

From: [Aparna Liyanage](#)
To: [Shay McDonald](#)
Cc: [Jason Smith](#)
Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023
Date: Tuesday, 11 July 2023 7:41:39 am
Attachments: [image001.png](#)
[image002.jpg](#)
[image003.png](#)
[image004.png](#)

Hi Shay,

Thank you!

Noted that these ponds are effectively stormwater sedimentation ponds. Also, as you correctly highlighted, this analysed flood is a high magnitude one causing significant issues across the whole area.

Accordingly, I don't see a necessity to include further mitigation measures to prevent these ponds from flooding.

I updated the response in the trailing email ([in blue](#)) accordingly. Please let me know if you have any further questions.

Kind regards,

Aparna.

Aparna Liyanage B.Sc. Eng.

SENIOR ENGINEER

p. +64 9 377 9779 www.morphum.com



From: Shay McDonald <Shay.McDonald@orc.govt.nz>

Sent: Monday, July 10, 2023 3:56 PM

To: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Aparna,

Thanks for this your comments are very helpful.

Just one question on your last comment:

Further potential effects of a flood event are identified as below.

- *“Under very high water levels, the stormwater sedimentation and leachate ponds may be inundated by flood water.”* – this doesn't refer to the proposed developments, but to the existing ponds close to the Kaitangata Highway, which is outside the scope of the proposed development Flood Hazard analysis.

“Deposition of silt across all or part of the berm area would be expected during an extreme flood event, and this would require removal post the event.”

The existing ponds are part of this application and flood risk should be assessed. Given the ponds are within the potential flood zone, do you consider that there are any reasonable mitigation

measures available to the Applicant to prevent this area flooding? Noting that these ponds are effectively stormwater ponds and should not contain contaminants other than sediment to any large extent. Noting also that a flood of this magnitude would be causing significant issues across the whole area. Are there any reasonable measure that the Applicant could take here to reduce flooding risk?

Many thanks,

Shay

From: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Sent: Monday, 10 July 2023 3:35 p.m.

To: Shay McDonald <Shay.McDonald@orc.govt.nz>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooee Technical Audit of application - due date 10 July 2023

Hi Shay,

I have reviewed the draft technical reports for Mt Cooee landfill with respect to flood hazard assessment. Specifically, I have reviewed:

- *Application for Resource Consent and Assessment of Effects on the Environment: Mt Cooee Landfill, Balclutha*, report prepared by WSP New Zealand Limited, dated 21 June 2023 (**AEE**)
- *Mount Cooee Landfill Expansion Design Report*, prepared by WSP New Zealand Limited, dated 19 June 2023 (**DR**)
- *Clutha River Flood Hazard Assessment - Mt Cooee Landfill*, Prepared by GHC Consulting, dated 17 May 2023 (**FHA**) (includes *Clutha Delta flood hazard study*, NIWA 2005)
- *Proposed Conditions of Consent*, Prepared by WSP New Zealand Limited. (**COC**)
- *Mt Cooee Landfill Management Plan*, report prepared by Clutha District Council, dated 2022 (**LMP**).
- *Clutha District Council - Kaitangata Highway Balclutha - Mt Cooee Landfill Development*, drawing set prepared by WSP New Zealand Limited, dated 06 April 2023 (**DRW**)

For clarity, I present below how the previous comments were addressed by these latest reports.

- *The method of establishing the flood extent was referred to as using a "geomorphological approach". This is not clear what this involves. Further elaboration will help the reviewer to understand how the flood extent was mapped. Most likely, this was done by mapping the referred Clutha Delta flood hazard study (NIWA 2005) inundation depth against the latest site contours. In that case, the flood boundary contour elevation should be provided.*
 - This is now addressed in the FHA with further explanation and a contour map showing the flood extent not exceeding 10 mRL.
- *Similarly, it is also mentioned in the FHA that "potential for flooding up to 1.1 m above the Kaitangata Highway centerline.". The highway centerline elevation varies along the highway. More clarity shall be provided as to which elevation of the highway centerline was used when establishing the 1.1 m flood depth.*
 - This question is not applicable anymore since further explanation and a contour map showing the flood extent not exceeding 10 mRL have been provided.

