Referral Response - Environmental Health - Waterways

Application Number:	DA17/1092
Referral Officer	Tim Gowing
Referral Unit	Environmental Health - Waterways
Date of referral	22 November 2017
Land to be developed (Address):	Lot 2 DP 1108408 13 - 15 Park Road WALLACIA NSW 2745
Proposed Development:	Staged Construction of Wallacia Memorial Park including Cemetery for 88,000 Burial Plots, Chapel & Related Crematorium & Function Rooms, Administration Building, Services Outbuilding, Parkland Areas, Internal Roads, Car Parking & Associated Landscaping & Site Servicing Works

Recommendation
Not supported

Detailed assessment
I have reviewed the documentation provided with the application and my review included in the following:

Watercourse Assessment prepared by Travers bushfire and ecology, October 2017, Reference # A17162W

Civil Engineering Services Report, prepared by Warren Smith & Partners, Issue 20 October 2017

Stormwater Layout Plans, prepared by Warren Smith & Partners, Job number 5936000, Issue 1 September 2017

Statement of Environmental Effects prepared by URBIS 3/11/2017

Landscape Plans prepared by Florence Jaquet Landscape Architect, DA Issue, 24/10/2017

Landscape Design Response prepared by Florence Jaquet Landscape Architect Cemetery Specialists, dated 20/10/2017

Preliminary Geotechnical, Groundwater and Salinity Assessment: Proposed Wallacia Cemetery, prepared by Martens consulting engineers, October 2017

In relation to stormwater treatment, insufficient information has been provided to demonstrate compliance with Council's WSUD Policy.

Based on a review of the plans, a number of ponds, swales, wetlands and bioretention systems are proposed. However, no MUSIC Modelling has been submitted in support. In relation to water conservation, other than some references to water harvesting and reuse, no details on how the requirements will be met. It is also noted that no operation and maintenance manual has been prepared for the proposed stormwater treatment measures associated with the development.

In relation to the risks and management of groundwater, the Preliminary Geotechnical, Groundwater and Salinity Assessment prepared by Martens concluded that while the risk to groundwater was relatively low, however the report recommended a number of further investigations including that further assessment of groundwater conditions should be undertaken to determine the risk and

management considerations for groundwater and specially recommended:

- Detailed surveying of the groundwater well locations and levels to obtain more accurate groundwater data,
- Ensure groundwater monitoring period includes a minimum of 2-3 significant wet weather events and corresponding dry weather periods, and
- Detailed groundwater modelling (using MODFLOW) of the site to determine groundwater levels over the entire site.

From the report, it is also unclear from the report about the interactions between the ground water and proposed wetlands / stormwater treatment measures.

As such, prior to finalising the assessment of the application, the following information should be prepared and submitted for Council's consideration.

1. WSUD Strategy

The information submitted with the development application should also include a WSUD Strategy which includes information on the following:

- WSUD Principles, Objectives and Targets
- Site analysis which identifies any possible constraints for the implementation of WSUD
- Details in the proposed WSUD measures including concept designs of the proposed measures.
- Details of proposed GPTs should also be included to ensure that the proposed devices are modelled appropriately in MUSIC and are suitable for use in the Penrith LGA.

2. Music Modelling

a) The modelling completed shall be revised to inform development of a stormwater treatment system and WSUD strategy for the development site. The design must meet the following environmental pollutant retention criteria:

- 90% Gross Pollutants
- 85% Suspended solids
- 60% Phosphorus
- 45% Nitrogen, and
- There are also requirements to meet water conservation and flow management targets (refer to WSUD Policy)

b) The MUSIC model needs to include a report which clearly identifies catchment breakup, splitting of surface types and all other assumptions that have been made in the model. This must include detail down to the sub-catchment level. Electronic copies of the modelling are also to be submitted to Council for review.

c) Modelling parameters for the determination of the size and configuration of WSUD elements must be in accordance with MUSIC Modelling Guidelines for New South Wales (eWater User Guide which is provided with the MUSIC Software (2011) and with the parameters developed for use in Penrith.

Council has developed a range of parameters to be used in the Stormwater modelling which is available in Council's WSUD Technical Guidelines (available www.penrithcity.nsw.gov.au).

The applicant is encouraged to use MUSIC*link* which is available in the latest version of MUSIC as it allows the model to be prepared using Council's required parameters.

3. Concept Plans

The plans shall be prepared in accordance with Council's WSUD Technical Guidelines and include Cross-section details (showing filter depth, extended detention, media layers and sub-soil drainage detail etc.), basin sizing details and planting details (vegetation type and density). The type of device / treatment measures and location including details on access for maintenance must also be shown on the plan.

4. Operation and Maintenance

A Draft Operation and Maintenance manual should also be provided of for the proposed stormwater treatment measures. The manual should include details on the cleaning / maintenance requirements as well as provide an estimation on the annual and lifecycle costs associated with the proposed treatment measures.

Council's WSUD Technical Guidelines are available on Council's Website and were prepared to outline how to comply with the requirements of Council's WSUD policy and outline Council's requirements in relation to the contents of a WSUD Strategy and detail required for concept designs to be lodged with the development application. The guidelines refer to resources which guide the development of suitable plans for submission with a development application.

5. Groundwater / Water Management

It is also suggested that the recommendations provided in relation to the management of groundwater in the report prepared by Martens be completed prior to the approval being granted. Specifically, these include:

That further assessment of groundwater condition be undertaken for contamination of the groundwater risk and management considerations, including:

- Detailed surveying of the groundwater well locations and levels to obtain more accurate groundwater data,
- Ensure groundwater monitoring period includes a minimum of 2-3 significant wet weather events and corresponding dry weather periods, and
- Detailed groundwater modelling (using MODFLOW) of the site to determine groundwater levels over the entire site.

Further it's suggested that additional information is required on the interactions between the ground water and proposed stormwater treatment measures as well as existing waterbodies and bores located within the vicinity of the proposed development including offsite.

Note: I also recommend that Council engage a suitably qualified consultant to provide a comprehensive assessment of the proposal in relation to the risks and management of groundwater.

Note:

The referral assessment did not include the review of site flooding or any OSD requirements, as such I recommend that proposal is referred to Councils Engineering Stormwater Supervisor for further assessment.

Should you require additional information regarding this matter please contact me.

Regards

Tim Gowing