

Contact T. Harvey

Our Ref P2008007JC03V02

Pages 7 + Attachments

9 April 2025

Colliers C/- School Infrastructure NSW Att: Sam Reuter (by email)

Dear Sam,

Flood Assessment – New Bungendore North Campus High School

#### 1 Introduction

#### 1.1 Overview

This Flood Assessment has been prepared to support a Review of Environmental Factors (**REF**) for the NSW Department of Education (**DoE**) for the construction and operation of the new Bungendore North Campus High School (the **activity**).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (**T&I SEPP**) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (**EP&A Act**). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the **Guidelines**) by the Department of Planning, Housing and Infrastructure (**DPHI**) as well as the Addendum Division 5.1 guidelines for schools and Addendum October 2024 (Consideration of environmental factors for health services facilities and schools).

The purpose of this report is to:

- 1. Discuss Site flood mechanisms and characteristics (Section 2).
- 2. Assess potential flood risks and impacts to adjacent properties arising from the proposed activity (Section 3).
- 3. Determine minimum floor levels of the temporary structures considering available flood data and flood planning levels (**FPL**s) (Section 4).
- 4. Discuss preliminary flood emergency response plan (FERP) requirements (Section 5).



5. Prepare a compliance assessment in accordance with Queanbeyan-Palerang Regional Council's (**Council**) flood development controls (Section 6).

#### 1.2 Proposed Activity

Specifically, the project involves the following:

- Use of the former Council administration building as part of the new Bungendore North Campus High School;
- New demountable classrooms, landscaping, outdoor play areas, shade structure and basketball court;
- On site staff parking which utilises the existing car park and access from Majara Street; and
- Public domain upgrades to part Lot 1 DP 1276279 (previously Majara Street Road reserve) and part Lot 1 DP 1276282 to enable kiss and drop from Majara Street and pedestrian connectivity to surrounding areas.

Refer to Attachment A for the proposed Site layout.

#### 1.3 Previous Documentation

MA previously prepared flood-related documentation for a State Significant Development Application (SSD-14394209) for the construction of a new permanent high school that proposed significantly larger works proposed under this application. This application did not proceed and was withdrawn. The previous proposal covered a larger area than the new Bungendore North Campus High School, including land north of the Site (the proposed agricultural plot) and west of Majara Street. From a flooding perspective, the scheme proposed under SSD-14394209 was significantly larger than works proposed under this application and incorporated additional sites including No. 2 Majara Street, No. 68 Turallo Terrace and encroached further into the Mick Shard Oval. The previous MA flooding documentation is therefore relevant to the subject development.

MA previously prepared the following flood-related documentation for the previous high school proposal:

- Flood Assessment, New High School in Bungendore (April 2024, REF: P2008007JR01V04, the MA Flood Report). Full flood assessment details are provided in the MA Flood Report including site description, hydrologic and hydraulic model setup, validation against Council's adopted flood study (Worley Parsons (2014) Bungendore Floodplain Risk Management Study), discussion of Site flood characteristics, preliminary FERP comments, compliance with Council's flood development controls and responses to relevant government agencies.
- 2. Construction Stage Flood Emergency Response Plan (FERP): New High School in Bungendore (April 2024, REF: P2008007JR02V06, the **MA Construction FERP**), which provided emergency response details / strategies for the construction stage of the proposed school.
- 3. Operational Stage Flood Emergency Response Plan (FERP): New High School in Bungendore (April 2024, REF: P2008007JR03V01, the **MA Operational FERP**), which provided emergency response details / strategies for the operational stage of the proposed school.



#### 2 Site Flood Mechanisms and Characteristics

As discussed in the MA Flood Report, the Site is located in the Turallo Creek catchment and is approximately 800 m upstream of the confluence with Halfway Creek. Flood maps were previously prepared for the Site based on the MA Flood Report for the 1% annual exceedance probability (**AEP**) with and without climate change and probable maximum flood (**PMF**) events.

Relevant flood maps from the MA Flood Report have been updated to reflect the Site (subject of this report) and proposed Site layout, and have been reproduced in Attachment B, with map references summarised in Table 1.

Flood Condition Scenario	Critical Duration Flood Event	Water Level & Depth	Water Velocity	Provisional Hydraulic Hazard Categories <sup>2</sup>	Water Level Afflux
	1% AEP	FL01	FL02	FL03	-
Existing Conditions	1% AEP (CC <sup>3</sup> )	FL04	FL05	FL06	-
	PMF	FL07	FL08	FL09	-
	1% AEP	FL10	FL11	FL12	-
Proposed Conditions	1% AEP (CC <sup>3</sup> )	FL13	FL14	FL15	-
	PMF	FL16	FL17	FL18	-

 Table 1
 Flood map drawing references in Attachment B (MA MapSet P2008007MS01).<sup>1</sup>

Notes

- <sup>2</sup> ARR flood hazard categories are based on ARR flood hazard curve (2019) definitions and are shown in Figure 1.
- <sup>3</sup> Climate change scenario based on 20.2% increased rainfall intensity in accordance with the ARR Data Hub (April 2024). We note that the procedure to estimate the 1% AEP with climate change has been updated since the preparation of this assessment, however no material change to Site flood characteristics is expected given the Site is outside the modelled PMF extents.

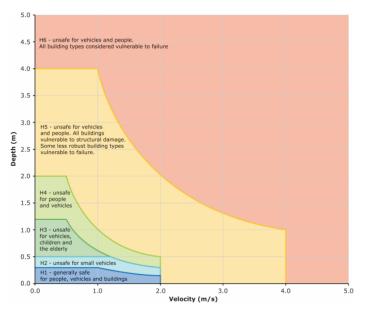


Figure 1: Flood hazard curves (Geoscience Australia, 2019).

<sup>&</sup>lt;sup>1</sup> Flood results have been filtered to show areas of greater than 100 mm depth.



Based on the previous flood modelling and updated flood maps:

- 1. The Site is not affected by mainstream flooding from either Turallo Creek or Halfway Creek.
- 2. The Site is unaffected by flooding in all modelled flood events up to and including the PMF, and therefore the Site is not considered flood liable.
- 3. Despite indications of flooding within the Site in all modelled events, these areas only exist as a result of the direct rainfall modelling approach which causes puddles within trapped low points on the model ground surface, and are not considered to be floodwaters.
- 4. The relevant flood levels for the Site occur at Turallo Creek approximately 200 m northeast of the Site, and are:
  - a. 693.0 mAHD in the 1% AEP event.
  - b. 693.1 mAHD in the 1% AEP with climate change event.
  - c. 694.5 mAHD in the PMF event.
- 5. By comparison, the survey provided in the MA Flood Report indicates existing Site land levels are 696.5 mAHD at minimum, further indicating the Site is flood free up to and including the PMF.

#### **3** Potential Flood Impacts and Risks

As the subject Site is flood free in the 1% AEP (with and without climate change) and PMF events, no offsite impacts to the floodplain environment are expected as a result of the proposed development.

#### 4 Minimum Floor Levels

We note the following regarding minimum floor levels for the proposed development:

- 1. According to the Palerang Development Control Plan (**DCP**) 2015, the FPL is the 1% AEP flood level plus 0.5 m freeboard.
- 2. As discussed at Section 2, the peak 1% AEP flood level at Turallo Creek 200 m northeast of the Site is 693.0 mAHD, hence the FPL is 693.5 mAHD.
- 3. Ground finished floor levels (**FFL**s) for the new Bungendore North Campus High School are approximately 698.0 mAHD (refer Attachment A), and both the existing buildings and proposed demountables are proposed to be elevated above the existing ground level, hence the minimum floor level requirement is achieved.

#### 5 Preliminary Flood Emergency Response Plan Comments

As discussed at Section 1.3, MA prepared an operational stage FERP which included the Site. Full details of flood emergency response measures are provided in the MA Operational FERP.

Although the MA Operational FERP was prepared for the scheme proposed under SSD-14394209, it covers the subject Site and is the same development type (high school), hence an updated FERP



is not required and the activity can rely on the existing FERP submitted for the SSD proposal. We provide the following comments based on the MA Operational FERP to mitigate flooding risks:

- 1. All proposed development elements are not affected by flood events up to and including the PMF, and access to flood free land is available for all Site occupants on the ground floor.
- 2. The surrounding area will be affected by flooding caused by large-scale events. Such large-scale flood events will be widely anticipated several days in advance.
- 3. The surrounding area is not subject to short duration overland flooding and hence there will be sufficient time for Site management to receive flood warnings and pre-emptively close the school if required.
- 4. In the unlikely scenario that persons are on-Site during an unanticipated major flood event, evacuation is recommended. The proposed evacuation route is to travel south across Gibraltar Street to Bungendore Public School, a nominated flood evacuation centre. The proposed evacuation route from the Site to Bungendore Public School is outside the PMF extents, hence reliable pedestrian and vehicular access is available.
- 5. Site management should be subscribed to the following systems and may be alerted to flood warnings via the following mechanisms:
  - a. State Emergency Service (**SES**) emergency alert telephone warning system.
  - b. BOM alerts and press releases.
  - c. Weather apps (e.g. 'Early Warning Network').
  - d. Media warnings (TV, radio, internet etc.).
  - e. Police and / or SES door knocking.

#### 6 Compliance Assessment

Flood specific controls are provided in the Palerang DCP (2015) at Section B9 'Flood Planning'. A compliance assessment for the proposed development based on Section B9 is summarised in Table 2 based on the controls for a residential development, since the Palerang Council DCP does not include specific land use requirements for schools, and residential development flood planning requirements are more strict than other land uses.

Table 2 demonstrates that all the applicable flood planning requirements for the subject Site are effectively addressed, and compliance with the Palerang Council DCP is achieved.

#	Palerang Council DCP Requirement	Compliance Assessment
	B9.1 General	
1	<ol> <li>Consideration will be given to development on land below the flood planning level, but only if it is not located within a floodway or high hazard area as stated in the Floodplain Development Manual.</li> </ol>	(1) As discussed at Sections 2 and 4, the Site is located above the FPL, hence this control is satisfied.

#### Table 2Compliance with Palerang DCP (2015) flood planning controls.

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#		Palerang Council DCP Requirement		Compliance Assessment
2	2)	Any portion of any building that may be subject to the effects of flood waters is to be built from flood compatible materials (see Appendix B for suggested materials).	(2)	As discussed at Section 2, the proposed development is located outside the PMF extents. Therefore, no proposed buildings will be subject to the effects of flood waters and this control is not applicable.
3	3)	All services associated with the development are to be adequately flood proofed.	(3)	The proposed development is not affected by flood events up to and including the PMF, hence this control is not applicable.
4	4)	No on-site sewage management system shall be located within a flood planning area.	(4)	No on-site sewage management system is proposed.
	B9.	2 Residential – New Development		
5	1)	Developments designed to cater for vulnerable sections of the community (such as seniors housing) are not suitable for land identified as being a Flood Planning Area.	(5)	The development can be considered to cater for vulnerable sections of the community (children); however, the proposed development area is not affected by flooding up to and including the PMF event and hence this control is not applicable.
6	2)	Floor levels of habitable rooms are to be at or above the Flood Planning Level.	(6)	Refer to (1).
7	3)	Flood safe access and emergency egress for all flood events up to the 1% AEP event plus 500mm freeboard is to be provided.	(7)	Refer to (1) And Section 5. Given that the Site and evacuation route is outside the PMF extents, flood safe access and emergency egress is provided in all flood events up to and including the PMF.
8	4)	Residential garages are to be at or above the 1% AEP level. Where this is impractical, garages are as to be as high as practical and electrical points are to be at or above the Flood Planning Level.	(8)	No garages are proposed.
	B9.	3 Residential Development – Extension to Existing	g Dwe	elling
9	1)	<ul> <li>Extensions with a floor area up to 35 m<sup>2</sup> may be approved with floor levels below the 1% AEP flood level if the applicant can demonstrate that:</li> <li>no practical alternative exists, and</li> <li>the level of hazard will not increase.</li> </ul>	(9)	As discussed at (1), the proposed development is above the FPL, hence this control is not applicable.
10	2)	Extensions with a floor area up to 50 m <sup>2</sup> may be approved with floor levels at or above the 1% AEP flood level but less than the Flood Planning Level if the applicant can demonstrate that: • no practical alternative exists, and • the level of hazard will not increase.	(10)	Refer to (9).
	B9.	8 Fencing		
11	1)	Fencing construction and materials are to allow floodwaters to equalise on either side.	(11)	The proposed development is located above the PMF level, hence any proposed fencing around the proposed buildings will not impact flood characteristics.
12	2)	Fencing construction and materials are to safely allow floodwaters or debris to pass.	(12)	Refer to (11).



#### 7 Summary and Recommendations

In summary:

- 1. The Site is above the PMF level, and therefore overall Site flood risks are negligible and proposed flood characteristics will be consistent with existing conditions.
- 2. Pre-emptive closure of the Site in the case of large-scale flooding is the preferred emergency response, and there will likely be several days warning prior to such flood events.
- 3. In the unlikely scenario that persons are on-Site during an unanticipated major flood event, safe evacuation to Bungendore Public School is available in all flood events up to and including the PMF.
- 4. The compliance assessment demonstrates that the Site can be developed in accordance with Council flood planning requirements, indicating that the proposed development is supportable from a flood management perspective.

We recommend that the FERP procedures outlined in the MA Operational FERP are followed once the new Bungendore North Campus High School becomes operational.

Overall, the proposed activity is not likely to significantly affect the environment in relation to flood related matters.

If you require any further information, please do not hesitate to contact our offices.

#### For and on behalf of

#### Martens & Associates Pty Ltd

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Daniel Dhiacou MEngSc, BEng (Hons1), DipEngPrac Principal Civil Engineer / Flooding Lead



Attachment A – Proposed Site Layout

# **BUNGENDORE HIGH SCHOOL - NORTH CAMPUS** (TEMPORARY) NSW DEPARTMENT OF EDUCATION

## MAJARA STREET, BUNGENDORE NSW 2621

## **ARCHITECTURAL DRAWING REGISTER (REF)**

DRAWING NUMBER	SHEET NAME	SHEET SIZE	SHEET SCALE	REVISION
AR REF 0000	COVER SHEET, DRAWING LIST AND SITE CONTEXT	A1	N/A	P12
AR REF 1000 AR REF 1100	SITE ANALYSIS PLAN (SITE SHOWN PER EXISTING) PUBLIC DOMAIN AND LANDSCAPING PLAN	A1 A1	1:1000 1:200	P12 P12
AR REF 1300 AR REF 1301	EXISTING GROUND FLOOR PLAN EXISTING SITE AND ROOF PLAN	A1 A1	1:100 1:100	P12 P12
AR REF 2000 AR REF 2001	OVERALL CAMPUS PLAN - GROUND FLOOR OVERALL CAMPUS PLAN - SITE AND ROOF PLAN	A1 A1	1:200 1:200	P12 P12
AR REF 3000	OVERALL BUILDING ELEVATIONS	A1	1:200	P12
AR REF 3400	OVERALL BUILDING SECTIONS	A1	1:200	P12
AR REF 8000 AR REF 8001	SHADOW ANALYSIS - EXISTING SHADOW ANALYSIS - PROPOSED	A1 A1	1:1000 1:1000	P12 P12
AR REF 9900	SCHEDULE OF MATERIALS AND FINISHES	A1	1:200	P12

CLIENT NSW DEPARTMENT OF EDUCATION





PROJECT MANAGEMENT COLLIERS T+ 02 9257 0222 CIVIL AND STRUCTURAL ENGINEERS ENSTRUCT GROUP T+ 02 8904 1444 MEC / ELE / ESD / ACOUSTICS / VT / WIND / FIRE **ARUP AUSTRALIA** T+ 02 9320 9320

TOWN PLANNING URBIS T+ 02 8233 9900 TRANSPORT STANTEC AUSTRALIA T+ 02 9493 9700 WASTE MANAGEMENT **GEOSYNTEC CONSULTANTS** T+ 02 9251 8070

## **GENERAL NOTES:**

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- REFER TO STRUCTURAL ENGINEER DETAILS FOR STRUCTURAL ITEMS.
- NEW GLAZED ASSEMBLIES ARE TO COMPLY WITH AS 2047 OR AS 1288 AS RELEVANT. •
- TERMITE RISK MANAGEMENT IF REQUIRED IS TO BE IN ACCORDANCE WITH CLAUSE B1D4(i) AND AS 3660.1-2014.
- FIRE HAZARD PROPERTIES OF NEW INTERNAL LININGS, MATERIALS OR ASSEMBLIES USED IN THE BUILDINGS • ARE REQUIRED TO COMPLY WITH C2D11 AND SPECIFICATION 7 OF BCA.
- THE DOORS TO THE EXISTING COMMS AND ELECTRICAL CUPBOARDS SHALL BE UPGRADED AS FOLLOWS:
- INSTALLATION OF SMOKE SEALS INSTALLATION OF A METAL SHEET TO THE BACK OF THE DOOR LEAF.
- INSTALLATIONS IN EXITS AND PATHS OF TRAVEL ARE TO COMPLY WITH BCA D3D8.
- THE FLOOR SURFACE OF PROPOSED RAMPS MUST HAVE A SLIP-RESISTANCE CLASSIFICATION NOT LESS THAN THAT LISTED IN TABLE D3D15 WHEN TESTED IN ACCORDANCE WITH AS 4586-2013 AMDT 1.
- GOINGS AND RISERS OF PROPOSED STAIRWAYS ARE REQUIRED TO BE DESIGNED TO COMPLY WITH BCA •
- D3D14, INCLUDING SLIP RESISTANCE REQUIREMENTS. LANDINGS OF STAIRWAYS AND RAMPS MUST COMPLY WITH BCA D2.14, INCLUDING SLIP RESISTANCE • REQUIREMENTS.
- THRESHOLDS AT DOORWAYS ARE TO COMPLY WITH BCA D3D16. •
- HANDRAILS ARE TO BE PROVIDED TO NEW STAIRS AND RAMPS IN ACCORDANCE WITH BCA D3D22. HANDRAILS MUST COMPLY WITH CLAUSE 12 OF AS 1428.1-2009 AMDT 1.
- DOOR HARDWARE TO NEW DOORS IS TO COMPLY WITH BCA D3D26.
- FIRE HOUSE REEL COVERAGE TO BE CONFIRMED BY HYDRAULIC ENGINEER
- HYDRANT SYSTEM TO BE CONFIRMED BY HYDRAULIC ENGINEER.
- PORTABLE FIRE EXTINGUISHERS MUST BE PROVIDED THROUGHOUT IN ACCORDANCE WITH AS 2444-2001.
- EMERGENCY LIGHTING IS REQUIRED TO ALL PARTS OF THE EXISTING MAIN BUILDING (REFERRED TO AS BUILDING 1 IN ITEM 2.5 ABOVE) IN ACCORDANCE WITH AS 2293.1-2018.
- EXIT SIGNS MUST BE PROVIDED IN ACCORDANCE WITH BCA PART E4 & AS 2293.1-2018.
- WATERPROOFING OF NEW WET AREAS MUST COMPLY WITH BCA F2D2, F2D3 & AS 3740-2021.
- WHERE NEW FLOOR WASTES ARE INSTALLED, THE FLOOR TO THE FLOOR TO THE WASTE MUST BE COMPLYING WITH BCA F2D4 (150 - 1:80).
- STORMWATER DRAINAGE TO NEW BUILDINGS MUST COMPLY WITH AS/NZS 3500.3-2021. •
- SUBFLOOR VENTILATION IS REQUIRED TO THE NEW BUILDINGS IN ACCORDANCE WITH F1D8. ROOF COVERINGS TO NEW BUILDINGS MUST COMPLY WITH BCA F2D2 AND F2D3. •





