



Metro Outer Joint Development Assessment Panel Agenda

Meeting Date and Time: Monday, 16 August 2021; 9:30am
Meeting Number: MOJDAP/116
Meeting Venue: via Zoom

To connect to the meeting via your computer - <https://zoom.us/j/94389629805>

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7150 1149

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This DAP meeting will be conducted by electronic means open to the public rather than requiring attendance in person.

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Attendance

DAP Members

Mr Ian Birch (Presiding Member)
Ms Sheryl Chaffer (Deputy Presiding Member)
Mr Jason Hick (Third Specialist Member)

Item 8.1

Cr Suzanne Thompson (Local Government Member, City of Joondalup)
Cr Philippa Taylor (Local Government Member, City of Joondalup)

Item 8.2

Cr Rod Henderson (Local Government Member, City of Swan)
Cr Mel Congerton (Local Government Member, City of Swan)

Item 9.1

Cr Caroline Wielinga (Local Government Member, City of Armadale)
Cr Jeff Munn (Local Government Member, City of Armadale)

Officers in attendance

Item 8.1

Ms Amanda Lees (Department of Finance)
Mr Jeffrey Scott (Department of Finance)
Ms Stephanie Seddon (Department of Finance)
Mr Edward O'Connell (GHD)

Item 8.2

Mr Philip Russell (City of Swan)

Item 9.1

Ms Jacqueline Farmer (City of Armadale)
Mr Glen Windass (City of Armadale)

Minute Secretary

Ms Megan Ventris (DAP Secretariat)
Ms Adele McMahon (DAP Secretariat)

Applicants and Submitters

Item 8.1

Mr Tony D'Andrea (EIW Architects)

Item 8.2

Mr Alessandro Stagno (Apex Planning)

Item 9.1

Mr Nik Hidding (Peter Webb and Associates)

Members of the Public / Media

Nil



1. Opening of Meeting, Welcome and Acknowledgement

The Presiding Member declares the meeting open and acknowledges the traditional owners and pay respects to Elders past and present of the land on which the meeting is being held.

This meeting is being conducted by electronic means open to the public. Members are reminded to announce their name and title prior to speaking.

2. Apologies

Cr Kevin Bailey (City of Swan)

3. Members on Leave of Absence

Nil

4. Noting of Minutes

Signed minutes of previous meetings are available on the [DAP website](#).

5. Declarations of Due Consideration

Any member who is not familiar with the substance of any report or other information provided for consideration at the DAP meeting must declare that fact before the meeting considers the matter.

6. Disclosure of Interests

Nil

7. Deputations and Presentations

The Department of Finance, City of Swan and City of Armadale of may be provided with the opportunity to respond to questions of the panel, as invited by the Presiding Member.

8. Form 1 – Responsible Authority Reports – DAP Applications

8.1 Lot 9634 (75) Lyburner Avenue, Hillarys

Development Description:	Hillarys Primary School
Applicant:	Stephanie Seddon, Department of Finance
Owner:	Department of Education
Responsible Authority:	Department of Finance, Statutory Planning and Asset Policy
DAP File No:	DAP/21/02017



8.2 Lot 9501 (7) Sam Rosa Place, Dayton

Development Description: Proposed Child Care Premises
Applicant: Mr Alessandro Stagno (Apex Planning)
Owner: Beverley & Michael Ainsworth and Michelle Matthews
Responsible Authority: City of Swan
DAP File No: DAP/21/02005

9. Form 2 – Responsible Authority Reports – DAP Amendment or Cancellation of Approval

9.1 Lot 60 (770) Brookton Highway, Roleystone

Development Description: Service Station (Minor Amendments)
Proposed Amendments: 1. Two (2) vehicle vacuum bays (located near Hawkstone Road crossover);
2. Minor internal modification of the Control Building and primary street setback variation;
3. Changes to front elevation treatment of Control Building;
4. Additional Pylon Sign abutting Brookton Highway;
5. Modified boundary fence height to 2.1m height;
Applicant: Peter Webb & Associates
Owner: OTR282 Pty Ltd
Responsible Authority: City of Armadale
DAP File No: DAP/19/01701

10. State Administrative Tribunal Applications and Supreme Court Appeals

Current SAT Applications				
File No. & SAT DR No.	LG Name	Property Location	Application Description	Date Lodged
DAP/19/01708 DR 138/2020	City of Kwinana	Lot 108 Kwinana Beach Road, Kwinana	Proposed Bulk Liquid Storage for GrainCorp Liquid Terminals	01/07/2020
DAP/01729 DR 176/2020	City of Kalamunda	Lot 130 (74) Warlingham Drive, Lesmurdie	Aged Residential Care Facility	28/8/2020
DAP/20/01764 DR 204/2020	City of Swan	Lot 780 (46) Gaston Road, Bullsbrook	Proposed Stock Feed Grain Mill	8/09/2020
DAP/20/01829 DR 001/2021	City of Swan	Lot 1 (42) Dale Road & Lot 4 (43) Yukich Close, Middle Swan	Aged care and community purpose	08/01/2021
DAP/21/01952 DR 096/2021	City of Rockingham	Lot 265 (40) Talisker Bend, Golden Bay	Mixed commercial development	14/05/2021



11. General Business

In accordance with Section 7.3 of the DAP Standing Orders 2020 only the Presiding Member may publicly comment on the operations or determinations of a DAP and other DAP members should not be approached to make comment.

