CIVIL | WATER | ENVIRONMENT

WILLIAM CLARKE COLLEGE FLOOD EMERGENCY RESPONSE PLAN

FEBRUARY 2026

PREPARED FOR

William Clarke College

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Cover Image: Stage 1 Bryson Building Architectural Expression (Architectural Design Report, PMDL, 2022)

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LIST OF ABBREVIATIONS

AEP	Annual Exceedance Probability
BOM	Bureau of Meteorology
EAP	Emergency Action Plan
FERP	Flood Emergency Response Plan
FFL	Finished Floor Level
PMF	Probable Maximum Flood
SES	State Emergency Service
SET	School Executive Team
SSDA	State Significant Development Application

1 INTRODUCTION

1.1 BACKGROUND

William Clarke College (the 'site') is located at located at 10 Morris Grove, Kellyville, approximately 27 km northwest of Sydney. The subject site location is illustrated in Figure 1-1.

Works are proposed at the site as part of a masterplan for growth of the college campus. A State Significant Development Application (SSDA) was submitted in mid-2022 for the proposed works at the college. As the subject site is located adjacent to a tributary to Smalls Creek, and is traversed by an overland flow path, a Flood Emergency Response Plan (FERP) is required to support the SSDA.

Figure 1-1 Subject Site Location (NSW SIX Maps)

This FERP has been developed taking into consideration the guidelines set out in the Flood Risk Management Manual (NSW Government, 2023) and supporting guidelines, including the Support For Emergency Management Planning (NSW Government, 2023), and The Hills Shire Flood Emergency Sub Plan (NSW SES, 2022).

This FERP addresses the following specific actions:

- Preparing for a flood;
- Responding when a flood is likely, including evacuation routes and when to leave;
- Responding during a flood, including what to do if isolated; and
- Recovery after a flood.

More specifically, as per advice received from the NSW SES on the 10th of August 2023 (Ref: SSD-35715221), the FERP was developed based on the key principles of emergency management as set out in the Support for Emergency Management Planning (NSW Government, 2023). The principles and a summary of how they have been considered and implemented into the FERP are provided in Table 1-1.

Table 1-1 Key Principles Outlined in the Support for Emergency Management Planning Guideline (NSW Government, 2023)

Principle	WMS Response
Principle 1 – Any proposed Emergency Management strategy should be compatible with any existing community Emergency Management strategy	The FERP was prepared taking into consideration local emergency guidelines including The Hills Shire Flood Emergency Sub Plan (NSW SES, 2022) and the Flood Risk Management Manual (NSW Government, 2023).
Principle 2 – Decisions should be informed by understanding the full range of risks to the community	Flood modelling has been undertaken for the full range of events up to and including the PMF event.
Principle 3 – Development of the floodplain does not impact on the ability of the existing community to safely and effectively respond to a flood	The proposed development does not result in adverse impacts to the flood behaviour outside the site boundaries. In addition, self-evacuation would be possible by foot if required in all events up to the PMF. As such, it is not expected that the proposed development would impact on the ability of the existing community to safely and effectively respond to a flood.
Principle 4 – Decisions on redevelopment within the floodplain does not increase risk to life from flooding	The flood risk at the site is limited, and the proposed development does not result in an increased flood hazard in comparison to existing conditions. To manage any residual risk, a FERP has been developed which includes provisions such as a practical safe refuge for the full range of flooding and provisions to safely self-sustain for short duration flooding.
Principle 5 – Risks faced by the itinerant population need to be managed	The developed FERP includes management of all potential occupants of the site including any temporary visitors.
Principle 6 – Recognise the need for effective flood warning and associated limitations	The nature of flooding within the site is considered 'flashy' and therefore it is challenging to develop and implement an effective flood warning system that would provide enough warning time. Therefore, a conservative approach has been used in the FERP whereby emergency management procedures are triggered by BOM warnings such as Severe Weather or Severe Thunderstorms.
Principle 7 – Ongoing community awareness of flooding is critical to assist effective emergency response	As part of the FERP strategy, all occupants shall be made aware of the flood risks at the site and signage will be kept on the premises. In addition, annual Flood Emergency Response Drills will be carried out.

1.2 SITE DETAILS

1.2.1 Study Area and Topography

The study area and local topography (1 m resolution LiDAR, NSW Spatial Services, 2020) are illustrated in Figure 1-2. The subject site is located in the suburb of Kellyville, in western Sydney. The area is predominantly zoned as low density residential, but also includes medium density residential, commercial, and parkland blocks. The subject site is bounded by residential properties to the north, Rialto Place and Connaught Circuit to the east, Wrights Road to the south, and Green Road to the west.

The subject site is in the upper reaches of the Smalls Creek catchment. The local terrain drains generally in a northerly direction, forming an unnamed watercourse located approximately 60 m to the west of the subject site, on the western side of Green Road – an arterial road. The unnamed watercourse discharges into Smalls Creek approximately 1 km downstream (north) of the subject site.

Within the subject site, the terrain drains generally towards the northwest. The elevations within the subject site vary from approximately 99.5 mAHD in the southeast corner to approximately 88 mAHD at the northwest corner.

1.2.2 Site Layout

The college's existing campus, like many school campus developments, is characterised by a collection of buildings and facilities which have been developed over time. Buildings are situated predominantly on the eastern and southern sides of the college's playing fields.

The proposed works at the college comprise of a new Concept Masterplan for the college site, including a new Performing Arts Centre, additions to Sports Facilities, and Stage 1 works including a new classroom building, amendments to internal vehicle circulation, reconfiguration of a carpark, and landscaping works. The different stages of the proposed works are outlined below, and illustrated in Figure 1-3 and Figure 1-4.

Stage 1 Works

- Construction of a new part 3-storey and part 4-storey teaching facility "Bryson Building" to replace existing classrooms and to facilitate the increase in student numbers;
- Increase in student numbers from 1,907 to 2,100;
- Increase in staff numbers, from 211.6 full-time employees (FTE) to 225.5 FTE;
- Removal of 44 trees and new landscaping works proximate to the new Bryson Building and Wrights Road carpark including planting of 27 new trees;
- Reconfiguration of drop-off/pickup and carparking in Wrights Road carpark; and
- Relocation of waste and recycling collection compound from Wrights Road to Morris Grove.

Concept Masterplan

- Stage 1 Works (as outlined above);
- New Performing Arts Centre;
- New Tech Workshop Building adjacent to the Branwhite Centre for STEAM;
- Extension of Sports Facilities;
- Formalisation of Morris Grove carpark; and
- Removal of 92 trees and new landscaping works including planting of 257 new trees.