## SITE CONTEXT PLAN 1

BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	<u> </u>	Project	Proj. Dir
CITY PLAN	Do not scale drawings. Verify all dimensions on site. Notify arch	nitect of all discrepancies	BUNGENDORE HIGH SCHOOL -	RD
T+ 02 8270 3500	Rev Date Description	Chkd Auth	NORTH CAMPUS (TEMPORARY)	ΝD
HYDRAULIC / FIRE DONNELLY SIMPSON CLEARY	<ul> <li>P5 04.02.25 FOR REVIEW AND COMMENTS</li> <li>P6 06.02.25 FOR REVIEW AND COMMENTS</li> <li>P7 26.02.25 FOR REVIEW AND COMMENTS</li> </ul>	PD RD PD RD PD RD	MAJARA STREET, BUNGENDORE NSW 2621	Job No. 240071
T+ 02 9416 1177	P8 07.03.25 FOR REVIEW AND COMMENTS	PD RD	Drawing Title	24007
FLOOD TTW NSW T+ 02 9439 7288	P9 17.03.25 FOR REVIEW AND COMMENTS P10 25.03.25 FOR REVIEW AND COMMENTS P11 26.03.25 FOR REVIEW AND COMMENTS P12 04.04.25 FOR REVIEW AND COMMENTS	PD RD PD RD PD RD PD RD PD RD	COVER SHEET, DRAWING LIST AND SITE CONTEXT	Drawing No

- THE EXISTING MAIN ENTRY DOORS CONTAIN AUTO OPEN DOORS. SHOULD THIS AUTO OPEN OPERATION BE • MAINTAINED, IT SHALL COMPLY WITH THE FOLLOWING:
- IT MUST BE ABLE TO BE OPENED MANUALLY UNDER A FORCE OF NOT MORE THAN 110 N IF THERE IS A MALFUNCTION OR FAILURE OF THE POWER SOURCE; AND IF IT LEADS DIRECTLY TO A ROAD OR OPEN SPACE IT MUST OPEN AUTOMATICALLY IF THERE IS A POWER FAILURE TO THE DOOR OR ON THE ACTIVATION OF A FIRE OR SMOKE ALARM ANYWHERE IN THE FIRE COMPARTMENT SERVED BY THE DOOR.
- THE EXISTING BUILDING CONTAINS EXIT DOORS THAT CONTAIN NIB LOCKS THAT DO NOT COMPLY WITH THIS CLAUSE. AN UPGRADE IS CONSIDERED NECESSARY. THE EXIT DOORS AND DOORS WITHIN A PATH OF TRAVEL MUST BE READILY OPENABLE WITHOUT A KEY FROM THE SIDE THAT FACES A PERSON SEEKING EGRESS BY:

1. A SINGLE HAND DOWNWARD ACTION ON A SINGLE DEVICE WHICH IS LOCATED BETWEEN 900 MM AND 1.1 M FROM THE FLOOR AND IF SERVING AN AREA REQUIRED TO BE ACCESSIBLE BY PART D4—

- BE SUCH THAT THE HAND OF A PERSON WHO CANNOT GRIP WILL NOT SLIP FROM THE HANDLE DURING THE OPERATION OF THE LATCH; AND HAVE A CLEARANCE BETWEEN THE HANDLE AND THE BACK PLATE OR DOOR FACE AT THE CENTRE GRIP SECTION OF THE HANDLE OF NOT LESS THAN 35 MM AND NOT MORE THAN 45 MM; OR
- 2. A SINGLE HAND PUSHING ACTION ON A SINGLE DEVICE WHICH IS LOCATED BETWEEN 900 MM AND 1.2 M FROM THE FLOOR
- ANY EXTERNAL GATES THAT PROVIDE EGRESS TO THE STREET SHALL BE READILY OPENABLE WITHOUT A KEY FROM THE SIDE THAT FACES A PERSON SEEKING EGRESS IN ACCORDANCE WITH STANDARD ABOVE. GLAZED ASSEMBLIES TO NEW BUILDINGS ARE TO COMPLY WITH BCA F3D4 & AS 2047-2014 AMDT 1 & 2 FOR THE RESISTANCE OF WATER PENETRATION.
- WALL CLADDING TO NEW BUILDING ARE TO COMPLY WITH BCA F3D5.
- SANITARY FACILITIES ARE TO BE PROVIDED IN ACCORDANCE WITH BCA PART F4. PROVIDE DETAILS OF STUDENT NUMBERS AND STAFF NUMBERS EXPECTED TO OCCUPYING THE BUILDINGS TO ALLOW US TO CALCULATE REQUIRED NUMBER OF SANITARY FACILITIES.
- WHERE NEW SANITARY COMPARTMENT DOORS SWING INTO THE SANITARY COMPARTMENT ROOM AND THE • HINGE SIDE OF THE DOOR IS LESS THAN 1.2 M FROM THE WC PAN, LIFT OFF HINGES ARE REQUIRED TO THE DOOR (BCA F4D8 (B)).
- ARTIFICIAL LIGHTING, WHERE REQUIRED BY BCA F6D5, MUST COMPLY WITH AS/NZS 1680.0. ROOMS NOT PROVIDED WITH NATURAL VENTILATION IN ACCORDANCE WITH BCA CLAUSE F6D7, ARE
- REQUIRED TO BE MECHANICALLY VENTILATED IN ACCORDANCE WITH AS 1668.2-2012 AMDT 1 & 2. PROVIDE DETAILS DEMONSTRATING COMPLIANCE. A COMMERCIAL KITCHEN MUST BE PROVIDED WITH A KITCHEN EXHAUST HOOD COMPLYING WITH AS 1668.1 AND AS 1668.2 WHERE—
- 1. ANY COOKING APPARATUS HAS—
- A TOTAL MAXIMUM ELECTRICAL POWER INPUT EXCEEDING 8 KW; OR A TOTAL GAS POWER INPUT EXCEEDING 29 MJ/HOUR; OR
- 2. THE TOTAL MAXIMUM POWER INPUT TO MORE THAN ONE APPARATUS EXCEEDS, PER M2 OF FLOOR AREA OF THE ROOM OR ENCLOSURE—
- 0.5 KW ELECTRICAL POWER; OR 1.8 MJ/HOUR GAS.

SUBJECT SITE BUNGENDORE HIGH SCHOOL NORTH CAMPUS - TEMPORARY

BUNGENDORE HIGH SCHOOL SOUTH CAMPUS - TEMPORARY

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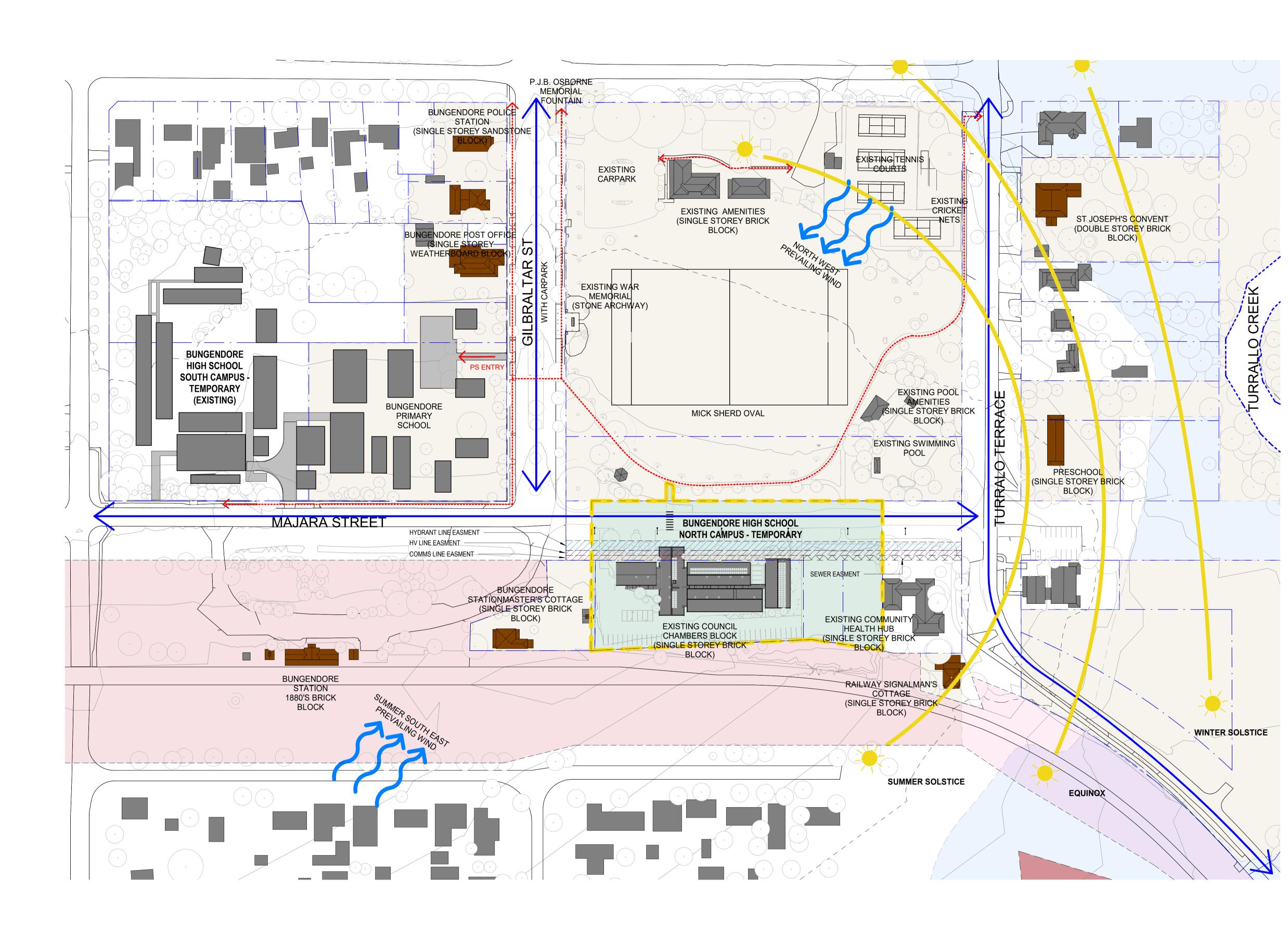


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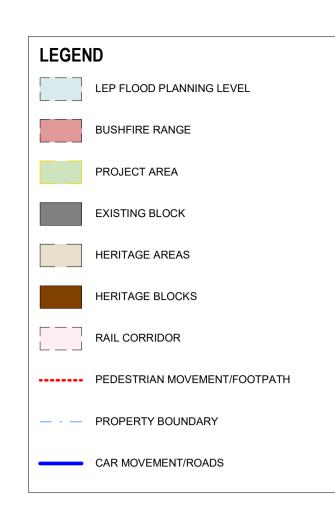
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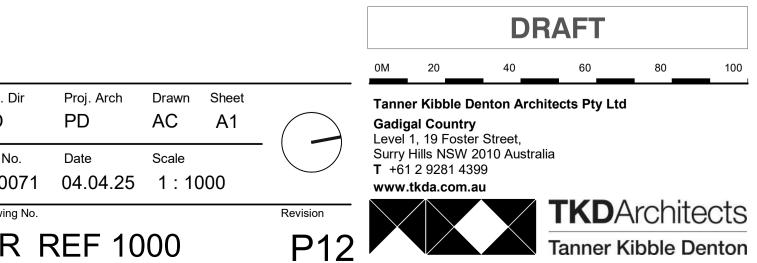
 WASTE MANAGEMENT

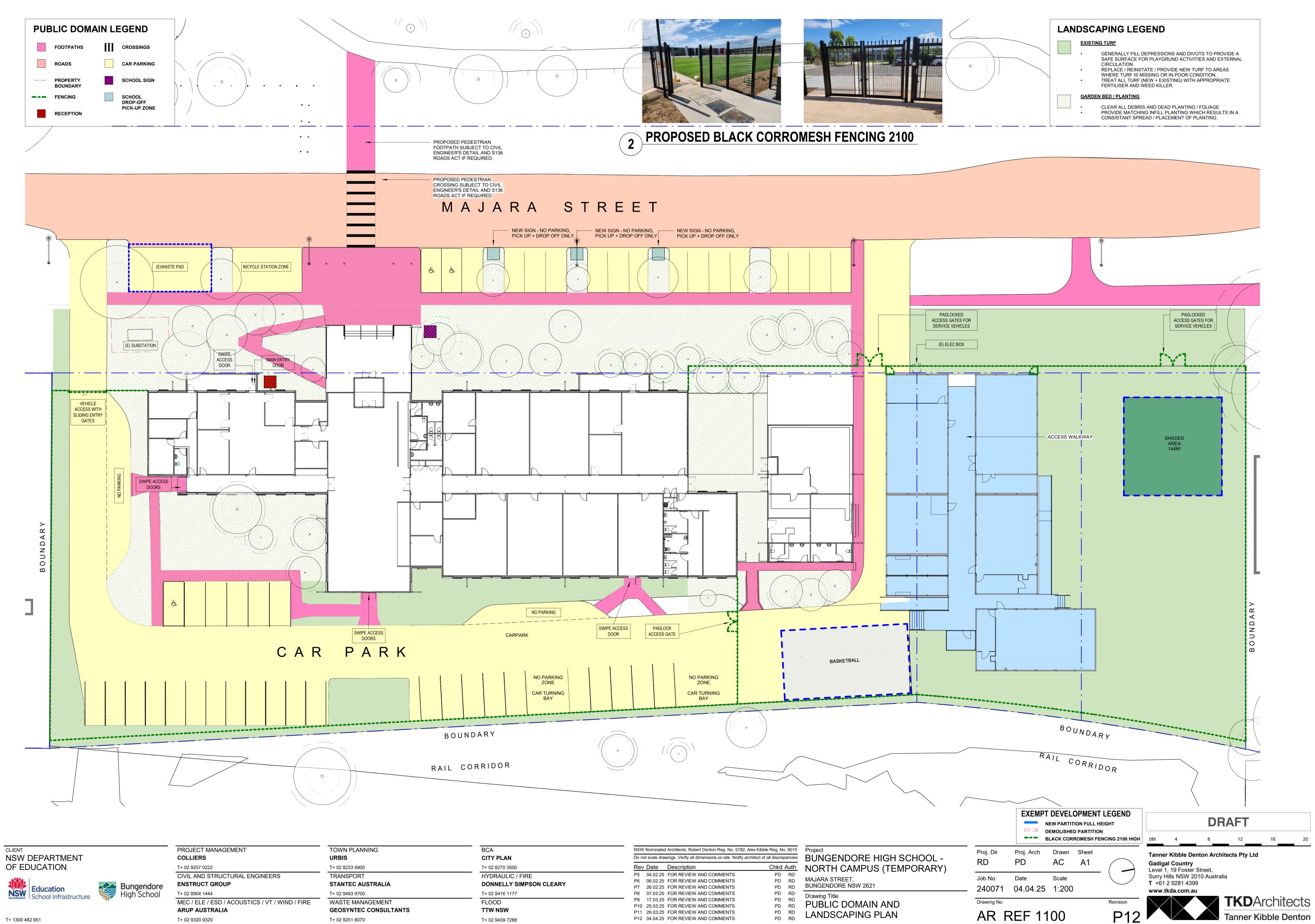
 GEOSYNTEC CONSULTANTS

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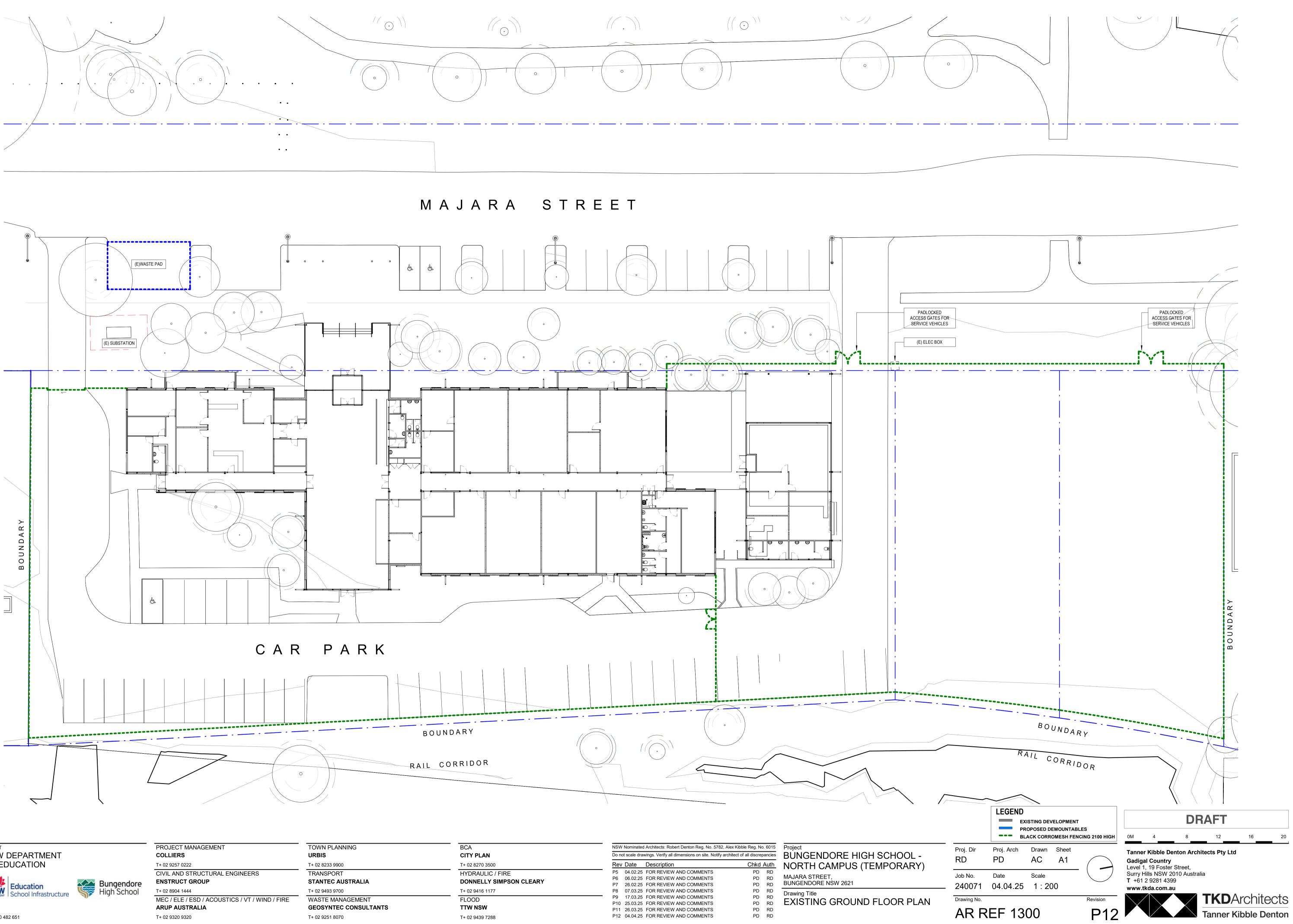




