

Our Ref 600283-L002

Contact Garry Neville

13 December 2011

The Manager
Robertson Marks Architects
11 -17 Buckingham Street
Surrey Hills NSW 2010

Attn: Ian Farrelly

Dear Ian,

RE: MEADOWBANK PRECINCT MASTER PLAN, SHEPHERDS BAY

Please find attached updated stormwater drainage concept drawings as requested.

We confirm that the latest architectural layout changes have minimal impact on the overall site stormwater strategy. We note that the location of the rainwater tank shown under the upper basement vehicle ramp has been relocated to suit the amended location of the ramp.

We acknowledge Ryde City Council's comments with respect to stormwater drainage and flooding and respond as follows;

Capacity of receiving stormwater system: Runoff from the site is proposed to be drained via a new pit and pipe system connecting the site directly to the sea wall. The new pit and pipe system has been sized to convey flows in accordance with Part 8.2 of Council's Development Control Plan 2010. As such, the impact of the development on Council's existing stormwater network will be minor/negligible. Information relating the stormwater analysis and modelling carried out for the proposed development is contained in Cardno's *Integrated Stormwater Management Report*. We would be pleased to provide electronic copies of the DRAINS and MUSIC model files created for the stormwater analysis on request.

Impacts of overland flow: Flood modelling has been carried out for the subject Site as detailed in Cardno's *Flooding Assessment Report* dated 12 December 2011. Belmore Street at the eastern frontage of the site conveys flood flows from the upstream catchment to the harbour. Figure 1 as attached shows 100 yr ARI flood contours adjacent to the proposed development. Based on these contours, vehicular and pedestrian entries to the site will be set to a level equal to the 100 year ARI flood level plus 300mm.

Please contact the undersigned should have any queries in relation to this advice.

Yours faithfully



Garry Neville
Senior Civil Engineer
BE (Civil), MEngSci (Civil & Environmental), MIEAust, CPEng, NPER
for **Cardno**



Cardno (NSW) Pty Ltd
ABN 95 001 145 035

Level 3, 910 Pacific
Highway
Gordon New South Wales
2072 Australia
Telephone: 02 9496 7700
Facsimile: 02 9499 3902
International: +61 2 9496
7700
Email:
sydney@syd.cardno.com.
au
Web: www.cardno.com.au

Cardno Offices

Brisbane
Sydney
Canberra
Melbourne
Perth
Darwin

Cairns
Townsville
Rockhampton
Hervey Bay
Sunshine Coast
Toowoomba
Gold Coast
Gosford
Baulkham Hills
Busselton

Port Moresby, PNG
Abu Dhabi, UAE
Portland, USA

FIGURE 1 - 100 YR ARI FLOOD CONTOURS.

13/12/11