12. Meeting Closure

**LYMBURNER AVENUE, No. 75 (LOT 9634), HILLARY –
REDEVELOPMENT OF EXISTING PRIMARY SCHOOL:
HILLARYS PRIMARY SCHOOL**

Form 1 – Responsible Authority Report
(Regulation 12)

DAP Name:	Metro Outer Joint Development Assessment Panel	
Local Government Area:	City of Joondalup	
Applicant:	Stephanie Seddon, Department of Finance	
Owner:	Department of Education	
Value of Development:	\$14 million <input checked="" type="checkbox"/> Mandatory (Regulation 5) <input type="checkbox"/> Opt In (Regulation 6)	
Responsible Authority:	Department of Finance, Statutory Planning and Asset Policy	
Authorising Officer:	Sandra McLeish, General Manager – Department of Finance, Statutory Planning and Asset Policy	
LG Reference:	DA21/0612	
DAP File No:	DAP/21/02017	
Application Received Date:	15 June 2021	
Report Due Date:	28 July 2021	
Application Statutory Process Timeframe:	60 Days	
Attachment(s):	1. Site Location 2. Architectural Plans 3. Civil Plans 4. Landscape Plans 5. Arborist Assessment 6. Traffic Impact Assessment 7. Justification Letter 8. LGA Referral Response 9. Applicant's Response to Referral Comments	
Is the Responsible Authority Recommendation the same as the Officer Recommendation?	<input checked="" type="checkbox"/> Yes	Complete Responsible Authority Recommendation section
	<input type="checkbox"/> No	Complete Responsible Authority and Officer Recommendation sections

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

1. **Accept** that the DAP Application reference DAP/21/02017 is appropriate for consideration as a 'Public Primary School' land use and compatible with the objectives of the Metropolitan Region Scheme.
2. **Approve** DAP Application reference DAP/21/02017 and accompanying plans (Hillarys Primary School Development Application', being drawing numbers DD1.01, DD1.06, DD1.07, DD2.01, DD3.01, DD4.01, DD5.01, DD6.01, DD6.02, DD7.01, DD7.02, DD7.03, , SP1, SP2, SP3, date stamped 8 June 2021, and A1.14, A1.15, date stamped 14 July 2021, prepared by EIW Architects, Civil Plans titled 'Hillarys Primary School', being drawing numbers CO.02A, CO.03A, CO.04A, CO.05A, CO.06A, CO.07A, CO.08A, CO.09A, CO.10A all date stamped 8 June 2021, all prepared by Pritchard Francis, accompanying landscape drawings titled 'Hillarys Primary School' being drawing numbers L00A, L01C, L02C, L03B, L04B, L05B, L06B, L07A, L08A, L09A, L10A, all date stamped 8 June 2021) in accordance with the provisions of Clause 24 of the Metropolitan Region Scheme, subject to the following conditions:

Conditions

1. External colours and materials of the new buildings shall be sympathetic and of the same palette to the existing colours and materials of the existing buildings.
2. Prior to occupation of the development, the school is to prepare and implement a Traffic and Parking Management Plan consistent with the findings of the Hillarys Primary School Transport Impact Assessment prepared by Cardno (dated April 2021), in consultation with the City of Joondalup and to the satisfaction of the Western Australian Planning Commission. The Traffic and Parking Management Plan is to include a Kiss and Drive Operational Plan to ensure that the proposed Kiss and Drive facility is appropriately managed by staff or parent volunteers during peak drop-off and pick-up times.
3. Prior to the occupation of the school, a total of five (5) accessible parking bays are to be provided on-site to the satisfaction of the Western Australian Planning Commission.
4. All on-site car parking and associated vehicle access areas shown on the approved plans shall be constructed, drained, sealed, marked and sign-posted prior to occupation of the proposed development and thereafter maintained to the satisfaction of the Western Australian Planning Commission.
5. Landscaping, as specified in the approved landscaping plans, shall be installed prior to occupation of the proposed development and thereafter maintained to the satisfaction of the Western Australian Planning Commission.
6. All stormwater produced is to be disposed of on-site to the specification of the City of Joondalup and the satisfaction of the Western Australian Planning Commission.

