

# MEMO

**To:** Vaco Investments (Waipu Project) Ltd      **Date:** 10 August 2023  
**From:** Frances Deamer-Phillips – Environmental      **CC:**  
Engineer  
Lance Collier- Senior Civil Engineer  
**Reviewed:** Lance Collier – Principal Engineer      **CKL Ref:** A21235  
John Sternberg- Engineering Manager  
**Re:** Waipu Gateway Service Centre – S92 Response Stormwater and Wastewater

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## 1 Introduction

This memorandum is in response to Whangarei District Council Section 92 queries regarding the proposed Service Centre along Millbrook Road, Waipu also known as Waipu Gateway. This memorandum summarizes the response to the stormwater and wastewater queries in the s92.

## 2 S92

Below is the S92 received from Whangarei District Council Developer engineer following review of the stormwater information and CKL's response to s92.

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Issue	Requested Action	CKL Response – 10/8/23
Lance Collier has MEngNZ certification - works are at least Tier 3 complexity and require CPEng review and approval	The Stormwater Assessment must be reviewed & approved by a Tier 3 qualified professional	Please see updated report with Sam Jackman as the approver. Sam is CPEng.
Lance Collier has MEngNZ certification - works are at least Tier 3 complexity and require CPEng review and approval	Please provide an assessment existing overland flow paths and depression storage areas along with clear commentary on how they will be impacted by the development and associated proposed mitigation measures.	Please see updated report and associated calculations that show the diversion of OLFP have sufficient capacity to convey upstream flow around the site. The site itself will discharge flow at 80% predevelopment rate, improving on existing scenario.
No WDC assets exist in or adjacent to the development area.	Please confirm ownership of culverts under SH1 / Millbrook Road and confirm sufficient capacity is available to receive proposed flow rates.	Culvert is NZTAs asset. There is not sufficient capacity for the existing scenario, however the development is proposed to discharge peak rate at 80% pre-development, therefore improving on existing scenario.
The application references the superseded WDC EES 2010, new WDC EES came into effect in 2022	Please update report and all associated calculations to align with WDC ES 2022 standards	Report has been updated to reference 2022 standards. Design has been checked ad align with 2022 standards.
Rainfall depths have been adjusted for climate change. However, no calculations or supporting evidence provided to confirm pond sizing is appropriate.	Please provide initial pond sizing calculations to support report conclusions.	Please Appendix B in the report with HEC-HMS model summary and results for pond sizing.

	Please clarify how ponds will operate given high groundwater levels noted in this area.	The base of ponds are below the current groundwater level in design, we propose to line the ponds with bentonite or similar impervious liner to address this issue as no retention is required. We will develop details and confirm at the detailed design stages. If there is a concern regarding this outcome, please provide suitable condition of consent that requires this to be addressed.
Reporting suggests this will be the design standard followed, however no calculations provided to show this can be achieved	Please provide initial calculations and concept design of the onsite SW network to demonstrate this requirement can be achieved.	Please see calculations attached and additional plan 4200-1 for information. We have not detailed these to full design as this is for resource consent however the designs and assumptions will be confirmed and detailed at detailed design stage.
OLFP within the sites are shown on drawings. The upstream OLFP will be diverted around the development via a swales, discharging to the existing culvert	Please provide initial calculations and concept design swales to demonstrate this requirement can be achieved.	Please see plan 4200-1 which demonstrates the internal swale catchments. Please also see concept design calcs for information to be confirmed and detailed at detailed design stage.
Wastewater proposal is to discharge to land, the disposal fields are located next to the SW attenuation ponds and within proposed overland flow paths	Please advise how WW drip irrigation effluent will be separated from the SW system	There will be 5m separation between WW drop irrigation field and SW ponds and swales. Additionally, the ponds and WW field will be lined/bermed along the edge to divert stormwater flow and avoid cross contamination. The effluent quality from the treatment plans is also higher than what is required by WRC. Please see updated report for more information

<p>Design life is not stated in reporting. Note point above (TWM-R2-1(a)) that superseded engineering standard is applied.</p> <p>Noted that acid sulphate soils are confirmed on site. SW infrastructure materials will need to accommodate this.</p>	<p>Please confirm design life and proposed materials for SW system.</p>	<p>Considering the acidic nature of the soils any public infrastructure will be specified as either uPVC or PE as these materials are resistant to corrosive soils. In saying that, the SW for this site is private and materials shall be considered under future detailed designs and building consents. Please provide a suitable condition of consent that covers the need for acidic soils to be considered in any underground design of infrastructure.</p>
<p>Reporting states 80% reduction on existing discharge rates can be achieved. No flow rates or calculations are provided to support this</p>	<p>Please provide supporting calculations for runoff rates.</p>	<p>Apologies, calculations sheets were missed in previous submission. Please Appendix B in the report with HEC-HMS model summary and results for pond sizing and peak flow rates.</p>
<p>Section 3.17 states that pond 2 will collect water from BP, entrance to the site and building and parking areas of 11, 12, 22 and 23 under stage 1.</p> <p>Appendix 3 states pond 2 will accommodate the BP, entrance to site and building 11 and 13 (incl parking area). Also inconsistent with section 3.41</p> <p>Petrol station treatment: Fuel handling areas have APIS or SPEL treatment devices</p>	<p>Please confirm catchment areas for ponds.</p>	<p>Please see Appendix A drawing 400-1 for catchment areas.</p>
<p>No allowances made for future subdivision in stormwater design</p>	<p>Please clarify how upstream development has been allowed for in the proposals</p>	<p>The site is being built up and as such no upstream catchment to accommodate, each future development will need to accommodate their own SW. Furthermore existing swale is conveyed</p>

		around the full area and as such future upstream developments will be conveyed to this independently.
The existing OLFP will be diverted around the site via swale, however the upstream catchment has not been estimated	Please provide an assessment of upstream overland flowpath catchments and confirm that proposed diversions are appropriately sized.	Please see updated report and associated calculations that show the diversion of OLFP have sufficient capacity to convey upstream flow around the site.