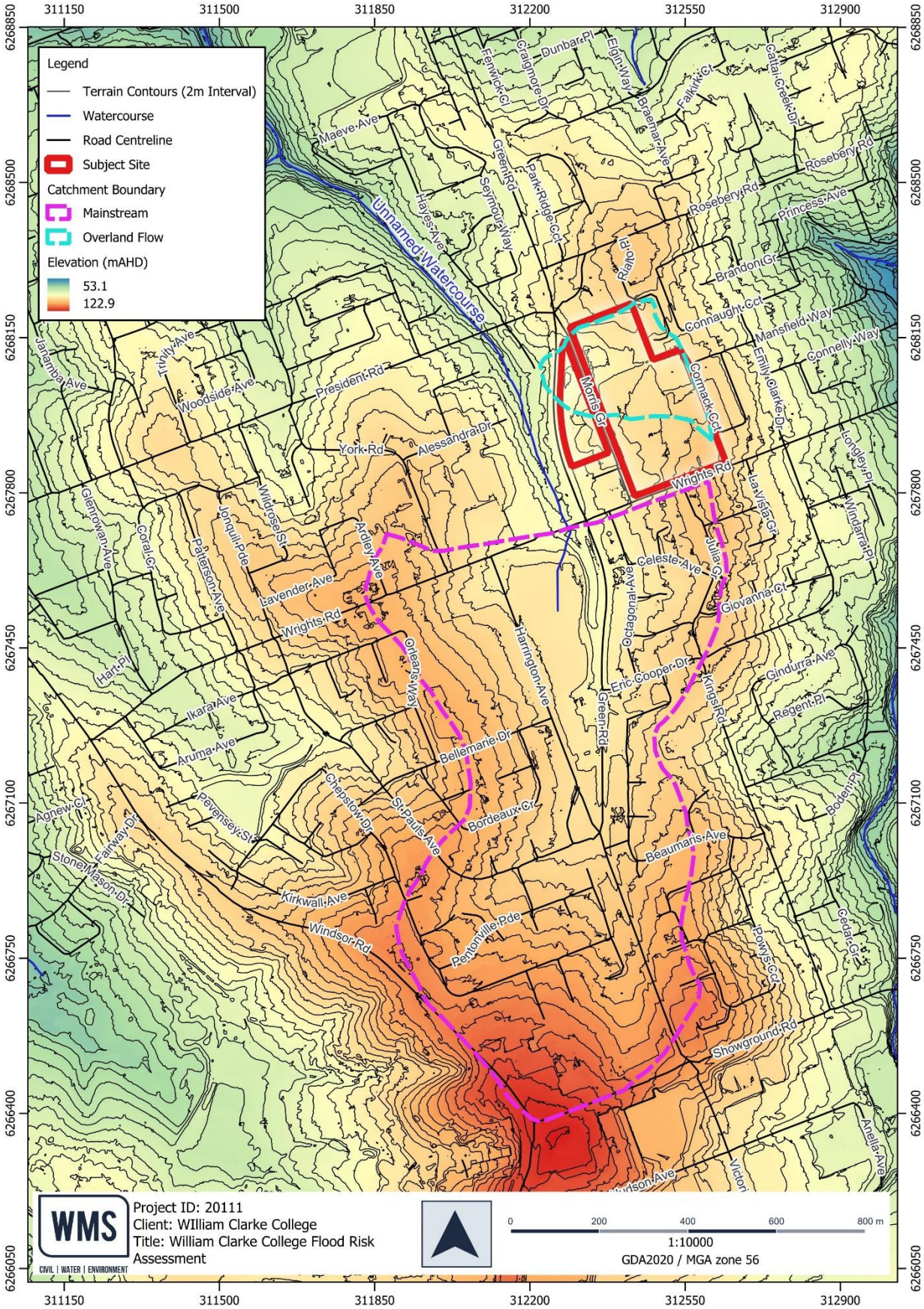

Figure 1-2 Study Area Topography

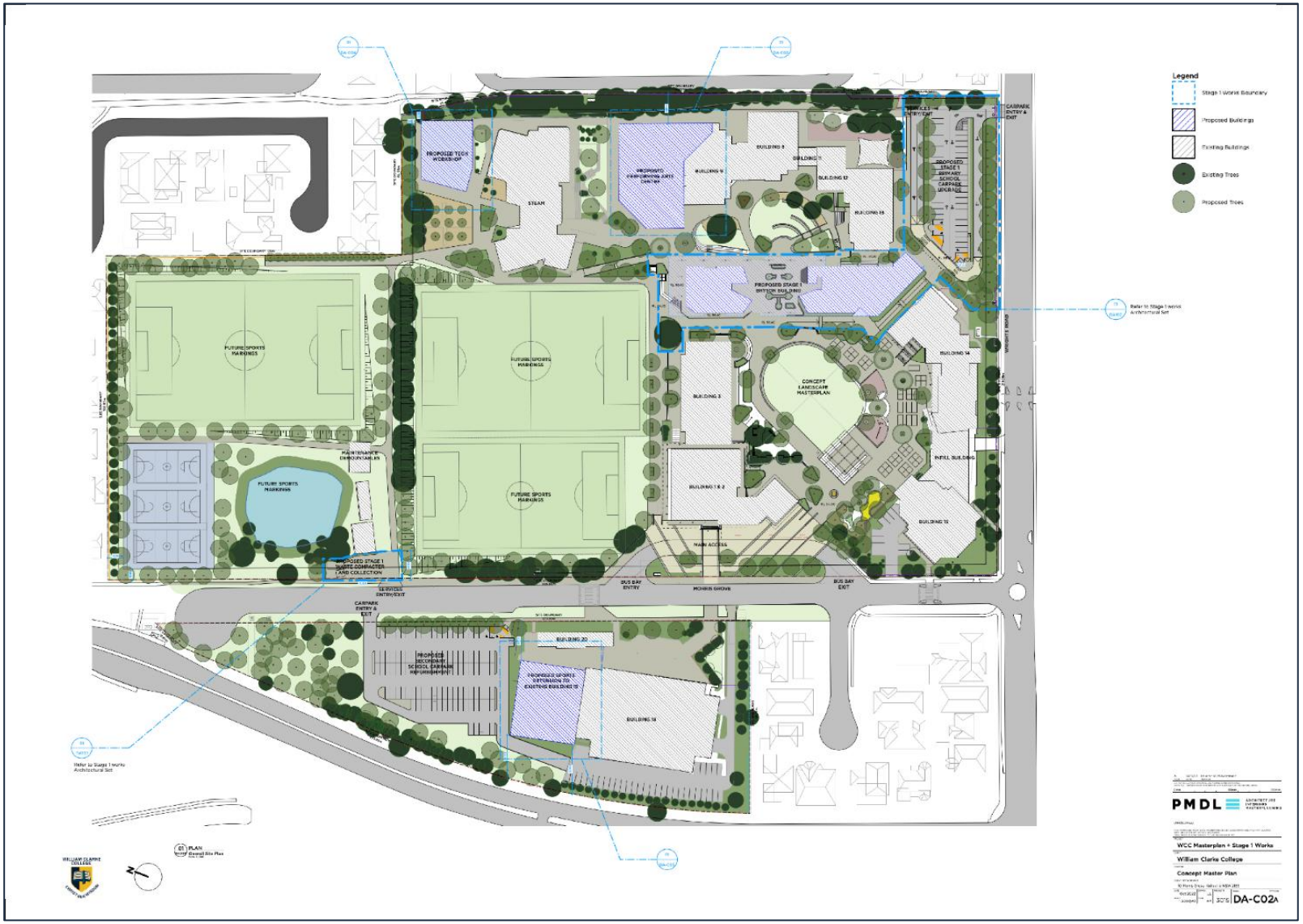

Figure 1-3 Proposed Concept Master Plan (PMDL, October 2022, Drawing DA-C02, Revision A)