7. Prior to the commencement of site works, a Construction Management Plan shall be prepared in consultation with the City of Joondalup and to the satisfaction of the Western Australian Planning Commission. The requirements of the Construction Management Plan shall be observed at all times during the construction process.
8. All piped and wired services, plant, equipment and storage areas are to be screened from public view, and in the case of roof mounted plant, screened or located so as to minimise visual impact, to the satisfaction of the Western Australian Planning Commission.
9. Prior to the commencement of site works, a Dust Management Plan shall be prepared in consultation with the City of Joondalup and to the satisfaction of the Western Australian Planning Commission. Once approved, the Dust Management Plan is to be implemented in its entirety.
10. Prior to the installation of any signage, a signage plan indicating the location and design of any proposed signage (including traffic directional signage) shall be prepared to the specification of the City of Joondalup and the satisfaction of the Western Australian Planning Commission.
11. The access points for the proposed development shall be designed to connect seamlessly with abutting roads and public footpath infrastructure, to the specification of the City of Joondalup and the satisfaction of the Western Australian Planning Commission.

Advice Notes

1. The playground shall comply with the requirements of *AS4685 – Playground Equipment and Surfacing*, and *AS4422 – Playground Surfacing; Specifications, Requirements and Test Method*. The applicant is encouraged to liaise with Kidsafe WA in this regard.
2. The school is reminded of its obligation to remain an active member in the Department of Transport's 'Your Move' program, which seeks to reduce car dependence and promote alternative modes of transport including walking, cycling and public transport, to the satisfaction of the Western Australian Planning Commission.
3. The applicant is reminded of its obligations under the *Australian Standard for Off-street Car parking – Bicycles (AS2890.3-1993)*.
4. The City of Joondalup has advised that any existing footpath and kerbing shall be retained and protected during construction of the development, and shall not be removed or altered for the purposes of a vehicle crossover. Should the footpath/kerb be damaged during the construction of the development, it shall be reinstated to the satisfaction of the City of Joondalup.
5. The applicant is specifically reminded of its obligation to comply with the Environmental Protection (Noise) Regulations 1997.

6. Noisy construction work outside the period 7.00 am to 7.00 pm Monday to Saturday, and at any time on Sundays and Public Holidays, is not permitted unless the written approval of the City of Joondalup has been sought and obtained.
7. The applicant is reminded of its obligations under the *Building Act 2011*.
8. All development must comply with the provisions of the Health Regulations, Building Code of Australia, Public Building Regulations and all other relevant Acts, Regulations and Local Laws. This includes the provision of access and facilities for people with disabilities in accordance with the Building Codes of Australia.

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme - Zone/Reserve	Urban
Local Planning Scheme	City of Joondalup Local Planning Scheme No. 3
Local Planning Scheme - Zone/Reserve	Public Purposes
Structure Plan/Precinct Plan	N/A
Structure Plan/Precinct Plan - Land Use Designation	N/A
Use Class and permissibility:	P – Permitted
Lot Size:	4.04 ha
Existing Land Use:	Primary School
State Heritage Register	No
Local Heritage	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Heritage List <input type="checkbox"/> Heritage Area
Design Review	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Local Design Review Panel <input type="checkbox"/> State Design Review Panel <input type="checkbox"/> Other
Bushfire Prone Area	No
Swan River Trust Area	No

Proposal:

The application proposes the redevelopment of the existing primary school on the subject site to replace outdated structures on site and accommodate up to 592 students from Kindergarten through to Year 6.

The proposed school has been designed in accordance with the Department of Education Primary Schools Brief for a Standard Pattern Primary School, which sets out accommodation and design requirements for new public primary schools.

As indicated in Attachment 3, the proposed development involves the demolition of all buildings except for the covered assembly building along the north eastern boundary and pre primary building located in the eastern corner of the site and construction of:

- Administration Block (including staff and conference areas);
- A Library Resource Centre and Staff Room;
- A Kindergarten Teaching Block (TB1) comprising 2 classrooms;
- A General Teaching Blocks (TB2) comprising 4 classrooms;
- A General Teaching Block (TB3) comprising 4 classrooms and 1 inclusive education room;
- A two-storey General Teaching Block (TB4) comprising 8 classrooms;
- A Fire Tanks and Pumps facility;
- 2 Hardcourt Play Areas;
- Provision of two (2) transportable zones, each providing space for two (2) transportable classrooms;
- Hard and soft landscaping including play areas;
- Expansion of existing parking areas on site to accommodate a total of 136 bays including kiss and ride bays (45 bays) and an accessible parking provision (4 ACROD bays); and
- Fencing comprising of 2.1 m high garrison perimeter fencing. The proposed fencing provides for security and surveillance, whilst facilitating a visual connection to the adjoining road.

The school will be delivered as a standard pattern primary school. It will have capacity to accommodate 592 students.

The proposed fencing has been assessed against the existing Metropolitan Primary Schools Security Fencing Guidelines (the Guidelines) and is consistent with the Guidelines.