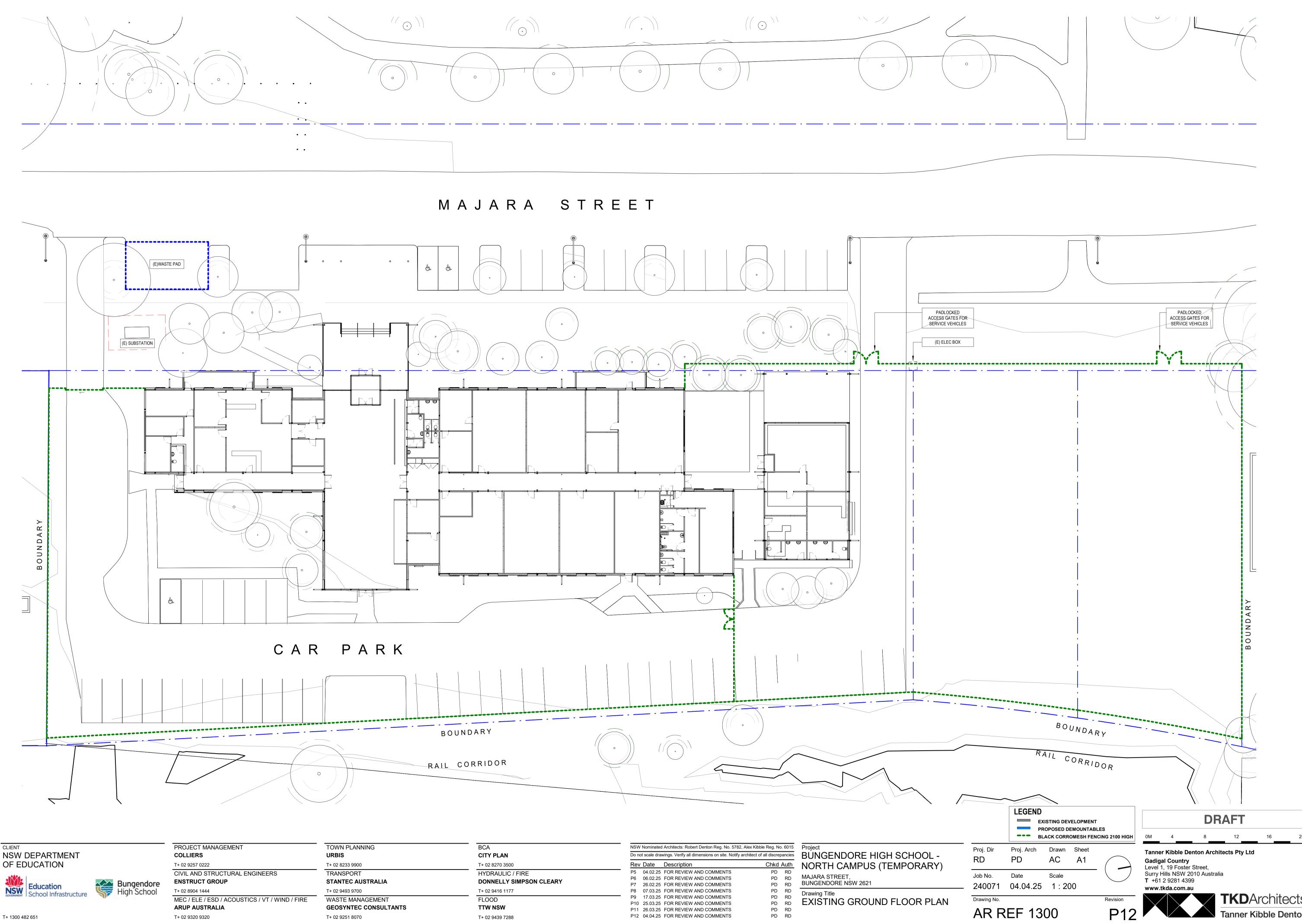
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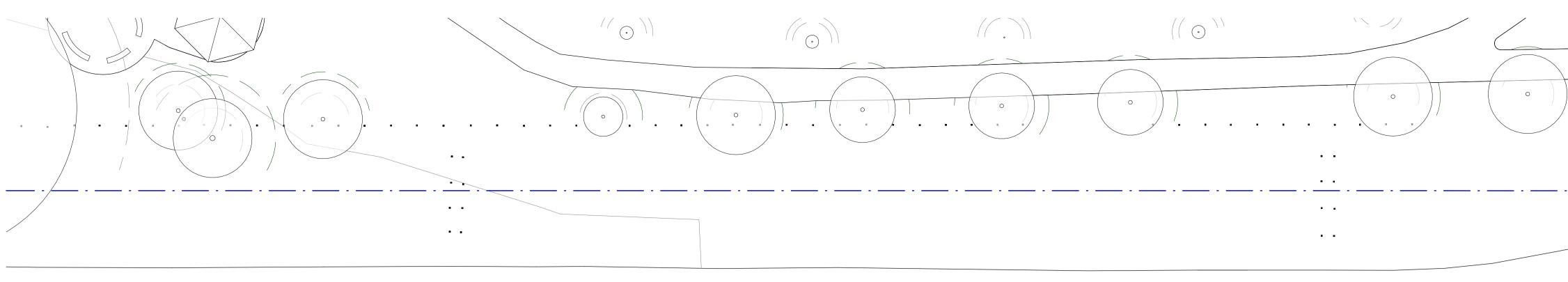
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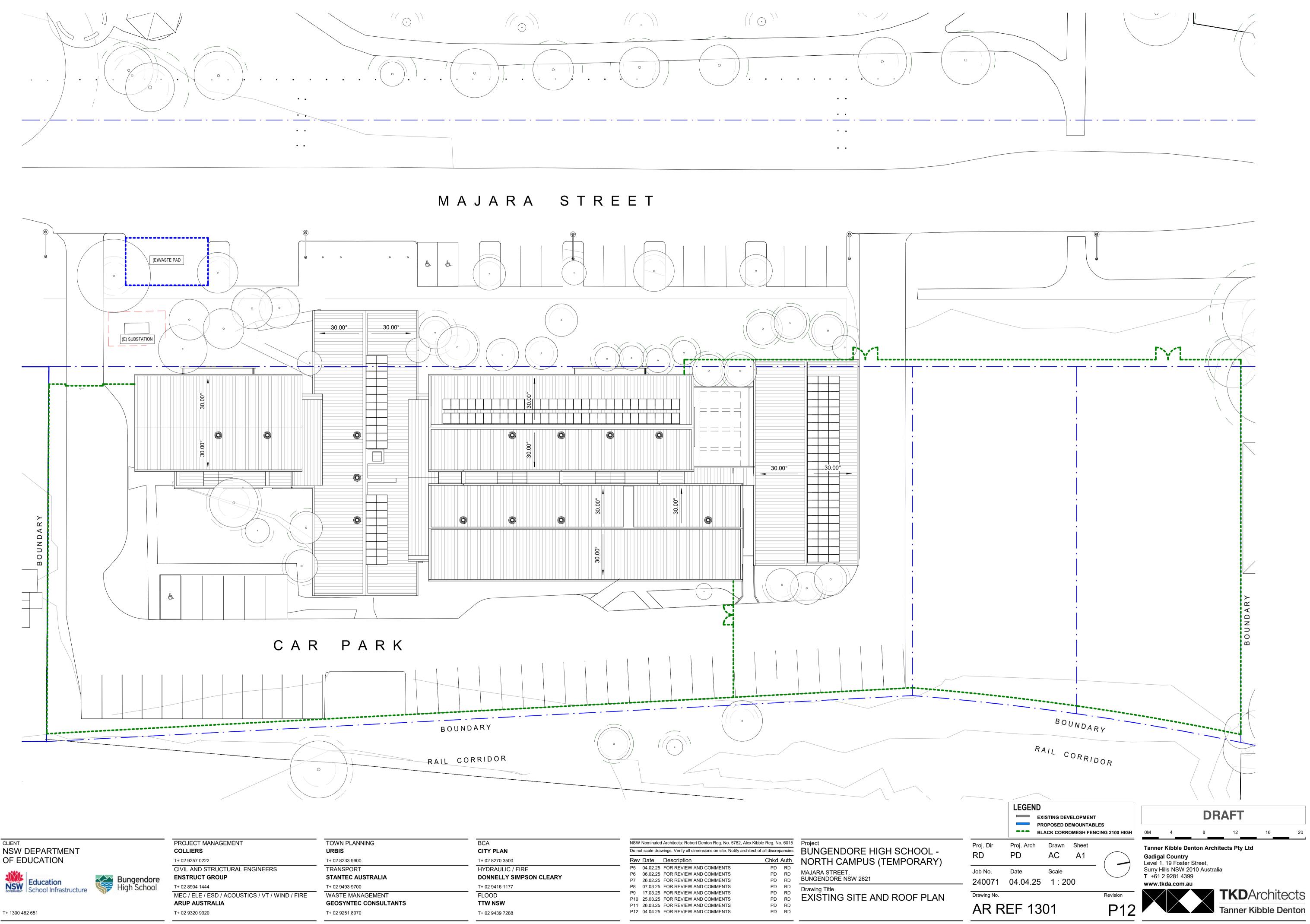




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BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, A	lex Kibble Reg. No. 6015	Project	Pro
CITY PLAN	Do not scale drawings. Verify all dimensions on site. Notify arc	BUNGENDORE HIGH SCHOOL -		
T+ 02 8270 3500	Rev Date Description	Chkd Auth	NORTH CAMPUS (TEMPORARY)	RD
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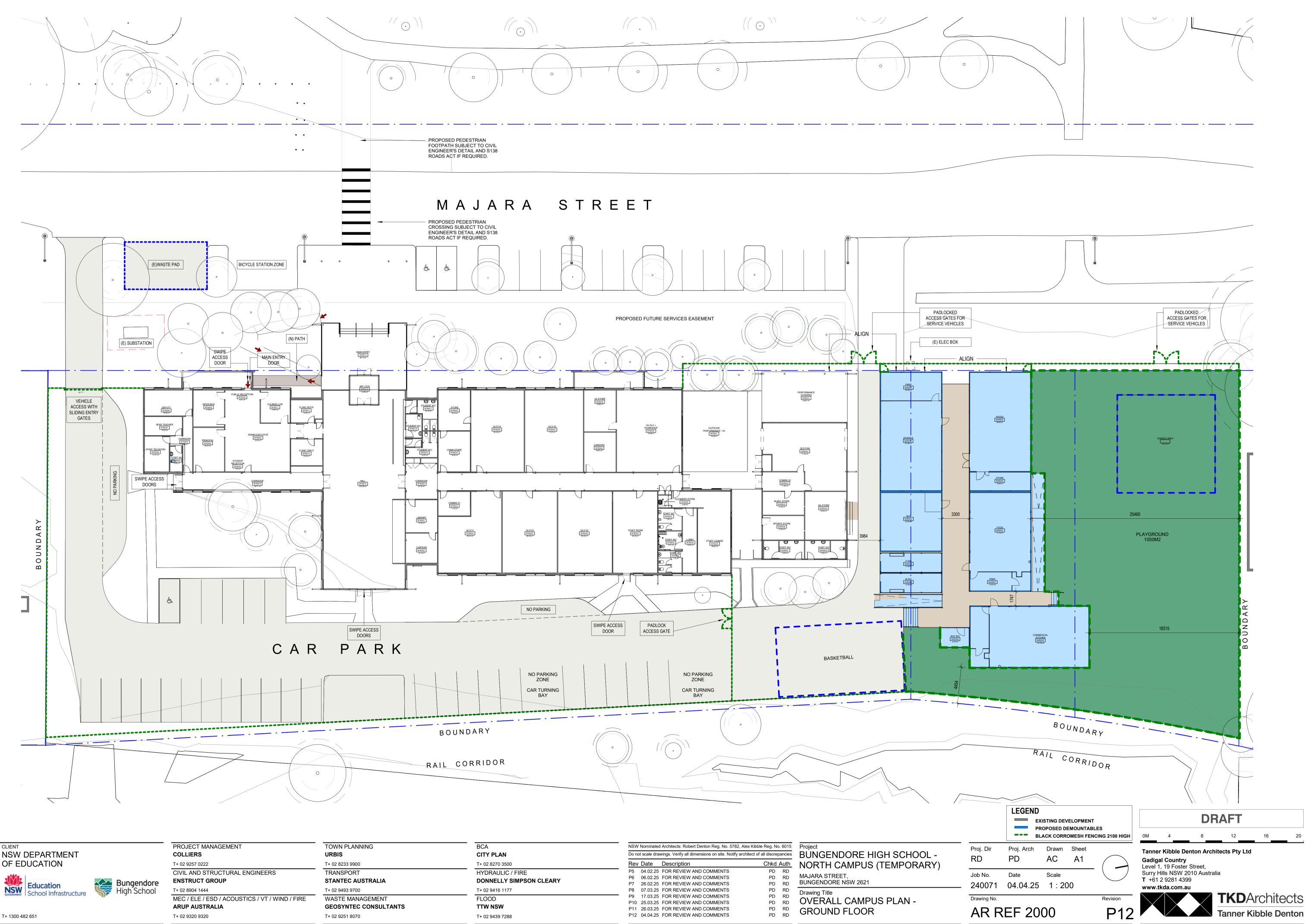
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BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	ex Kibble Reg. No. 6015	Project	Proj. [
CITY PLAN	Do not scale drawings. Verify all dimensions on site. Notify arc	hitect of all discrepancies	BUNGENDORE HIGH SCHOOL -	RD
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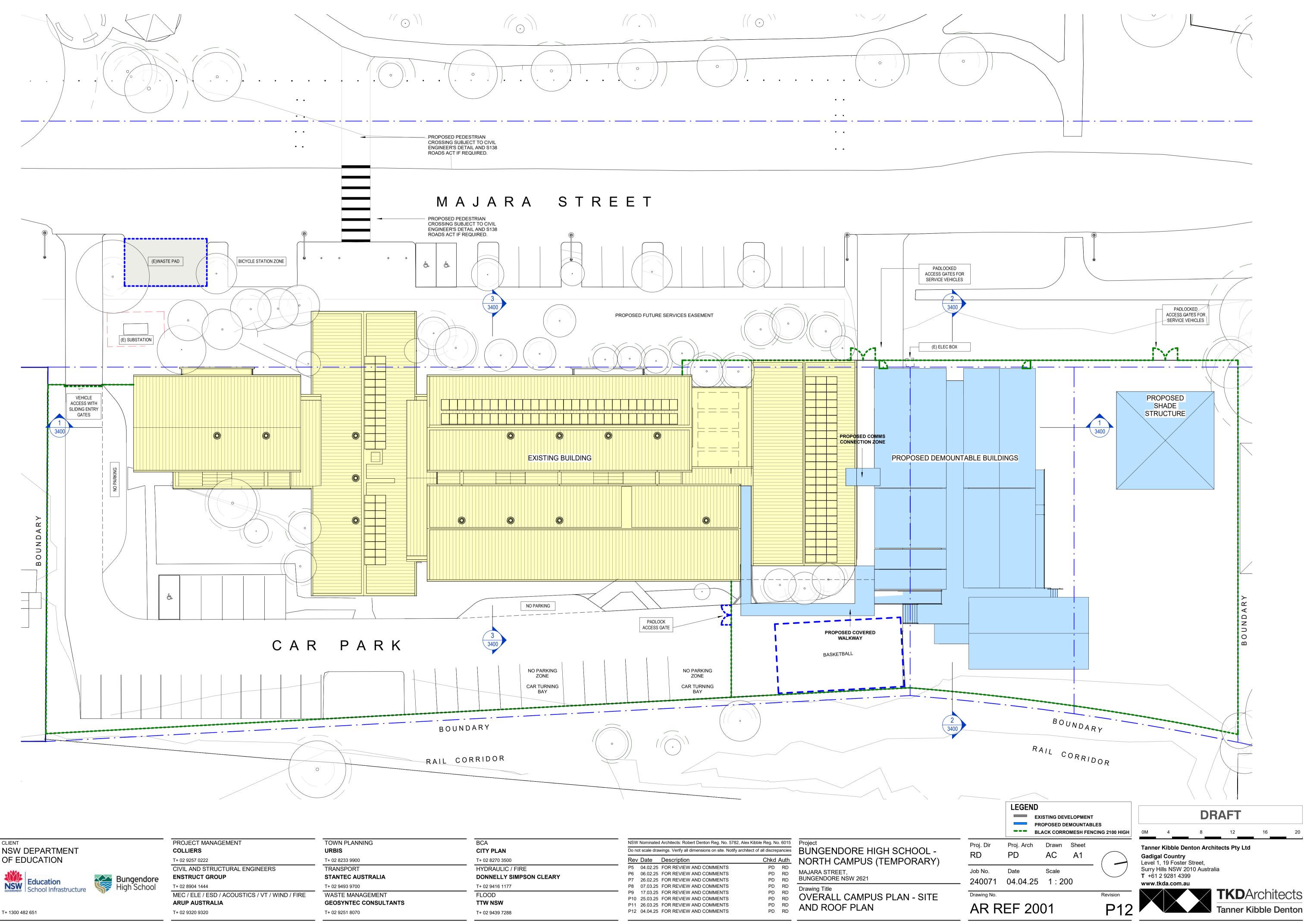


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BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	ex Kibble Reg. No. 6015	Project	Proj. Di
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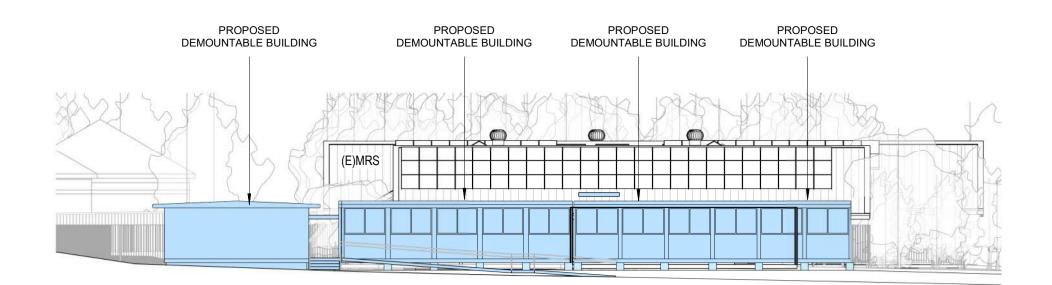




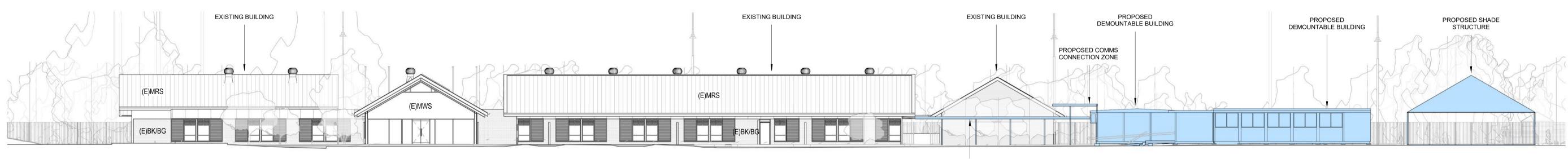




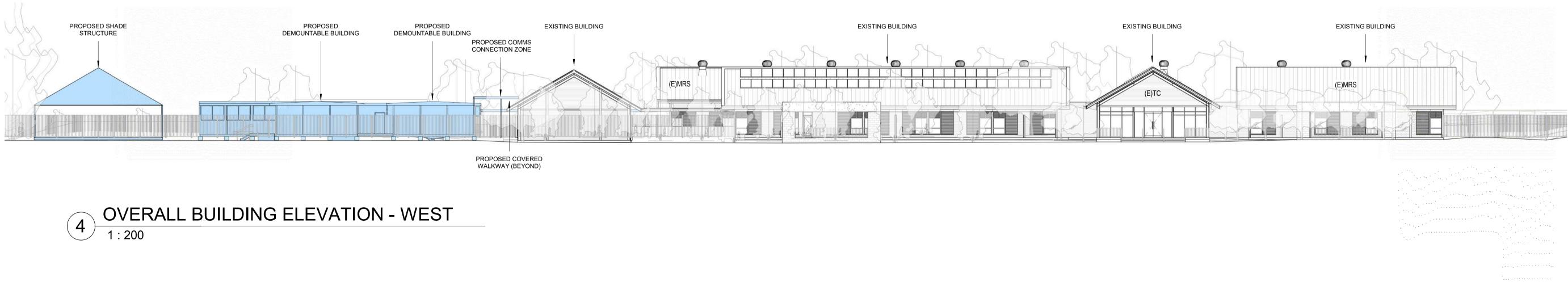
BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	ex Kibble Reg. No. 6015	Project	Proj. Dir
CITY PLAN	Do not scale drawings. Verify all dimensions on site. Notify arc	nitect of all discrepancies	BUNGENDORE HIGH SCHOOL -	RD
T+ 02 8270 3500	Rev Date Description	Chkd Auth	NORTH CAMPUS (TEMPORARY)	RD
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T+ 02 9416 1177 FLOOD <b>TTW NSW</b> T+ 02 9439 7288	P8 07.03.25 FOR REVIEW AND COMMENTS P9 17.03.25 FOR REVIEW AND COMMENTS P10 25.03.25 FOR REVIEW AND COMMENTS P11 26.03.25 FOR REVIEW AND COMMENTS P12 04.04.25 FOR REVIEW AND COMMENTS	PD RD PD RD PD RD PD RD PD RD PD RD	Drawing Title OVERALL CAMPUS PLAN - SITE AND ROOF PLAN	Drawing I



