Construction Flood Emergency Response Sub-Plan

Atlassian Central

Prepared for BOJV / 21 April 2022

191797 CAAB-FERSP Rev B

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Document Register

PREPARED BY	APPROVED BY	STATUS	ISSUE	DATE
Eirian Crabbe	Stephen Brain	For Review	A	09 March 2022
Eirian Crabbe	Stephen Brain	For Review	B	21 April 2022

1.0 Introduction

This report has been prepared in response to SSD-10405 Consent Conditions for the Atlassian Central development, Sydney. The responses provided in this document relate specifically to Consent Condition E21. SSD-10405 was granted approval in October 2021 and this approval includes the findings and recommendations within the flood modelling and impact assessment of the *Civil SSDA Report Issue F, TTW, 25 November 2020* and *Civil Response to Submission Issue B, TTW, 4 May 2021*

The Consent Condition E21 addressed by this report is shown below.

Construction Flood Emergency Response Sub-Plan

E21. Prior to the commencement of any demolition, earthworks or construction, the Applicant must prepare a Construction Flood Emergency Response Sub-Plan (CFERSP). The CFERSP must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced person(s) in consultation with Council and EESG;

(b) address the provisions of the *Floodplain Risk Management Guidelines* (EESG);

(c) include details of:

(i) the flood emergency responses for the construction phase(s) of the development;

(ii) predicted flood levels;

(iii) flood warning time and flood notification;

(iv) assembly points and evacuation routes;

(v) evacuation and refuge protocols; and

(vi) awareness training for employees, contractors and visitors.

In preparation of this Construction FERSP, the following documents were referred to:

- Civil SSDA Report Issue F, TTW, 25 November 2020
- Civil Response to Submission Issue B, TTW, 4 May 2021
- Floodplain Risk Management Guidelines (EESG) including the Floodplain Development Manual 2005
- Darling harbour Floodplain Risk Management Study and Plan prepared by City of Sydney 2016

Condition E21 a) and b) are addressed by the completion of this report by TTW and submission to Council and EESG for review and feedback.

The following sections of this report address Condition E21 C):

(i) Section 5 and Table 2

(ii) Section 2

(iii) Section 4

(iv) Section 5

(v) Section 5 and Table 2

(vi) Section 3

1.1 Site and Surrounding Context

The Atlassian Development Site is known as 8-10 Lee Street, Haymarket. It is an irregular shaped allotment. The allotment has a small street frontage to Lee Street limited to the width of the existing access ramp.

The Atlassian Site is located immediately to the west of Central Station at 8-10 Lee Street, refer to figure 3. The Site is bounded by Central Station to the east, Ambulance Avenue to the north, Lee Street and Adina Hotel to the west, and Henry Deane Plaza and Dexus Fraser development to the south.

Devonshire Street Tunnel is an existing pedestrian tunnel that links Devonshire Street to Henry Dean Plaza and runs beneath Central Station and through the Site.

Existing vehicle access to the Site is via Lee Street, however the Lee Street frontage of the Site is only the width of the access handle.

The site location and surrounding area is shown in Figure 1.

