



Memorandum

To	WBOPDC
Copy	Vincent
From	Sarah Millar
Office	Whakatāne
Date	17 August 2023
File/Ref	29z
Subject	WBOPDC Section 92

Responses to Western Bay of Plenty District Council Section 92 items 14, 48-54.

14. For any accessway upgrades, please provide a preliminary engineering design prepared by a suitably qualified civil engineer, and which factors in any geotechnical and hydrological findings and recommendations. Ahead of submitting any preliminary design as part of this s92 request, the proposed solution must be provided to Council's transportation department for comment, given that the assets would be within the Council Road reserve. Contact Calum McLean: Calum.Mclean@westernbay.govt.nz

WSP's assessment of the changes required to the southern and northern roadside drains was preliminary only, and did not include any hydraulic assessment. Preliminary assessments of the changes required indicated that the existing drain profile and widened road could be delivered within the road reserve. (WSP Drawing set)

Preliminary geotech work was carried out. Please see section 9.4 of the WSP Geotechnical Assessment report of 2 December 2022.

We suggest the design is carried as part of the next block of work.

48. Please show how site drainage will be ensured after fill is placed that intercepts existing drainage on site.

This is demonstrated by the proposed design drawings, including levels and Steven Joyne's modelling work.

49. Please show how the fill proposed for Stage 1 of the development will not affect overland flow in extreme events (when these occur without backwater effect) with the view to ensuring no adverse effect on off-site properties.

This is demonstrated by the proposed design drawings, including levels, and Steven Joynes' modelling work.

50. Please provide an outline of the distribution and effects of fill for future stages of the proposed development. Please note that effects of the fill may not be at their worst under peak flood level conditions. In the image below (question 47), the recession following a flood is shown where velocity vectors are shown to pass through the areas proposed for both fill and for the wetland.

This is demonstrated by the proposed design drawings, including levels and Steven Joynes' modelling work.

51. WBoPDC flood modelling shows the Hakao Stream being unable to fully contain 100-yr flows, with spillage from the stream to the true left upstream of the subject site. Please indicate how the site development will change this out-of-bank flow distribution so that the effects can be assessed?

Mitigation measures including the removal of the culvert between Container Co and Tinex, and the opening up of the 45m overland flow path will facilitate the passage of this floodwater (which currently pools on the low lying ContainerCo land) to the stream. Note that the 45m wide overland flow path is larger than that required by the WBOPDC Structure plan for the combined development, and so will provide additional floodwater storage/conveyance to what was required.

Flooding has been modelled by Golovin (Steven Joynes) and results of this, as well as possible flood level changes as predicted by the model are attached.

Modelling indicates that taking into account proposed development, flooding will be **reduced** by the mitigation measures proposed.

Two options for flooding management are proposed – detailed in the two Momentum plans attached. (011 – TPBP SW Plan.ai and 012 – TPBP SW PLAN.ai)

WSP is unsure of the resulting flood levels for Plan 011 as this exact combination of mitigation has not been covered by Steven Joynes' modelling. We note that the overland flow path at 45m wide is 50% larger than that required by the structure plan, providing significant additional flood water detention. The modelling indicates that flooding would be **reduced** by this set of mitigation measures.

Plan 012 would, according to Steven Joynes' modelling, result in a change in flooding level for both 10 and 100yr return period events, which would **reduce** flooding from the baseline at all locations. Details are included in the attached "Summary of Flood levels using the Designed Drain 17th July 2023"

52. Please assess the potential for effects on adjacent sites, i.e. from filling induced worsening of flooding or ponding.

Flooding has been modelled by Golovin (Steven Joynes) and results of this, as well as possible flood level changes as predicted by the model are attached.

Modelling indicates that taking into account the proposed development, flooding will be reduced by the mitigation measures proposed.

Construction

53. Drawing 202 in Vitruvius (2022) indicates relocation of the existing drain on the northern side of Te Puna Station Rd to make room for a right-turn bay for eastbound traffic. Please provide information on how this will be constructed while keeping the existing drain operational.

This is demonstrated by the proposed design drawings, including levels.

Physical construction would most likely be carried out from Te Puna Station Road, using a long reach digger, with the northern side of the road closed, and the south side under stop/go traffic control.

The new drain profile subject to design confirmation would be excavated along the proposed road profile, leaving the existing drain isolated from the works to reduce/eliminate sediment entering the drain. Once construction of the new drain is finalised, the ends where it will join the existing drain can be cut through, and connected to the upstream and downstream sections of the existing drain. It may be possible to store cut material from the new drain on the TPL site. This could then be utilised to back fill the existing drain. However it is more likely that clean fill material would be imported to site, to ensure a suitable base course for the widening of the road.

Carrying out the works from the road negates the possibility of trees having to be removed.

If culverts are of sufficient size they could be moved, however historic culverts rarely meet current hydraulic requirements.

54. Can the applicant please confirm, using cross sections, that there is sufficient space to form the new drain while maintaining the existing, and provide details of drain dimensions? The WBoPDC drain survey indicates three culverts within this reach. Will these be replaced or moved? How will the drain be excavated? Will this require trees to be cut down for access from the northern side, or will drain construction need to be from the roadside?

This is demonstrated by the proposed design drawings, including levels. Also See above.

Disclaimers and Limitations

This report ('Report') has been prepared by WSP exclusively for ContainerCo ('Client') in relation to stormwater consent for the proposed ContainerCo site on Te Puna Station road ('Purpose') and in accordance with the ACENZ/ENZ short form contract for the project. The findings in this Report are based on and are subject to the assumptions specified in the Report and the Golovin report "Floodplain Assessment for 245 Te Puna Station Road for the Tinex Group Ltd of April 2022", and subsequent additional modelling. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

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