## **OVERALL BUILDING ELEVATION - NORTH** 1 1:200



**OVERALL BUILDING ELEVATION - EAST** 3 1:200







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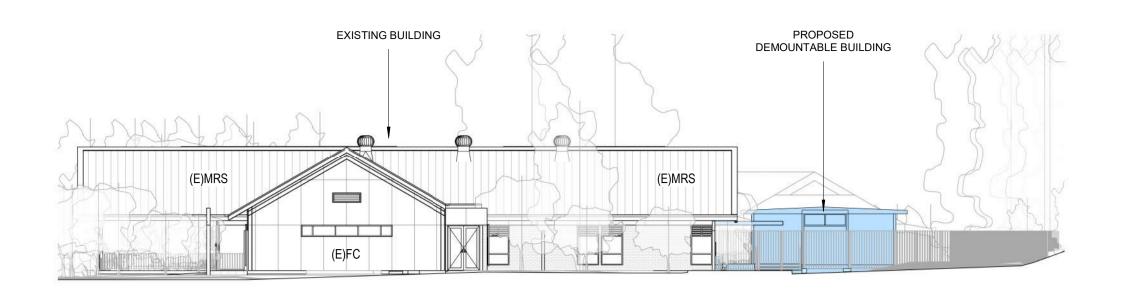


PROJECT MANAGEMENT COLLIERS T+ 02 9257 0222 CIVIL AND STRUCTURAL ENGINEERS ENSTRUCT GROUP Bungendore High School T+ 02 8904 1444 MEC / ELE / ESD / ACOUSTICS / VT / WIND / FIRE ARUP AUSTRALIA

T+ 02 9320 9320

TOWN PLANNING URBIS T+ 02 8233 9900 TRANSPORT STANTEC AUSTRALIA T+ 02 9493 9700 WASTE MANAGEMENT GEOSYNTEC CONSULTANTS T+ 02 9251 8070

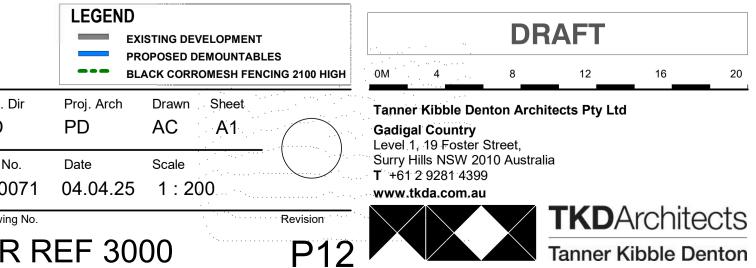
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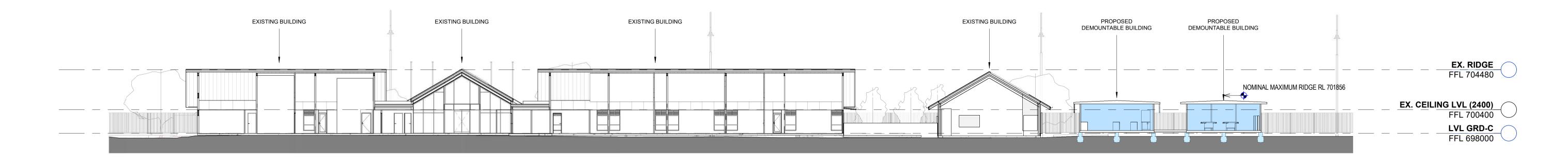


## **OVERALL BUILDING ELEVATION - SOUTH** 2 1:200

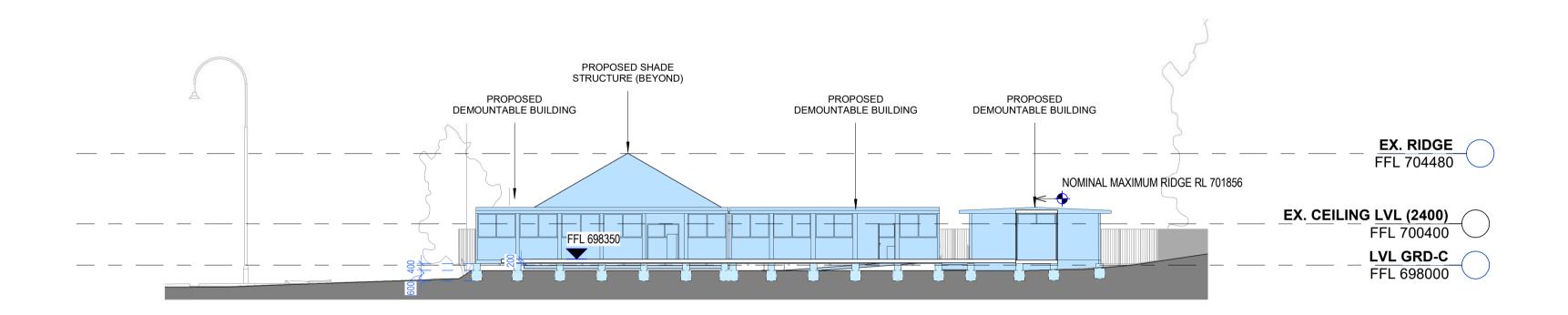
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BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	ex Kibble Reg. No. 6015	Project	Proj. Dir RD	
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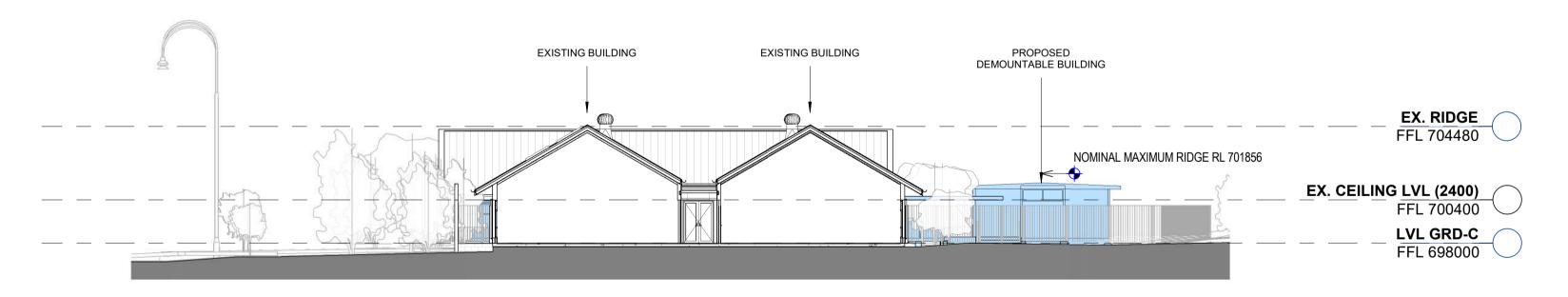




## **OVERALL BUILDING SECTION 01** 1 1 : 200

















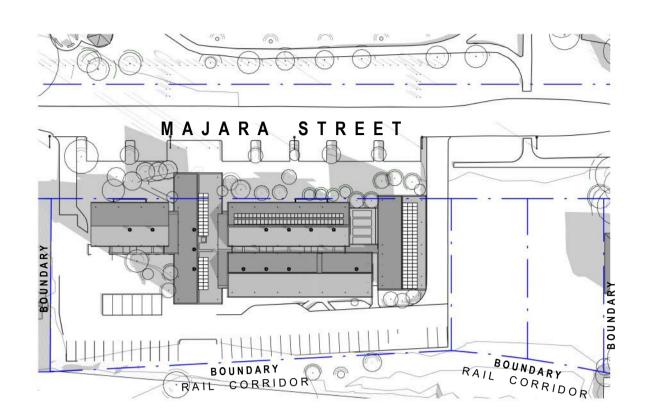
PROJECT MANAGEMENT COLLIERS T+ 02 9257 0222 CIVIL AND STRUCTURAL ENGINEERS ENSTRUCT GROUP T+ 02 8904 1444 MEC / ELE / ESD / ACOUSTICS / VT / WIND / FIRE ARUP AUSTRALIA T+ 02 9320 9320

TOWN PLANNING URBIS T+ 02 8233 9900 TRANSPORT STANTEC AUSTRALIA T+ 02 9493 9700 WASTE MANAGEMENT GEOSYNTEC CONSULTANTS T+ 02 9251 8070

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BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Ale	ex Kibble Reg. No. 6015	Project	Proj. Dir	Proj. Arch Drawn Sheet		
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T+ 02 8270 3500	Rev Date Description	Chkd Auth	NORTH CAMPUS (TEMPORARY)	RD	PD AC A1	Gadigal Country Level 1, 19 Foster Street,	
HYDRAULIC / FIRE DONNELLY SIMPSON CLEARY	<ul> <li>P5 04.02.25 FOR REVIEW AND COMMENTS</li> <li>P6 06.02.25 FOR REVIEW AND COMMENTS</li> <li>P7 26.02.25 FOR REVIEW AND COMMENTS</li> </ul>	PD RD PD RD PD RD	MAJARA STREET, BUNGENDORE NSW 2621	Job No. 240071	Date Scale 04.04.25 1 : 200	Surry Hills NSW 2010 Australia T +61 2 9281 4399 www.tkda.com.au	
T+ 02 9416 1177 FLOOD TTW NSW T+ 02 9439 7288	P807.03.25FOR REVIEW AND COMMENTSP917.03.25FOR REVIEW AND COMMENTSP1025.03.25FOR REVIEW AND COMMENTSP1126.03.25FOR REVIEW AND COMMENTSP1204.04.25FOR REVIEW AND COMMENTS	PD RD PD RD PD RD PD RD PD RD	Drawing Title OVERALL BUILDING SECTIONS	Drawing No.	REF 3400 P1	TKDAr	

**TKD**Architects Tanner Kibble Denton

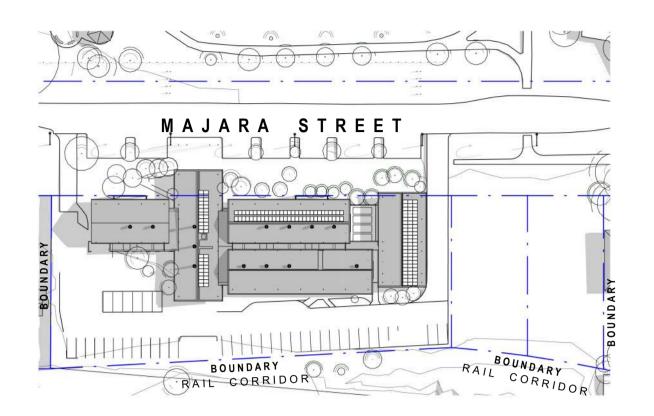


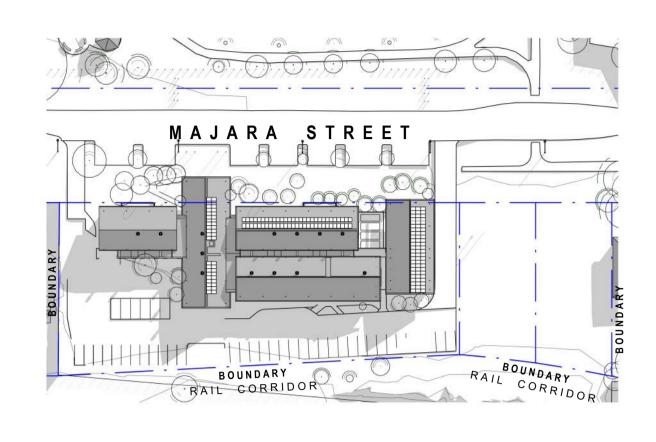




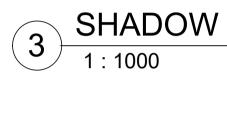




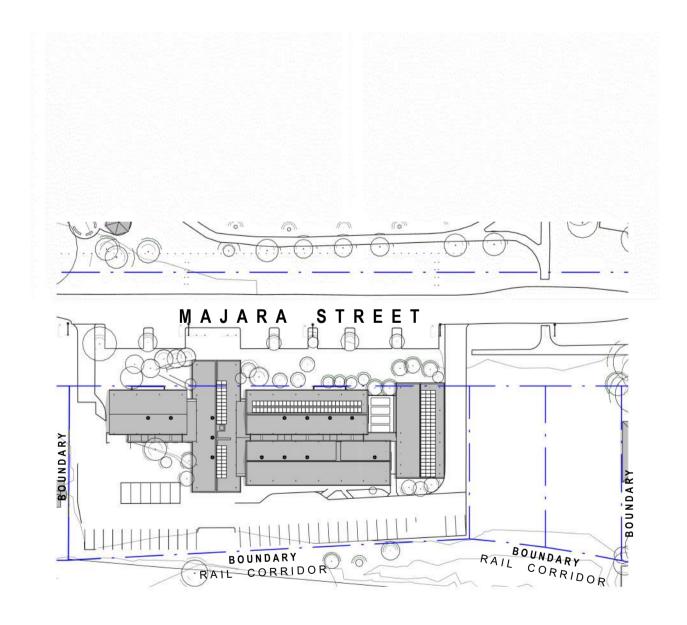


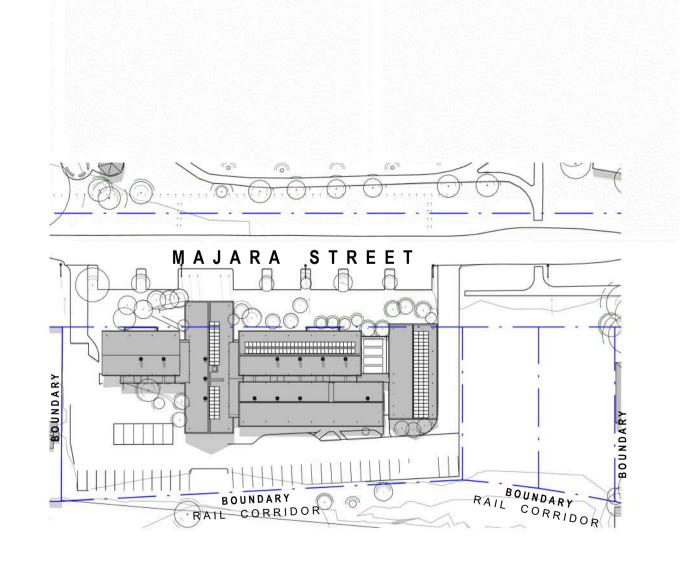






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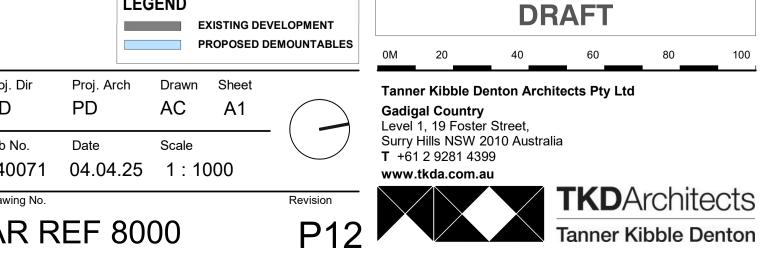




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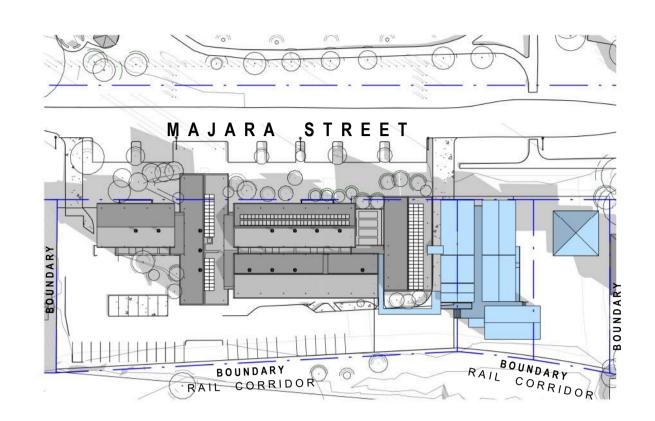


BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, A	NSW Nominated Architects: Robert Denton Reg. No. 5782, Alex Kibble Reg. No. 6015 Do not scale drawings. Verify all dimensions on site. Notify architect of all discrepancies			
CITY PLAN	Do not scale drawings. Verify all dimensions on site. Notify arc				
T+ 02 8270 3500	Rev Date Description	Chkd Auth	NORTH CAMPUS (TEMPORARY)		
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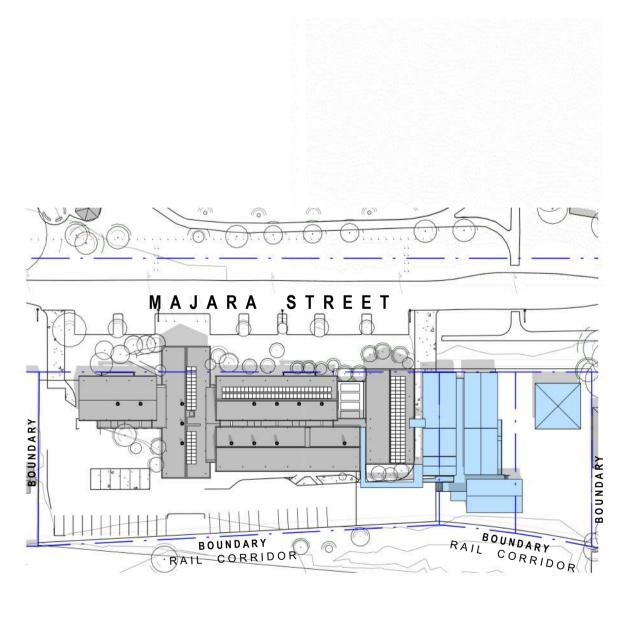


# 6 SHADOW ANALYSIS - DEC 21 - 1500 - EXISTING

# 3 SHADOW ANALYSIS - JUN 21 - 1500 - EXISTING

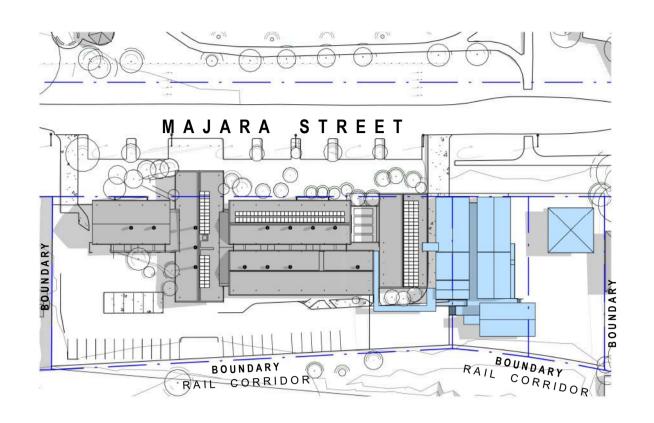


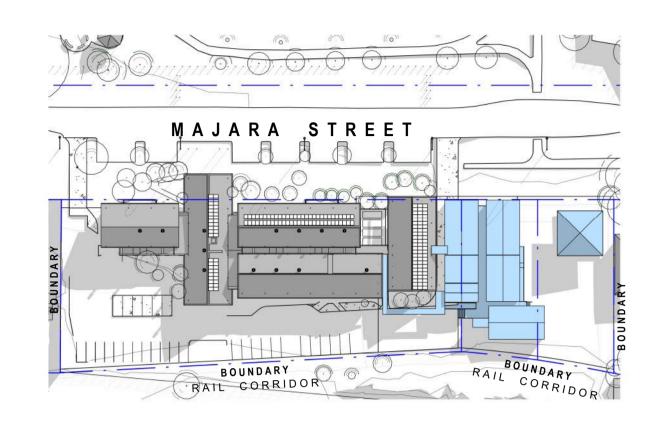
SHADOW ANALYSIS - JUN 21 - 0900 - PROPOSED 1 1:1000

