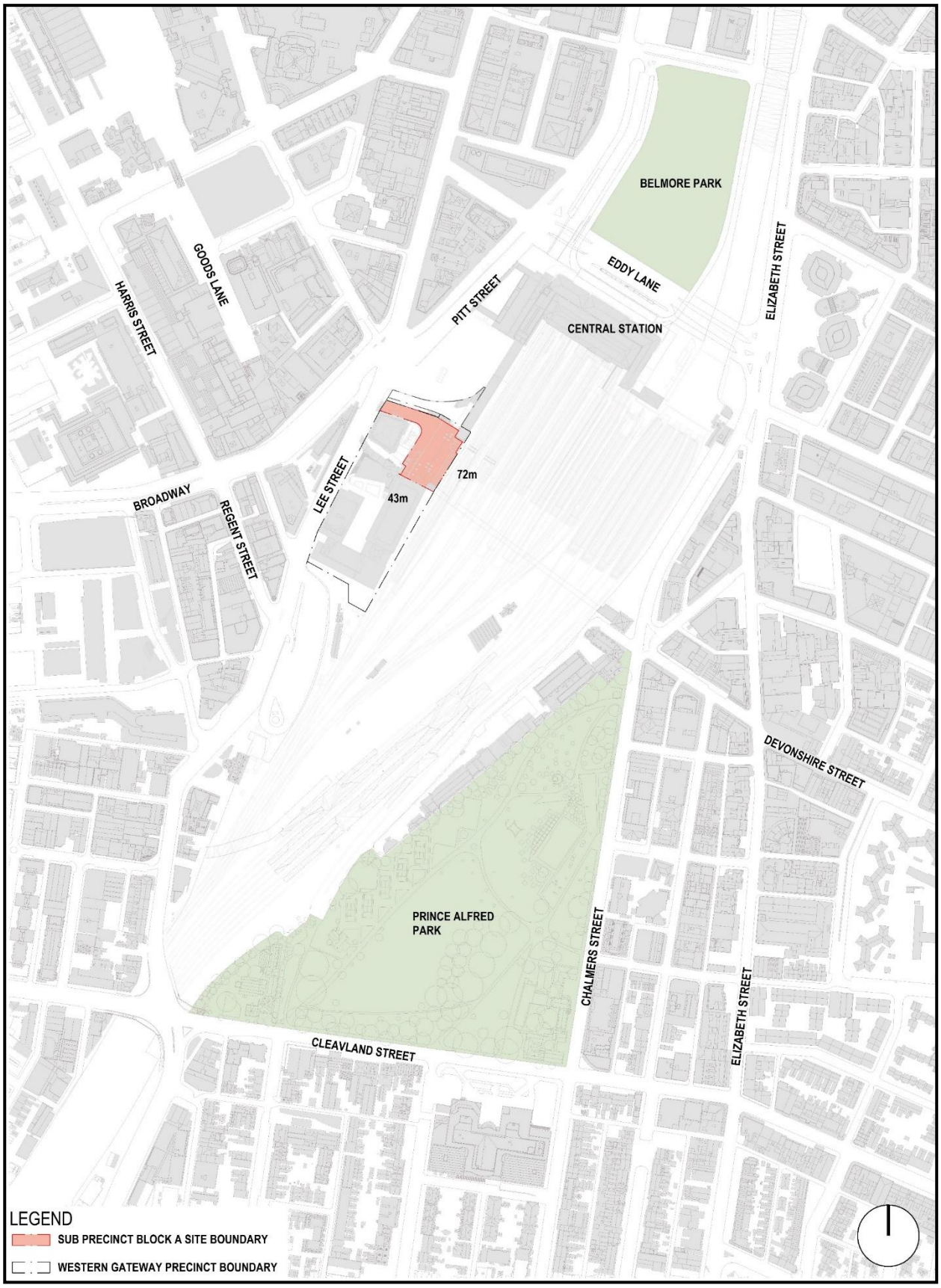

Figure 1 - Site Location

1.2 Site Topography

The Site is located within the southern and upper area of Darling Harbour catchment, refer to figure 2. The catchment is highly urbanised with a large network of stormwater infrastructure which includes Council owned pit and pipe systems that discharge into Sydney Water owned trunk drainage. There are no open watercourses with the catchment and the road networks provide the primary overland flow paths following the natural topography. Flows from the catchment discharge north towards Sydney Harbour.

The natural topography of the catchment generally falls from the south and east to the north and west. Existing ground levels fall from around RL 25.00m at Prince Alfred Park to RL11.50m and the junction of Pitt Street and Eddy Avenue with an average grade of approximately 2.5%. However, the built surface levels vary extensively around the Site to provide various entrance levels into Central Station and the surrounding buildings, refer to figure 5.

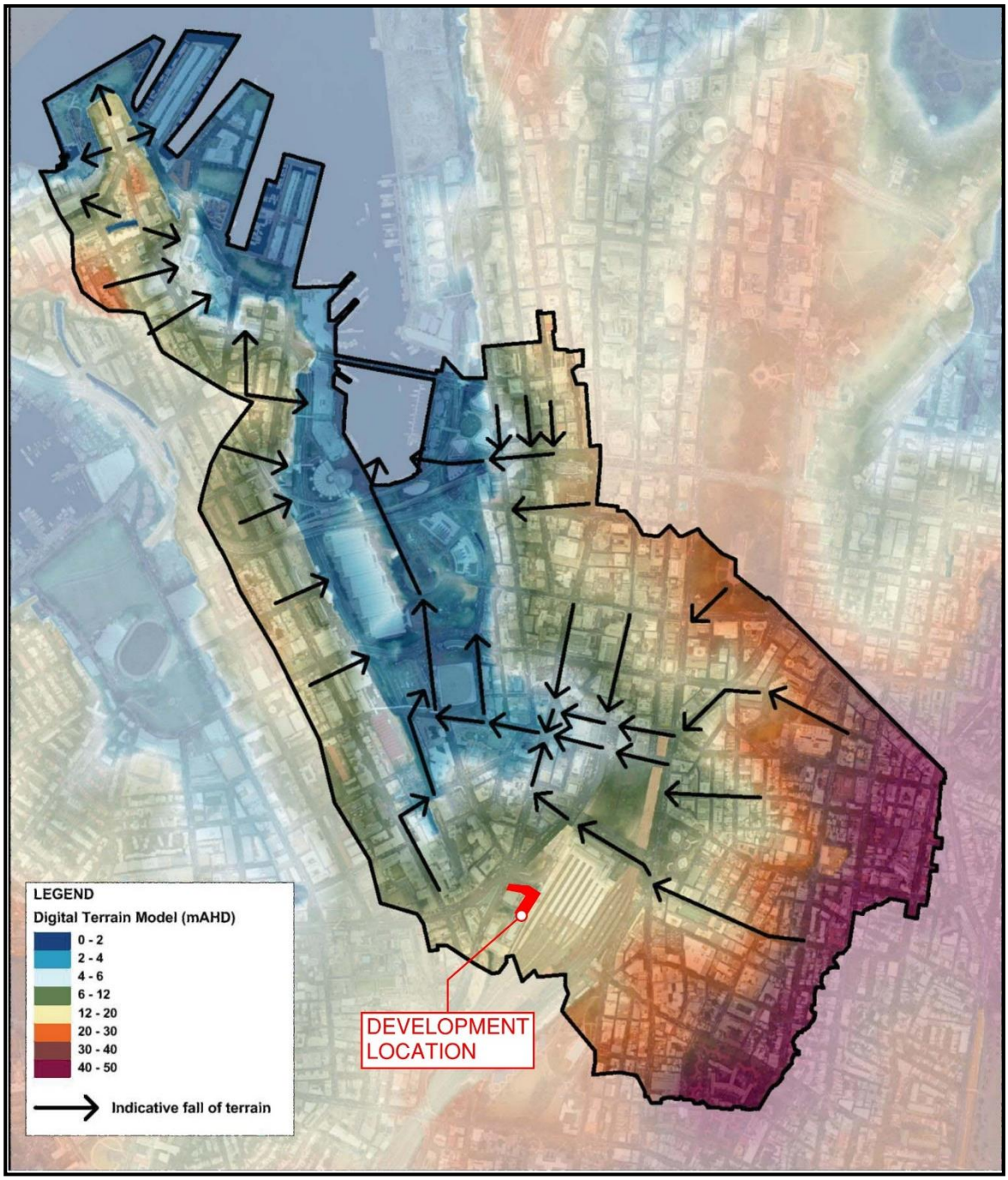

Figure 2 – Site location within Catchment Topography

1.3 Development Proposal

The proposed development will be the new gateway development at Central Station which will anchor the new Technology Precinct proposed by the NSW Government. The new building will be purpose-built to accommodate the Atlassian Headquarters, a new TfNSW Pedestrian Link Zone, and the new Railway Square YHA backpacker's accommodation, in addition to commercial floorspace to support Tech Start-ups.