All proposed buildings are single storey with the exception of TB4 which will be two-storey. All buildings will be constructed primarily of face brick with feature band and stack bond panels with Colorbond roof sheeting featuring coloured polycarbonate sheet infills, as depicted in the coloured elevation drawings included at Attachment 3.

Given that the proposed works are additions to an existing school which will being partially retained, it is recommended that a condition be included requiring the colours of new buildings to be sympathetic to that of the existing buildings (Recommended Condition 1).

It is recommended that an advice note be included in relation to compliance with relevant Australian Standards with respect to playground construction (Recommended Advice Note 1).

Proposed Land Use	Educational Establishment
Proposed Net Lettable Area	N/A
Proposed No. Storeys	One- two storey
Proposed No. Dwellings	N/A

Background:

Due to ongoing maintenance issues and the increasing of student numbers, the DoE was granted funding to redevelop Hillarys. The funding has been provided and is part of the State Government's Stimulus for Schools package which was implemented to stimulate the Western Australian economy and deliver high priority maintenance works across the State's public schools.

Site Context

Comprising a total area of 4.04 ha and located within the City of Joondalup, 75 Lymburner Drive (subject site) is situated approximately 1.9 km south of Westfield Whitford City and approximately 18.7 km north west of the Perth CBD (Attachment 1).

The subject site is bordered by Lymburner Drive to the south, east and north and residential dwellings to the west.

Legislation and Policy:

Legislation

Planning and Development Act 2005

Planning and Development (Local Planning Schemes) Regulations 2015

Planning and Development (Development Assessment Panels) Regulations 2011

State Government Policies

Development Control Policy 2.4 – School Sites

Consultation:

Referrals/consultation with Government/Service Agencies

The application was referred to the City of Joondalup for a period of 42 days, between 8 June 2021 and 5 August 2021 as required under the WAPC's notice of delegation.

City of Joondalup

The City of Joondalup supports the proposal subject to a number of conditions. These are discussed in further detail below.

Public Consultation

As part of the referral process the City of Joondalup advertised the application for a period of fourteen (14) days. During this time, six (6) submissions were received, three (3) objecting to the proposal (or certain aspects of the proposal), one (1) in support of the proposal and two (2) neither for nor against it.

The applicant has provided a response to each of the key issues raised by the submissions, which is included in Attachment 9. A summary and assessment of these key issues is provided in the table below:

Issue Raised	Community Comments	Response
Traffic	<ul style="list-style-type: none"> No solution has been provided to existing traffic flow issues during pick up/drop off times. Maybe a one-way system could be put in place during the peak hour periods? 	<p>A Traffic Impact Statement (Attachment 6) has been submitted with the application which concludes that parking and traffic associated with the proposal is capable of appropriately being managed through the preparation of a Traffic Management Plan.</p>
Lot boundary Setbacks	<ul style="list-style-type: none"> Setback of fire tanks and pumps being located next to residential properties. Is there the opportunity to locate them further from the adjoining residential properties? Will these generate noise? 	<p>As outlined in the applicant's response (Attachment 9), the fire pumps and tank enclosure has been positioned so as to have minimal impact on existing vegetation. Moving the enclosure further south will require additional existing trees to be removed. Also, the current location is the preferred location for infrastructure requirements (DFES and mains water connection). The pump enclosure will be acoustically insulated internally, and external access is via the south (school) side instead of street frontage to attenuate noise emission in accordance with acoustic engineer requirements.</p>
Noise	<ul style="list-style-type: none"> Position of noise generating appliances (air conditioning compressors/condensers) close to residential properties (especially Teaching Block 3 and Teaching Block 4). Suggest that they can be covered or face away from residential dwellings to minimise impact. 	<p>Air conditioning plant enclosures are located on ground within screened enclosures to rear or side of buildings. The air conditioning enclosure to TB3 is the closest to the western boundary at 10m, and approximately 2.5m below existing boundary ground level, therefore minimising impact to adjacent residences. To further manage this Condition 8 has been included.</p>
Design	<ul style="list-style-type: none"> Potential glare and heat. Would prefer rooftop and metal wall cladding to be finished in a colour that minimises reflective glare (and heat). Proposed Garrison Fencing will look out of place with the existing streetscape. 	<p>The applicant has advised that roof sheeting will be colorbond off white finish (e.g. Surfmist) not zincalume, therefore minimising reflective roof glare and heat.</p> <p>As noted previously, the proposed fencing has been assessed against the guidelines and is compliant. Given that the guidelines are designed to ensure there is minimal detrimental impacts on the</p>

		surrounding areas, the communities concerns are sufficiently addressed.
Landscaping	<ul style="list-style-type: none"> Wish for consideration of the planting of more trees from an aesthetic point of view and for sound prospection. 	The proposal retains significant quantity of mature trees, and these will be supplemented by new trees as noted on landscape plan.
Construction	<ul style="list-style-type: none"> What construction management will be in place during construction to minimise impact on adjoining residential properties? 	The preparation of a construction management plan has been recommended as a condition of approval (Recommended Condition 7.