- *The study is referring to the Clutha Delta flood hazard study (NIWA 2005). This has not been provided. It would be beneficial for the reviewer to have access to this report since the presented flood extents appear to be based on this study.*
 - This is now attached with the FHA.

- *Proposed post development site contours at the proposed Resource Recovery Centre (RRC) are not provided. Having these contours will help the reviewer to better assess the flood hazard to the RRC. Please provide the proposed RRC finished floor level and freeboard above the flood level.*
 - While this has not been explicitly provided by the applicant, the submitted drawings (DRW) include road elevation profiles and a cross section across the RRC indicating that the RRC floor level will be well above the expected flood elevation of approximately 10 mRL.

- *Although the flood velocities close to the landfill are mentioned and commented upon, the velocities close to the proposed RRC are not mentioned/commented upon. Including these will help the reviewer.*
 - This is now included in the FHA.

Happy to discuss further if you have any questions or comments on these points.

For all technical matters	
Q:	Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?
R:	Yes. As it relates to flood hazard management, the technical information contained within the FHA is robust and clear.
Q:	Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require and why [please explain]
R:	No. As it relates to flood hazard management, adequate level of information has been included in the application. No additional information is needed.
Q:	If granted, are there any specific conditions that you recommend should be included in the consent?
R:	No
Natural Hazards and Flood Risk	
Q:	Has the Applicant accurately assessed the risk of flooding at the landfill site and the areas that are likely to be impacted? Please explain.
R:	Yes. Current flood risk and flood hazard characteristics are well assessed with respect to the landfill site and the RRC. Although an explicit flood model was not developed, the findings from the Clutha Delta flood hazard study (NIWA,2005) have been used in a sound manner to derive the expected flood hazard extent close to the landfill site and the RRC. Flood velocities and flood depths close to the landfill site and the RRC are identified to be too low to cause any adverse effects. These have been derived using the findings from Clutha Delta flood hazard study (NIWA,2005) and the latest topography

	of the area.
Q:	Are the potential adverse effects associated with a flood event appropriately described and mitigated, such as through the design of the proposed resource recovery centre and siting of the landfill expansion areas? Please explain.
R:	<p>Yes.</p> <p>The design of the RRC considers the expected peak flood elevation of approximately 10 mRL. Flood risk to RRC is mitigated by designing the RRC to be well above this flood level.</p> <p>The landfill expansion area is proposed well outside the expected flood extent. The existing landfill face is identified as unlikely to have any significant erosion even during an extreme flood event due to the low velocities and the minimal depth of flood water.</p> <p>Further potential effects of a flood event are identified as below.</p> <ul style="list-style-type: none"> • <i>“Under very high water levels, the stormwater sedimentation and leachate ponds may be inundated by flood water.” – these ponds are effectively stormwater sedimentation ponds having a berm level of 8.5 to 9 mRL. It is not of a major concern to have these ponds flooded during major flood events that would anyway cause significant flood issues across whole area beyond this site. this doesn’t refer to the proposed developments, but to the existing ponds close to the Kaitangata Highway, which is outside the scope of the proposed development Flood Hazard analysis.</i> • <i>“Deposition of silt across all or part of the berm area would be expected during an extreme flood event, and this would require removal post the event.”</i>

Thank you.

Kind regards,

Aparna.

Aparna Liyanage B.Sc. Eng.

SENIOR ENGINEER

p. +64 9 377 9779 www.morphum.com



From: Shay McDonald <Shay.McDonald@orc.govt.nz>

Sent: Wednesday, July 5, 2023 8:32 AM

To: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Aparna,

Thanks very much for getting this done. If there are no s92 questions, please can you complete the table of questions for me? No major rush on this if you need another week or two as there will be s92 questions from other auditors so the application will be on hold soon.

Thanks,

Shay

For all technical matters

Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?

Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require and why [please explain]

If granted, are there any specific conditions that you recommend should be included in the consent?

Natural Hazards and Flood Risk

Reports to audit: AEE, Appendix B Design Report, Appendix O Flood Hazard, Appendix S Proposed Conditions of Consent, Appendix V Landfill Management Plan, and any other reports/sections of reports that you consider relevant to your understanding

Q: Has the Applicant accurately assessed the risk of flooding at the landfill site and the areas that are likely to be impacted? Please explain.