The new development is to be built over the existing heritage former Inwards Parcels Shed (the Parcels Shed) located on the western boundary of Central Station with the Adina hotel to the west. The works includes a 38-storey mixed-use tower with basement loading dock facilities and end of trip (EOT) facilities accessed off Lee Street, 2 storey lobby utilising the Parcels Shed building, lower ground and upper ground retail, YHA hostel and commercial tower with staff amenities to the mid-level and roof top areas and a pedestrian Link Zone works for TfNSW.

The proposed Lower Ground Floor Level of the development is shown in Figure 3 and Proposed Development 3d image shown in figure 4.

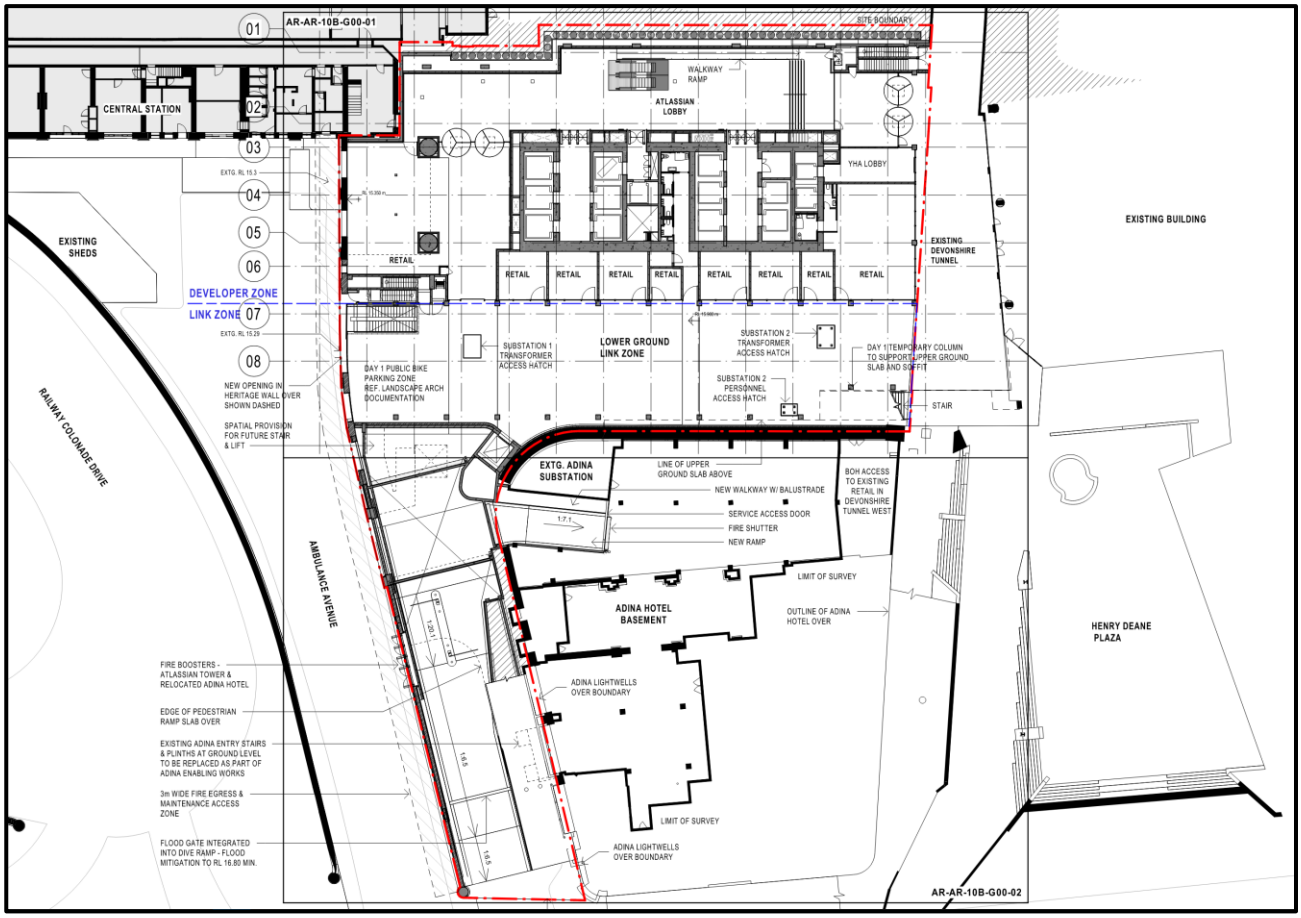

Figure 3 – Proposed Lower Ground Floor Layout

Figure 4 – Proposed Development 3d Image

2.0 Flood Behaviour

The flood behaviour and flood impact associated with the development is described in detail in the *Civil SSDA Report Issue F, TTW, 25 November 2020* and *Civil Response to Submission Issue B, TTW, 4 May 2021.* These reports were submitted as supporting documents for the approved SSD-10405.

2.1 Existing Flood Behaviour

The main source of existing flooding to the development site is overland flow entering the site off Lee Street and from the trapped low point of Ambulance Avenue. The existing flooding is shown in Figure 5 below.