Based on the applicant's response and the assessment provided in this report, the concerns raised by the community are sufficiently addressed.

Design Review Panel Advice

As part of the referral process, the City of Joondalup Design Review Panel assessed the proposed development. A summary of their findings and the applicant's response are provided in the table below:

Joondalup Design Reference Panel	Applicants Response
Architecture and Design	
<ul style="list-style-type: none"> Impressed with layout. Like the curved and circular ramp systems. More attractive than what exists. Appreciate that the layout of classrooms is per template. Concern with two storey building – lift location adjacent to stair – flat roof and skillion doesn't seem to work together, although noted that overrun can be difficult. What is the material for stair. The way buildings have been handled on site is very clever. Fire pump building – not consistent with the setbacks – would be great if this could be set back further from the street. 	<p>Noted</p> <p>Refer attachment 9.</p>
Landscaping	
<ul style="list-style-type: none"> Love that trees are retained. How does the proposed landscaping relate to the street and presentation. Modest buildings with no strong landscaping theme – is there the opportunity to integrate with context. What does it give back to the community? Design in context. 	The street frontage of the school remains largely unchanged. The proposed administration building is located in the same position as the existing but at a revised level enabling universal access and therefore more equitable access from the road. The Administration building is bordered by turf, new and existing trees. The existing carpark remains to the South-

	<p>eastern portion of the site with no works planned in this area. To the North of the site the landscape character of the existing site remains largely unchanged with large specimen trees within turf. The outlook from the street is that of a park like setting all be it contained by the school's fence network.</p> <p>The buildings are a direct response to the Standard Pattern Primary School Brief. The landscape design incorporates a tree and plant palette that references the coastal environment in which the school is located. The hard landscape palette has also been selected to tie in with the coastal environment via the use of natural limestone retaining walls and terraces along with muted light grey unit paving.</p>
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Based on the responses provided above, the proposed development is considered to sufficiently address the JDRP's comments.

City of Joondalup Administration

City of Joondalup Administration supports the proposal subject to conditions which are discussed in further detail in the subsequent sections of this report.

Planning Assessment:

Zoning and Use Permissibility

The subject site is zoned 'Urban' under the Metropolitan Region Scheme and reserved for 'Public Purposes' under the City of Joondalup Local Planning Scheme No. 3 (LPS No. 3).

As listed under LPS No. 3 the objective of the 'Public Purposes' reserve is:

To provide for a range of essential physical and community infrastructure

Given that the proposed works are additions to an existing public primary school, the proposal is considered to meet the objectives of the 'Public Purposes' reserve.

Metropolitan Region Scheme

Clause 30 of the Metropolitan Region Scheme (MRS) requires the WAPC to have regard to the following factors when determining a Development Application:

- *The purpose for which the land is zoned or reserved under the Scheme*

The redevelopment of an existing government public primary school is consistent with the Urban zoning of the site under the MRS.

- *The orderly and proper planning of the locality*

The proposal is consistent with the intended use of the site for a primary school, and the orderly and proper planning of the locality and the reservation of the site for Public Purposes under the City of Joondalup LPS 3.

- *The preservation of amenities of the locality*

The proposed redevelopment of Hillarys Primary School has been sited and designed in a manner that sensitively integrates with the surrounds of the site, and will ensure the preservation of amenities of the locality.

Western Australian Planning Commission Development Control Policy 2.4 – School Sites

The proposed public primary school has been assessed against the provisions of Development Control Policy 2.4 – School Sites (DCP 2.4) as follows:

- *Site Requirements*

At 4.04 ha, the school site meets the minimum size requirement of 4 ha established under DCP 2.4.

- *Site Selection and Planning*

Part 3.4.1 of DCP 2.4 outlines the need to ensure that the area to be occupied by buildings is level, in order to produce a satisfactory relationship between buildings and any adjoining hard-surfaced play area.

Existing site conditions include topography that is slightly sloped, with elevation ranging between AHD 27.5 m to AHD 35.5 m.

Given that the works are to occur at an existing school site, in areas containing existing buildings, the development on this site is considered acceptable. Furthermore, the proposed building locations are relatively flat with the majority of the sloping occurring along the western and south western lot boundaries, where no buildings are to be constructed.

- *Relationship to Nearby Land Uses*

The primary school is an existing facility which operates adjacent to residential land uses. The proposed works will not result in any additional conflict with surrounding uses.

- *Access Considerations*

The school will maintain three road frontages to Lymburner Drive.

Upon completion of the proposed development, vehicle access will be provided via three crossovers along the street frontage of the site. This includes two two-way access and egress points and two one-way access points, both of which are from the same crossover. These one-way access points provide access to the existing kiss and drive facilities.

