



***8 Lady Penrhyn Drive,  
Beacon Hill, NSW***

**DA Report**

Revision: 02

## Report Amendment Register

Rev. No.	Issue/Amendment	Author/Initials		Reviewer/Initials		Date
01	Draft DA Issue	Youmna Khalid	YK	George K	GK	01/04/21
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## **1. INTRODUCTION**

Meinhardt—Bonacci has been Commissioned by Vigor Master to carry out civil and stormwater investigation and design of the property at Lot 8 Lady Penrhyn Drive, Beacon Hill for Development Application (DA). The proposed development is comprised of design and connections of the three (3) new buildings to the existing stormwater drainage system, and design of the new vehicle crossing and driveways (as noted in the below Figure 1).

The stormwater investigation is to address the impacts of the Housing for Older People development on the site. Stormwater plan(s) to document the additional new works in compliance to Northern Beach Council requirements with the intention to tie into built stormwater pit and pipe network already constructed onsite. This includes a Soil and Water Management Plan (SWMP) for construction. The existing drawings nominated in the previous conditions of consent (namely Bonacci Drawings 2001515 Rev T3/T4) will be used to develop the new documentation solution that complies with the requirements.

The proposed development will provide low intensity housing in the natural landscape. By utilising Water Sensitive Urban Design principles, the impact of the development on the peak stormwater discharge and quality will be minimised. Australian Rainfall and Runoff (1987) and Australian Standard 3500.3 (2003) Part 3 Stormwater Drainage have been used in the design and analysis of the stormwater system.

## **2. SITE DESCRIPTION**

### **2.1. Location**

The subject site is shown in Figure 1. The site features existing building B1 to the North, buildings C1 and C2 to the east, shrub, scrub and heath vegetation to the west and Lady Penrhyn Drive to its Southern boundary. The site slopes steeply from Lady Penrhyn Drive down to Willandra Road via a series of sandstone benches and ledges.



*Figure 1: Site Aerial Image (Source: Google Earth)*

The site is located within the Northern Beaches Council Local Government Area (LGA).

Main vehicular access to the site will be through Lady Penrhyn Drive to its south tying into the proposed new local road and to the west off the proposed buildings.

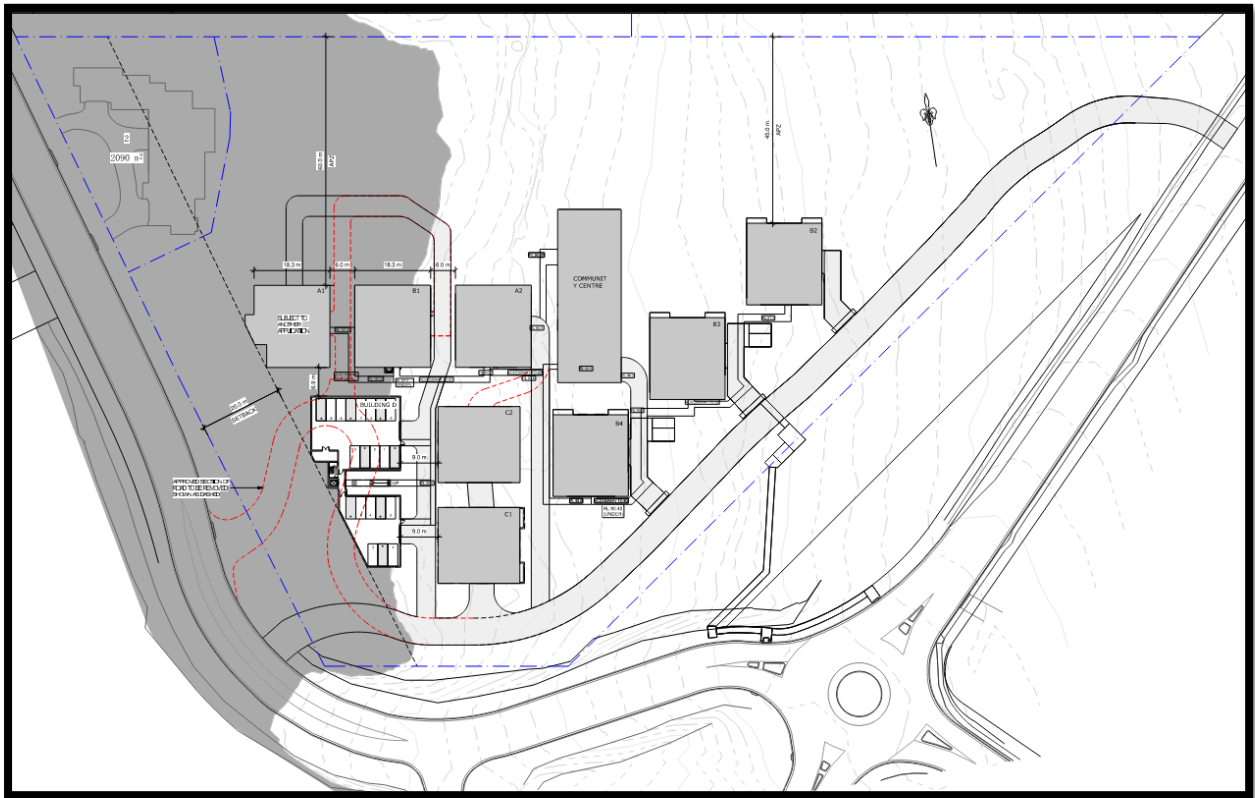


Figure 2: Overall Site Plan (Source: Vigor Master Architectural Layout)