Q: Are the potential adverse effects associated with a flood event appropriately described and mitigated, such as through the design of the proposed resource recovery centre and siting of the landfill expansion areas? Please explain.

From: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Sent: Tuesday, 4 July 2023 4:54 p.m.

To: Shay McDonald <Shay.McDonald@orc.govt.nz>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Shay,

I have reviewed the technical reports for Mt Cooe landfill with respect to Natural Hazards and Flood Risk. Specifically, I have reviewed:

- *Application for Resource Consent and Assessment of Effects on the Environment: Mt Cooe Landfill, Balclutha*, report prepared by WSP New Zealand Limited, dated 21 June 2023 (**AEE**)
- *Mount Cooe Landfill Expansion Design Report*, prepared by WSP New Zealand Limited, dated 19 June 2023 (**DR**)
- *Clutha River Flood Hazard Assessment - Mt Cooe Landfill*, Prepared by GHC Consulting, dated 17 May 2023 (**FHA**) (includes *Clutha Delta flood hazard study*, NIWA 2005)
- *Proposed Conditions of Consent*, Prepared by WSP New Zealand Limited. (**COC**)
- *Mt Cooe Landfill Management Plan*, report prepared by Clutha District Council, dated 2022 (**LMP**).
- *Clutha District Council - Kaitangata Highway Balclutha - Mt Cooe Landfill Development*, drawing set prepared by WSP New Zealand Limited, dated 06 April 2023 (**DRW**)

I don't have further RFI questions since all the previous comments (*during pre-application*) have been adequately addressed in these lodged reports and the drawings.

Happy to discuss further if you have any questions or comments.

Kind regards,
Aparna.

Aparna Liyanage B.Sc. Eng.

SENIOR ENGINEER

p. +64 9 377 9779 www.morphum.com



From: Shay McDonald <Shay.McDonald@orc.govt.nz>

Sent: Wednesday, June 28, 2023 1:00 PM

To: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Thanks Aparna

From: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Sent: Wednesday, 28 June 2023 12:38 p.m.

To: Shay McDonald <Shay.McDonald@orc.govt.nz>

Cc: Jason Smith <Jason.Smith@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Shay,

Thank you, I will share a separate PO for 'reading the material and preparing s92 questions' and for the review of it.

It will be 3 hrs from me.

Kind regards,
Aparna.

Aparna Liyanage B.Sc. Eng.

SENIOR ENGINEER

p. +64 9 377 9779 www.morphum.com



From: Shay McDonald <Shay.McDonald@orc.govt.nz>

Sent: Wednesday, June 28, 2023 11:26 AM

To: Jason Smith <Jason.Smith@morphum.com>

Cc: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Jason, Aparna,

You both only had one hour left on the old PO so we will move this across into a new PO and add on another four hours for you Jason and then however many you think you will need Aparna.

Perhaps just keep this estimate of hours to reading the material and preparing s92 questions. Once the applicant responds to the s92 we can set up a new PO for you to write up your answers to my technical audit questions, because the Applicant's response is quite unknown at this time.

Cheers,

Shay

From: Jason Smith <Jason.Smith@morphum.com>

Sent: Wednesday, 28 June 2023 8:11 a.m.

To: Shay McDonald <Shay.McDonald@orc.govt.nz>

Cc: Aparna Liyanage <Aparna.Liyanage@morphum.com>

Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Shay,

For the ecology aspects, I did use some of this time for task 2 in reviewing the additional information as it came through and the expanding scope.

I won't need a full 8 hours, an additional 4 hrs (at \$160/hr) would cover the additional review and s92.

Note that there have been substantial revisions to the Bird Management Plan – they have moved away from the prescribed actions from the pre-application version and the current management measure they are proposing calls for the construction of an entire new building.

I'll let Aparna come back to you for the flood hazard assessment.

Kind Regards,
Jason

From: Shay McDonald <Shay.McDonald@orc.govt.nz>
Sent: Tuesday, June 27, 2023 1:36 PM
To: Jason Smith <Jason.Smith@morphum.com>; Aparna Liyanage <Aparna.Liyanage@morphum.com>
Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Jason, Aparna

You already provided an hour estimate (below for Aparna but yours is the same for task 2) but please let me know if you think it needs to change now that you've seen the material and I'll get the PO updated no issue.