## SHADOW ANALYSIS - DEC 21 - 1200 - PROPOSED 5 1:1000

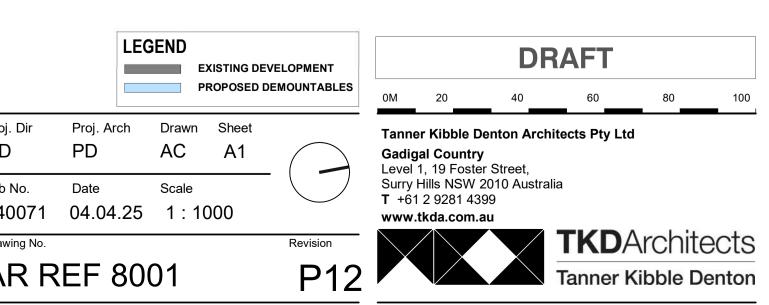


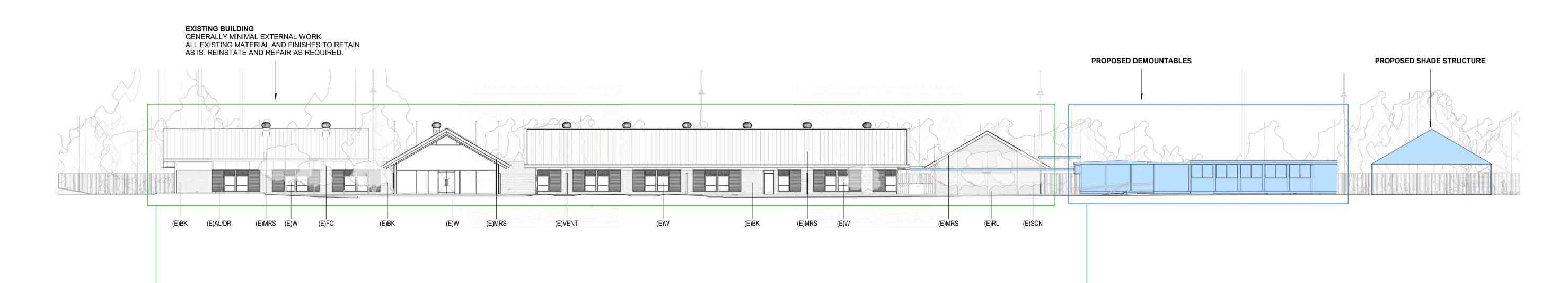
BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Al	lex Kibble Reg. No. 6015	Project	Proj. RD	
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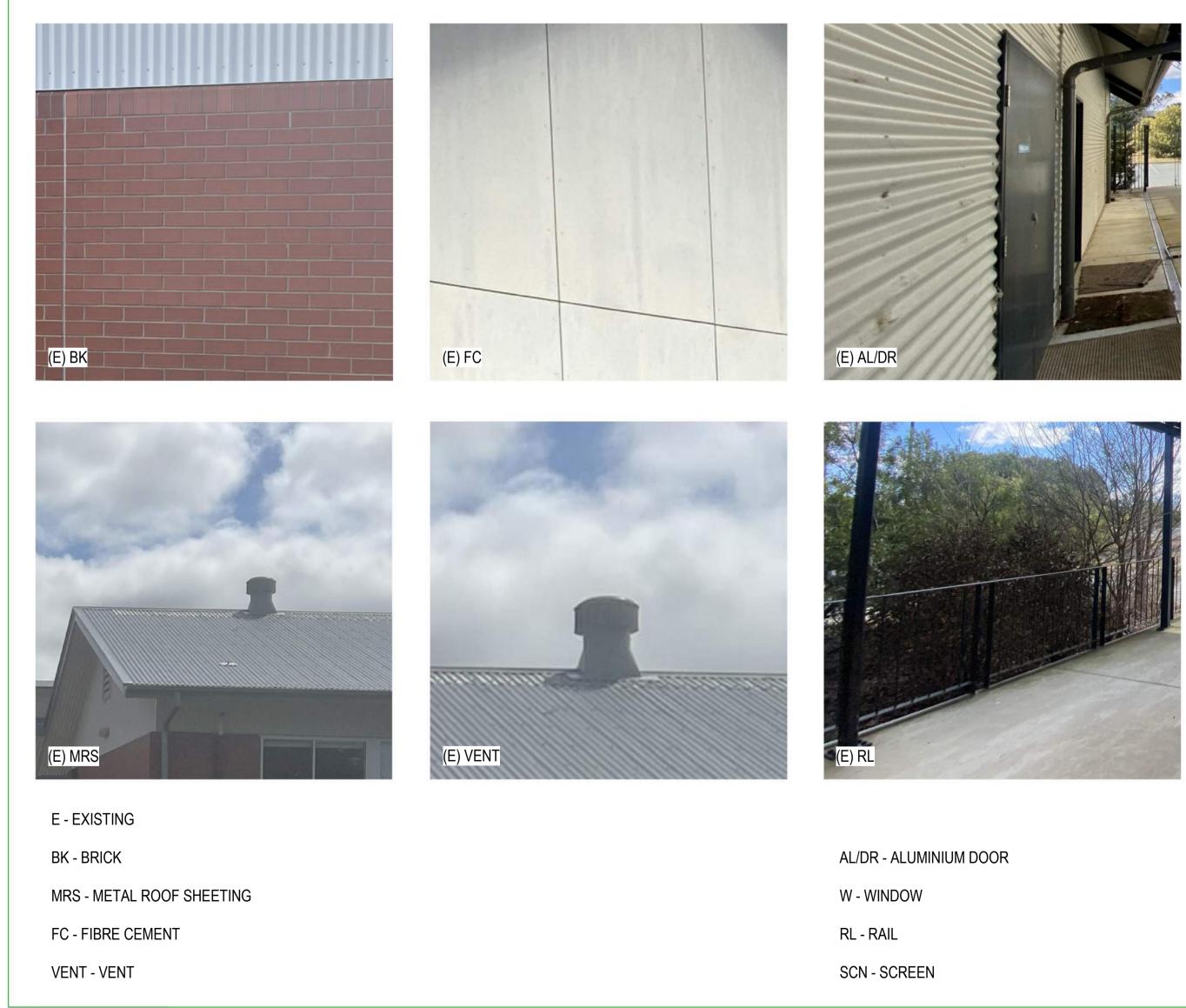
# SHADOW ANALYSIS - JUN 21 - 1500 - PROPOSED



# 6 SHADOW ANALYSIS - DEC 21 - 1500 - PROPOSED











TOWN PLANNING URBIS T+ 02 8233 9900 TRANSPORT STANTEC AUSTRALIA T+ 02 9493 9700 WASTE MANAGEMENT GEOSYNTEC CONSULTANTS T+ 02 9251 8070









- TIMBER FRAMED ACCESSWAY COVER.
- METAL BALUSTRADE (POWDER COATED) ٠
- GAL STEEL HANDRAIL.
- METAL SHEET ROOF. ٠
- METAL GUTTER AND DOWNPIPE ٠ (COLORBOND FINISH)

BCA	NSW Nominated Architects: Robert Denton Reg. No. 5782, Alex Kibble Reg. No. 6015 Do not scale drawings. Verify all dimensions on site. Notify architect of all discrepancies				Project BUNGENDORE	
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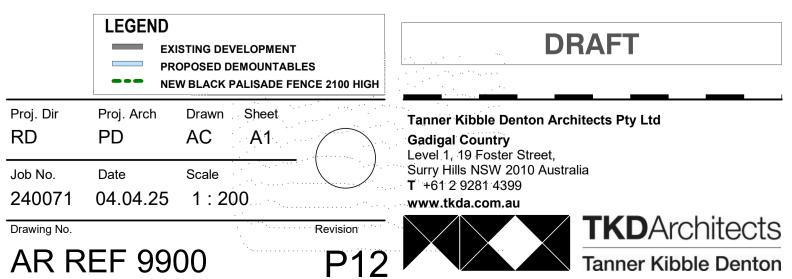
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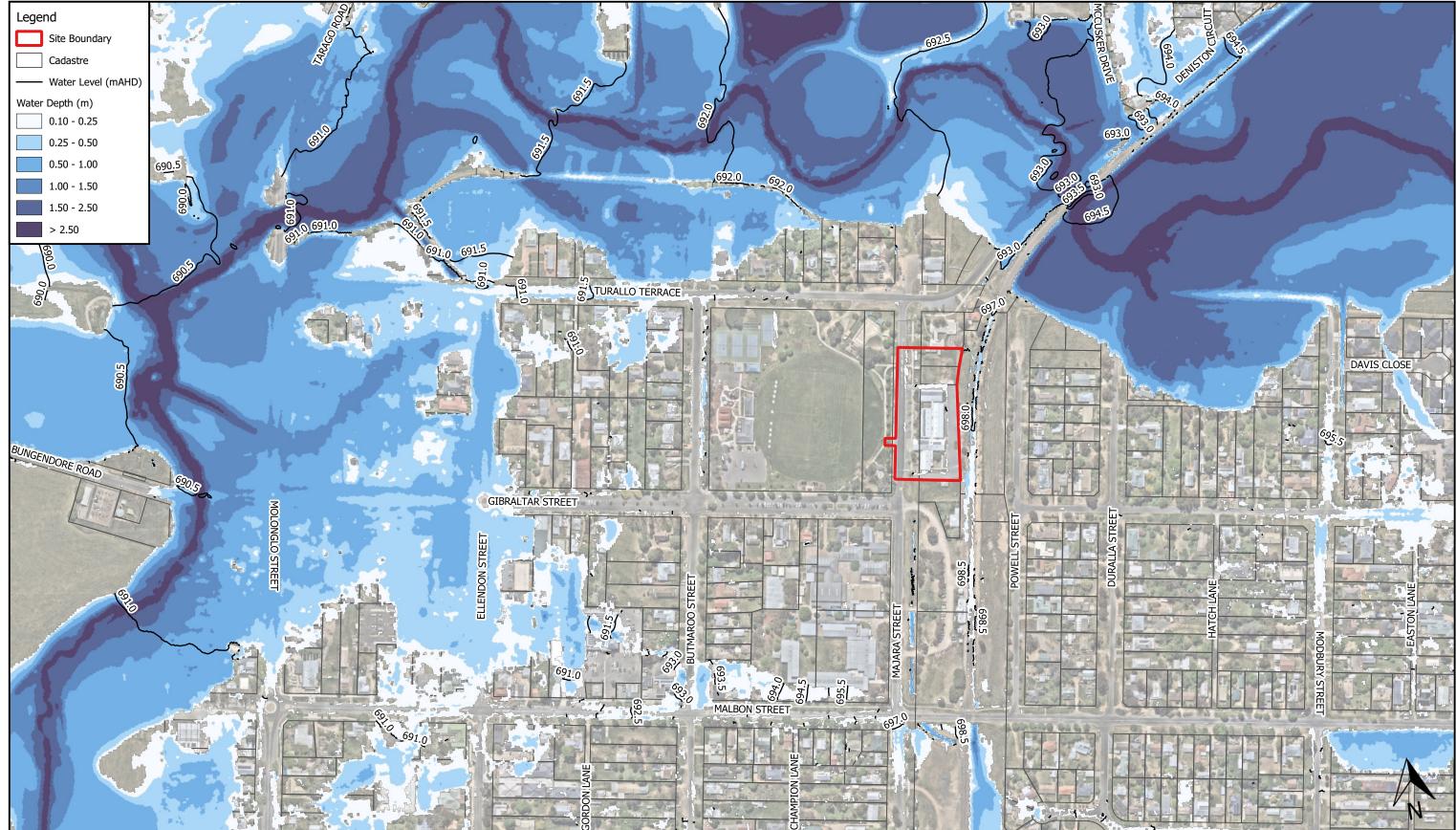


- MASONRY FOOTING.
- METAL CLADDING FAÇADE, (STANDARD FINISH)
- SOLID CORE DOOR, PAINT FINISH. •
- ALUMINIUM WINDOWS. CLEAR ANODISED.
- CONCRETE PADS.





Attachment B – Flood Maps



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



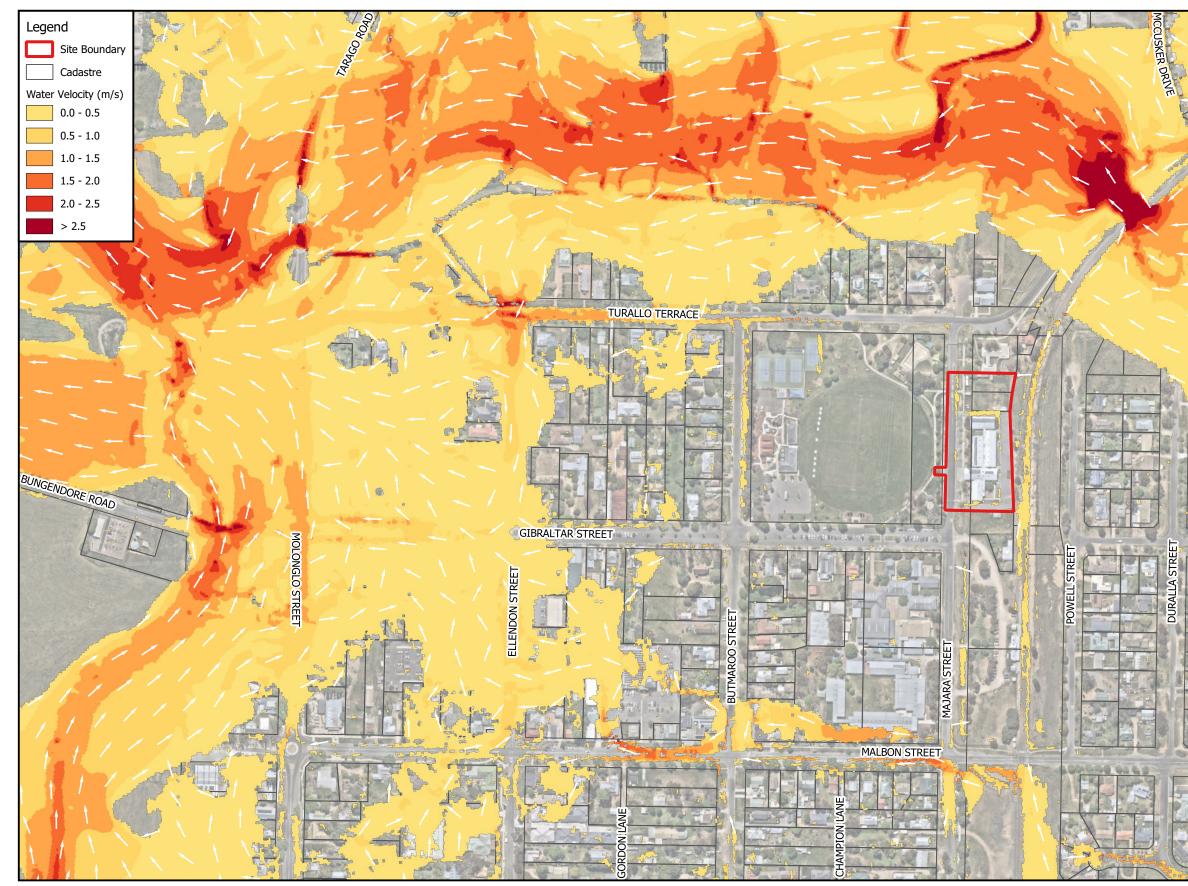
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#### Map Title / Figure:

1% AEP Critical Duration Storm - Existing Scenario Water Level & Water Depth

#### FL01

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



#### 40 80 120 160 200 m 0

1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



28355

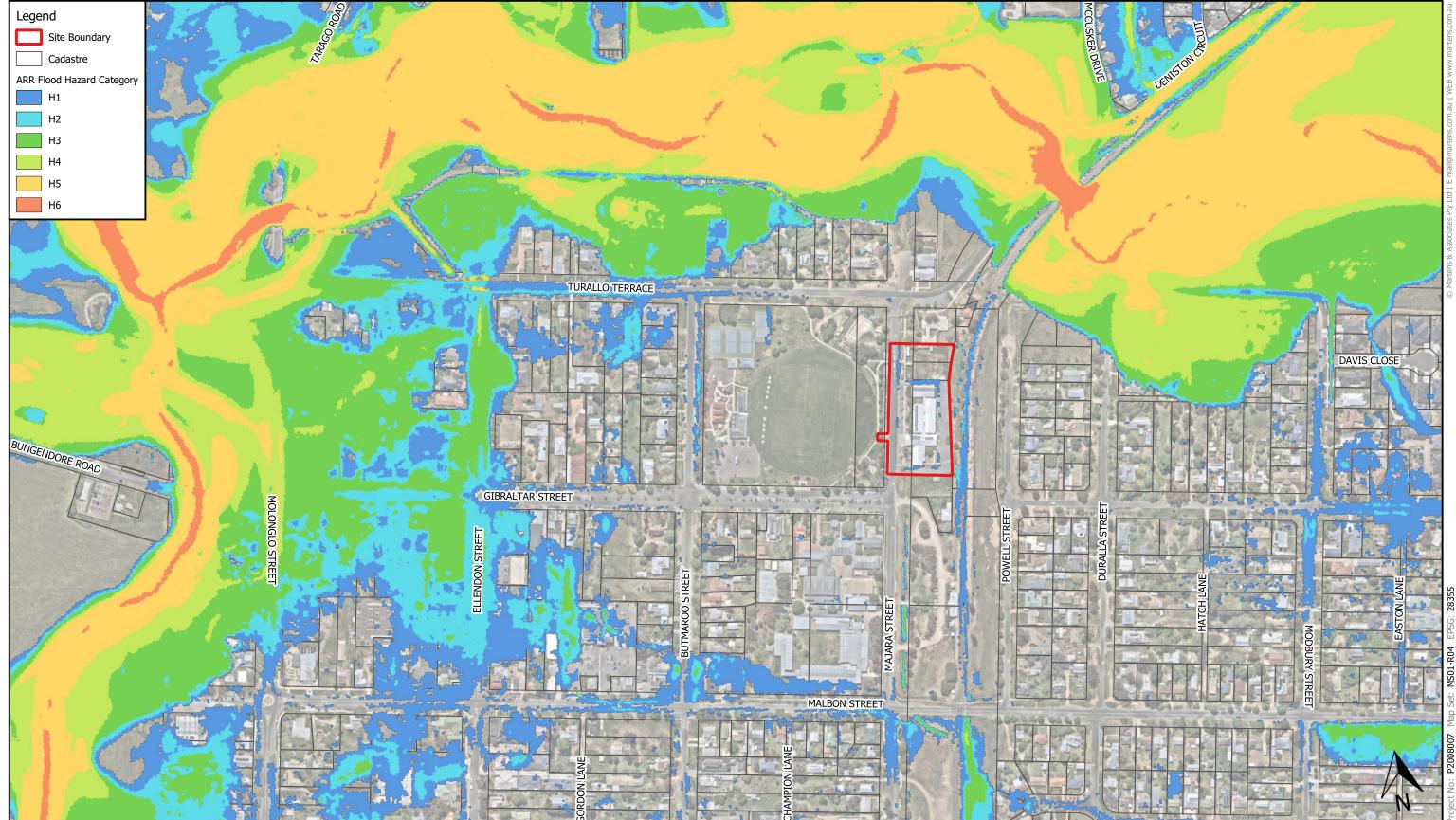
**R**04

DAVIS CLOSE

Map Title / Figure: 1% AEP Critical Duration Storm - Existing Scenario Water Velocity