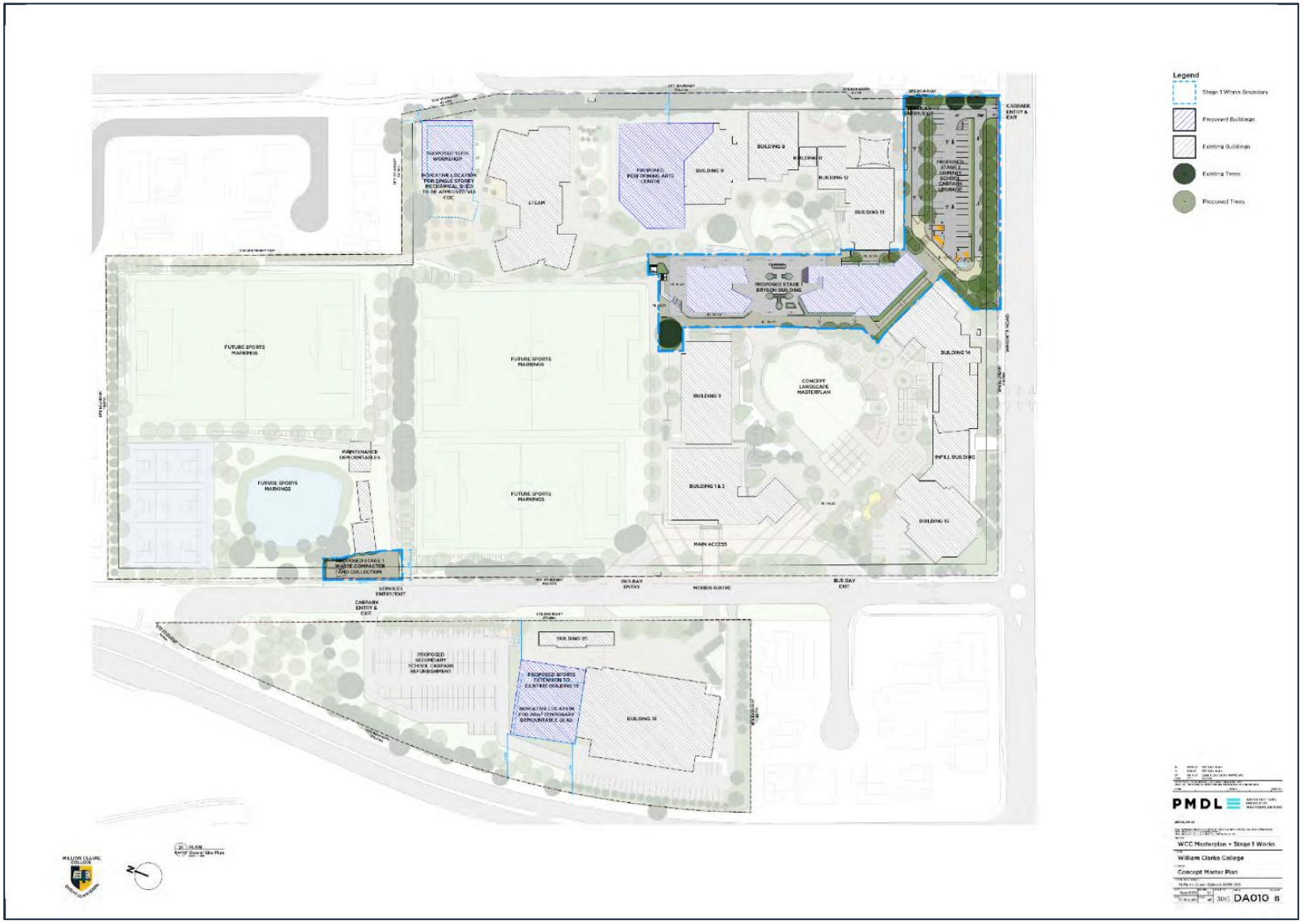

Figure 1-4 Proposed Stage 1 Works (PMDL, August 2022, Drawing DA010, Revision B)

1.2.3 Access Points

The school has frontage to Green Road, Wrights Road, Morris Grove, and Cormack Circuit. There are a total of twelve pedestrian access gates: one located off Cormack Circuit, two located off Wrights Road, and nine located off Morris Grove.

Vehicular access to the site is provided via Wrights Road and Morris Grove, with access points as follows:

- Access to the primary school car park via a new combined entry/exit gate off Wrights Road (Gate 2). This car park accommodates parking for staff and preschool visitors as well as student pick-up and drop-off.
- Access to the staff car park at Building 15 via Gate 5 off Wrights Road and Gate 8 off Morris Grove.
- Ingress to the sports centre staff car park via Gate 15 off Morris Grove and egress via Gate 18.
- Access to the secondary school car park via a combined entry / exit gate off Morris Grove (Gate 18).

The waste compound has been relocated to the existing maintenance area with access via Gate 14 off Morris Grove.

An on-street loading zone is provided at Wrights Road near the Morris Grove roundabout intersection.

Emergency vehicles can access the site via the primary school car park and the proposed vehicular access gate between Gate 9 and Gate 10 near the bus zone at Morris Grove.

The vehicle access and pedestrian entrances are illustrated in Figure 1-5.

Figure 1-5 School Access Plan (Extracted from the Traffic Impact Assessment, PTC, 04/10/2022)

1.2.4 Site Usage and Occupancy

The site is currently used as a school for a combined 1,907 students in Preparatory School, Primary School, and Secondary School, and will retain its current use post-development. As part of the development, it is proposed to increase the student enrolment capacity to 2,100 students, and to increase the number of employees from 211.5 to 225.5 FTE (full-time equivalent) staff. It is also proposed to increase the number of car parking spaces to 178.

The site will be mainly occupied during school days (Monday to Friday) excluding public holidays.

1.3 ROLES AND RESPONSIBILITIES

The key persons responsible for implementing this FERP are defined in Table 1-2.

The NSW SES is the legislated lead combat agencies for flooding in NSW. Any directives issued by the NSW SES and/or Police are to take precedence over the contents of this FERP.

Successful implementation of this FERP is the responsibility of the Principal, assisted by Flood Wardens. There is to be two Flood Wardens appointed for each occupied level of the building excluding car parks. These may be the same persons nominated as Fire Wardens if appropriate.

Table 1-2 Key Roles and Responsibilities used in this FERP

Organisation/Person	Roles and Responsibilities
NSW SES	The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed by all building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Principal.
Principal (AKA Chief Warden)	The Chief Warden is responsible for: • Ensuring that all deputy wardens who are on site are aware of the flood risks and the flood management procedures detailed in this FERP; • Support the wardens in their duties; • Maintain a register of all tenants, staff and subcontractors on site at all times, including contact details and emergency contacts; • Lead the annual shelter in place/ flood emergency response drill (to be undertaken with the Deputy Wardens only, not building occupants); • Monitor flood warnings and alert mode triggers in accordance with this FERP; • Escalate alert modes in accordance with the relevant triggers set in this FERP; • Communicate flood response messages to Wardens and occupants in accordance with this FERP; • Coordinate all flood emergency procedures; • Participate in a review of this FERP annually and following a major flood.
Flood Wardens (at least 2 per building)	• Assist the Principal (Chief Warden) to implement flood emergency procedures as required; • Assist in distributing communications from the Principal to occupants on each floor; • Participate in the annual flood emergency response drill; • Participate in a review of this FERP annually and following a major flood.
All other occupants, visitors, and contractors	• Follow directions of the flood wardens or PA announcements; • Report any concerns to their respective flood warden.

1.4 MAINTENANCE OF THIS FERP

This FERP shall be reviewed and updated on an annual basis by the Principal (or nominated representative) and following all major flood events that trigger implementation of the FERP. Any modifications to the Actions Checklist (Appendix A) should be made in this document and recorded in Appendix C.

As a minimum the following items should be reviewed to ensure:

- Web addresses and links to other sources (e.g. Bureau of Meteorology etc.) are correct;
- Contact details are up to date and the list is complete (see Appendix B);
- All signage is in good condition and installed as required; and
- The FERP Review Record is up to date (see Appendix C).

2 FLOOD BEHAVIOUR

2.1 OVERVIEW

A detailed assessment of the site's flood behaviour has been undertaken as part of the William Clarke College Flood Risk Assessment (WMS Engineering, 2023). The key outcomes of the assessment were:

- The site is not subject to mainstream flood risk in all modelled events, including the Probable Maximum Flood (PMF).
- The site is subject to limited risk from overland flow, with flow within the site characterised by shallow sheet flow caused by rain falling directly within the site rather than flow draining from an upstream catchment.
- In all modelled events, including the PMF, water depths across most of the site are generally below 0.15 m, velocities are generally below 1.0 m/s and the flood hazard is generally classified as H1 (No restrictions).
- The duration of inundation for areas affected by hazard H1 or higher is generally less than 15 min in all modelled events, including the PMF. As such, the nature of overland flow through the site can be characterised as flash flooding (when the flood warning time and flood duration are both less than six hours).

2.2 DESIGN FLOOD LEVELS

Peak flood depths and levels in the PMF event are illustrated in Figure 2-1 as well as building access points.

A comparison of finished floor levels (FFLs) of proposed and existing buildings against the post-development water levels at the building entrances is provided in Table 2-1. The key observations from the comparison are as follows:

- The majority of the buildings, including all proposed buildings, have a ground floor immunity equal to the PMF event.
- Existing Building 3 (entrance 3) and the existing STEAM Building have ground floor levels 0.3 to 0.4 m lower than the adjacent PMF levels. Although these are not insignificant differences, the flood risk at these buildings can still be considered low given that the flood model is conservative (i.e. no stormwater drainage included), the buildings have immunity up to the 0.2% AEP event and have multiple storeys that can be used for shelter-in-place if required. Furthermore, as these are existing buildings, amending their floor levels is not feasible. It should also be noted that the flood levels at these buildings have not changed as a result of the proposed works.
- All buildings that do not have ground floor levels at or above the PMF have multiple storeys which can be utilised for shelter-in-place during a flood in the unlikely event of floodwaters inundating the ground floor.

