

Memorandum –Wastewater Irrigation

TERRA STUDIO

To: Charlotte Macdonald – Barker & Associates

From: Terra Studio

Re: Stage 2 wastewater spray irrigation areas

This memorandum outlines the potential for wastewater spray irrigation within the Stage 2 area to service households within Stage 2 under a range of scenarios. It has been prepared in accordance with Apex's letter regarding house hold units (HHU) able to be serviced per hectare (HA) of irrigated area.. The scenarios presented below represent conservative, moderate, and higher-capacity assumptions. These scenarios are presented for illustrative purposes only, in order to demonstrate that on-site disposal to land of treated wastewater associated with the Delmore Stage 2 area is feasible.

1.0 Parameters

The following parameters apply to all wastewater irrigation scenarios listed below:

- 1HA of spray irrigation area can service a maximum of 40 HHU's.
- The Stage 2 collector road connecting Upper Orewa Road and the NOR 6 arterial road is constructed in its entirety in accordance with the proposed traffic consent conditions.
- 10m minimum setback to all streams and wetlands.
- The Stage 2 park and commercial area are provided for.

2.0 Conservative scenario

This scenario limits the wastewater spray irrigation areas by applying 10m setbacks from external site boundaries, Significant Ecological Areas (SEAs), proposed revegetation planting areas and riparian margins (which results in a 20m equivalent setback to streams and wetlands).

Total land available for irrigation	114,300m ²
HHU's enabled	442 (61% of lots in Stage 2)
Proposed ratio	38.7 HHU per 1HA

3.0 Moderate scenario

This approach applies a 10m setback from riparian margins (20m equivalent to streams and wetlands), Significant Ecological Areas (SEAs) and external site boundaries, while allowing wastewater spray irrigation within the proposed revegetation planting areas.

Total land available for irrigation	134,600m ²
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HHU’s enabled	507 (70% of lots in Stage 2)
Proposed ratio	37.7 HHU per 1HA

4.0 High-Capacity scenario

This approach applies a 10m setback from streams, wetlands, and external site boundaries, while allowing wastewater spray irrigation within Significant Ecological Areas (SEAs) and proposed revegetation planting areas.

Total land available for irrigation	200,000m2
HHU’s enabled	724 (100% of lots in Stage 2)
Proposed ratio	36.2 HHU per 1HA