

Our Reference: NSW201629

15 September 2022

Erilyan P/L
1/27 Hotham Parade
ARTARMON NSW 2064

Attention: Mr Mike Ryan

Dear Mike

Re: Northside West Clinic, 23-27 Lytton Street, Wentworthville – Response to SES letter

This letter is prepared in response to the comments made by SES in their letter dated 12 September 2021.

Flood Evacuation

Our flood assessment indicated the subject site would be fully submerged during the Probable Maximum Flood (PMF) event. The PMF analysis estimates the development will be inundated during the PMF flood event for a duration of up to 2 hours. Roads in the immediate vicinity of the site will become inundated quickly (approximately 10 minutes after the onset of the PMF storm) due to the fast flood response time of the local catchment. The short flooding duration during the PMF event renders the site infeasible for off-site evacuation to the nearest community evacuation facilities. This warranted an onsite flood refuge area above the PMF level to minimise the existing flood risks.

Thus the flood refuge area or 'shelter in place' strategy adopted within the upper floor levels that are above the PMF level is the best strategy for the subject site in minimising the risks associated with flooding.

Refer to the section below 'Emergency management plan' for further evacuation management recommendations.

Flood Risk Assessment

Flood risk assessment was carried out for several flood events from the 1% AEP to the PMF event. As mentioned above, an offsite evacuation was found infeasible and provisions for an on-site flood refuge have been adopted.

Our flood assessment shows there is no increase in flooding duration due to the proposed development. The risk management strategy has been developed to minimise the current risks.

Further assessments including evacuation demand on the existing and future access/egress routes have not been carried out for this development.

Flood Hazard

Flood hazard analyses were carried out during the PMF events during both the pre-developed (existing) and the post-developed (proposed) scenario in accordance with the Australian Disaster Resilience Guideline 7-3 Flood Hazard (AIDR 2017). Refer to the attached map showing the PMF flood hazard.

The post-development flood hazard exposure within the site generally remains consistent with the existing scenario. The associated flood hazard within the northern carpark area can be classified within the H1 category, which is considered generally safe for vehicles, people and buildings.

The existing driveway to the south of the building, which is mainly used by service vehicles and has no associated permanent carparking facilities, would be exposed to H2 to H3 category of flooding. The H2 category is classified as unsafe for small vehicles, while H3 is classified as unsafe for vehicles, children, and the elderly. The flood hazard category does not change during the post-developed scenario as no modification to the existing driveway has been proposed.

The existing driveway near the south-eastern corner of the site that led to the existing open carpark area experiences a hazard up to the H4 category during the pre-developed (existing) scenario, which is rendered unsafe for vehicles and people. However, the high hazard area is confined within the existing driveway area, which was anticipated to have higher velocity due to a slope of approximately 7.8%. The hazard classification remains consistent during the post-developed scenario. A flood hazard category up to H5 (rendering unsafe for vehicles and people) was noticeable during the post-developed scenario within the proposed landscaping at the southwest corner of the site. As a flood risk management strategy, the landscaping area and the driveway entrance to the southern carpark will be sign-posted with flood warning signs shown below in Figure 1.

To further minimize the flood risks, the lower ground level should be designed with a suitably designed structural element with rubber seals to the threshold. Portals can also be provided in lieu of a proprietary item if the seal can be certified against the water pressure up to the PMF flood level. In that regard, all doors in the lower ground level (to external areas) shall be sign-posted (facing the inside of the building) with the signs as shown below.



Figure 1 Flood Warning signs at lower ground floor doors to external areas, and in landscaped areas

The entry doors (to external areas) at the lower ground level are also recommended to be protected up to the PMF level with flood compatible materials shown in Figure 2 below.

Building Component	Flood Compatible Material
Doors	" solid panel with water proof adhesives " flush door with marine ply filled with closed cell foam " painted metal construction " aluminium or galvanised steel frame

Figure 2 Flood Compatible Material

Parking

Parking at the lower ground level ('new west parking') is considered acceptable under all flood events as the parking area is not impacted by flood water up to and including the PMF (due to solid walls or driveway crest level).

Provision of publicly accessible space

The first floor and above levels of the building are above the PMF level of 22.30 m AHD (flood level at Lytton Street frontage). There are provisions of publicly accessible spaces for refuge that can be accessed via lifts and stairs to the upper levels of the existing building. A flood evacuation plan will be affixed on all the visible spots within the precinct and shall be documented in the updated emergency management plan (refer below) prior to occupation certificate.