## FL02

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

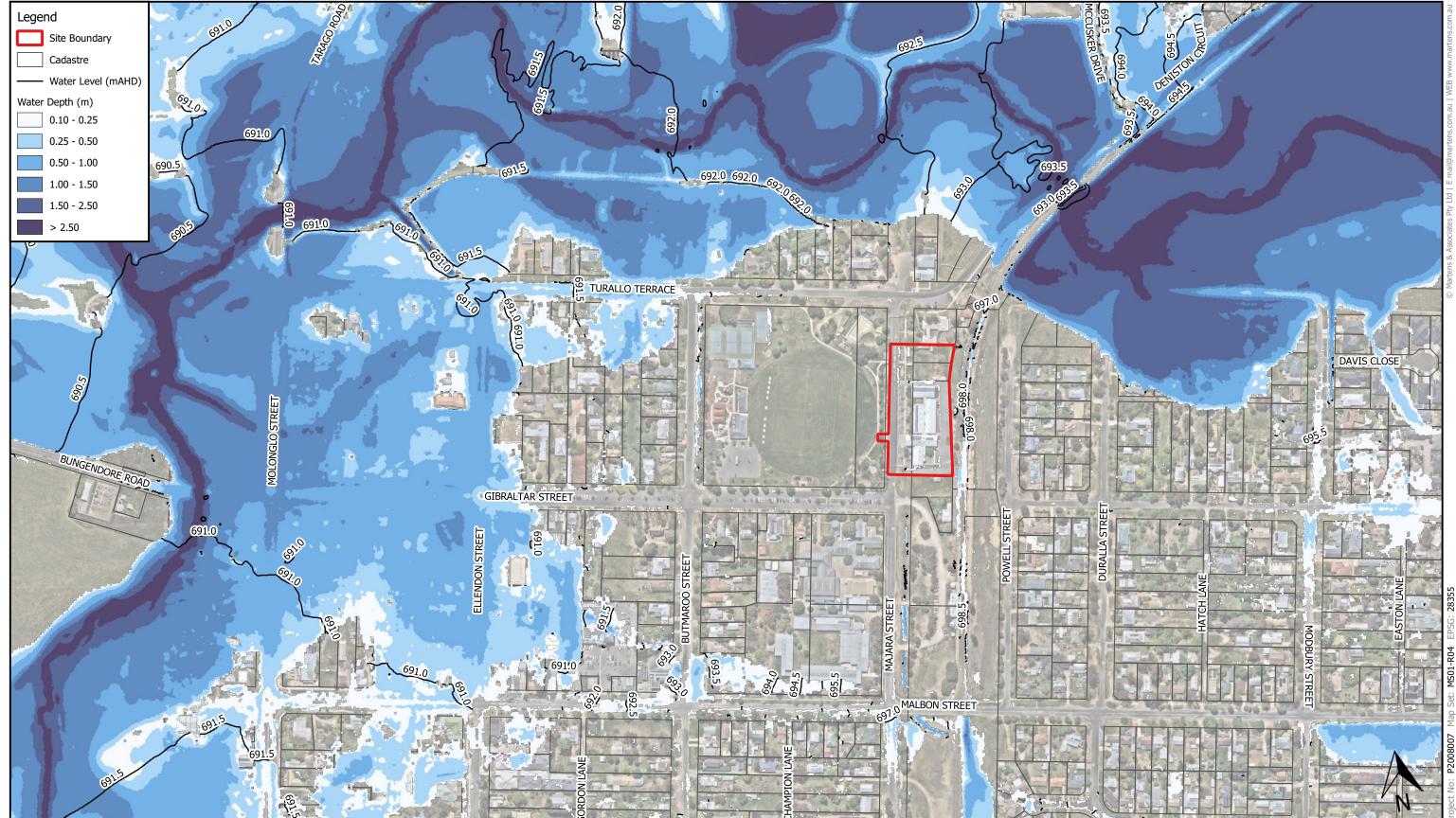
martens Environment | Water | Geotechnics | Civil | Projects

Map Title / Figure: 1% AEP Critical Duration Storm - Existing Scenario

# ARR Flood Hazard Categories

FL03

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

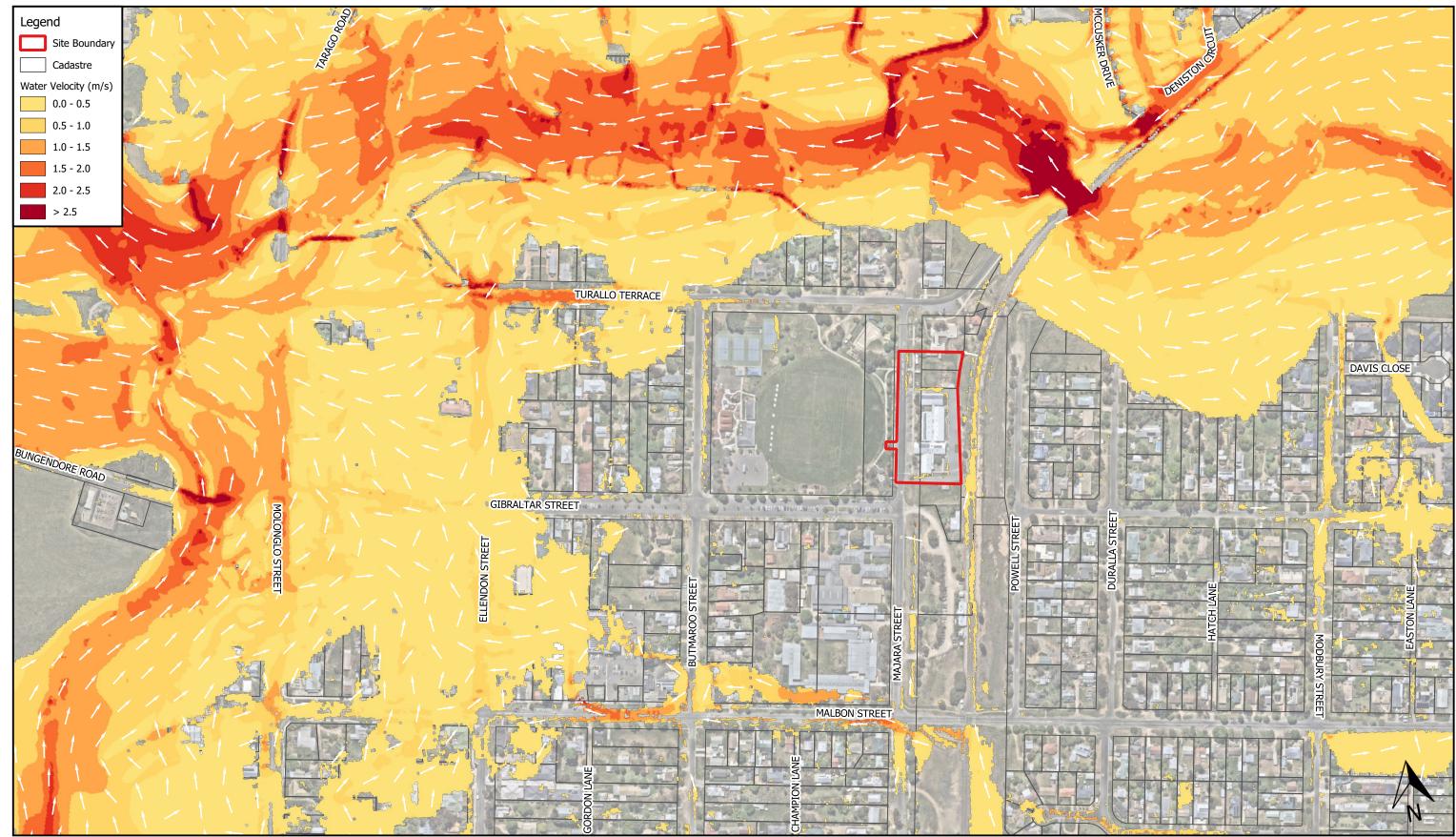


1% AEP Climate Change Critical Duration Storm - Existing Scenario Water Level & Water Depth

Map Title / Figure:

#### FL04

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



#### 40 80 120 160 200 m 0

1:4000 @ A3

Viewport B

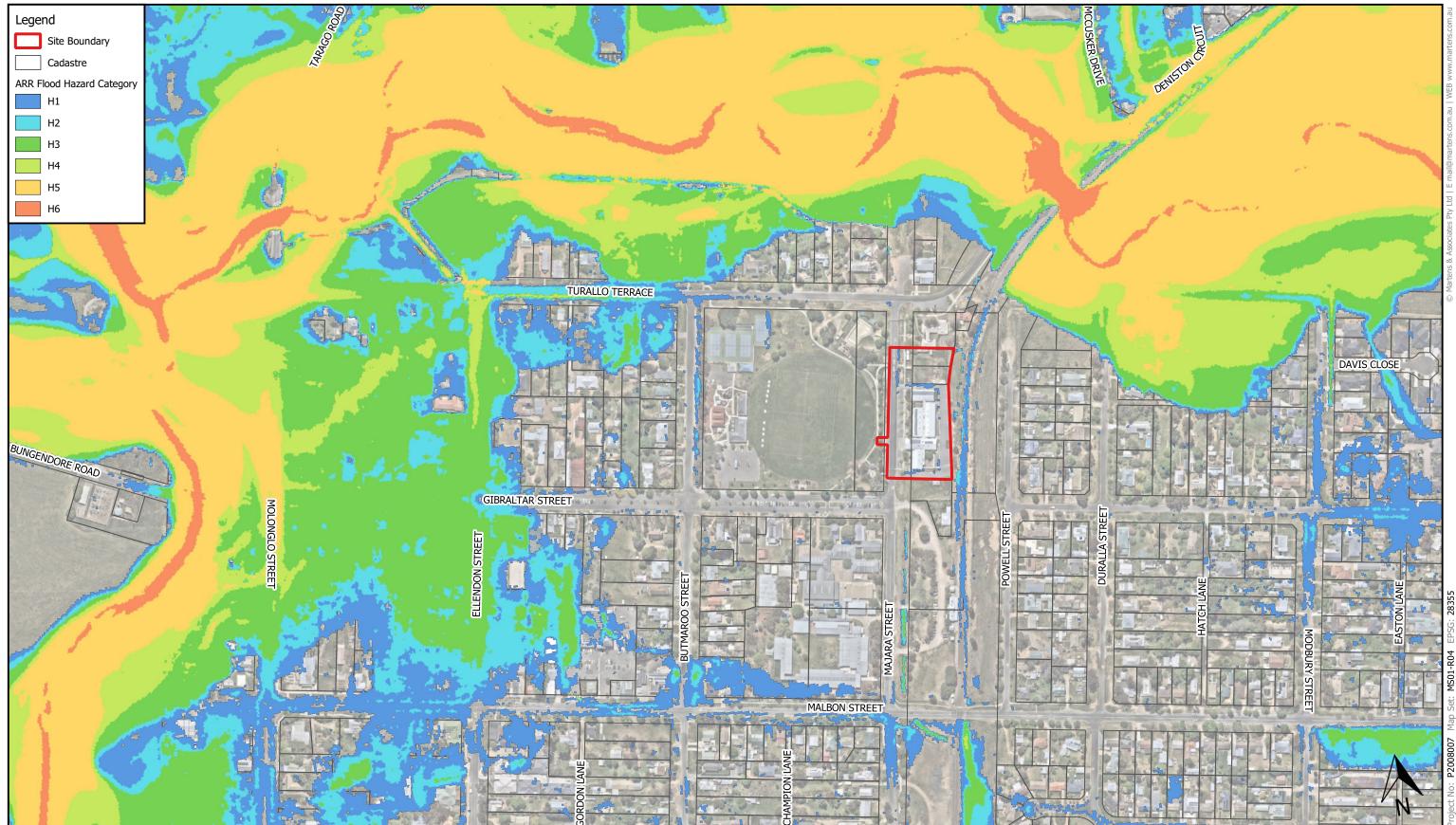
Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



Map Title / Figure: 1% AEP Climate Change Critical Duration Storm - Existing Scenario Water Velocity

### FL05

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

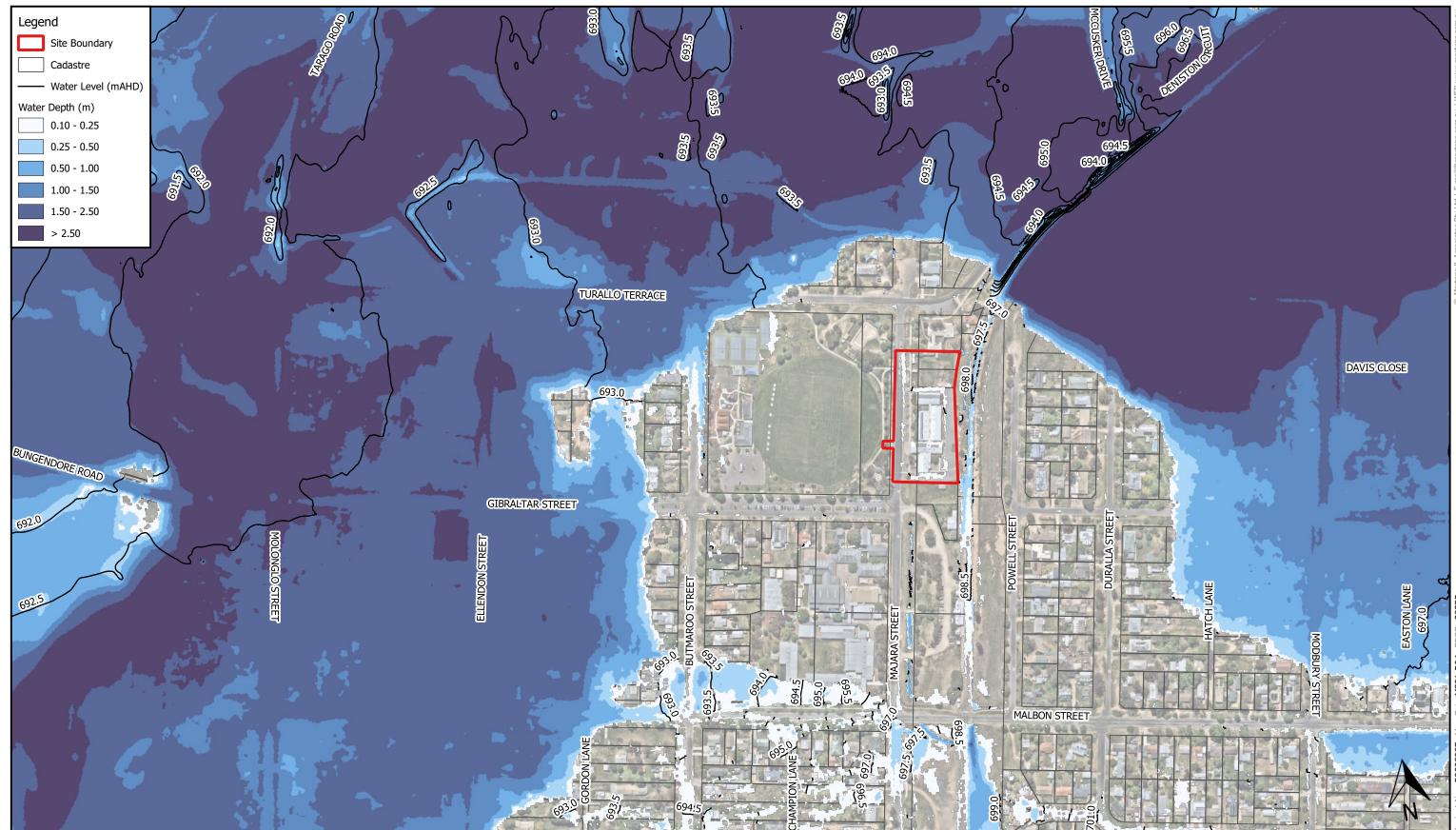
Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

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Map Title / Figure: 1% AEP Climate Change Critical Duration Storm - Existing Scenario ARR Flood Hazard Categories

## FL06

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

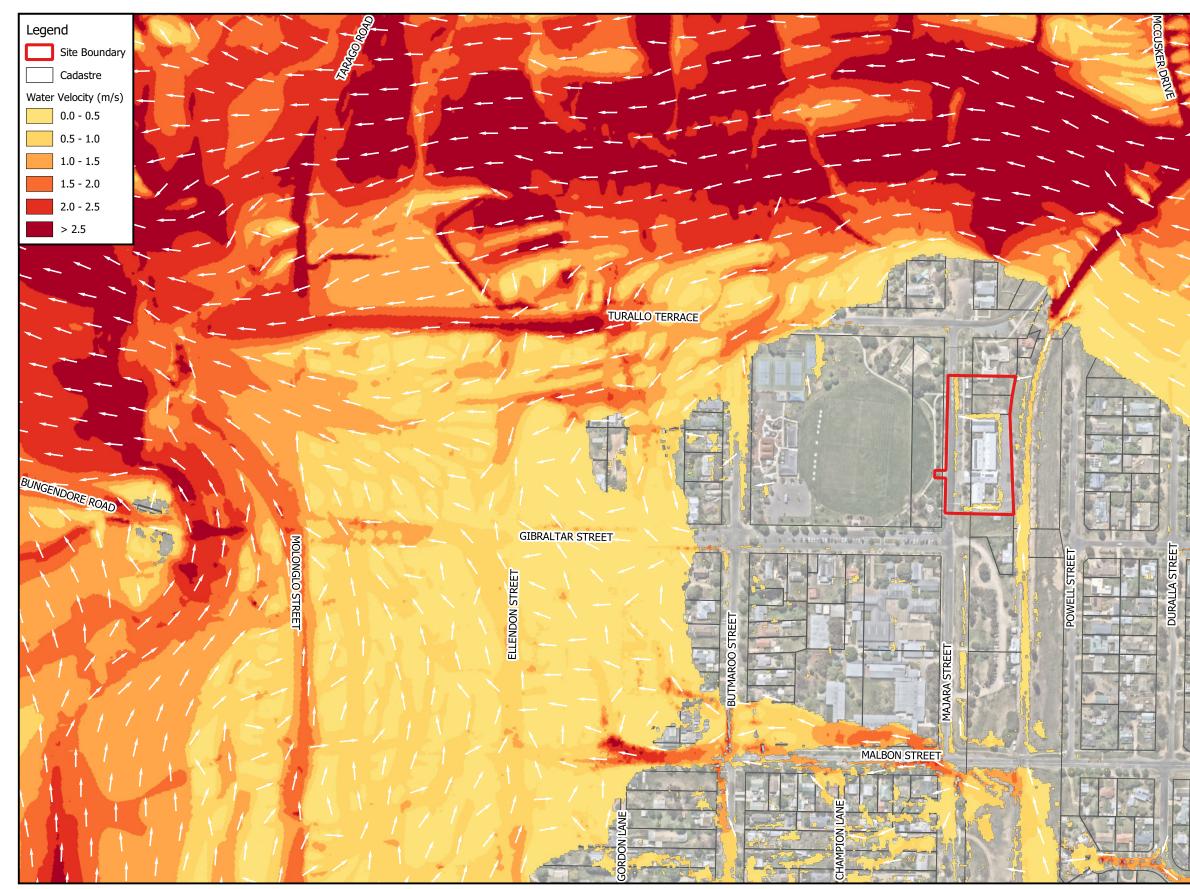


Map Title / Figure:

