9 November 2017

610.14692-L01-v0.1 RTS Water Quality 20171109.docx

Skylife Properties Pty ltd
PO Box 114
Enfield NSW 2136

Attention: Shivesh Singh

Dear Shivesh,

Mortdale Resource Recovery Facility
Response to DPE Comments Regarding Water Quality

Further to receipt of comments from the Department of Planning and Environment by email on 26 September and 30 October in relation to water quality aspects of the above proposal, the following responses has been prepared which outlines a change to the proposed water quality treatment train.
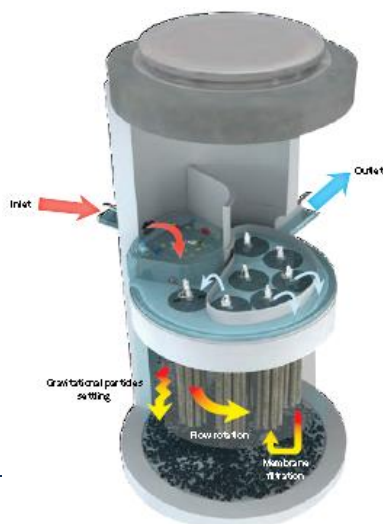
Reason for Change.

In the absence of site specific water quality targets, pollutant reduction targets have been adopted from the Landcom Water Sensitive Urban Design – Book 1. This requires a GPT which has nutrient removal capability.

Change to Water Quality Strategy

The previous stormwater strategy proposed the use of a Rocla First Defence GPT. The *First Defence* treatment device would improve water quality from the existing situation. The First Defence provides treatment in terms of sediment, suspended solids, free oil and sediment bound heavy metal removal, but is not effective in removal of nutrients (Phosphorous and Nitrogen).

To achieve the pollutant reduction targets, particularly nutrients, the proposed GPT has been changed to a Humes Jellyfish Gross GPT.

Extracted from Humes (2016)

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The proposed stormwater treatment train will now include the following:

- Use of a Humes Jellyfish GPT (Not Rocla's First Defence unit as originally proposed);

- 45kL rainwater tank and associated drainage to collect runoff from approximately half of the roofed area;

- Ecosols Litter Basket with 200μm filter bags will be retrofitted into all drainage pits

- Decommissioning of some existing drainage lines;

- Minor changes to the existing stormwater pits to tie in to the proposed surface levels and the installation of a water tight pit lid on one of the stormwater pits;

- Construction of bunds for the purpose of retaining runoff;

- Installation of Rocla water level controller with raised turret for use when blocking fire fighter runoff; and

- Works associated with the on-site 28 000L fuel tank.

- Installation of a leachate sump within the shed to capture any seepage from the waste and any stormwater generated under the shed awning; and

- Installation of bunds to surround product bays under the shed awnings to both prevent stormwater runoff entering the into material storage area under the awning and prevent leachate from coming into contact with stormwater. In the event stormwater is generated under the shed awning this will be captured by the leachate sump located within the area contained by the shed bund;

Performance of Proposed System

An assessment of pollutant load removal rates of the existing and proposed stormwater management systems has been undertaken using the MUSIC software

The MUSIC modelling carried out with this study includes a Humes Jellyfish GPT with membrane cartridges that provide improved fine particle and nutrient removal rates. The pollutant removal rates published by Humes and achieved from independent testing are as follows: TSS 85%, TP 59%, TN 51%, Cu 90%, and Zn 70%. Other types or arrangements of GPT with similar pollutant removal rates should also be satisfactory.

Pollutant removal rates are compared in the table below for the existing stormwater management system, the Landcom WSUD targets, the previously proposed strategy with a 'First Defender' GPT, and the revised proposal which includes a 'Jellyfish' GPT (plus litter baskets and the rainwater tank).

Parameter	Predicted Pollutant Removal Rate (%)			
	Existing Stormwater Management	Landcom WSUD targets	Previous Stormwater Management (with existing 'First Defender' GPT)	Proposed Stormwater Management (incl. 'Jellyfish' GPT)
Total Suspended Solids (kg/yr)	76	85	86	89
Total Phosphorus (kg/yr)	29	57	57	73
Total Nitrogen (kg/yr)	0	45	21	59
Gross Pollutants (kg/yr)	5		84	99

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Conclusion

The proposed stormwater treatment train including a combination of the litter baskets, rainwater tank and a Humes Jellyfish GPT will:

- Significantly improve the quality of stormwater being discharged from the Site;

- Provide adequate treatment (achieve the Landcom WSUD removal rates) in terms of reducing the key pollutants (i.e. gross pollutants, coarse and sediment, suspended solids, nutrients (Phosphorous and Nitrogen); and,

We trust that the above information provides a satisfactory response to the DPE's comments. Should you have any queries on the above please contact the undersigned,

Yours sincerely

PAUL DELANEY
Manager Civil & Structural