	<i>Aparna Liyanage</i> \$215/hr (ex GST) Flood Hazard Reviewer	<i>Caleb Clarke</i> \$240/hr (ex GST) internal peer reviewer
Task 1 (hrs) Audit to identify fundamental gaps	3	.5
Task 1 (hrs) Site visit	-	
Task 1 (\$) Site visit disbursements (flights etc. if required)	-	
Task 2 Audit, s92, memo	8	.5
Correspondence meetings (hrs)	2	

Many thanks,

Shay

From: Jason Smith <Jason.Smith@morphum.com>
Sent: Tuesday, 27 June 2023 12:32 p.m.
To: Shay McDonald <Shay.McDonald@orc.govt.nz>; Aparna Liyanage <Aparna.Liyanage@morphum.com>
Subject: RE: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Shay,

Just acknowledging receipt of the application material.

We will review and come back to you with the hours estimate later in the week.

Kind Regards,
Jason

From: Shay McDonald <Shay.McDonald@orc.govt.nz>
Sent: Monday, June 26, 2023 9:55 AM
To: Jason Smith <Jason.Smith@morphum.com>; Aparna Liyanage <Aparna.Liyanage@morphum.com>
Subject: RM21.668 Mt Cooe Technical Audit of application - due date 10 July 2023

Hi Jason and Aparna

Council has now accepted the Clutha District Council application for consents related to the Mt Cooe Landfill for processing. We are now ready to have the application technically audited.

Just to recap what it is I need from you in the next 10 working days:

1. Read relevant reports
2. Write a list of s92 questions and send these to me

At this stage, I don't need you to answer the technical questions that I have asked below. Please just read my questions, read the application and supporting reports, and then write me a list of questions that I can use in a s92 request to the Applicant. Only once all s92 matters have been addressed do I need your report answering my questions.

Details are provided below.

DETAILS	
Application number	RM21.668
Current consent number	Discharge permit 94508 Discharge permit 94509 Discharge permit 94510 Water permit 94511 Land use consent 94543 Water permit 95953.V1 Discharge permit 95954
Applicant's name	Clutha District Council
Consent (activity) type	<ul style="list-style-type: none">• Discharge waste and leachate to land• Discharge landfill gas and odour to air• Discharge hazardous waste to land• Discharge surface water and contaminants from stormwater retention ponds to water• Abstract up to 80,000 L of groundwater for the purpose of the leachate containment system
Brief	Consents associated with the continued operation of Mt Cooe Landfill,

description of Proposal	expansion of the landfill, and development of a resource recovery centre																				
Location	Mt Cooe, Balclutha																				
Review due by	10 working days i.e. 10 July 2023																				
Field of expertise required	Morphum – bird management, terrestrial, wetland, watercourse report wrt to ecology, flood hazard E3 – surface water quality and quantity including wetland T&T – landfill design and geotechnical Boffa Miskell – landscape John Iseli – air quality and gas flaring Marc Ettema – groundwater quality and quantity																				
Sharepoint link to Application	RM21.668 Mt Cooe lodged application 22 Jun 2023																				
Charge Code and sub-codes	Charge code is: RM21.668 <table border="1"> <thead> <tr> <th>Code</th> <th>Detail</th> <th>When to use</th> </tr> </thead> <tbody> <tr> <td>4700</td> <td>Application assessment and review</td> <td>Reading the application/file</td> </tr> <tr> <td>4701</td> <td>Correspondence</td> <td>Emailing the job manager about the application</td> </tr> <tr> <td>4702</td> <td>Meetings</td> <td>Meeting physically or virtually about the application</td> </tr> <tr> <td>4703</td> <td>Site visits</td> <td>Attending a site visit about the application</td> </tr> <tr> <td>4704</td> <td>Report/memo writing</td> <td>Preparing report/memo response</td> </tr> </tbody> </table>			Code	Detail	When to use	4700	Application assessment and review	Reading the application/file	4701	Correspondence	Emailing the job manager about the application	4702	Meetings	Meeting physically or virtually about the application	4703	Site visits	Attending a site visit about the application	4704	Report/memo writing	Preparing report/memo response
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4704	Report/memo writing	Preparing report/memo response																			
Other information	<p><u>Consents required or potentially required under following documents:</u></p> <ul style="list-style-type: none"> Regional Plan: Water for Otago (RPW) Regional Plan: Waste for Otago (RPWaste) Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-FW) Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NES-AQ) <p><u>Relationship between the Regional Plans Waste and Air:</u> The Regional Plan: Air for Otago (RPA) states in Section 16.2.2 that:</p> <p><i>“The rules contained within this Plan do not apply to the discharge of contaminants into air associated with the following, which are controlled by the Regional Plan: Waste for Otago:</i></p> <ul style="list-style-type: none"> <i>Contaminated sites;</i> <i>Facilities for the treatment or disposal of hazardous wastes;</i> <i>New or operating landfills;</i> <i>Closed landfills;</i> <i>Offal pits on production land, Intensive farms and industrial and</i> 																				