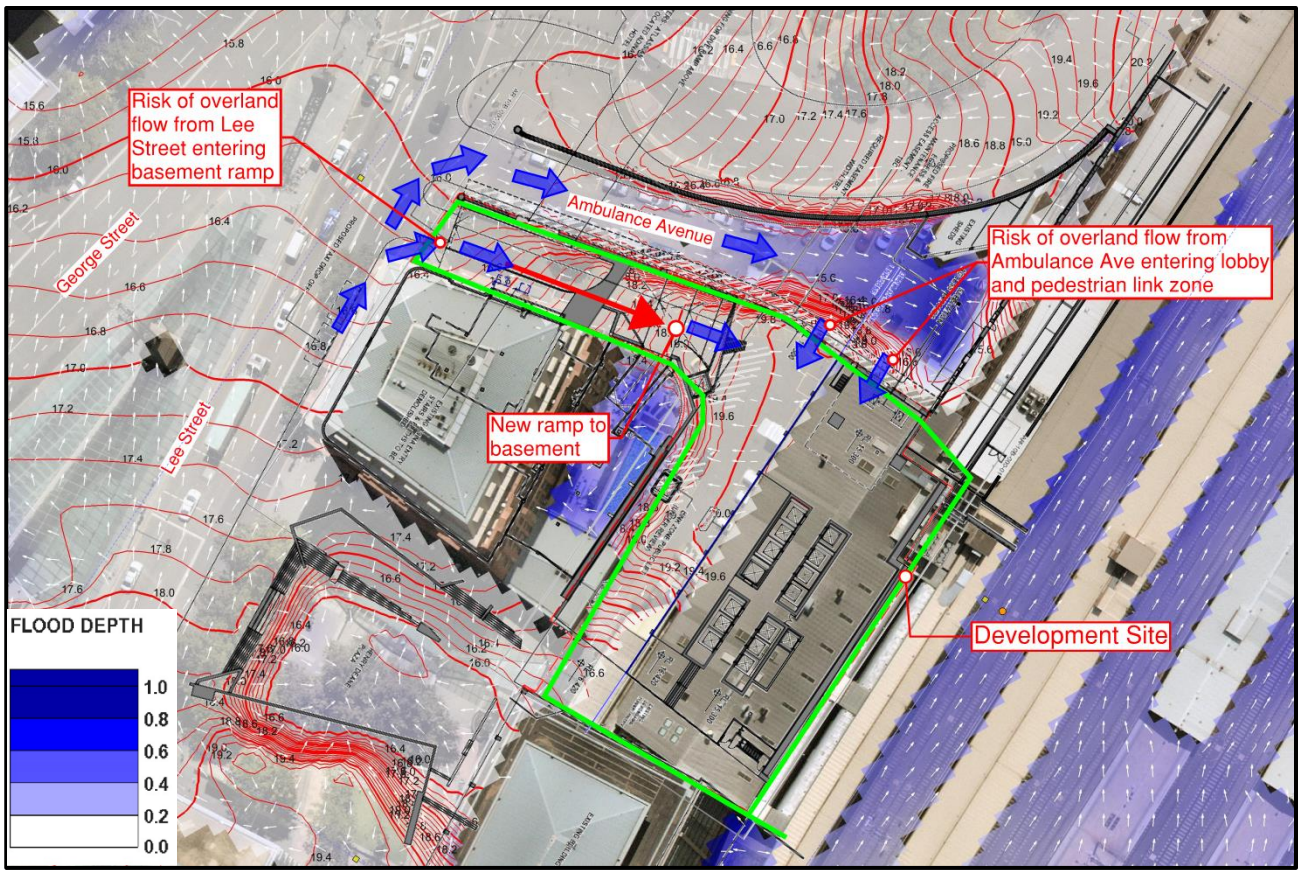

Figure 5 – Existing 1% AEP Flooding

2.2 Post-Development Flood Behaviour and Flood Levels

The flood mitigation principles and strategy approved under SSD 10405 include:

- Increased stormwater inlet capacity in Ambulance Avenue
- Increased stormwater conveyance capacity Along Ambulance Avenue and Lee Street
- Internal tthresholds set at or above the flood planning levels
- Basement ramps protected to the flood planning level requirements

This stormwater amplification and flood mitigation reduce the flood risk to the development site and the wider central Station and Precinct with the post-development flooding shown in figure 6. The expected flood hazard in the 1% AEP around the development site is expected to be low, refer to figure 7. Existing and Post development predicted flood levels are shown in Table 1.

