

## **MEMORANDUM**

**To:** Jamie Cox  
**From:** Angela Lane  
**Date:** 5 September 2017  
**Subject:** Ocean Outfall Concept and High Level Cost

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### **Background**

The Wairoa wastewater treatment system requires a replacement consent by May 2019. Currently, discharge of the treated wastewater is via the Wairoa River estuary. If discharge to water is an option for the replacement consent, then discharging direct to the ocean should be considered. This would eliminate discharge restrictions when the river mouth is closed.

### **Purpose**

To identify a high level indicative cost estimate of a potential ocean outfall option for the discharge of wastewater to a distance of 1 km out to sea from the foreshore, adjacent to Whakamahia lagoon.

This memo will be produced to consider the cost of a potential ocean outfall and is not intended to provide any recommendations to the future system at this stage.

### **Scope**

A high-level cost for a stretch of pipe that will include infrastructure and installation through surf zone and beyond to a distance of 1 km.

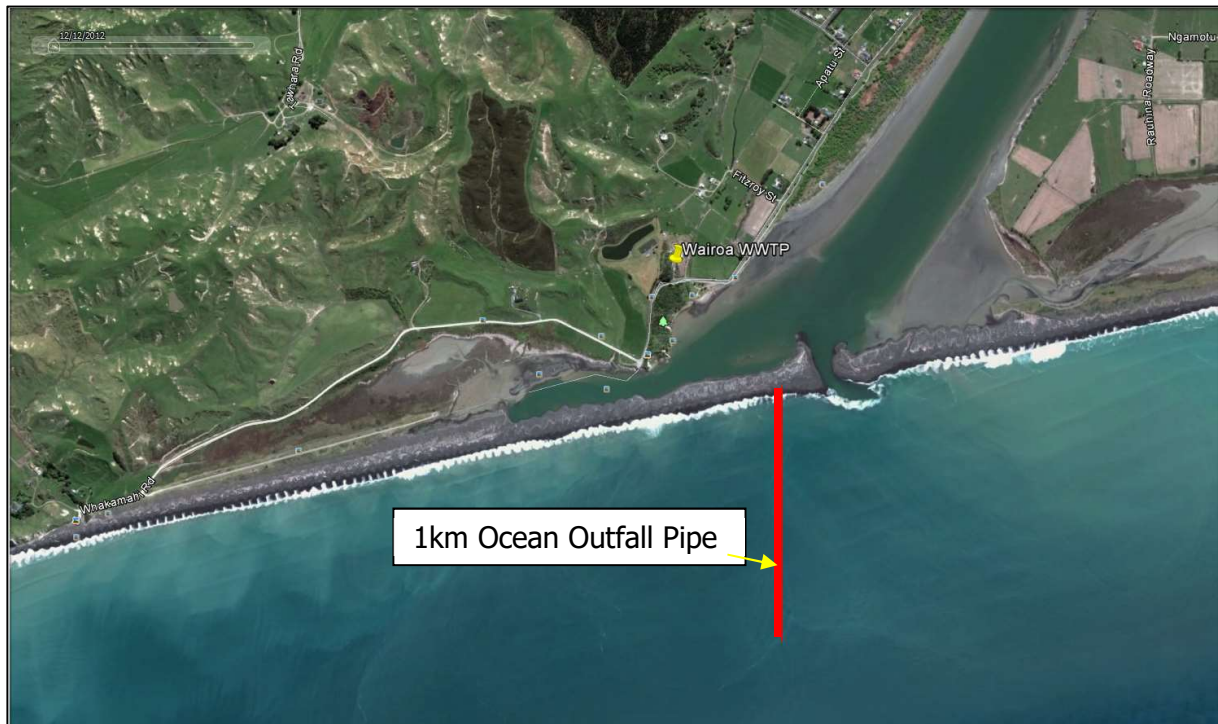
### **High Level Concept and Cost**

OCEL Consultants NZ Limited (OCEL) were approached to provide a brief estimate of an ocean outfall set to 1 km offshore from the foreshore (Figure 1). This information was provided in an email addressed from Gary Tear from OCEL to Angela Lane (LEI) dated 30 July 2017. The following are parameters that should be considered if an ocean outfall was to be installed:

- 1 km outfall installed by float and sink
- Trestle and cofferdam through surf zone buried, self-burial beyond
- Piled diffuser
- Order of magnitude estimated cost \$7.8 million.



## Ocean Outfall Concept and High Level Cost



**Figure 1: Approximate location and distance of Ocean Outfall Pipe**

This estimated cost is for a 1 km stretch of pipe only. Variations to this concept will see further costs added, such as further piping to attach to the current discharge pipe or redirection of a discharge pipe from the treatment ponds, across land and attached to an ocean outfall.

A distance shorter than 1 km may cause issues with backwash of wastewater through the surf zone onto the foreshore. It is therefore essential to establish what the shortest distance could be and likewise what would be the most effective length for the chosen location.



## Ocean Outfall Concept and High Level Cost

**From:** Gary Teear <gary.teear@ocel.co.nz>  
**Sent:** Sunday, 30 July 2017 10:56 PM  
**To:** Angela Lane  
**Subject:** WAIROA OUTFALL ESTIMATE

Hello Angela,

1 km outfall installed by float and sink, trestle and cofferdam through surf zone, buried, self burial beyond, piled diffuser – order of magnitude estimated cost \$7.8 million. I don't know how you will present this but I can send you some photos to illustrate the concept if that would be of use.

Regards  
Gary Teear



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