Traffic Considerations

Car Parking

In order to promote a consistent approach across the metropolitan region, the provision of parking at new public primary schools is assessed against the Guidelines contained within the Department of Education Primary Schools Brief (the Brief). It is noted that the City does not specifically provide carparking requirements for public primary schools (only private primary schools) under their local planning policy (POL-TP-129 Vehicle Parking Standards). As such, assessment has solely been based of the requirements as set out by the Department of Education which are detailed under Table 1 below.

Table 1: Parking Assessment

Provision	Bays Required¹	Proposed	Compliant
Kindergarten <ul style="list-style-type: none"> • 8 bays as a minimum • 7 additional bays as a Department of Education directive. 	15	15	Yes
Primary and Pre-Primary <ul style="list-style-type: none"> • 14 pick-up/drop-off bays per 100 students, with a minimum of 60 bays • 10 staff bays per 100 students, with a minimum of 46 on-site bays (including 3 visitor bays) 	78 drop-off / pick-up bays 50 bays for staff and visitors	117	No
Accessible Bays <ul style="list-style-type: none"> • 1 bay for every 30 on-site bays. Additional Non-Compulsory Parking <ul style="list-style-type: none"> • 4 bays for canteen staff; • 6 bays for the dental therapy clinic; and, • Additional accessible bays as required. 	5 universal access bays	4 universal access bays	No
Total	148 bays	136 bays (91 on-site bays 45 street bays)	Yes
¹ Based on 592 FTE students, 40 of which are Kindy			

The City does not identify specific car parking requirements and as such further assessment on the matter will solely be based off the requirements as set out by the Department of Education.

While the parking assessment provided above indicates a shortfall of twelve (12) bays, the following should be noted:

- Site constraints associated with the existing layout of the school restrict the development's capacity to provide additional parking;
- The school is actively managing its kiss and drive facilities to minimise traffic congestion around the school.
- The City of Joondalup support the proposal and have not raised any concerns regarding insufficient parking;
- A Traffic Impact Statement (TIA) has been submitted with the application which concludes that parking and traffic associated with the proposal is capable of appropriately being managed through the preparation of a Traffic Management Plan. This TIA is discussed in further detail below;
- The school has implemented staggered start and finish times for kindy students to reduce peak traffic flows; and
- Discussions with the School principal have indicated due to ongoing disruptions with the school terms as a result of COVID-19, the school has not had the opportunity to properly implement the 'Your Move' program which was conditioned on a previous approval. The effective implementation of this program is anticipated to reduce car dependence and promote alternative modes of transport including walking, cycling and public transport.

Based on this, there are a number of measures which may be implemented to appropriately manage parking. It is recommended that the following be included to address this:

- The school is to continue its efforts with the implementation of the Department of Transport's 'Your Move' program (Recommended Advice Note 2); and
- The school is to prepare a Traffic Management Plan (Recommended Condition 2)

Given that there is also a shortfall of three (3) accessible bays, a condition is also recommended requiring the applicant provide a total of five (5) accessible bays on-site prior to occupation (Recommended Condition 3).

Additionally, a condition is recommended requiring that all car parking and associated vehicle access areas shown on the approved plans shall be constructed, drained, sealed and marked prior to occupation of the proposed buildings, and thereafter maintained to the satisfaction of the Western Australian Planning Commission (Recommended Condition 4).

Bicycle Parking

In respect of bicycle parking, the Brief stipulates that a standard pattern primary school is to have two bicycle parking facilities, catering for a total of 48 student bicycles. For other cases, bicycle parking provision should be provided in accordance with advice from the Roads and Traffic Authority (now Roads and Maritime Services) of New South Wales *Guide to Traffic Generating Developments* which specify the following:

- 1 rack or bay for every 25 to 35 staff; and
- 1 rack or bay for every 10 children.

On the basis of the accommodated 592 FTE students and 48 staff members, this would require 62 bicycle racks.

The City does not identify specific parking requirements for bicycles and as such further assessment on the matter will solely be based of the requirements as set out by the Department of Education.

The school currently provides 46 bicycle parking bays, and no additional bays are proposed as part of these works. This is considered acceptable, noting that while there is a shortfall of 16 bays, this calculation also takes into consideration kindy and pre-primary students who are unlikely to ride a bike to school. If the kindy and pre-primary students are excluded from the calculation, the number of bicycle bays required would be reduced to 45 bays, which meets the Department of Education's requirements. The City of Joondalup has not raised any concerns in relation to the provision of bicycle parking.

Traffic Generation

As previously mentioned, the application is supported by a TIA prepared by Cardno, provided as Attachment 6. The TIA indicates that the proposed primary school is not expected to have an unacceptable impact on the surrounding road network.