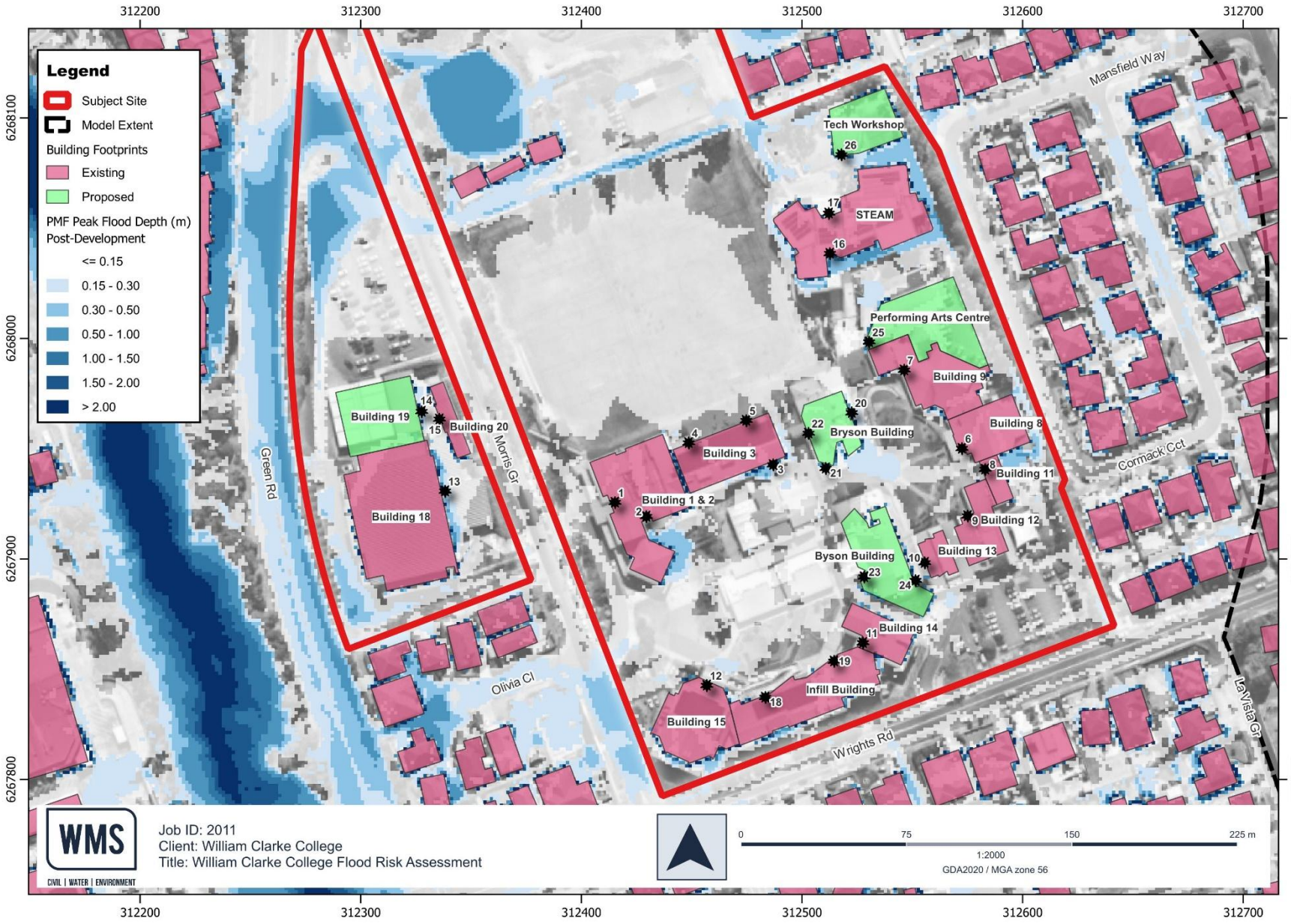

Figure 2-1 PMF Post-Development Flood Depth and Building Entrances

Table 2-1 Summary of FFLs and Design Flood Levels

Building	Existing/Proposed	No. of Storeys	Entrance Location	Ground Floor FFL [mAHD]	Flood Level [mAHD] (Inundation Above Floor [m])				Ground Floor Flood Event Immunity (i.e., floor level is above X event)	First Floor Flood Event Immunity (i.e., floor level is above X event)
					1% AEP	0.5% AEP	0.2% AEP	PMF		
Building 1 & 2	Existing	2	1	94.6	Not affected	Not affected	Not affected	Not affected	PMF	PMF
			2		Not affected	Not affected	Not affected	Not affected	PMF	PMF
Building 3	Existing	2	3	95.2	Not affected	Not affected	Not affected	95.5 (0.3)	0.2% AEP	PMF
			4		Not affected	Not affected	Not affected	Not affected	PMF	PMF
			5		Not affected	Not affected	Not affected	Not affected	PMF	PMF
Building 8	Existing	1	6	98.2	Not affected	Not affected	Not affected	Not affected	PMF	Not applicable
Building 9	Existing	1	7	97.2	Not affected	Not affected	Not affected	Not affected	PMF	Not applicable
Building 11	Existing	1	8	98.4	Not affected	Not affected	Not affected	Not affected	PMF	Not applicable
Building 12	Existing	1	9	100.3	Not affected	Not affected	Not affected	Not affected	PMF	Not applicable
Building 13	Existing	1	10	97.3	Not affected	Not affected	Not affected	Not affected	PMF	Not applicable
Building 14	Existing	2	11	99.8	Not affected	Not affected	Not affected	Not affected	PMF	PMF
Building 15	Existing	2	12	96.5	Not affected	Not affected	Not affected	Not affected	PMF	PMF
Building 18	Existing	2	13	92.8	Not affected	Not affected	Not affected	Not affected	PMF	PMF
Building 19 – Future Sports Extension	Proposed	2	14	92.7	Not affected	Not affected	Not affected	92.8 (0.1)	PMF*	PMF
Building 20	Existing	1	15	92.8	Not affected	Not affected	Not affected	Not affected	PMF	PMF
STEAM Building	Existing	3	16	94.0	94.1 (0.1)	94.1 (0.1)	94.1 (0.1)	94.4 (0.4)	0.2% AEP*	PMF
			17		Not affected	Not affected	Not affected	Not affected	PMF	PMF
Infill Building	Existing	3	18	99.8	Not affected	Not affected	Not affected	Not affected	PMF	PMF
			19		Not affected	Not affected	Not affected	Not affected	PMF	PMF

Building	Existing/Proposed	No. of Storeys	Entrance Location	Ground Floor FFL [mAHD]	Flood Level [mAHD] (Inundation Above Floor [m])				Ground Floor Flood Event Immunity (i.e., floor level is above X event)	First Floor Flood Event Immunity (i.e., floor level is above X event)
					1% AEP	0.5% AEP	0.2% AEP	PMF		
Bryson Building	Proposed	4	20	96.4	Not affected	Not affected	Not affected	Not affected	PMF	PMF
			21		Not affected	Not affected	Not affected	96.5 (0.1)	PMF*	PMF
			22		Not affected	Not affected	Not affected	Not affected	PMF	PMF
			23	98.0	Not affected	Not affected	Not affected	Not affected	PMF	PMF
			24	97.2	Not affected	Not affected	Not affected	97.3 (0.1)	PMF*	PMF
Performing Arts Centre	Proposed	2	25	96.15	Not affected	Not affected	Not affected	Not affected	PMF	PMF
Tech Workshop	Proposed	2	26	93.75	Not affected	Not affected	Not affected	93.8 (0.05)	PMF*	PMF

* Where water depths are equal to or less than 0.1 m, buildings have been classified as unaffected, as depths of this magnitude are generally a result of local stormwater runoff rather than overland flow flooding. This is in line with The Hills Shire Council's TUFLOW Modelling Requirements (The Hills Shire Council) where overland flow paths are defined as areas where water depths are larger than 0.1 m. It is expected that all runoff generated within the site will be captured and conveyed via the college's internal drainage system, which was not included in the model as a conservative assumption.

2.3 FLOOD HAZARD CLASSIFICATION

Flood hazard classifications are defined by depth, velocity, and depth x velocity products, based on the guidance outlined in *Managing the floodplain: a guide to best practice in flood risk management in Australia (Australian Institute of Disaster Resilience, Guideline 7-3).* The classifications are divided into 6 categories (H1-H6), shown in Figure 2-2 which indicate the effect of the hazard on people, buildings, and vehicles.