PMF Critical Duration Storm - Existing Scenario Water Level & Water Depth

### FL07

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025





1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

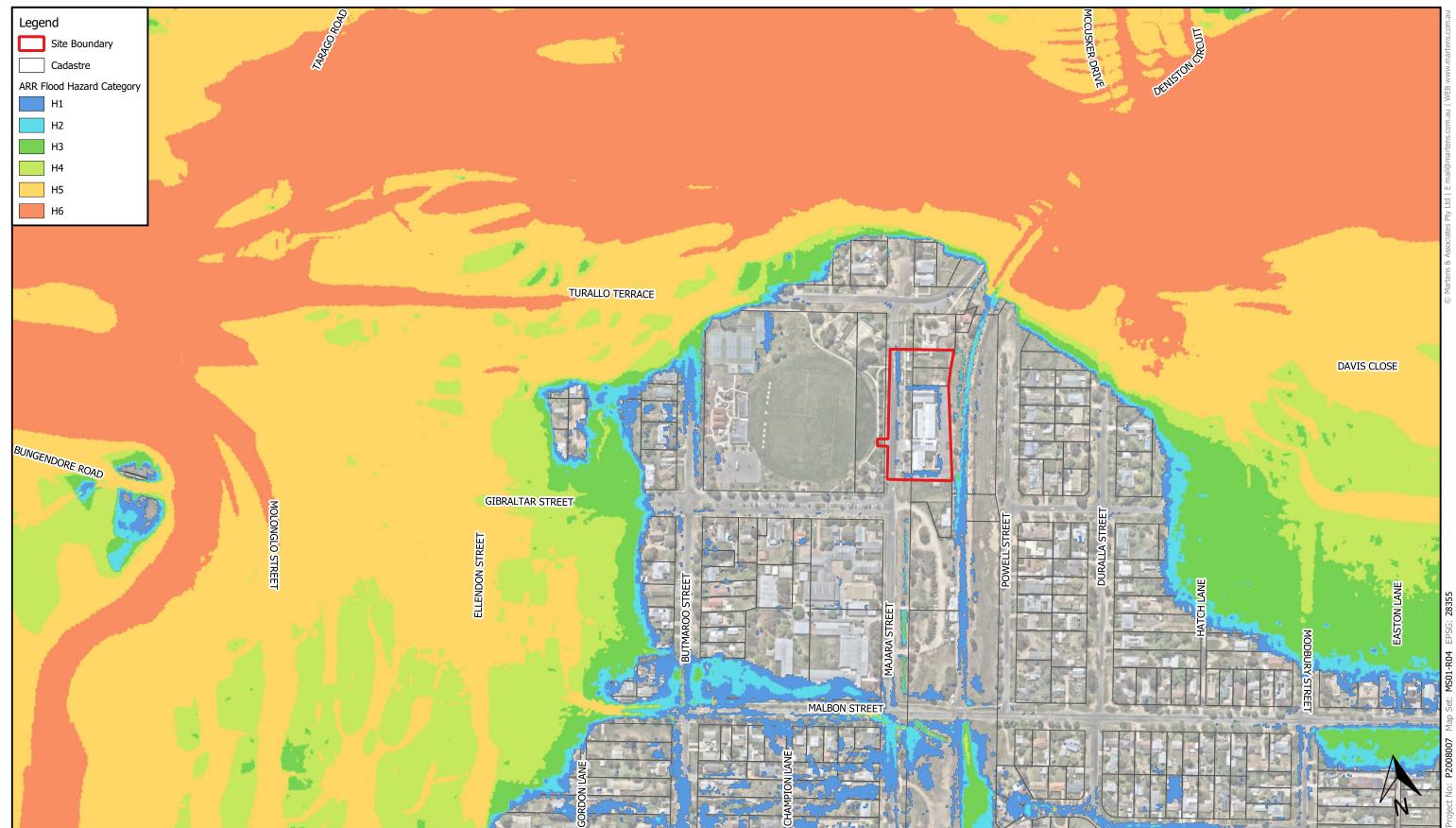




Map Title / Figure: PMF Critical Duration Storm - Existing Scenario Water Velocity

## FL08

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



40 80 120 160 200 m 0

1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

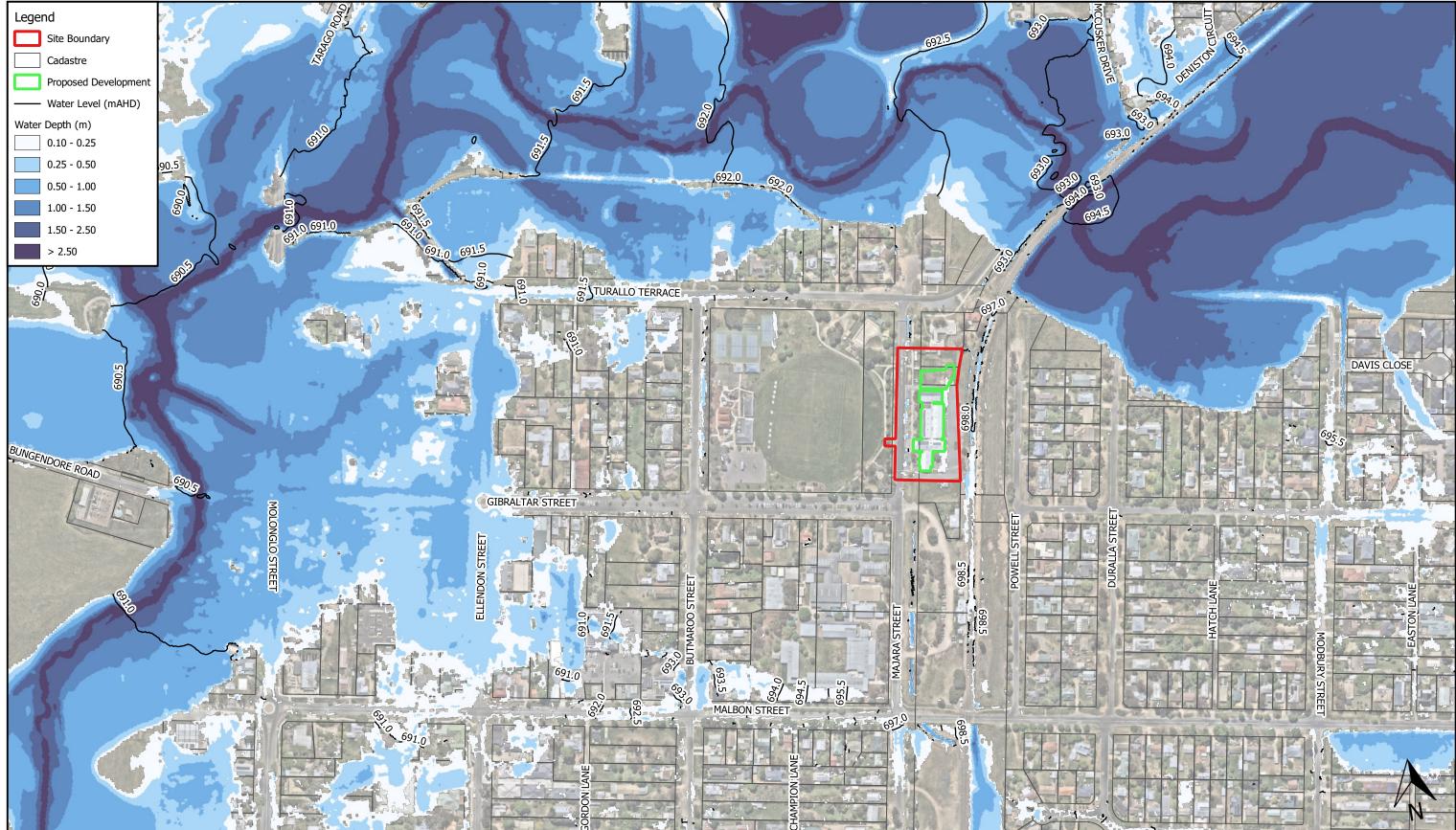


1S01-R04

Map Title / Figure: PMF Critical Duration Storm - Existing Scenario ARR Flood Hazard Categories

### FL09

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

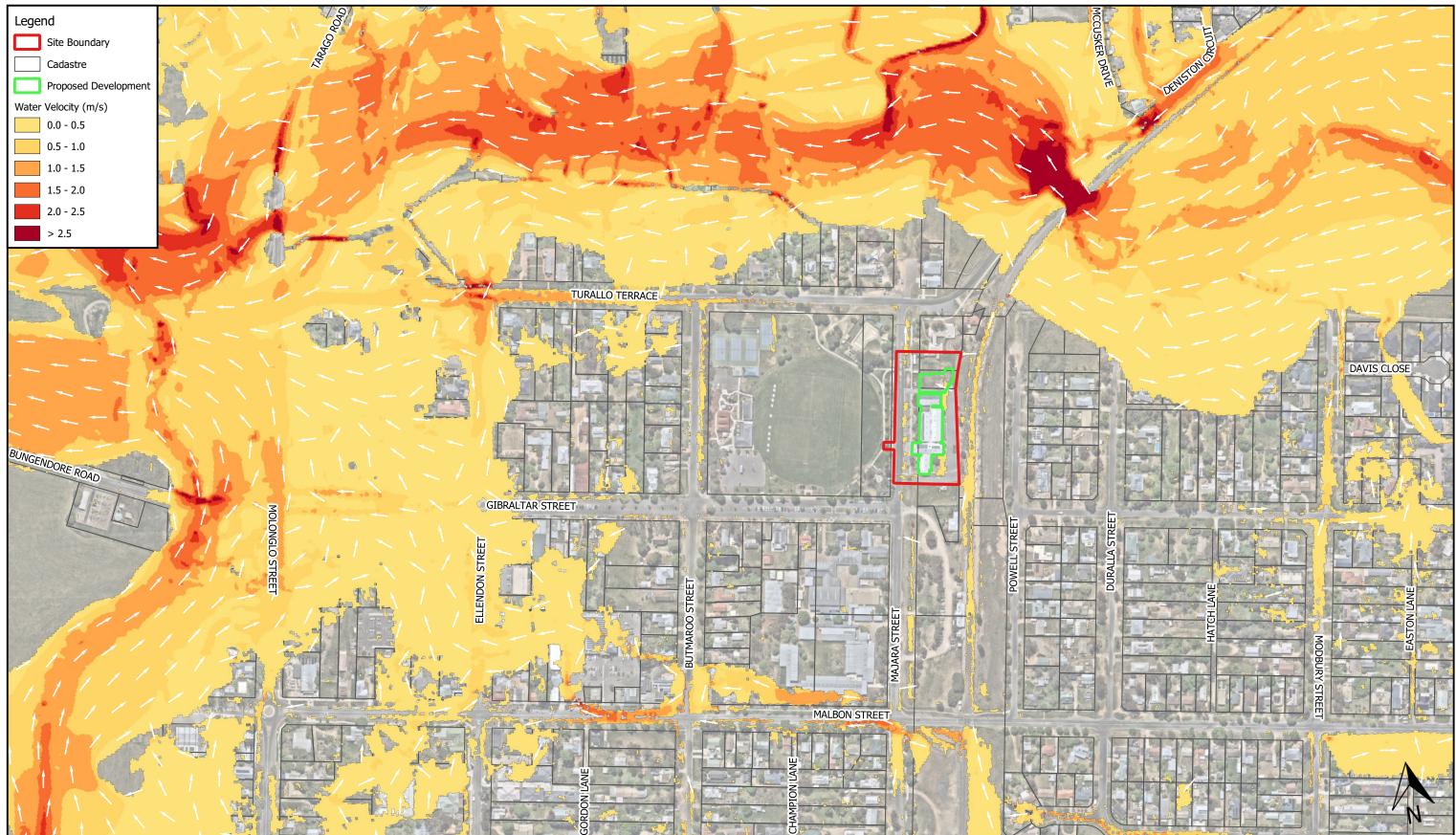


1% AEP Critical Duration Storm - Proposed Scenario Water Level & Water Depth

Map Title / Figure:

## FL10

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



#### 40 80 120 160 200 m 0

1:4000 @ A3

Viewport B

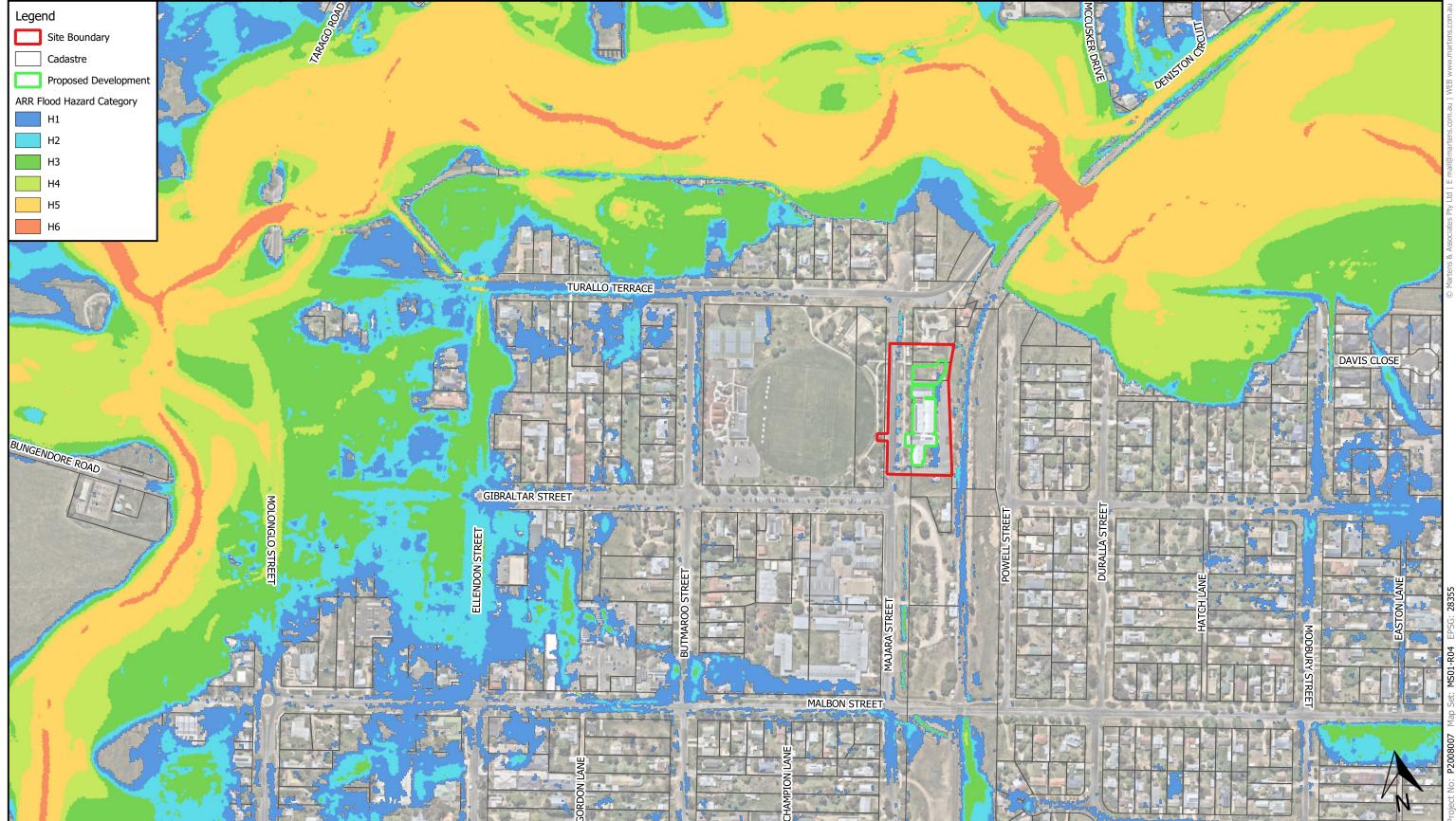
Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



28355

## FL11

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

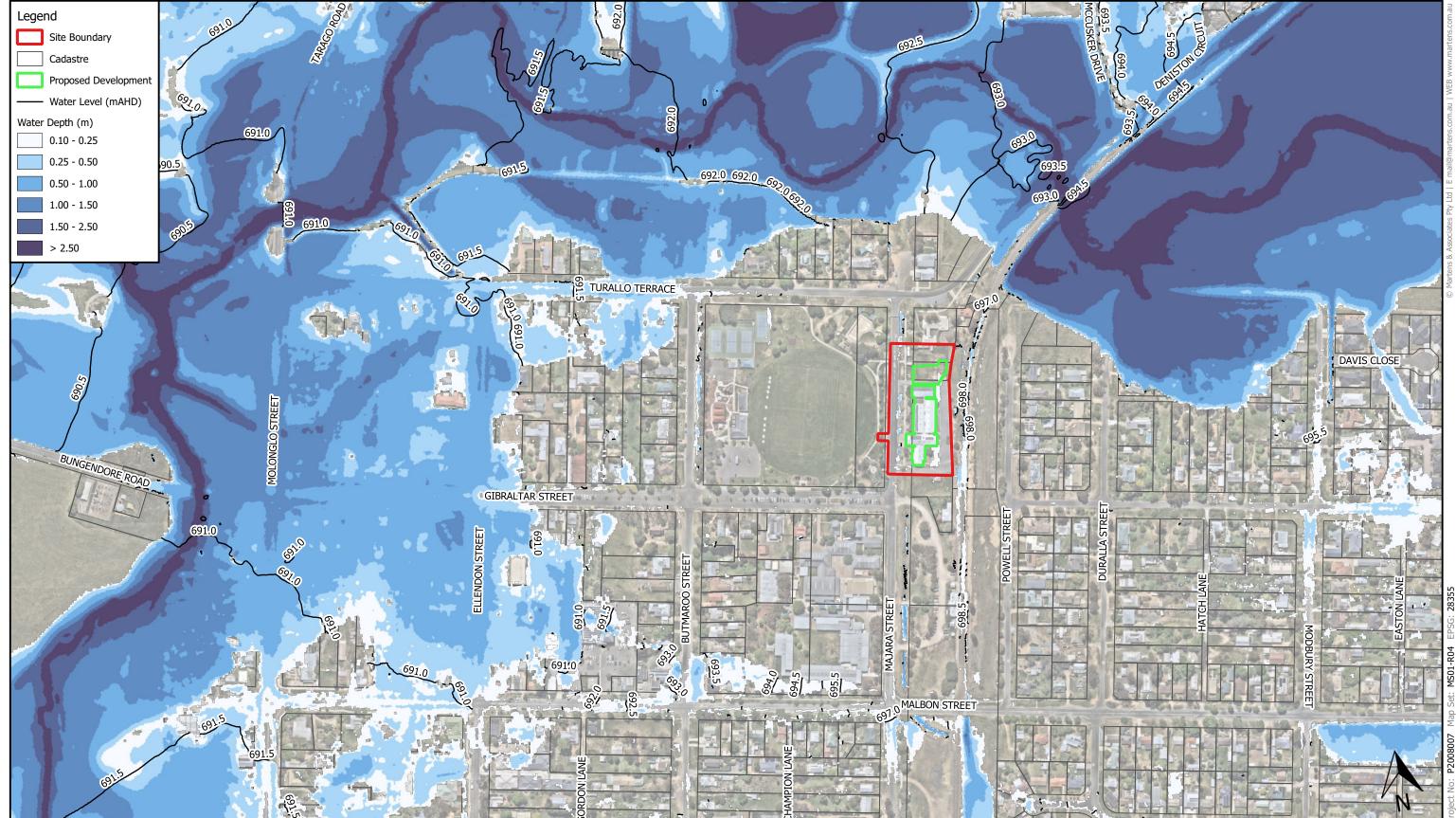


1% AEP Critical Duration Storm - Proposed Scenario ARR Flood Hazard Categories

Map Title / Figure:

FL12

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

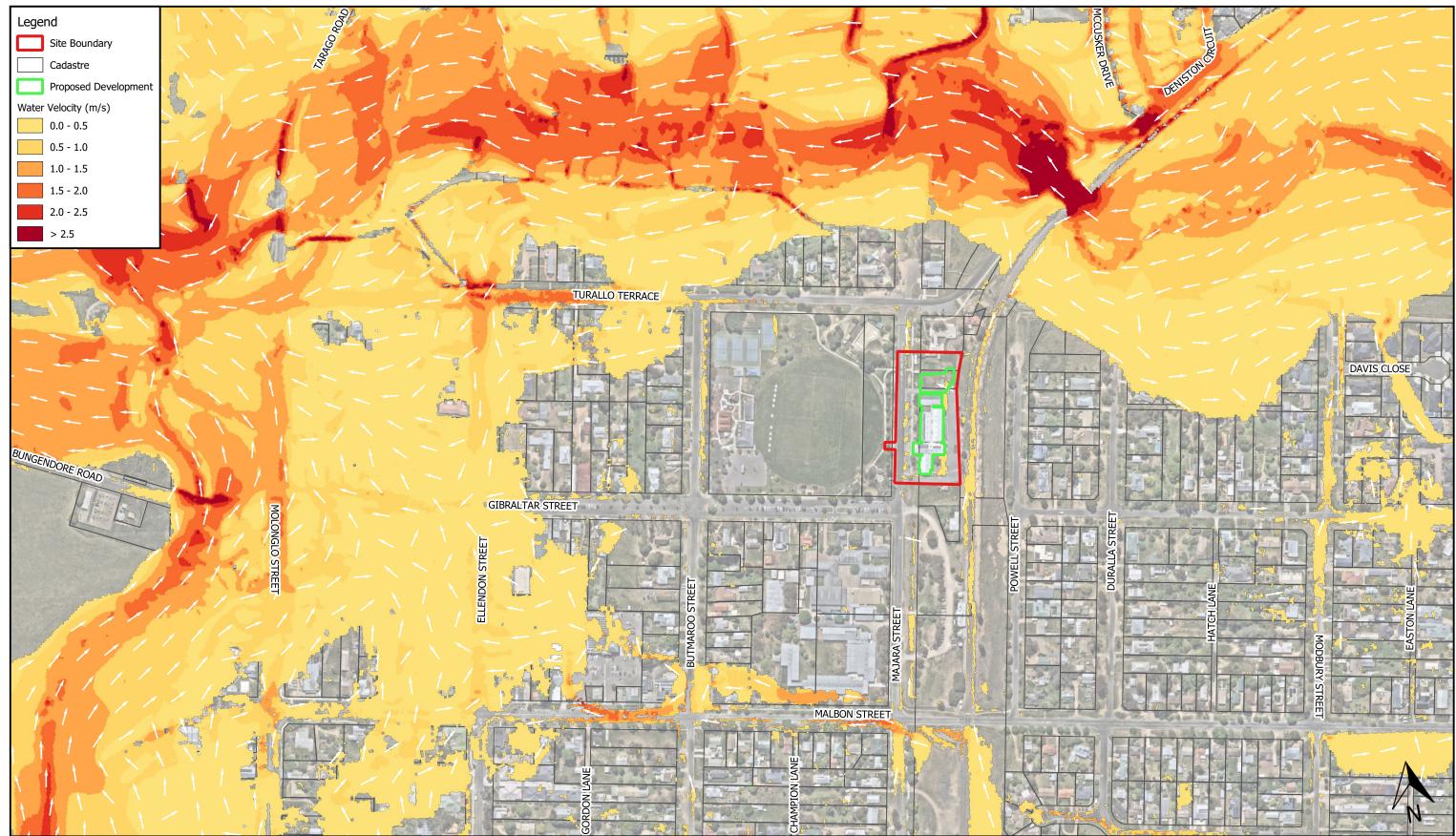


1% AEP Climate Change Critical Duration Storm - Proposed Scenario Water Level & Water Depth

Map Title / Figure:

### FL13

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



#### 40 80 120 160 200 m 0

1:4000 @ A3

Viewport B

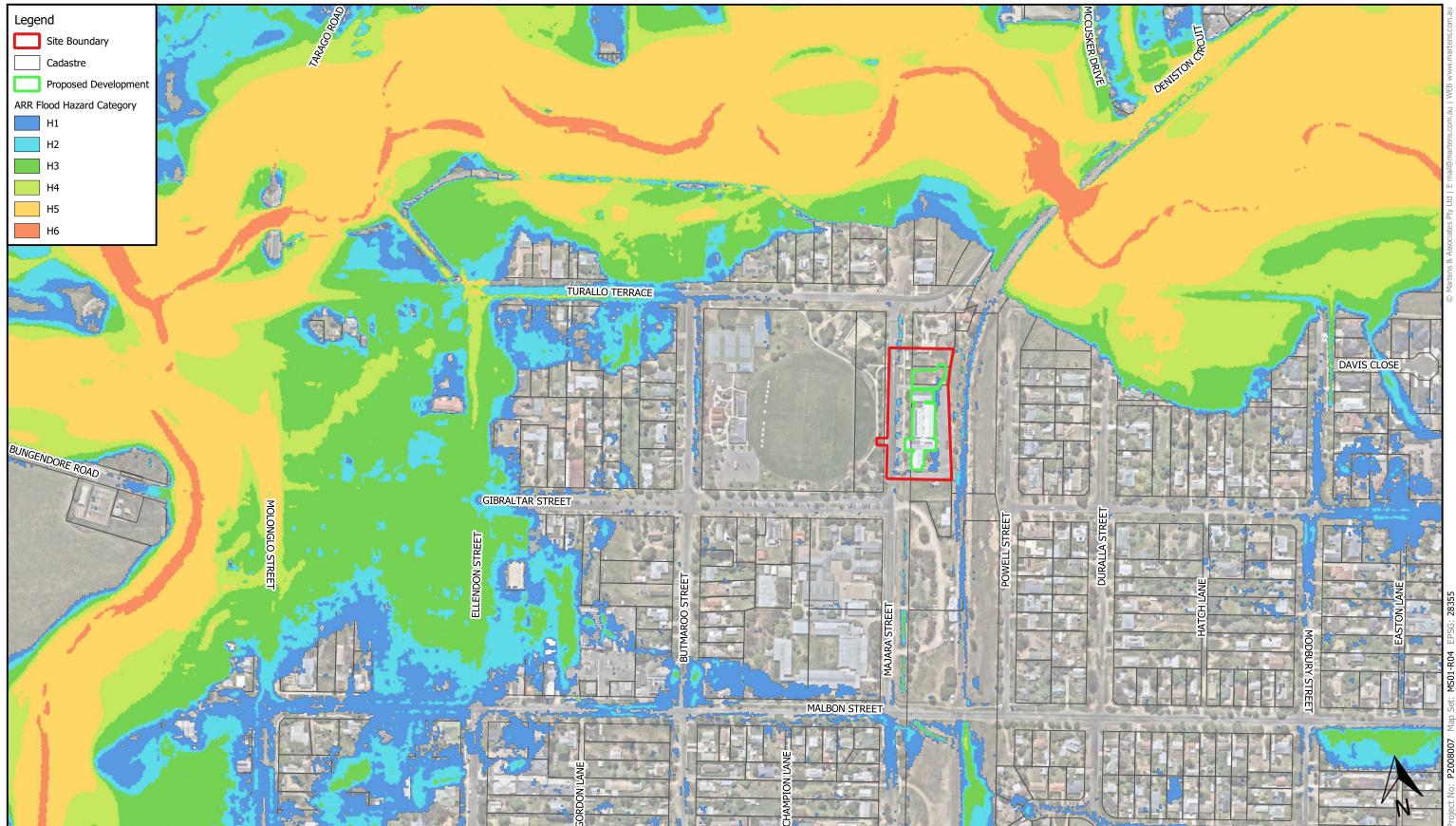
Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



Map Title / Figure: 1% AEP Climate Change Critical Duration Storm - Proposed Scenario . Water Velocity

## FL14

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025



1:4000 @ A3

Viewport B

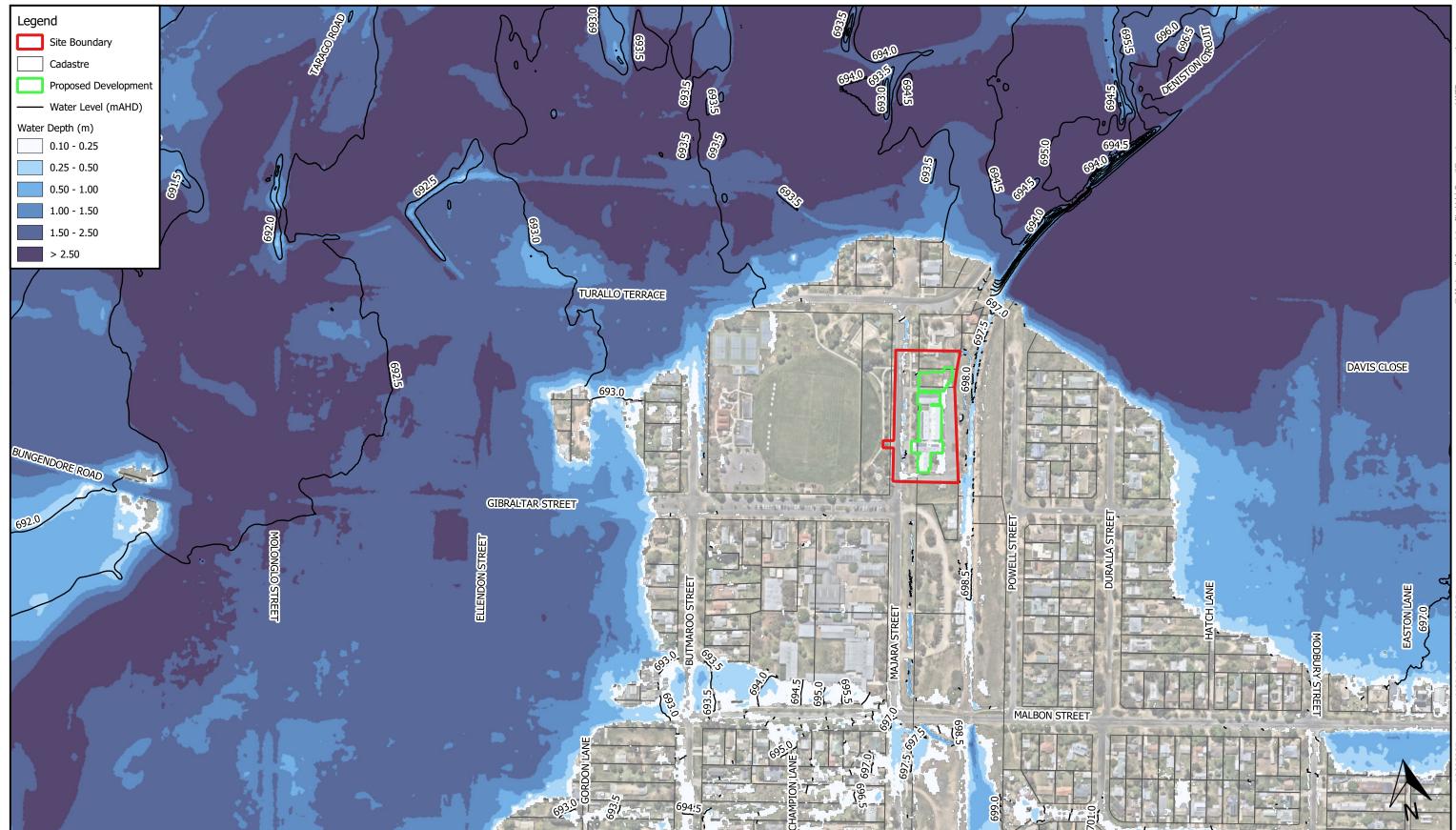
Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

martens Environment | Water | Geotechnics | Civil | Projects 1% AEP Climate Change Critical Duration Storm - Proposed Scenario ARR Flood Hazard Categories

Map Title / Figure:

FL15

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025





1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.

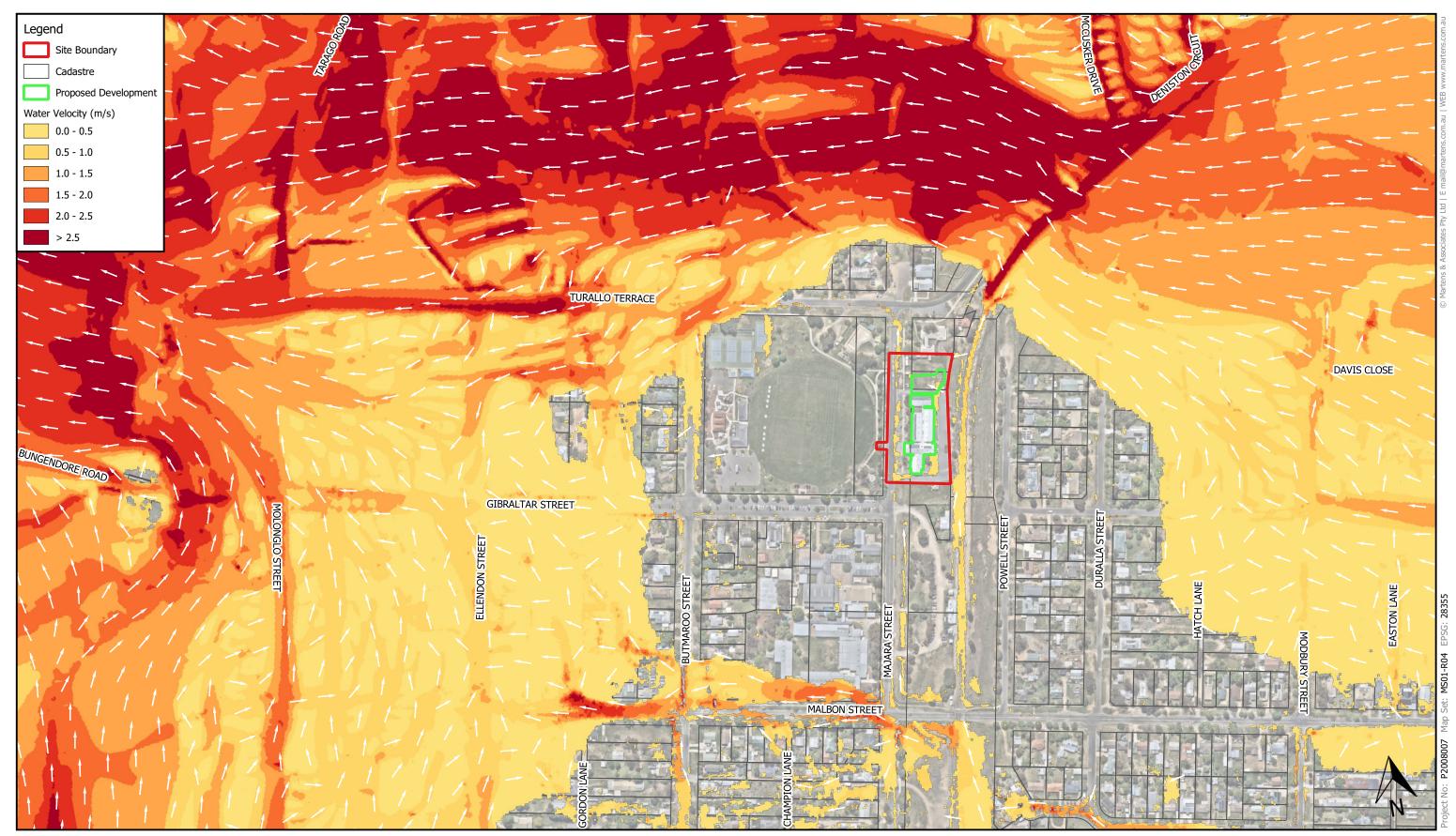


PMF Critical Duration Storm - Proposed Scenario Water Level & Water Depth

Map Title / Figure:

### FL16

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025





Map Title / Figure: PMF Critical Duration Storm - Proposed Scenario . Water Velocity

1:4000 @ A3

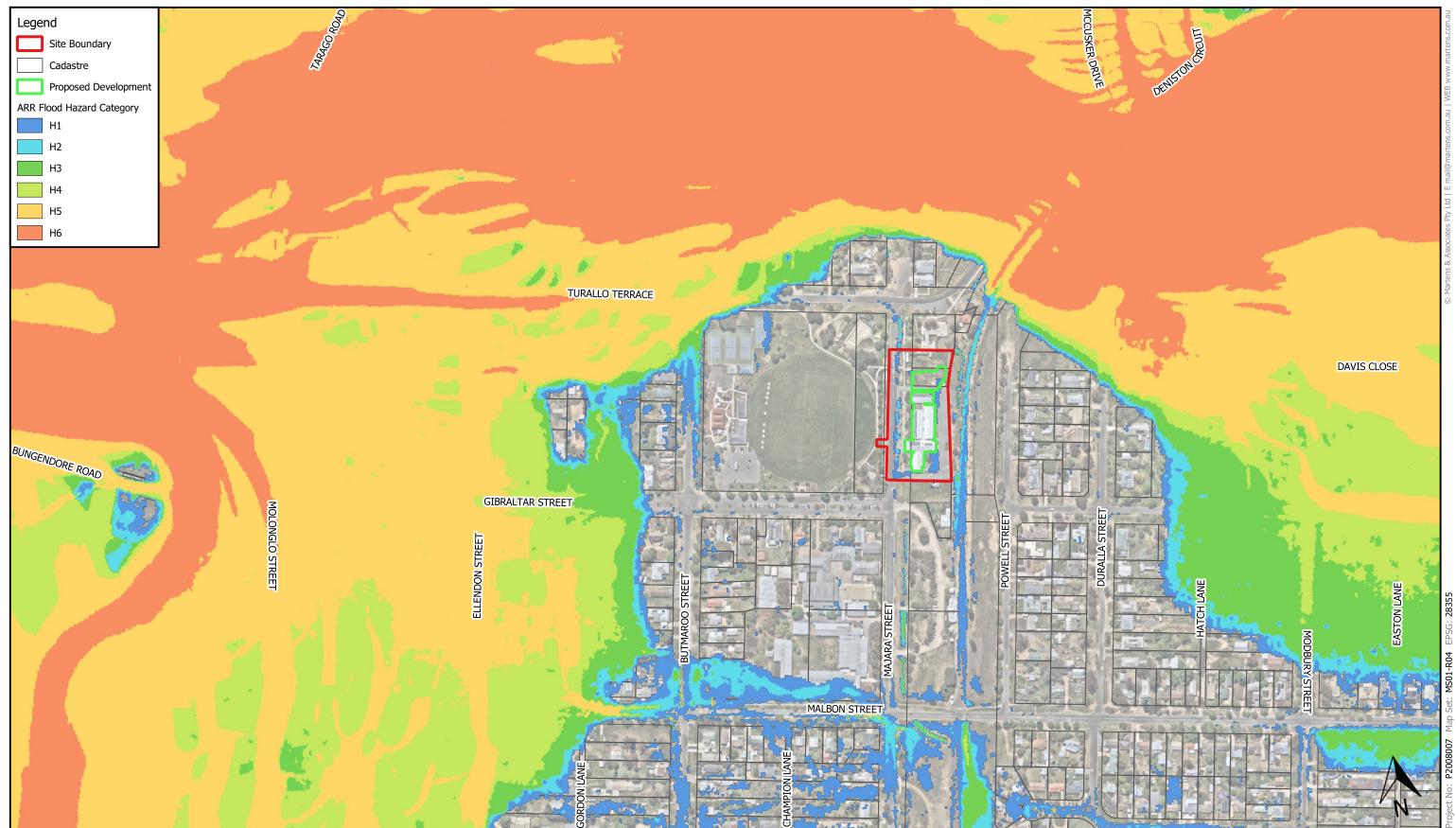
Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



## FL17

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025





1:4000 @ A3

Viewport B

Notes: - Aerial from Nearmap (2023). - Cadastre from NSW Spatial Services (2024) 'Clip & Ship' SIX Maps website. - Flood hazard categories based on Australian Rainfall and Runoff (2019) "A Guide to Flood Estimation" combined flood hazard categories. - Flood results are considered valid for the subject site only and any offsite flooding may not be accurate.



Map Title / Figure:

PMF Critical Duration Storm - Proposed Scenario ARR Flood Hazard Categories

## FL18

Majara St, Bungendore, NSW Temporary High School Flood Assessment Colliers 07/04/2025