Whilst this is noted, as previously mentioned Condition 2 is being included to require the applicant to prepare a Traffic Management Plan. This will allow the school to monitor traffic generation, car parking and bicycle demand. It is recommended that the Traffic and Parking Management Plan include a Kiss and Drive Operational Plan to ensure that the proposed kiss and drive facility is appropriately managed by staff or parent volunteers during peak drop-off and pick-up times.

Landscaping

As noted in the Landscape Masterplan (Attachment 4) and Arborists Report (Attachment 5), whilst majority of trees are to retained on site, a number of trees need to be removed to allow for construction works to be undertaken. Further details on which trees are being removed are shown in the Landscaping Masterplan (refer Attachment 4). A condition is recommended requiring the applicant to carry out all landscaping works in accordance with the submitted Landscaping Masterplan (Recommended Condition 5).

Heritage Considerations

A desktop search of European and Aboriginal heritage indicates that the site has no known heritage significance.

Environmental Considerations

A desktop search of environmental factors indicates that the site is classified as having low to no risk of Acid Sulfate Soils (ASS) occurring generally at depths of less than 3 m and that there are no wetlands or vegetation of significance identified on the site.

Contamination

A desktop search of the Department of Water and Environmental Regulation Contaminated Sites Database indicates that the subject site is not a registered contaminated site.

Public Drinking Water Source Areas

A desktop search of environmental factors indicates that the subject site is not registered as a public drinking water source area.

Bushfire

A desktop search of the State Map of Bush Fire Prone Areas indicates that the school site is not affected by any bushfire prone areas.

City of Joondalup Recommendation

The application was referred to the City for comment with a response received indicating its support for the proposal subject to thirteen (13) conditions and four (4) advice notes (Attachment 8). These are discussed below.

Recommended Conditions

1. *This approval relates to the additions and alterations to the existing primary school and associated works only and development shall be in accordance with the approved plan(s), any other supporting information and conditions of approval. It does not relate to any other development on the lot.*

This is covered by the standard approval wording and does not need to be included as a separate condition.

2. *All stormwater shall be collected on-site and disposed of in a manner acceptable to the City.*

It is recommended that the standard stormwater management condition be included to address this (Recommended Condition 6).

3. *All development shall be contained within the property boundaries.*

The proposed development is clearly indicated within the lot boundaries on the plans submitted. The standard approval wording requires development to commence in accordance with the approved plans. It is therefore not considered necessary to include as a separate condition of approval.

4. *All external walls of the proposed building shall be of a clean finish and shall at all times be free of vandalism, to the satisfaction of the City.*

Condition 1 is considered sufficient in addressing this.

5. *Modifications to any car parking bays, driveways and access points shown on the approved plans are to be designed, constructed, drained and marked in*

accordance with the Australian Standards (AS2890), prior to the occupation of the development. These bays are to be thereafter maintained to the satisfaction of the City.

Condition 4 is considered sufficient in addressing this.

6. *A Construction Management Plan shall be submitted to and approved by the City prior A Construction Management Plan being submitted and approved prior to the commencement of development. The management plan shall include details regarding mitigation measures to address impacts associated with construction works and shall be prepared to the specification and satisfaction of the City. The construction works shall be undertaken in accordance with the approved Construction Management Plan.*

The City's recommended condition is considered reasonable and the standard construction management plan condition will be included as recommended Condition 7.

7. *A full schedule of colours and materials for all exterior parts to the building is to be submitted to and approved by the City prior to the commencement of development. Development shall be in accordance with the approved schedule to the satisfaction of the City.*

Condition 1 is considered sufficient in addressing this.

8. *Any proposed building plant and equipment, including air conditioning units, piping, ducting and water tanks shall be located so as to minimise any visual and noise impact on surrounding landowners, and screened from view from the street, and where practicable from adjoining buildings. Details shall be submitted to and approved by the City prior to the commencement of development. Development shall be in accordance with these approved details.*

The City's recommended condition is considered reasonable and the standard screening of planning equipment condition will be included to address this as recommended Condition 8.

9. *All bicycle parking facilities provided should be designed in accordance with the Australian Standard for Off-street Car parking – Bicycles (AS2890.3-1993). Bicycle spaces are to be undercover and installed prior to the occupation of the development and thereafter maintained to the satisfaction of the City.*

It is recommended that standard compliance with the Building Codes of Australia advice note be included with amended wording to specifically address AS2890.3-1993 as recommended Advice Note 3.

10. *A detailed landscaping plan shall be submitted to, and approved by, the City prior to the commencement of development. The Plan is to, indicate the proposed landscaping treatment(s) of the subject site and the adjoining road verge (if applicable), and shall:*

- *Be drawn at an appropriate scale of either 1:100, 1:200 or 1:500;*
- *Provide all details relating to paving, treatment of verges and tree planting in the car park;*
- *Show spot levels and/or contours of the site;*

- *Indicate any natural vegetation to be retained and the proposed manner in which this will be managed;*
- *Be based on water sensitive urban design principle to the satisfaction of the City;*
- *Be based on Designing out Crime principles to the satisfaction of the City; and*
- *Show all irrigation design details.*

As previously discussed, the applicant has already submitted landscape plans (Attachment 4) which will be adhered to through the inclusion of Condition 5. The submitted landscape plans clearly indicate all of the items raised by the City in their recommended condition. Based on this it is not considered necessary to include a separate condition requiring the preparation of landscape plans.