## 2.2. Existing Services

No existing services have been identified to be passing through the proposed development site. However, careful consideration needs to be given during excavation and construction process.

## 2.3. Existing Stormwater Network

Stormwater from the site flows overland and through a series of existing stormwater pits and pipes and connects to existing OSD which discharges to an existing pit along Willandra Road. The OSD and stormwater network were designed by Bonacci during previous design stage.

## 3. PROPOSED DEVELOPMENT

The proposed development consists of the construction of a new building D, carpark driveways, access road from Lady Penrhyn Drive to Building A (future development) and associated site infrastructure. The Full Scope options are shown in Figure 3 and Figure 4.

The proposed building is divided in two portions; north and south, connected by a bridge like structure. Both parts of Building D are provided with separate carparks in the basement with individual entrance driveways for convenience.

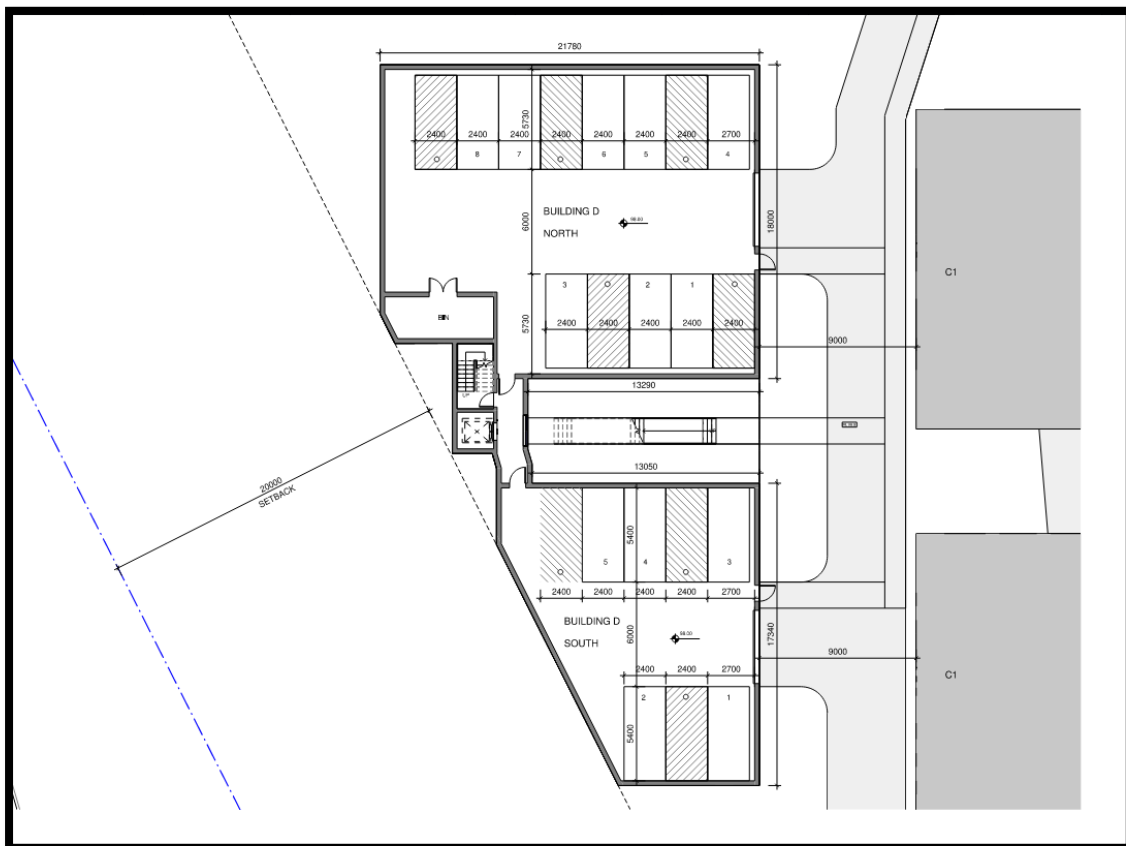


Figure 3: Basement Plan (Source: Vigor Master)

