



26 October 2022

Re: DA preliminary review (DA2022/0901)

19 May 2022

67 Quirk Street, DEE WHY

Job N° 211230

Northern Beaches Consulting Engineers Pty Ltd have been instructed by Peninsula Homes to provide a brief response to the Letter Submission from No. 136 Headland Road, North Curl Curl and Engineering Referral Response dated 24 October 2022.

The responses below refer to documents prepared by Northern Beaches Consulting Engineers and include:

- **Stormwater Plans Management Plans (Issue D)**
- **OSD Basin DRAINS Modelling**

The items and associated with the Engineering Referral Response are as follows:

1. *The determined 5 year pre development site discharge rate is too high and must be reduced to suit the time of concentration determined in Council's Water Management for Development Policy.*

The determined 20% AEP pre development site discharge rate has been reduced to 15l/s to match the flow determined by the time of concentration noted in Council's Water Management for Development Policy as per the updated Stormwater Management Plans.

2. *The resultant OSD volume is also too low and must be increased to ensure the 5 year PSD is not exceeded in all storms up to and including the 100 year storm event.*

The resultant OSD volume was increased (25,200L) to provide sufficient storage to ensure the site PSD (20% AEP) is not exceeded in all storms up to and including the 100 year storm event.

3. *The overland flow paths for the detention basin must ensure access to the existing secondary dwelling is not impeded, Also the OSD basin must be designed to ensure pedestrian access is achieved without requiring pedestrians to enter the basin.*

As per the Stormwater Management Plans, the overland flow path for the detention basin has been redirected as to ensure access to the existing secondary dwelling is not impeded. A pedestrian access of 900mm wide is proposed so that pedestrians aren't required to enter the basin.

4. *The proposed method of discharge from the site is to be via a level spreader along the contour a minimum of 3 metres from the rear boundary to ensure no concentration of flows.*

As per the Stormwater Management Plans, the minimum 4m long level spreader is located a minimum of 3 metres from the rear and side boundaries.

The following items are associated with the Letter from No. 136 Headland Road, Curl.

1. *Consideration of all available avenues regarding stormwater*

The method of discharge has been designed in accordance with Northern Beaches Council DCP – 5.5 Stormwater Drainage from Low Level Properties. NB Consulting were informed by the client that no reasonable offer for a drainage easement was reached and thus a drainage easement was determined as not being possible. The next option, On-site absorption, is typically only possible where the ground material is primarily sand. To our knowledge, there is shallow rock across the site and in some areas there is visible exposed rock, therefore absorption is deemed unsuitable for this property. Northern Beaches Council DCP generally only allows the use of a charged line system after all other options (including level spreader) have been exhausted. Typically, it is preferred for stormwater to follow the natural flow path (downhill by gravity), so as to avoid artificially increasing hydraulic load on the council drainage system at the top of the site (Quirk Street) and potentially flooding other properties.



2. *Proposed Level Spreader Design:*

The OSD basin has been designed to provide 25,200 L of storage. The OSD basin is to be built with a surface area of 111m² with a maximum ponding depth of 300mm. As per the Stormwater Management Plans an additional 6,500L of Rainwater storage is provided. The level spreader is a grated drain, to try and minimise the absorption of stormwater, thus likely reducing the hydraulic load on the existing retaining wall.

3. *Existing significant overland flow and nuisance flooding from 67 Quirk Street. The proposed stormwater plans are worsening the adverse impact by the proposed direction and concentration of the stormwater.*

The stormwater system proposed in the Stormwater management plans has been designed to ensure site discharge from the 100 year storm event does not exceed the existing site discharge from the 20% AEP storm event. The existing retaining wall is to be assessed and approved by a structural engineer and geotechnical engineer prior to construction.

Please contact the undersigned with any questions relating to the contents of this letter.

Yours sincerely

NORTHERN BEACHES CONSULTING ENGINEERS P/L

as per: 

Rick Wray

BE CPEng NPER Director

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