redacted]
S7(2)(a) LGOIMA 1987

S7(2)(a) LGOIMA 1...
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From: S7(2)(a) LGOIMA 1987
Sent: Tuesday, April 2, 2024 11:58 AM
To: S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Cc: Brian Richmond <Brian.Richmond@waikatoregion.govt.nz>; S7(2)(a) LGOIMA 1987 <S7(2)(a) LGOIMA 1987>
Subject: Williamson Pond drawings

S7(2)(a) LGOIM...

We have completed the detailed drawings for converting Williamson Pond into a wetland. As requested, I am sending them through (see attached). Would it be possible for you to send any feedback on the design **by the end of the week**? You'll likely be most interested in the

following drawings:

- Sheet 04 – plan view showing overview of erosion protection and GPT pretreatment
- Sheet 06 – with details of erosion protection
- Sheet 09 – wetland planting plan

I would be happy to set up a call to talk through if that would be useful. Really appreciate all your help on this.

Ngā mihi,

S7(2)(a) LGOIMA 1987 (S7(2)(a) L...)
CMEngNZ CEng(UK) MICE MSc B.S.
[redacted]
S7(2)(a) LGOIMA 1987

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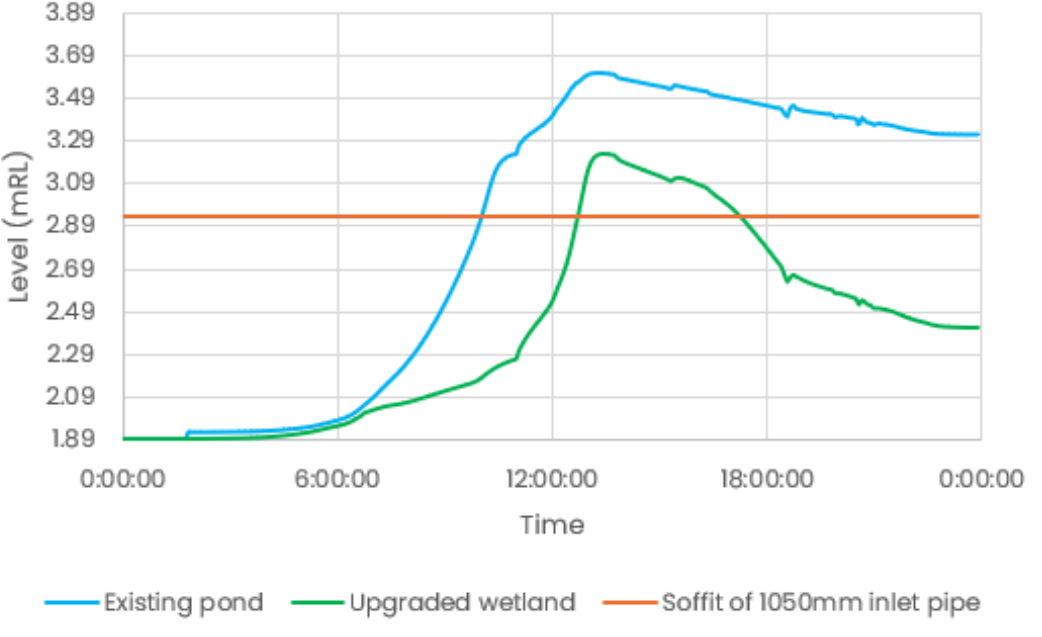
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3.29
3.09
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2.49
2.29
2.09
1.89
Level (mRL)
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6:00:00
12:00:00
18:00:00
0:00:00
Time
Existing pond
Upgraded wetland
Soffit of 1050mm inlet pipe