The post-development flood hazard at the site for the 1% AEP and the PMF are illustrated in Figure 2-3 and Figure 2-4, respectively. In both events, hazard across most of the site is classified as H1. In the PMF, small areas of H2 hazard (Unsafe for small vehicles) are observed near some of the buildings. Hazard H3 or higher (Unsafe for vehicles, children, and elderly) is only observed along the swales and detention basin to the north of the site, and in a small area of the southern driveway to Morris Grove. This indicates that occupants would still be able to circulate on foot between the school buildings if required. Outside the site boundaries, hazard H3 or higher is observed in certain sections of Morris Grove and Wrights Road, indicating that evacuation via vehicle would not be possible during the PMF. However, evacuation on foot would still be possible via Cormack Crescent.

The duration of inundation where hazard is H3 or higher in the PMF event is illustrated in Figure 2-5. The results in Figure 2-5 represent the maximum durations of inundation for all storm durations from 10 min to 90 min. It can be observed that the site, Morris Grove, and Wrights Road would not be subject to hazard H3 or higher for longer than 1 hour.

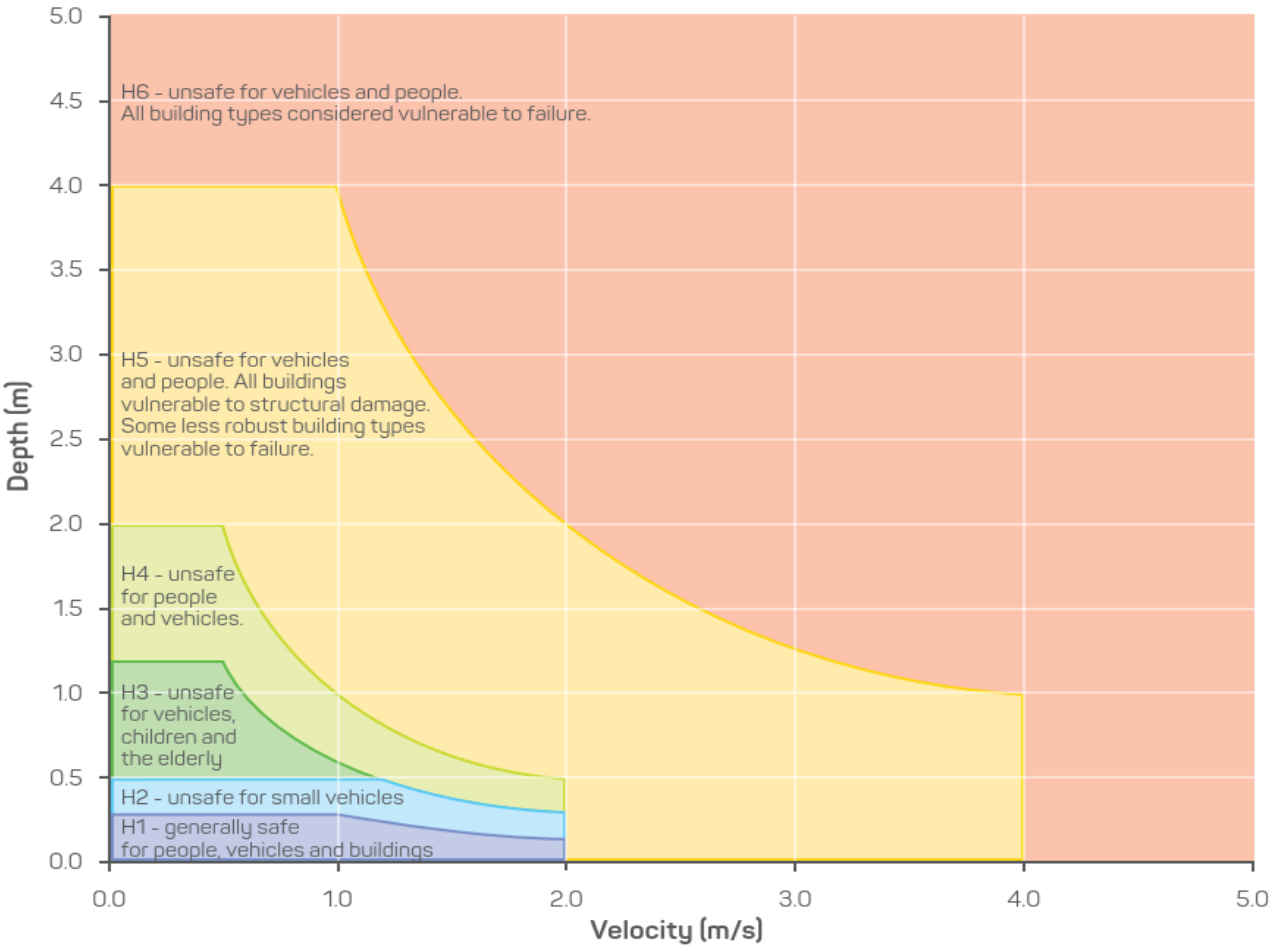

Figure 2-2 Flood Hazard Classification (AIDR, 2017)