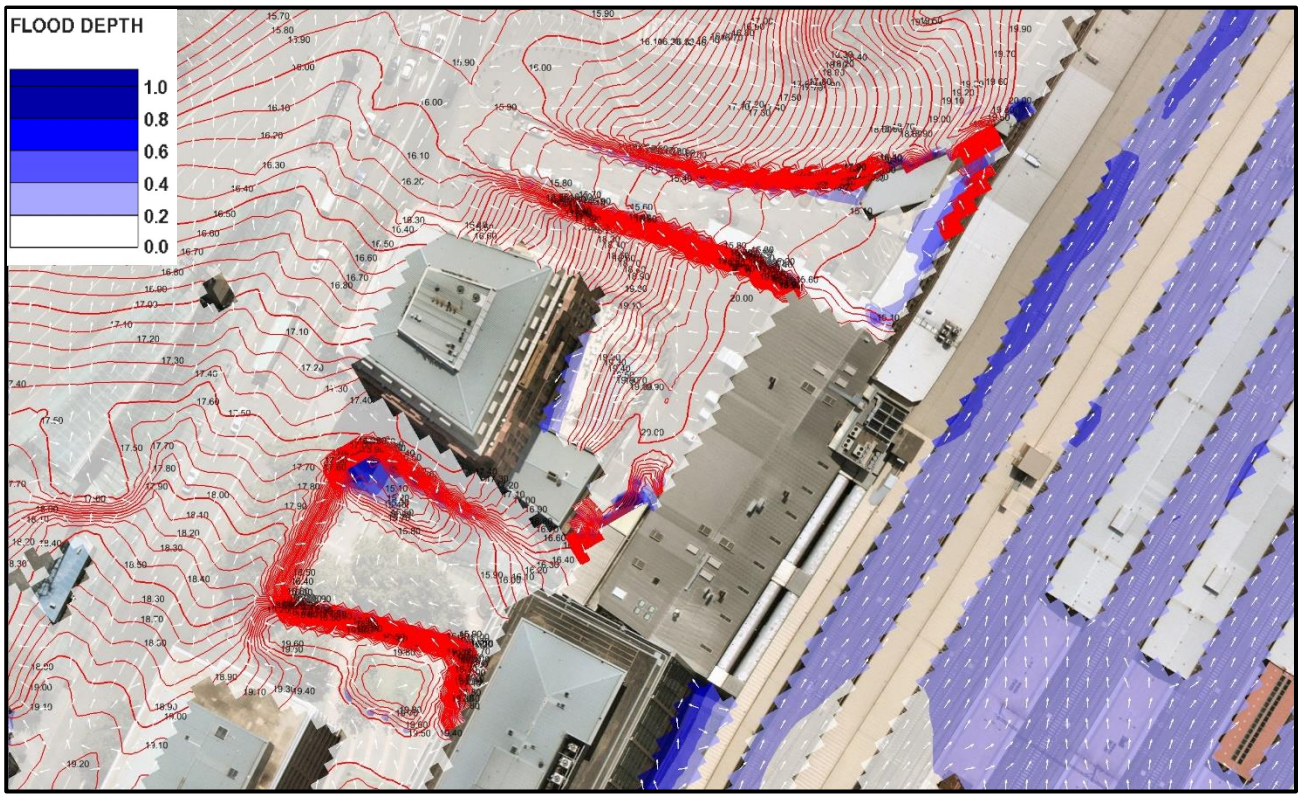

Figure 6 – Post-Development 1% AEP Flooding

Figure 7 – Post-Development 1% AEP Flood Hazard

	Low Point of Ambulance Avenue	Basement Ramp off Lee Street
Existing 1% AEP	15.30m	16.30m
Post-Development PMF	**14.91m**	**16.30m**
Existing PMF	16.05m	16.35m
Post-Development PMF	**15.34m**	**16.35m**

Table 1. Existing and Post-development Flood Levels

3.0 Preparation for Flood Response

3.1 Education

The awareness of flooding is a significant issue within floodplains due to the infrequency of severe floods and the anticipated depths of these floods in a PMF event.

During construction, as part of the preparation for a flood event, all construction workers on site will be made aware of the flood risk, and the flood protocols & procedures for a safe site shutdown and evacuation (including their responsibilities) via briefing and signage. This will form part of the mandatory site inductions that all workers must undertake prior to gaining access to the site. A copy of this FERSP will be made available to all new construction staff, contractors and site visitors.

Completion of site induction and safety training is the responsibility of the **Site Manager**

3.2 Evacuation Drills

It is recommended that evacuation drills be held at a minimum of every 6 months to ensure all staff are aware of and familiar with their flood response actions, the sound of the alert and occupancy warning system, and the location of the assembly point.

3.3 Flood Emergency Kit

A Flood Emergency Kit should be prepared prior to a flood event taking place and regularly checked to ensure that supplies within the kit are sufficient and in working condition. This check could occur after the evacuation drill takes place to provide a regular schedule. The Kit should include:

- Radio with spare batteries
- Torch with spare batteries
- First aid kit and other medicines
- Waterproof bags
- A copy of the Site's Emergency Management Plan
- Emergency contact numbers.

This Emergency Kit should be stored in a waterproof container and is the responsibility of the site First Aid Officer during construction.

4.0 Flood Warnings and Notifications

4.1 Flood Watches and Warnings

Severe weather and thunderstorm warnings are issued by the Bureau of Meteorology (BOM) www.bom.gov.au. These warnings are continually updated with a description of the likely conditions (including predicted extreme rainfall depth).

BOM issues flood alerts, advice and watches for the Sydney Metropolitan Area through coordination with the SES, water agencies and City of Sydney Council.

A **Standard Emergency Warning Signal** (SEWS) will be used by SES to precede all *Top Priority* Flood Warnings and all Evacuation Warnings. Once activated Evacuation Orders are broadcast over the radio stations.

A ***Flood watch*** is issued by the BOM up to four days prior to a flood event. A watch is generally updated daily and may be issued before, during or after rainfall has occurred.

Flood warnings are issued by the BOM when flooding is occurring or expected to occur in a particular area. Warnings may include specific predictions of flood depths dependent on real-time rainfall and river level data. These warnings are distributed to Council, Police and the relevant local SES, as well as being available on the BOM website, through telephone weather warnings and radio broadcasts.

SES Evacuation Warning is a warning message from SES advising the community to prepare for likely evacuation. The warning advises people what to do and what to prepare to take with them.

A ***Flood Evacuation Order*** is a notification to the community, authorised by the SES, when the intent of an Incident Controller is to instruct a community to immediately evacuate in response to an imminent threat. It also advises where people should go and may advise which evacuation route to take.

4.2 Flood Inundation Time

The critical storm duration for the 1% AEP peak flood levels at the site location is the 90-minute storm. Flows during this storm would peak at the site location after approximately 30 minutes from the onset of the storm. This is considered short duration ‘flash flooding’. Due to the short interval from the onset of the flood to peak flood levels, the warning provided would be for immediate safety precautions such as emergency evacuation out of deep excavations, temporary refuge (if available nearby or onsite), and accounting for people on site.

Although the highest flood levels are expected in the 90-minute storm, there may be shorter durations storms which may still produce flooding at the site location with even shorter warning times.

It is expected that flood levels would recede within 90-120 minutes after the start of the storm, however deep excavations within the construction site would take longer due to flood waters requiring to be pumped out.

5.0 Flood Emergency and Evacuation Protocols

5.1 Coordination of Flood Evacuation Warnings and Orders

During construction, staff on site will be responsible for monitoring information from the SES regarding evacuations required in the area and conducting the evacuation. **The Site Manager under the direction of the Incident Controller will decide when to issue Flood Response Warnings and Orders for the site.** Incident Controllers are appointed by the NSW SES State Controller who will also establish Incident Control Centres.

The Flood Response Plan is included in Table 2.

