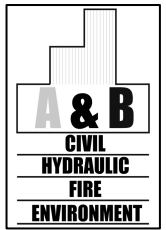


ABEL & BROWN PTY. LTD.



SUSTAINABLE BUILDING SERVICES CONSULTANTS
CIVIL, FIRE PROTECTION & HYDRAULIC DESIGN SERVICES
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ON SITE SEWAGE TREATMENT & DISPOSAL SYSTEMS DESIGN
EDITORS OF THE **AUSTRALIAN PLUMBING COST GUIDE**

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Thursday, 31 May 2018

NBRS+PARTNERS

Level 3, 4 Glen St,

Milsons Point NSW 2061

Attention: Mr. Barry Flack

Dear Sir,

Re: Hydraulic Services Queries : Glenhaven Gardens

146 Glenhaven Road, Glenhaven

Please find enclosed responses to the hydraulic services queries raised in your email dated 18th May 2018. Each of the queries have been addressed individually below:

A pump out system cannot handle the waste from the proposed development. Sydney Water has not connected Mills Road to the sewerage system

The information provided to date is a concept design. The construction certificate design will provide for a new sewer pump out system to serve the existing dwelling and the proposed dwellings will connect to an upgraded pump out system located within the existing Glenhaven Gardens site. The new Sewer pump out pit will not discharge to Mills Road, but to an existing Sydney Water Sewer located in Temora Road as per the sketch below (sewer rising main shown in blue):

A&B – WHEN EXPERIENCE COUNTS

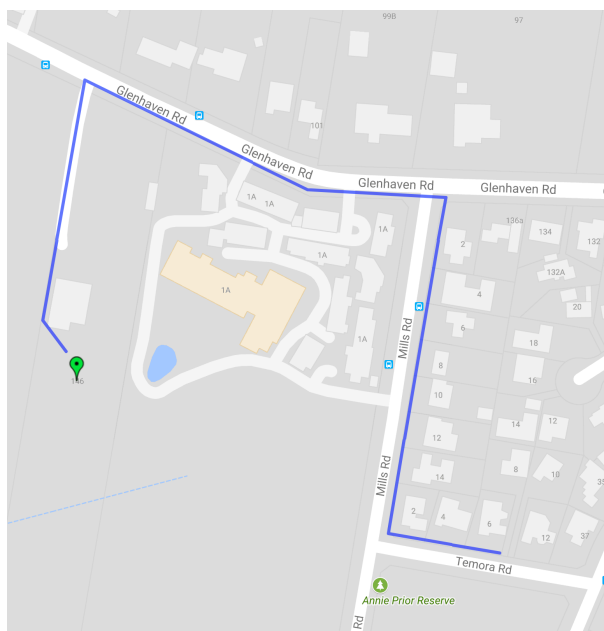


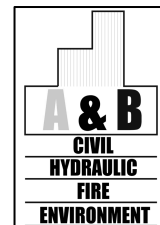
Figure 1 - Proposed Sewer Rising Main Location

Sewerage spillage detection and remediation was not covered in the Hydraulic Services report.

The information provided to date is a concept design. The construction certificate design will provide for a sewer pump out pit with dual pumps with high level alarms in the case of pump failure. The pump out pit will be designed in accordance with the requirements of Sydney Water and The Hills Shire Council – Local Approvals Policy (2016).

Discrepancies between Reports as Abel Brown Specialist Building Services Consultant states the site will contain 14 self care units (9 x 3 Bedroom and 5 x 2 bedroom units) - page 7, however SOEE states 12 x 3 bedroom self-care units. Hydraulic services also suggests 14 units.

The feasibility report was completed prior to the final Development Application design and the Statement of Environmental Effects should take precedence over the hydraulic services feasibility report



Abel Brown Specialist Building Services make reference to a 32mm natural gas line connection to the proposed site. Introducing volatile products into an already sensitive environment and confliction with high fire zone is unsuitable.

According to the Rural Fire Service "Planning for Bush Fire Protection (2006)" document referenced by the Hills Shire Council "Living in a bushfire prone landscape" document, gas services may be provided into a bush fire affected site provided the following performance criteria is met:

"Gas services

- location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings"**

The piping utilized will be metallic and will be installed underground or within wall cavities. Natural Gas hot water and cooking appliances are currently in use in the existing Glenhaven Garden site.

If you have any questions regarding the information above please do not hesitate to contact our office.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'S Brown'.

Stuart Brown

Abel & Brown Pty Ltd Pty. Ltd.