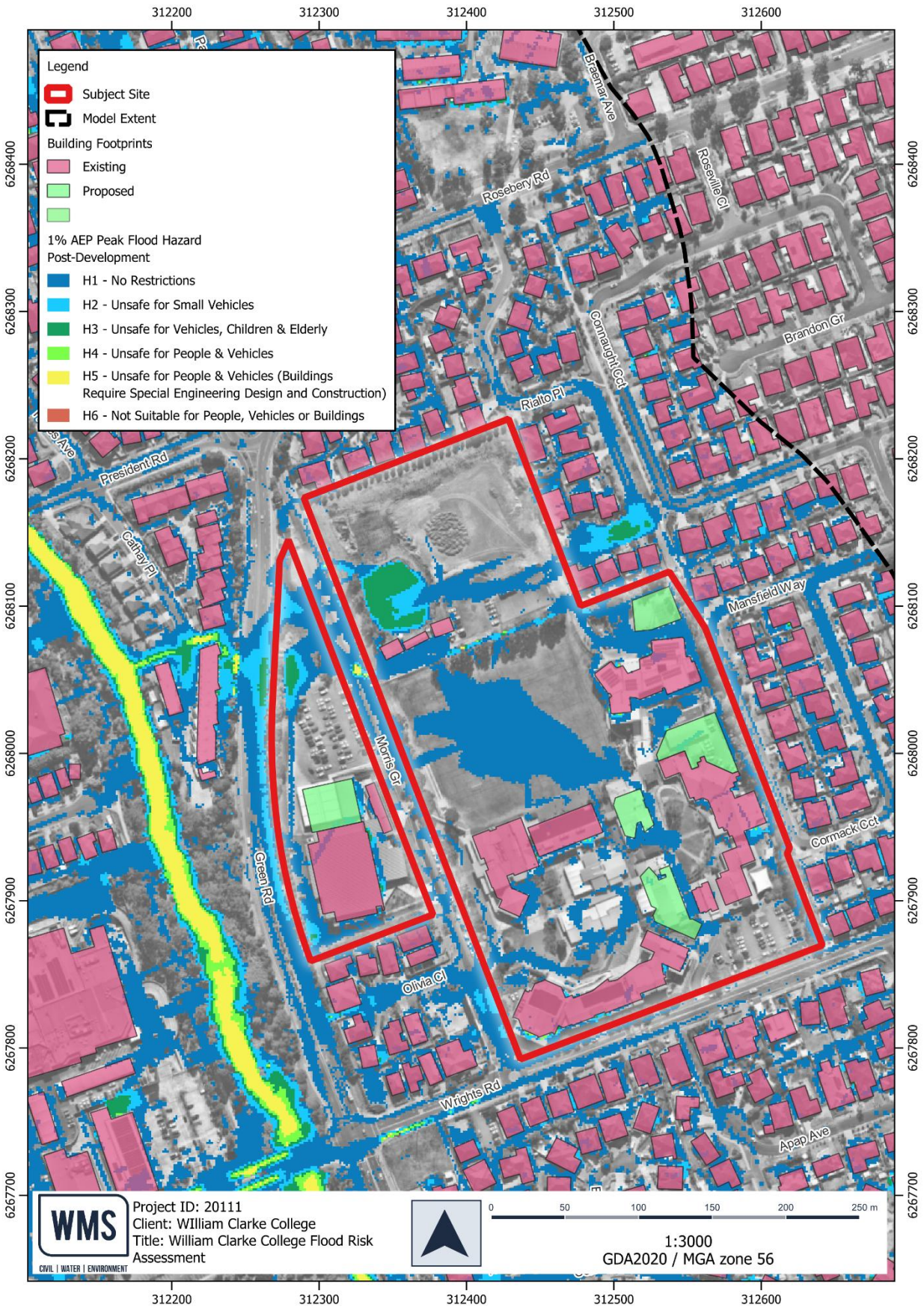

Figure 2-3 1% AEP Post-Development Flood Hazard Classification

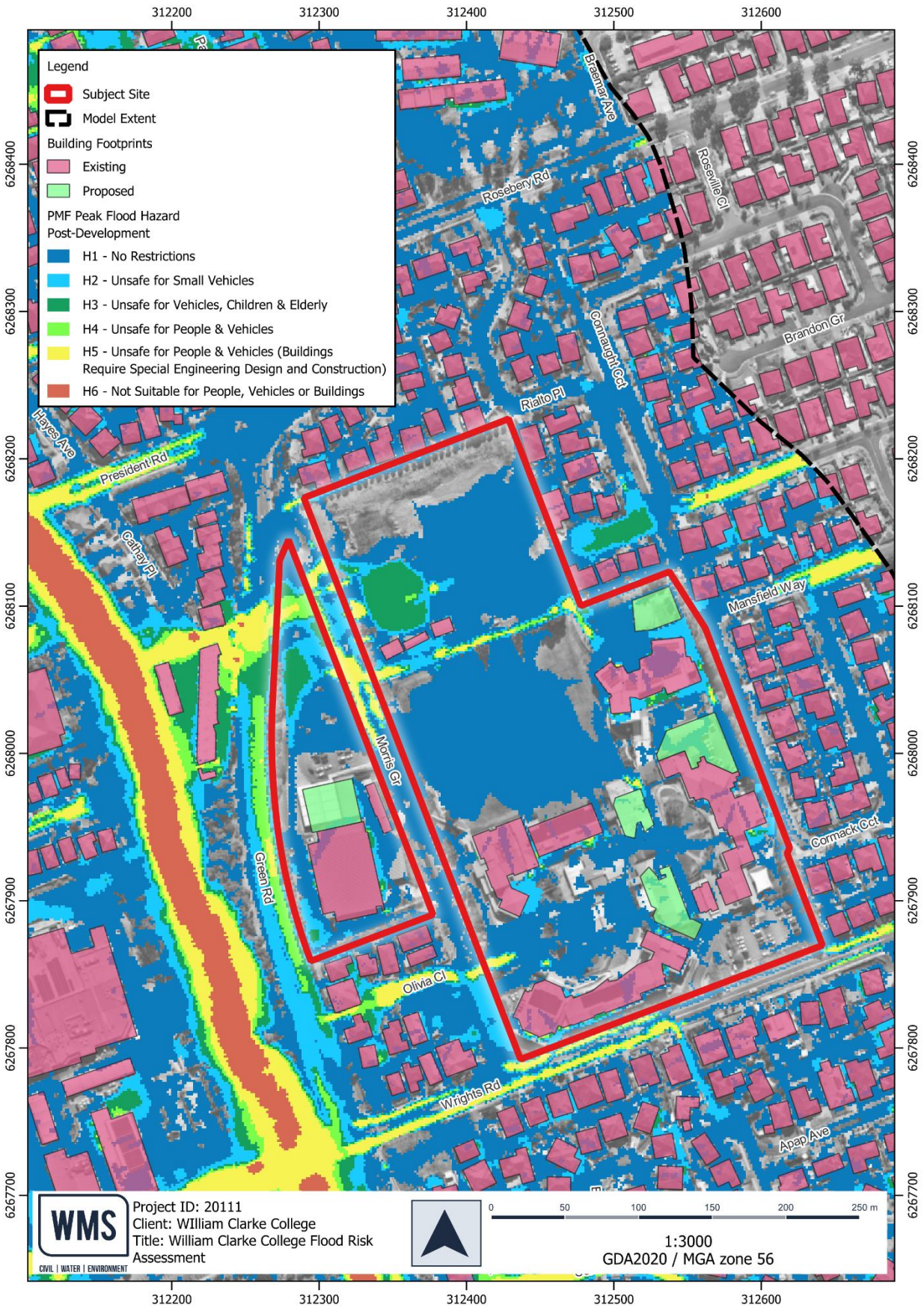

Figure 2-4 PMF Post-Development Flood Hazard Classification

Figure 2-5 PMF Duration of Inundation for Hazard H3 or higher

3 SOURCES OF FLOOD INFORMATION, FORECAST AND WARNINGS

Monitoring weather forecasts is key to managing flood risk at the site and ensuring the FERP is enacted at the appropriate time. Information about current and impending flood risks can be found through the following sources.

3.1 BUREAU OF METEOROLOGY (BOM)

The primary source of information regarding flood risk at the site is the Bureau of Meteorology (BOM). The following warning products are provided by the Bureau and could provide an indication of increased flood risk at the site.

3.1.1 Types of Warnings

Severe Weather Warnings

The BOM issues Severe Weather Warnings whenever severe weather is occurring in an area or is expected to develop or move into an area. The warnings describe the area under threat and the expected hazards. Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more.

Severe Weather Warnings can contain the following information:

- Standard Emergency Warning Signal (SEWS) – sounded only for the most serious events
- List of severe weather phenomena expected in the warning area
- Threat area
- Warning issue time
- (Usually) Description of the weather pattern, including forecast developments of significant weather systems
- Description of the threat
- Action statements
- Advice of next issue time

As part of its Severe Weather Warning Service, the Bureau also provides warnings for severe weather that may cause flash flooding. State emergency services or local authorities may provide flash flood warnings in some locations.

Note: The BOM does not provide flash flood warnings (i.e., flooding that occurs within 6 hours of the rainfall).

Severe Thunderstorm Warnings

The Bureau of Meteorology issues Severe Thunderstorm Warnings to alert communities of the threat of these more dangerous thunderstorms.

A severe thunderstorm is one that produces any of the following:

- Large hail (2cm in diameter or larger)
- Giant hail (5cm in diameter or larger)
- Damaging or destructive wind gusts (generally wind gusts exceeding 90 km/h)
- Heavy rainfall which may cause flash flooding
- Tornadoes

Most thunderstorms do not reach the level of intensity needed to produce these dangerous phenomena, so the Bureau of Meteorology does not warn for all thunderstorms.

Flood Watch

The Bureau issues a Flood Watch to provide early advice of a developing situation that may lead to flooding. A Flood Watch is not a warning of imminent flooding. A Flood Watch provides information about a developing weather situation including forecast rainfall totals, catchments at risk of flooding, and indicative severity where required. The product also provides links to weather warnings, other Bureau flood-related products, and contact details and information of relevant emergency services.

Although there is uncertainty attached to a Flood Watch, its early dissemination can help individuals and communities to be better prepared should flooding eventuate. A Flood Watch may discuss possible snowmelt, local flooding or tidal impacts, but a Flood Watch will not be issued solely on the basis of these phenomena.

A Flood Watch is generally issued up to four days in advance of the expected onset of flooding. A Flood Watch can be issued before, during and after the rainfall has occurred, depending on the level of maturity of the flood warning systems and services, and flood impact information made available from the local emergency services or state agency.

Flood Watches are updated at least daily and finalised once all areas are covered by flood warnings or the risk of flooding has passed.

Flood Warning

Flood Warnings are issued by the Bureau to advise that flooding is occurring or expected to occur in a geographical area based on defined criteria. Flood Warnings may include either qualitative or quantitative predictions or may include a statement about future flooding that is more generalised. The type of prediction provided depends on the quality of real-time rainfall and river level data, the capability of rainfall and hydrological forecast models and the level of service required.

A quantitative or qualitative flood warning of Minor, Moderate or Major flooding is provided in areas where the Bureau has specialised warning systems. They provide advanced warning about the locations along river valleys where flooding is expected, the likely class of flooding and when it is likely to occur. Predictions of expected water levels and the timing of flood peaks are provided at key forecast locations.