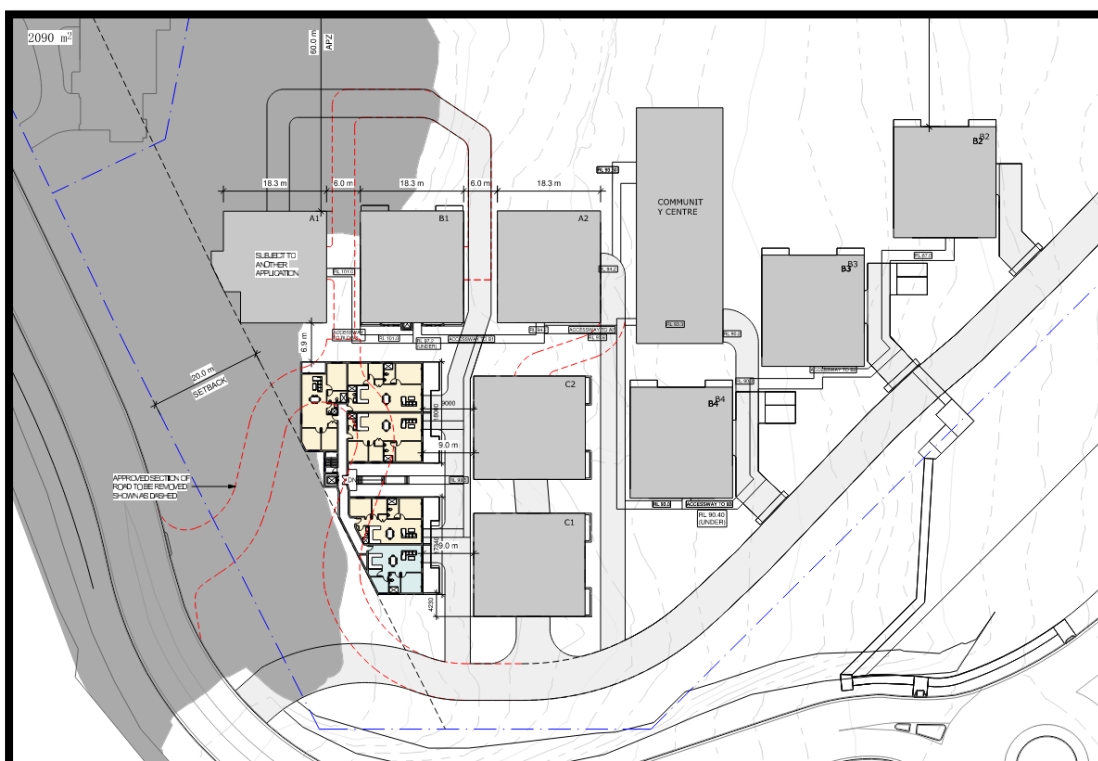


Figure 4: Ground floor Site Plan (Source: Vigor Master)



### 3.1. Stormwater Drainage Strategy

In accordance with Northern Beaches Council, calculations to determine peak flows for non-urban catchment shall be carried out in accordance with the Book 9 of Australian Rainfall and Runoff, 2016 (AR&R) and the requirements of Warringah Council Drainage Design Specifications.

An on-site detention (OSD) system is required for any developments with additional impervious surface area to ensure there is no adverse impact from increased stormwater runoff on downstream properties as a result of new developments or redevelopments during all storm events up to and including the 100-year Annual Recurrence Interval (ARI) event. The OSD storages are to be designed to pre-development state.

The existing site development area is mostly grassed. The site will be approximately 70% impervious, post-development, based on the proposed concept design details. The proposed stormwater drainage system will be connected to the existing stormwater pits C1, B5 and A9 and drainage network, shown on the previously prepared stormwater drainage plans, which discharges into an existing OSD tank.

The OSD was designed based on DRAINS analysis indicating a volume of approximately 390m<sup>3</sup> of detention storage required onsite to maintain non-worsening of post-development flows and limiting flows to pre-development flow conditions for the whole site.

### 3.2. Stormwater Quality Management Strategy

To protect the existing ecology, new developments are required to satisfy the water quality treatment requirements over the full range of rainfall events to maintain the long-term protection of the pre-determined Environmental Values. The proposed, new, stormwater infrastructure is connected to the existing OSD containing stormwater quality treatment devices. Based on previously carried out modelling, the existing system is sufficient.

Proprietary water quality treatment products including Enviropods and stormfilter cartridges within the OSD tank were proposed for the site as water quality treatment devices during previous lot development stages.

## 4. EROSION & SEDIMENT CONTROL (DURING CONSTRUCTION)

The erosion and sediment control measures for the site, development area, should be implemented during construction works. The design of these measures, in accordance with the Landcom "Blue Book" includes:

- *Sediment fences,*
- *Straw bales,*
- *Temporary construction site exit with shaker pads,*
- *Sediment fences around stockpile areas*
- *Geotextile inlet pit filters or sandbags placed around existing stormwater pits.*