Flood evacuation signage similar to Figure 8 below must be installed at appropriate places throughout the site during the construction phase to clearly identify the evacuation route:

Figure 8 – Flood Evacuation Signage

Flood Response Plan – Construction Phase	
Flood Warning and Notification Procedures	**Evacuation and Refuge Protocols**
1) NSW State Emergency Service (SES), Local Council, or Bureau of Meteorology (BOM) issues an alert, advice or warning.	**Site Manager** to Contact authorities to ascertain anticipated severity of a flood event. Notify all site workers and planned visitors and deliveries that a Flood alert is in place.
2) Regularly (min. hourly) check in with relevant authorities to monitor flood event and anticipated severity	If the flood event is not anticipated to impact the site the **Site Manager** is to continue hourly check-ins and postpone high risk activities. If PMF level flood event is anticipated the **Site Manager** will instruct the site to close immediately in coordination with the site emergency response procedures. This may include an alert and warning message over the PA system confirming a major flood event. If flooding of the site is anticipated or has begun the **Site Manager** is to implement emergency site shutdown procedures which will form part of the mandatory site induction. All future site visits, deliveries and construction activities are postponed until all flood warnings are lifted. Remove or secure all plant, materials and equipment ideally above the PMF level. The **Site Manager** is to follow any directions provided by the SES Incident controller. All site workers are to evacuate site under the direction of the Site Manager, until they receive notification that it is safe to return to site. Site should be left secured with signage located above the PMF level explaining the site is closed due to a flood event. Close the entire site as quickly and safely as possible. A contingency emergency evacuation route from the site and assembly point will be in place for all site workers to, refer to Section 5.2.
3) The alert has been rescinded by the relevant authorities and any flood event that occurred has passed.	Once it has been confirmed that the water level has reduced to a level that will not produce inundation, and if determined safe, the Incident Controller may announce the site can reopen – note the directions of police and the SES are to be followed at all times. Confirm floodwater has subsided below the ground level and that there is no ponding within the site. Flooded areas are to remain off limits until ponding has cleared. Site is to be inspected by the **Site Manager** and Incident Controller if required. Once it is determined that the site is safe essential workers can return to verify that all plant and services are safe. Following completion of these checks site may reopen with all workers returning to site and construction activities and deliveries recommencing.

Table 2. Flood Response Plan

5.2 Assembly Point and Evacuation Routes

Evacuation from the Site and Ambulance Avenue during a flood will be in accordance with the emergency procedures detailed in the BOJV's Construction Management Plan as follows:

"Emergency egress to the construction site will differ depending on the construction stage of the project. During the site establishment, demolition, and retention phase, emergency egress will be from the covered walkway in Ambulance Avenue and Upper Carriageway Lane. Following the installation of the second turntable and when excavation works commences, the Upper Carriageway egress is removed, and a second form of egress is established via a scaffold stair in Ambulance Avenue. When the Upper Ground Floor is constructed and the site amenities are relocated, the egress is then re-established to the southern elevation of the site, shown in Figure 1-41c. The proposed egress pathways are subject to change as the methodology is refined and assumptions on design are realised. See below current egress pathways during construction stages of the project."

The Assembly point in Henry Deane Plaza has minimal flooding with less than 50mm in the PMF Flood, emergency egress routes from the development site are shown in figure 9, with the staged egress routes extracts from the Construction Management Plan shown in figures 10, 11 and 12.

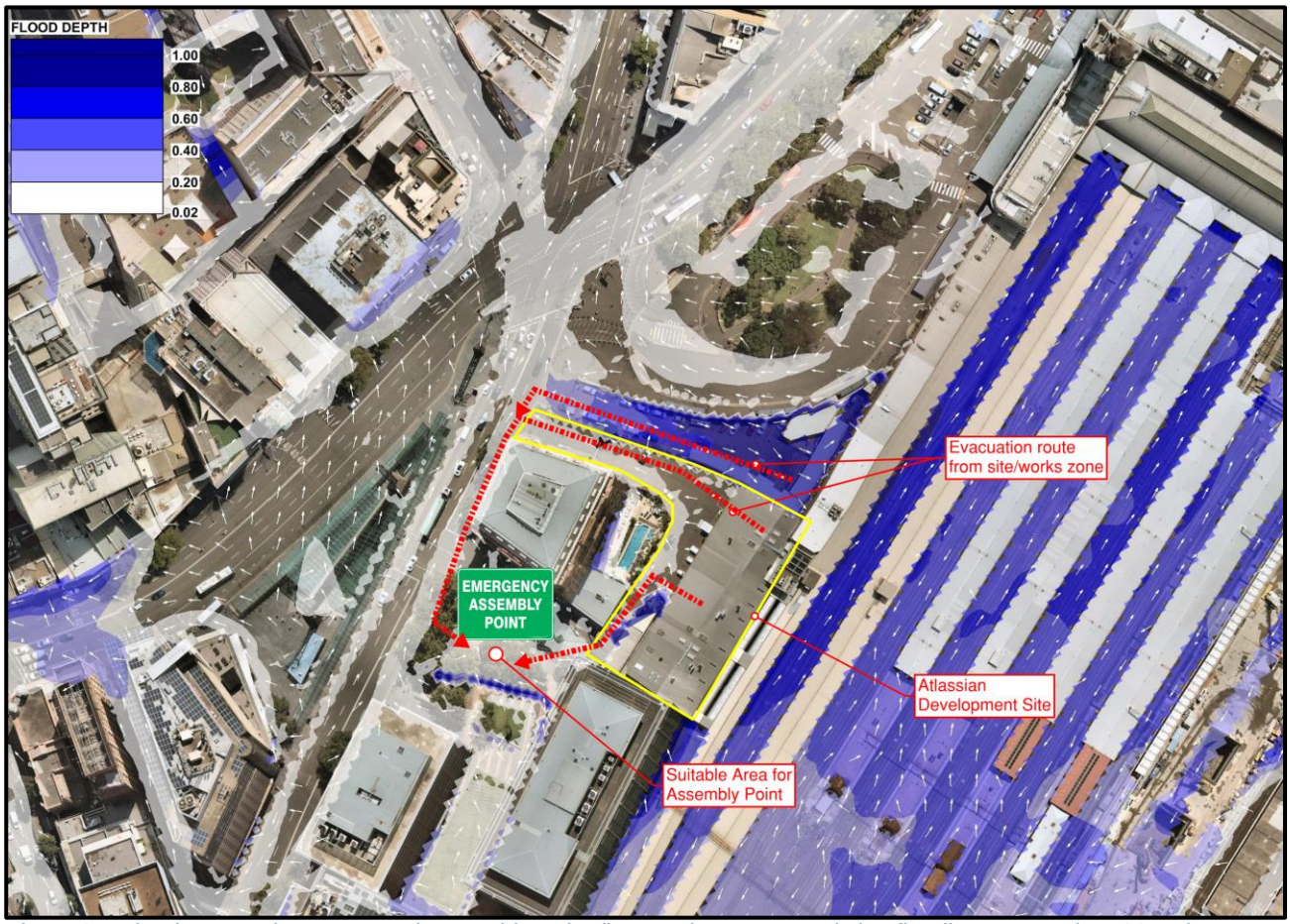

Figure 9 – Flood Evacuation Route and Assembly Point (image shows PMF existing flooding greater than 20mm)