The Bureau also provides generalised flood warnings when there is not enough data to make specific predictions or in the developing stages of a flood. They typically rely on forecast rainfall and knowledge of historical flood response. Generalised warnings contain statements advising that flooding is expected in particular river valleys but do not provide information about flood class nor precise locations.

3.1.2 Accessing BOM Warnings

In each State, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Local Response Organisations: These include the Council, Police, and State Emergency Service in the local area.
- Bureau of Meteorology: Flood Warnings, Flood Watches and general information are available directly from the Bureau of Meteorology, including:
- On the web at: www.bom.gov.au/australia/warnings
- Through the Telephone weather warnings service. Flood Warnings and Flood Watches in most States are available on the Bureau of Meteorology's recorded message service. Charges apply.
- Radio: Radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable.

3.2 NSW STATE EMERGENCY SERVICES (SES)

The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed by all building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Principal.

Leading up to and during a flood, NSW SES can issue:

- Flood Bulletins that provide information on likely flood consequences and what actions you should take to protect yourself and your property.
- Evacuation Warnings that warn when evacuation routes are likely to be cut or when floodwaters are expected to inundate property. These warnings aim to get people prepared to evacuate and to respond quickly if an Evacuation Order is issued.
- Evacuation Orders that advise people what to do in an evacuation and where to go. Evacuations orders are transmitted on radio stations, or by automated telephone and/or SMS, NSW SES social media, or door knocks.

It is vital that all occupants leave the site if an Evacuation Order is received.

NSW SES communications and warnings can be found in the following social media pages:

- NSW SES Facebook Page: https://www.facebook.com/NSW.SES/
- NSW SES The Hills Unit Facebook Page: https://www.facebook.com/TheHillsSES/

3.3 OTHER SOURCES

In each state, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Radio and television: radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable. Some of the local emergency broadcasters in the City of Parramatta are:
  - 702 ABC SYDNEY 702 AM
  - 2CH 1170 AM
  - 2DAY FM 104.1 FM
  - 2GB 873 AM
  - 2ME 1638 AM
  - 2SM/GORILLA 1269 AM
  - 2UE 954 AM
  - 2VTR HAWKESBURY 89.9 FM
  - BLU FM 89.1 FM
  - MIX 106.5 106.5 FM
  - NOVA 96.9 FM
  - RADIO 2MORO 1620 AM
  - RADIO 2RDJ 88.1 FM
  - SBS RADIO 97.7 FM
  - SYDNEY'S 95.3 95.3 FM
  - TRIPLE M 104.9 FM
  - WFSM 101.7 FM

4 EVACUATION PROCEDURE

4.1 TYPES OF EVACUATION

The two main types of evacuation in a flood emergency are:

- "Horizontal Evacuation" – occupants exit the site and make their way (walking is likely to be safest) to an area above the reach of flood waters. This is the NSW SES preferred response, provided that the risks of evacuating are deemed acceptable.
- "Vertical Evacuation", also referred to as "Shelter in Place" – occupants remain in the building and wait until floodwaters have receded. Shelter in Place is to be considered an alternative to horizontal evacuation only when it is safer to remain in the building than it is to evacuate horizontally. For example, in flash flood catchments where roads can become unsafe due to flooding for periods less than 60 minutes, it can be safer to shelter in place until the flood recedes rather than driving in floodwaters.

4.2 RECOMMENDED EVACUATION PRACTICES

As detailed in Section 2 and in the William Clarke College Flood Risk Assessment (WMS Engineering, 2023), the site is subject to limited overland flow risk as it is only associated with shallow sheet flow caused by rain falling directly within the site. Most of the water that falls within the site is expected to be managed appropriately through the site's grading and internal stormwater drainage system, and therefore would not pose a significant flood risk to the site.

With most FFLs set at or above adjacent PMF levels and multiple storeys available in most buildings, occupants will be able to safely shelter in place during a flood event. Furthermore, flooding within and around the site is likely to be of 'flashy' in nature, that is, rising and falling in less than 60 minutes in response to local rainfall, and external evacuation would pose a greater risk to occupants and staff than sheltering in place.

Therefore, in accordance with the NSW Shelter in Place Draft Guidelines (NSW Government, 2022), Shelter in Place is the most appropriate emergency management response, especially when evacuation via vehicle may not be possible due to certain areas of Morris Grove and Wrights Road being subject to hazard H3 in the PMF.

A summary of the recommended strategies is provided in Table 4-1.

Table 4-1 Evacuation Overview

Minor or Moderate Flood (all events up to the 0.2% AEP)	Major Flood (PMF)
• Site not subject to inundation, formal evacuation not necessary. • Occupants are advised to shelter in place during storm. • In the event of an emergency, vehicular access can be achieved via Morris Grove or Wrights Road. Evacuation can also be achieved on foot to the north via Cormack Crescent, Morris Grove, or Wrights Road. • Monitor BOM warnings and SES advice and leave with care when storm subsides. Local roads/ paths may be inundated or slippery.	• Building 3 and the STEAM Building may be affected by shallow inundation on the ground floor (depth < 0.4 m). Occupants to move to Level 1 and above. • Morris Grove and Wrights Road may be cut off for 1 hour or less, during which period evacuation via vehicle will not be possible. • Occupants are advised to shelter in place during storm. • In the event of an emergency, evacuation can be achieved on foot via the pedestrian gate at Cormack Crescent. From here, occupants are advised to follow the footpath north towards Rosebery Road. • Monitor BOM warnings and SES advice and leave with care when storm subsides. Local roads/paths may be inundated or slippery.

4.3 SHELTER IN PLACE ARRANGEMENTS

In the event a Severe Weather Warning, Severe Thunderstorm Warning or a Major Flood Warning is received via BOM, shelter in place is considered the safest form of evacuation, as there will likely be insufficient warning time. The following actions are to occur:

- A 'Refuge Shelter' is to be established at Level 1 or above for Building 3 and the STEAM Building, and at Ground Floor or above for all other buildings (see description in Section 4.4);
- All persons onsite are to make their way to the Refuge Shelters, guided by the Flood Wardens. Persons in Building 3 and STEAM Building are to be located at Level 1 or above; for all other buildings persons are to be located at Ground Floor or above;
- All occupants are to remain at the Refuge Shelters for the duration of the flooding. This is expected to be less than 1 hour.

Refer to Appendix A for the detailed action plan to be followed before, during and after a flood.

4.4 REFUGE SHELTER ESTABLISHMENT

When preparing the Refuge Shelter, it should be assumed that the building may lose power for some or all of the duration of the flood. The Flooding Refuge Shelter is to be established and maintained in perpetuity in accordance with NSW SES and Health Guidelines, supplied with the following items (note this list is not exhaustive):

- Drinking water
- Functioning sewer system
- Food
- First aid supplies
- Candles and waterproof matches
- Seating
- Blankets
- Portable radio with spare batteries
- Emergency fit – including hardcopies of this FERP

Although the duration of inundation is expected to be less than 1 hour, provision should be made to shelter occupants for an extended period (up to 72 hours).

Due to the shelter in place arrangements, adequate fire-fighting equipment and medical emergency equipment are to be provided on-site and with adequate maintenance schedules. This is to ensure that, should firefighting services be required during a major storm event, firefighting services can still be carried out onsite.

