Table 1: Potential Discharge Sites

Site Number	Key Features	Discharge Options
1	• Situated east of the final treated wastewteter holding ponds, about 240m from the existing pump station. • Easy and suitable access from the treatment plant facility. • Has a small area prior to stream populated with raupo plants (NZ bull rush) that is apparently good for further nutrient uptake. • Simple design and economical to construct. • Easy to maintain/least maintenance cost. • Could gravitate from plant to the point of discharge. • No ROW issues.	• Pipe direct discharge to Puarenga Stream (refer to Mott McDonald conceptual detail, Fig 5.1). Approx. Capex: $0.60 M. • Or, with riparian gabions (Figure 5.5). Approximate capex: $ 0.70 M. • Alternative option to utilise existing ponds as monitoring ponds (Fig 5.6) then direct to discharge. Will reduce above costs by $0.30 M respectively.
2	• Situated north of MMD's proposed location of tertiary and UV treatment plant on the WWTP Site, about 125m away from the existing pump station. • Discharge to natural ditch that flows towards the lake. This ditch is the treatment plant's stormwater overflow channel. • Could gravitate from plant to the point of discharge. • No ROW issues and easy access.	• Discharge to rock passage (Fig 5.2). Estimated capex: 0.85 M.
3	• Downstream side of Puarenga Stream at Te Ngae Bridge about 650m from the WWTP pump station. • Discharge to Puarenga Stream or to the adjacent stormwater ditch. • Could utilise existing 600 mm diameter steel pipe rising main with low pumping head. • No ROW issues. • Suitable access from the treatment plant facility for easy maintenance. • Simple design and easy to construct. • Suitable distance from lake to allow treated wastewater dispersion.	• Pipe to direct discharge (Fig 5.1), estimated capex: $1.6 M. • With riparian gabions (Fig 5.5): $1.7 M.

4	• Located along the southeast shore of Lake Rotorua, Owhata West, (mesh block 1254300). • Pipeline route: WWTP - Puarenga Stream crossing-private property (alongside alignment of DN600 Hona PS rising main) - Hona Road – Hakopa Road – Moses Road – RDC road reserve – Vaughan Road – unformed RDC road reserve (before Caroll Place) – lake discharge point. • Approximate size/length of pipe: 750 mm diameter 1,850 meters length.	• Pipe to direct discharge (Fig 5.1), estimated capex: $4.6 M. • With rock passage (Fig 5.2): $5.2 M.
5	• Located southeast shore of Lake Rotorua, Owhata West, (mesh block 1254300). • Route: WWTP - Puarenga Stream crossing - private property (alongside alignment of DN600 Hona PS rising main) - Hona Road – Hakopa Road – Moses Road – unformed RDC road reserve – Vaughan Road – unformed RDC road reserve (top of Caroll Place) – lake discharge point (refer to map). • Approximate size/length of pipe: 750 mm diameter, 3,115 meters length.	• Pipe to direct discharge (fig5.1), estimated capex: $7.8 M. • With rock passage (Fig 5.2): $8.3 M.

Note: Pipeline costing based on the rate used in Mott McDonald's feasibility study of alternatives to land treatment

- $M 0.50 for 200m of DN750 discharge pipeline, i.e. $2,500/m
- Rock passage: $M 0.54
- Pipe Outlet with diffuser (gabions): $M 0.10