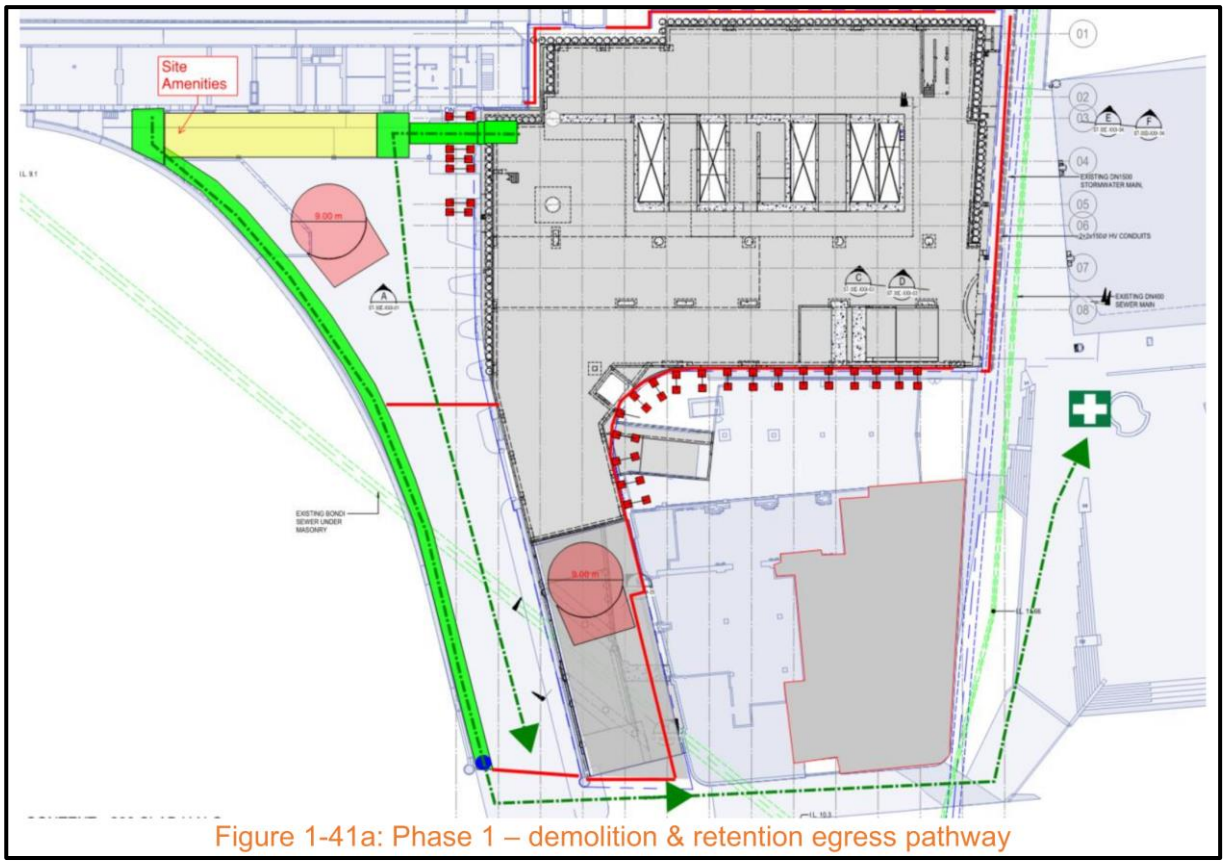

Figure 10 – Phase 1 Emergency Egress (Extract from BOJV CMP)