5 REFERENCES

NSW Government. (2022). *NSW Shelter in Place Draft Guidelines.*
NSW Government. (2023). *Flood Risk Management Manual.*
NSW Government. (2023). *Support For Emergency Management Planning.*
NSW SES. (2022). *The Hills Shire Flood Emergency Sub Plan.*
The Hills Shire Council. (n.d.). *TUFLOW Modelling Requirements.*
WMS Engineering. (2023). *William Clarke College Flood Risk Assessment.*

APPENDIX A

ACTION PLAN

A.1 BEFORE A FLOOD

Trigger/ Frequency	Action	Person Responsible	Resources Required
Always	The Principal/ Chief Warden will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood.	Principal	N/A
	The Principal will appoint a Flood Warden / Deputy Warden. This should be a senior staff member who is familiar with this Flood Emergency Response Plan and who is always on site when the site is open. If necessary, to ensure that at least one Flood Warden is always on site, the Principal may appoint two or more Flood Wardens.	Principal and Flood Warden(s)	N/A
	The Site is to be equipped with a siren and PA system. In addition, an airhorn will be kept on site at all times. This is to be used to alert everyone on site in case of emergency if there is a power outage. All staff on site will be trained during their site induction to immediately evacuate to Flooding Refuge Shelter when the airhorn/siren sounds.	Principal	Airhorn Siren & PA System
	A set of at least two wireless radio communication transceivers with charged spare batteries will be kept on site at all times. The Flood Warden will make sure that the main and spare batteries are changed at all times.	Principal	Wireless radios with batteries
	A flood warning sign will be kept on the premises. The sign should read a message to this effect: "The site is temporarily closed due to flood risk. For your own safety, leave the area immediately. You will be notified once it is safe to come back."	Principal	Flood Warning Sign
	Using the above smartphone/tablet, the Principal and the Flood Warden will download and install the BOM Weather app or will bookmark the link to the BOM warning webpage for easy access.	Principal and Flood Warden(s)	Smartphone or tablet, internet and back-up power
	The Flooding Refuge Shelter is to be established and maintained in perpetuity in accordance with NSW SES and Health Guidelines, supplied with the following items (note this list is not exhaustive): • Drinking water • Functioning sewer system • Food • First aid supplies • Candles and waterproof matches • Seating • Blankets • Portable radio with spare batteries • Emergency fit – including hardcopies of this FERP Provision should be made to shelter occupants for an extended period (up to 72 hours).	Principal and Flood Warden(s)	As per list on left, with sufficient provisions for up to 72-hours
Daily	Every morning, the Principal / Flood Warden will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the BOM weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary (http://www.bom.gov.au/nsw/warnings/).	Principal and Flood Warden(s)	Smartphone or tablet, internet and back-up power
Always	An emergency contact sheet will be kept in hardcopy format on site. A suggested format for these details and other necessary contact details is provided in Appendix B.	Principal	Emergency Contact Sheet
Always	The Principal will keep an updated register of the people who are on site at all times. The list will have to include as a minimum name, mobile number, and emergency contact details.	Principal	Register of people on site
Always	The Principal will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.	Principal	Emergency kit with radio, torch, batteries, and first aid kit

Trigger/ Frequency	Action	Person Responsible	Resources Required
Annually	The Principal will host a Flood Emergency Response Drill, in which Shelter in Place arrangements are practised by Flood Wardens.	Principal	FERP

A.2 WHEN A FLOOD IS POSSIBLE AND DURING A FLOOD

Trigger/ Frequency	Action	Person Responsible	Resources Required
Flood warning or evacuation advice published by NSW SES *During school hours*	The Principal will closely monitor the flood situation and keep up to date with Flood Warnings issued on the Bureau of Meteorology website and **act on all advice provided by the NSW SES.**	Principal and Flood Wardens	N/A
	A 'Refuge Shelter' is to be established at Level 1 or above for Building 3 and the STEAM Building, and at Ground Floor or above for all other buildings.		
	William Clarke College will invoke a communication strategy to ensure all parents are aware of what the situation is and that the students are safe.	Principal and Flood Wardens	Phones
	Using the Compass app (or other equivalent means of communicating between the school and parents), an appropriate communication will be posted detailing that students are safe, that parents/carers or other family members need to pick up students due to flooding issues, and details of how these pickups are to be managed at the College.	Flood Wardens	Computer, smartphone or tablet, internet and power
	The communication to parents should be updated every two hours, or more frequently if deemed necessary.	Flood Wardens	Computer, smartphone or tablet, internet and power
	Observe instructions from Catholic Education Sydney and the NSW SES in relation to School Closure – and follow normal school closure protocols if required.	Flood Wardens	Computer, smartphone or tablet, internet and power
	Prior to an Evacuation Warning being issued (where Shelter-In-Place is not viable), the School Executive Team (SET) should instigate preparations by: • Organising potential bus transport to higher ground for any students and staff who are still on site. Consideration needs to be given to the needs of individuals with health issues (collect and take student and staff medications, first aid and asthma kits, and other medical equipment e.g. defibrillators, epi-pens). • Planning the evacuation route and confirming assembly point through consultation with emergency services.	Flood Wardens	Phones
	Prior to an Evacuation Order / Shelter-In-Place Order being issued, the SET (in particular, the Business Manager and ground staff) should ensure that any utilities that may cause additional hazards e.g. electricity, gas and water services, are isolated / shut down.	Business Manager and Ground Staff	Phones
	Where Shelter-In-Place is not viable, the Principal will issue an Evacuation Order, and the school will be evacuated following the evacuation procedures outlined in the school's Emergency Action Plan (EAP).	Principal	Activation Systems and power
During an Evacuation	• Treat all power lines as live, stay at least 8 metres clear. Look out for wires low hanging or on the ground, dangling in flood waters or tangled in trees. • Do not drive across fallen power lines or if they become entangled in your vehicle remain inside your vehicle and call/wait for help. • When travelling by boat through flood waters, keep a good distance from power lines and poles. If your boat is wooden or fibreglass, do not touch the water or metallic parts of the motor when near power lines or poles. • If you are at home, stay there until advised otherwise. • Avoid using electrical or gas appliances. • Avoid driving or walking through flood waters - don't try to return home until you are sure it is safe.		

Trigger/ Frequency	Action	Person Responsible	Resources Required
	• Don't drive on roads that have been closed.		
Outside school hours	The Principal will contact everyone expected to go to the school on the following day and communicate that the school will be closed due to flood risk until further notice. Any sporting fixtures or training sessions planned on school grounds outside of school hours are to be cancelled.		
	The Principal will keep monitoring the BOM weather warnings every two hours.		

A.3 AFTER A FLOOD

Trigger/ Frequency	Action
When the NSW SES or Department of Education notifies the school that it is safe to reopen	• The Principal will inspect the facility to check if access roads are clear and if the site was affected by flooding. • If access roads are clear and the site was not affected, the emergency has passed and the site can re-open. • If access roads are not clear, the Principal will return for an inspection after at least two hours. Under no circumstances should the Principal drive through floodwaters. • If access roads are clear but the school was affected by flooding, the Principal will organise access to the school making sure that any precautionary measures recommended by the NSW SES are put in place. • Extra care will be taken of potential slips on muddy floors or footpaths. • All flood-affected parts of the premises will be appropriately cleaned, and utilities checked by professionals before anyone can return to the site. • A hazard assessment will be undertaken for the clean-up, safe work methods statements will be prepared, and personal protective equipment supplied consistent with the known hazards which can be associated with floods: slips, trips and falls; sharp debris; venomous animals; contaminated water and sediments. • Demountable buildings will need to be thoroughly cleaned, and structural and electrical safety assessment to be carried out before return to normal activities. • Following the re-commencement of the site, a de-brief will be held with key management staff and may involve Council flood staff or the NSW SES. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed. • Changes may be made to the FERP and the requirements for future emergency response should the review identify any improvements which may be made.

APPENDIX B

EMERGENCY CONTACT LIST

B.1 EMERGENCY CONTACT LIST

Category	Contact Name	Contact Phone Number
Emergency Services and Sources of Information	Emergency – Police, Fire, Ambulance	000
	NSW SES	132 500 https://www.ses.nsw.gov.au/
	NSW Live Traffic	https://www.livetraffic.com/
	The Hills Shire Council	Phone: 2 9843 0555 https://www.thehills.nsw.gov.au/Home
	Emergency Broadcasters	ABC Sydney 702 2day FM 104.1
	Bureau of Meteorology (BOM)	1300 659 217 NSW Warnings: http://www.bom.gov.au/nsw/warnings/
Utilities and Providers	Electricity Retailer	
	Electricity Distributor	
	Gas Retailer	
	Water and Sewer Retailer	
	Doctor	
	Insurance	Policy Number: Contact Phone:
Key On-Site Personnel *(Add as necessary)*	Principal	
	Deputy Wardens	
Details for contacting students and parents		

APPENDIX C

FERP REVIEW RECORD

C.1 FERP REVIEW

Reviews of this FERP are required annually and following major flood events. Rows to be added as required.

Date	Changes Made	Made by:	Action Required	Action Completed by & date
12/09/2023	Initial Draft	WMS	NA	NA
23/02/2026	Operational Management Plan	WMS	NA	NA