Emergency management plan (reducing human behaviour risks)

Building management shall prepare an updated emergency management plan for the completed and operational building that describes the procedures and movement of people from lower floors and carpark area to access refuge areas above the PMF level.

The emergency management plan should also describe the roles and responsibilities of on-site 'floor wardens' and procedures/communications regarding onsite facilities during and after a flood i.e. flood evacuation/movement drills.

An updated Emergency Management Plan will be undertaken and provided prior to occupation certificate.

Availability of ablutions, power, and water cannot be guaranteed as the development does not propose to have back-up utilities to those provided by utilities providers.

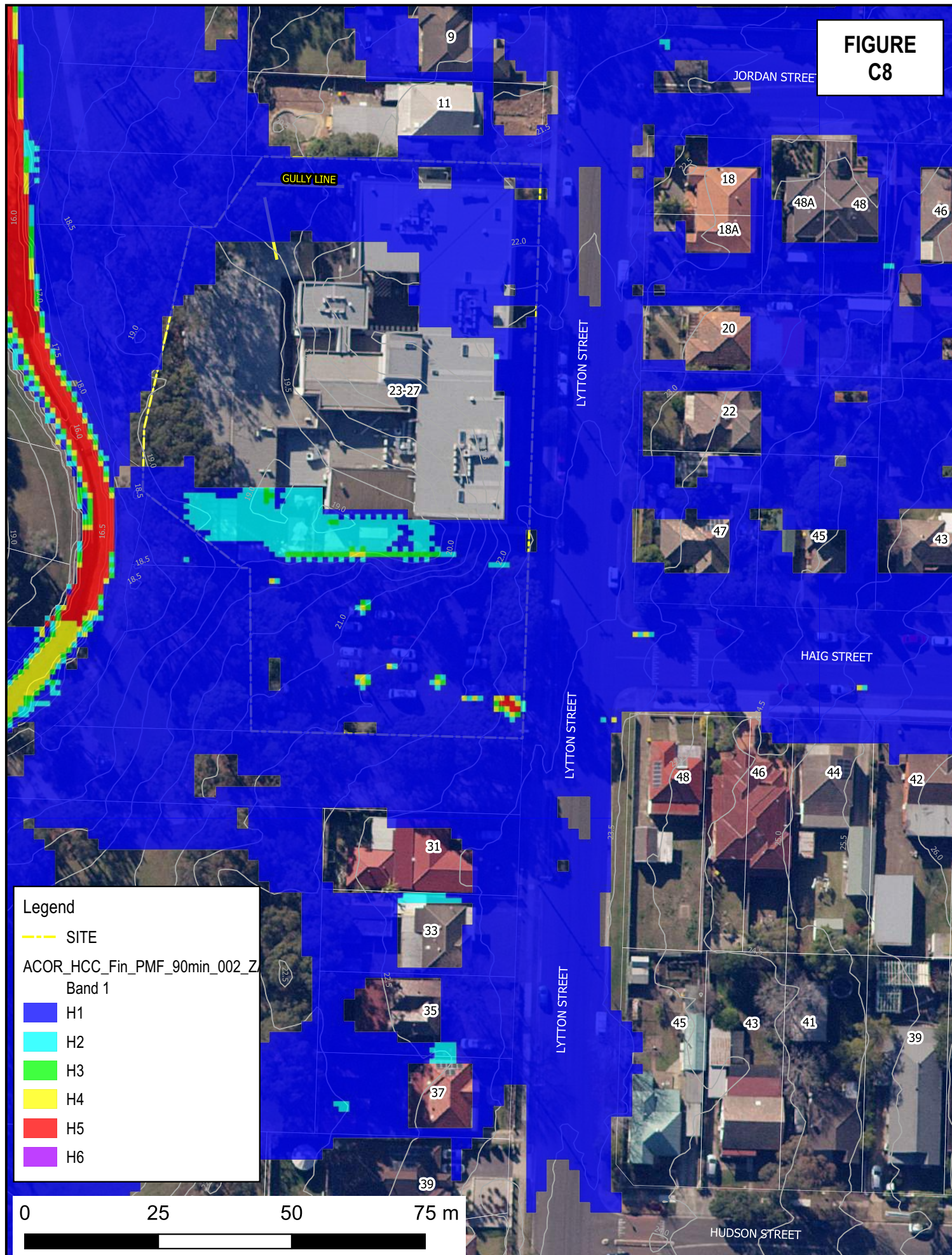
Yours faithfully,

ACOR Consultants Pty Ltd



Karl Umlauff
Senior Water Resources Engineer
CPEng FIEAust NER

**FIGURE
C8**



PROJECT: NORTHSIDE WEST CLINIC FLOOD STUDY - NSW201629
LOCATION: 23-27 LYTON STREET, WENTWORTHVILLE

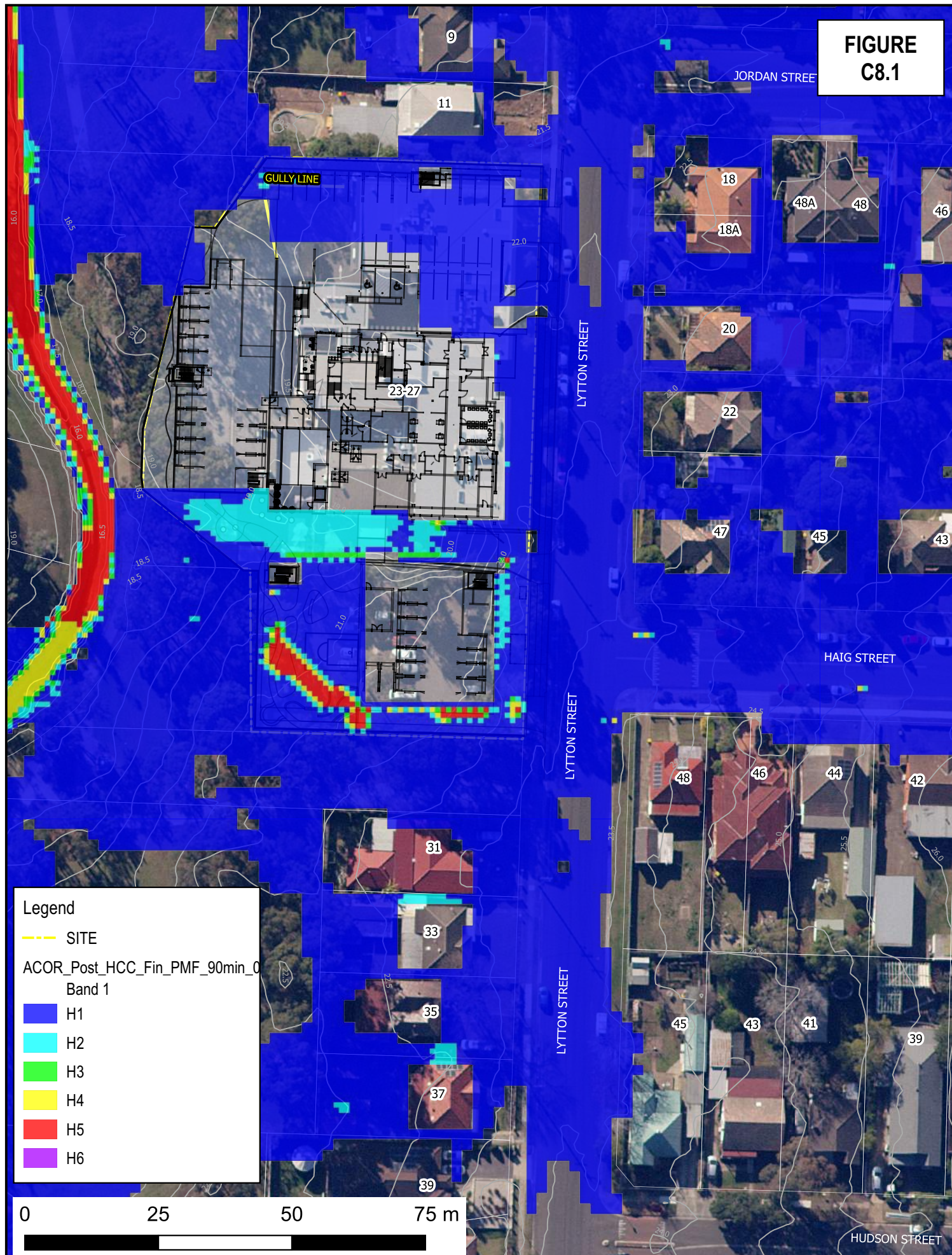
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**FIGURE
C8.1**



PMF MAX FLOOD HAZARD - POST DEVELOPMENT

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