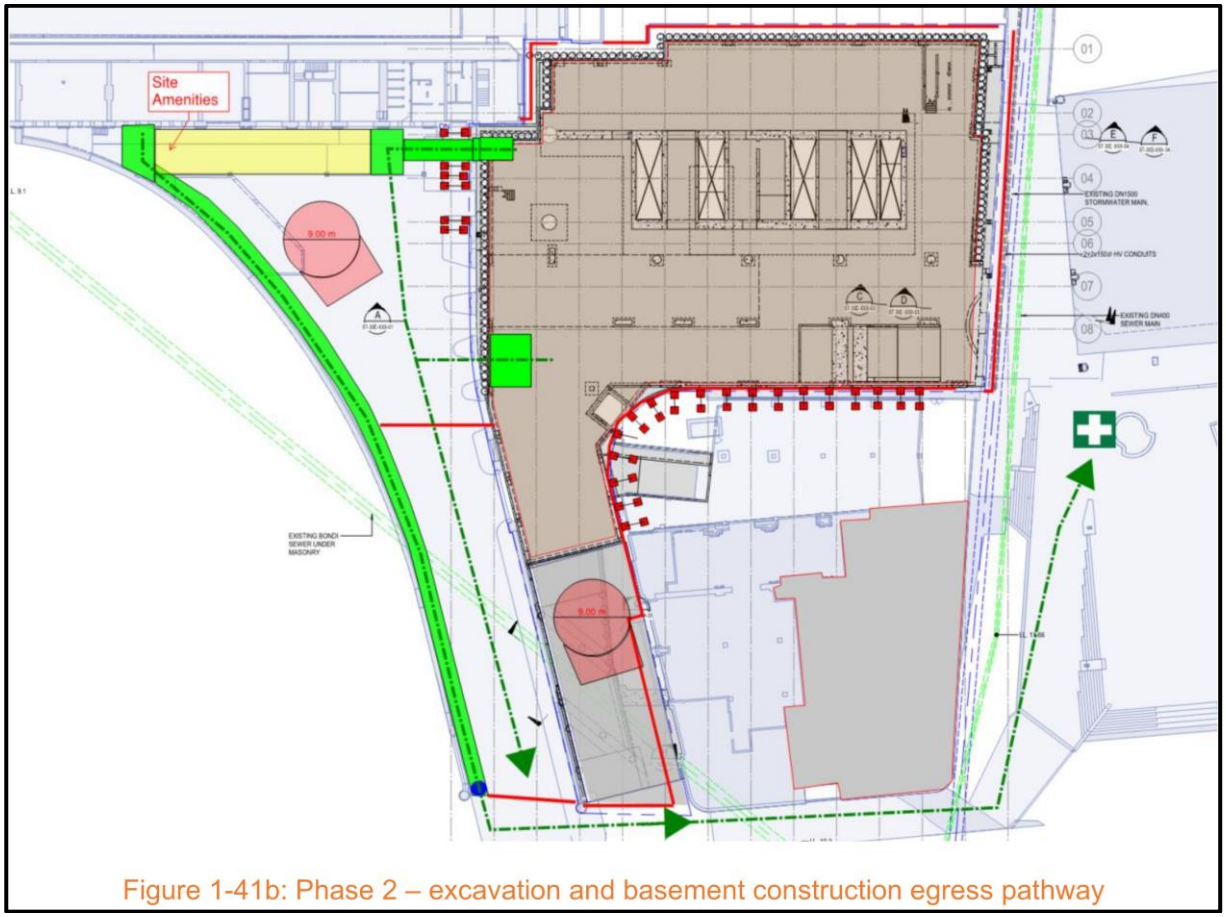

Figure 11 – Phase 2 Emergency Egress (Extract from BOJV CMP)

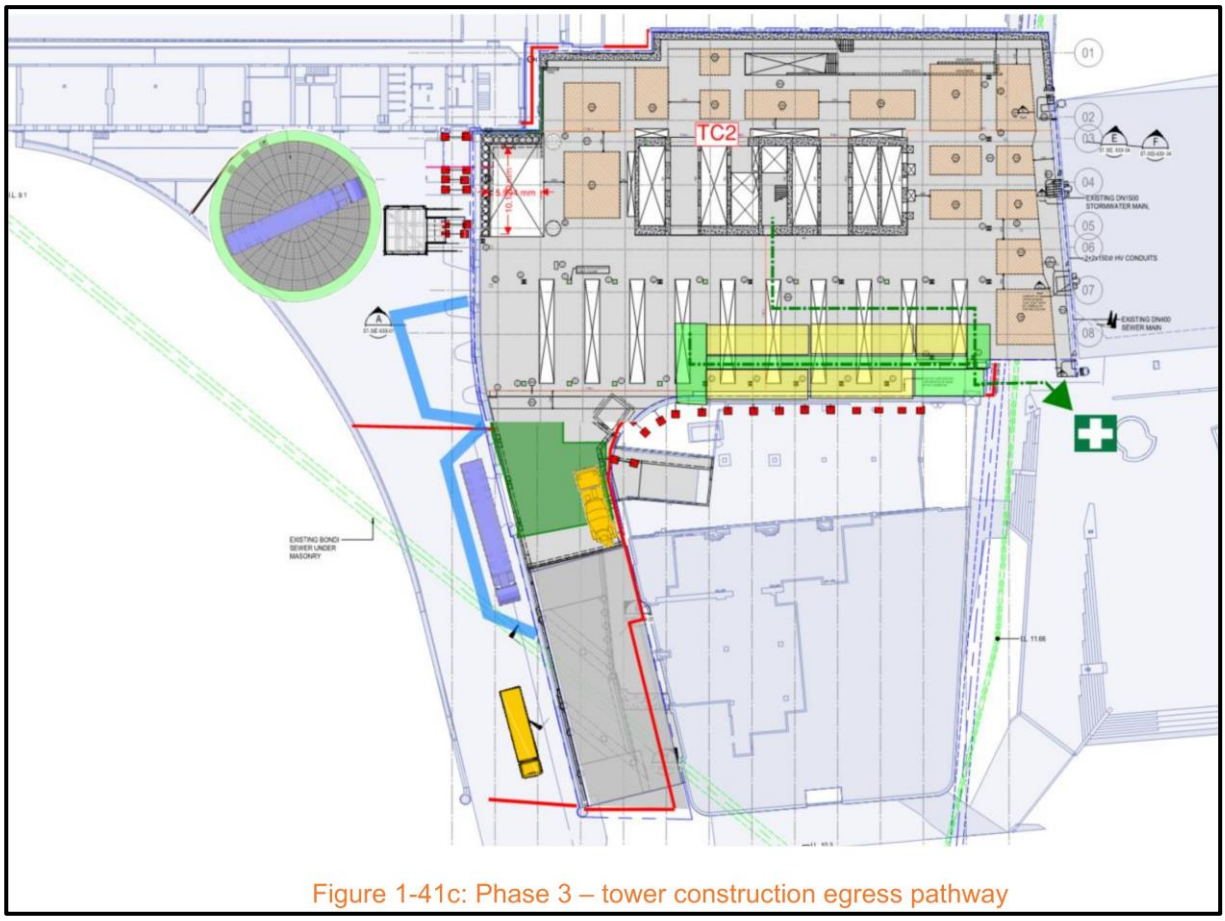

Figure 12 – Phase 3 Emergency Egress (Extract from BOJV CMP)

5.3 Emergency Contact Details

In the event of a severe flood, key contact details are included in Table 3 below.

Construction Contacts	
Emergency Coordinator	**Phone Contact**
Site Manager	TBC
Safety Manager/First Aid	TBC
TBC	TBC
External Contacts	
Service	**Phone Contact**
Police/Ambulance	000
State Emergency Services	132 500
Police – Day Street Station	02 9265 6499
Royal Prince Alfred Hospital	02 9515 6111

Table 3. Emergency Contact Details

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