	<p><i>trade premises;</i></p> <ul style="list-style-type: none"> • <i>Farm landfills;</i> • <i>Composting and silage production; and</i> • <i>Greenwaste landfills.”</i> <p>Therefore, any discharges of contaminants to air associated with the landfill operations are to be addressed only under the rules in the RPWaste.</p> <p><u>Landfill flares</u> Note regulations 26 and 27 of the NES-AQ set out requirements for landfill gas flares.</p>
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Financial Information

As you are aware we have a purchase order/contract set up for this work. Please use the PO to charge your time to the application. If the job requires additional work above the quoted and agreed amount of hours/ charges, please obtain a new PO (or a PO extension) prior to carrying out of that work.

Scope of work

Please provide an audit of what has been provided as part of the application and a response to the questions in the below template.

Please note that we are not asking you to provide new information; rather, we are looking for an assessment of the material provided by the Applicant. If you consider that more information is required to make this assessment, please provide a list of s92 RFI questions.

There is no need to answer the technical questions below until all RFI questions have been fully addressed by the Applicant. Once all s92 matters are addressed, please provide a response to the technical questions below, either in the table or in an attached report that uses the same structure.

Confirmation that you can complete this work in the agreed timeframe and the provision of the quote are considered to be the confirmation of engagement for the works as supported by our underlying contract.

I require an audit considering the following questions:

For all technical matters
Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?
Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require

and why [please explain]

If granted, are there any specific conditions that you recommend should be included in the consent?

Bird Management and Ecology

Reports to audit: AEE, Appendix J Terrestrial, wetland, and waterway assessment, Appendix T Bird Management Plan, Appendix S proposed conditions of consent, Appendix V Landfill Management Plan, and any other reports/sections of reports that you consider relevant to your understanding

Q: Do you agree with the applicant's assessment of effects on birds resulting from the proposed activities?

Q: Are the proposed measures to minimise and manage bird populations considered appropriate for the site? Please explain.

Q: Do you agree with the 4Sight assessment that there is no additional bird strike risk or bird numbers associated with the landfill expansion?

Q: Based on the site visit you undertook, do you consider that the description of the terrestrial vegetation and habitats within the proposed landfill expansion area, the natural wetland, and the small waterway are accurate?

Q: In your opinion, does the 4Sight Terrestrial, Wetland, and Waterway Assessment describe adverse effects on current ecological values with respect to vegetation and native fauna? Please explain. I note that there is no discussion of adverse effects on ecological values within the AEE.

Natural Hazards and Flood Risk

Reports to audit: AEE, Appendix B Design Report, Appendix O Flood Hazard, Appendix S Proposed Conditions of Consent, Appendix V Landfill Management Plan, and any other reports/sections of reports that you consider relevant to your understanding

Q: Has the Applicant accurately assessed the risk of flooding at the landfill site and the areas that are likely to be impacted? Please explain.

Q: Are the potential adverse effects associated with a flood event appropriately described and mitigated, such as through the design of the proposed resource recovery centre and siting of the landfill expansion areas? Please explain.

Any questions please let me know.

Cheers,

Shay



Shay McDonald
SENIOR CONSENTS PLANNER

P 0800 474 082 | M 027 278 7523
shay.mcdonald@orc.govt.nz
www.orc.govt.nz