11. Landscaping and reticulation shall be established in accordance with the approved landscaping plan, Australian Standards and best trade practice prior to the development first being occupied and thereafter maintained to the satisfaction of the City.

Condition 5 is considered sufficient in addressing this.

12. The fencing infill panels and pedestrian gates as shown on the approved plans shall be visually permeable.

As previously discussed, the applicant is proposing to install garrison fencing with no infill panels. Furthermore this fencing has been assessed against the Guidelines and is considered to be compliant. Based on this the inclusion of a separate condition is not considered necessary.

13. No walls, fences or other structures higher than 0.75 metres shall be constructed within 1.5 metres of where the driveways meets the front boundary.

The inclusion of a separate condition to address this is not considered necessary. This is on the basis that the only structures adjacent to a crossover are fencing. Part of the fencing requirements as set out in the Guidelines include ensuring that car parks and pedestrian crossovers are not obstructed as a result of the fence. Given that the proposed fence is compliant with the Guidelines it is also there for considered compliant with the City's recommended condition.

Recommended Advice Notes

a) Any existing infrastructure/assets within the road reserve (e.g. footpath, kerbing and street trees) are to be retained and protected during construction of the development and are not to be removed or altered. Should any infrastructure or assets be damaged during the construction of the development, it is required to be reinstated to the satisfaction of the City.

It is recommended that the standard protection of City infrastructure advice be included to address this (Recommended Advice Note 4).

b) The applicant/owner is advised that verge treatments are required to comply with the City's Street Verge Guidelines. A copy of the Guidelines can be obtained at <https://www.joondalup.wa.gov.au/verge-treatments/>.

Advice Note 4 is considered to sufficiently address this.

- c) *The City encourages the applicant/owner to incorporate materials and colours to the external surface of the buildings, including roofing, that have low reflective characteristics to minimise potential glare from the development impacting the amenity of the adjoining or nearby neighbours.*

Condition 1 is considered to sufficiently address this.

- d) *The Environmental Protection Act 1986 and the Environmental Protection (Noise) Regulations 1997 bind the Crown and are therefore applicable to the Primary School. As such:*

- a. *The school siren is to be made inoperable while the school is not in use.*
- b. *The use of any plant and air conditioning installed at the Primary School is to comply with the prescribed standards as set by the Environmental Protection (Noise) Regulations 1997.*
- c. *Due to proximity to nearby residences, the Outdoor Hard Courts are to be fenced and locked preventing use outside of school hours.*
- d. *Due to proximity to nearby residences, service and delivery vehicles coming to the school are not to come onsite prior to 7:00am or after 7:00pm Monday to Saturday or prior to 9:00am or after 7:00pm on a Sunday or public holiday.*
- e. *It is recommended that any basketball backboards installed for the Outdoor Hard Courts are to be acoustic treated using rubber mounts.*
- f. *All water drainage or storage systems are to be designed and maintained to ensure mosquito breeding cannot occur.*
- g. *Bin Storage Area shall be provided with a concrete floor graded to a 100mm industrial floor waste gully connected to sewer. Provide hose cock to bin store area.*
- h. *Floors shall grade evenly to an approved floor waste outlet in all wet areas.*
- i. *Premises used for the sale of food to comply with the requirements of the Food Act 2008 and the Australia New Zealand Food Standards Code.*

In order to address the City's comments, the following standard advice notes are recommended:

- Compliance with noise regulations (Recommended Advice Note 5);
- Noisy construction work will only occur between the hours of 7:00am and 7:00pm (Recommended Advice Note 6)

Noting that the City's recommended Condition also relates to noise compliance during operation, a separate advice note to include this is not considered necessary on the basis that firstly, it is an existing school site and operational noises after construction will be no greater than what is already present. And secondly, the operation of primary schools is exempt under the provision of the *Environmental Protection (Noise) Regulations 1997*, on the basis that majority of noise from the school is generated by students and it is unreasonable to impose restrictions on this.

Additional Standard Conditions and Advice Notes:

In addition to the conditions and advice notes recommended by the City of Joondalup, the following standard conditions are recommended to form part of the determination:

- Prior to the commencement of site works, a Dust Management Plan shall be prepared in consultation with the City of Joondalup and to the satisfaction of the Western Australian Planning Commission. Once approved, the Dust Management Plan is to be implemented in its entirety (Recommended Condition 9);
- Prior to the installation of any signage, a signage plan indicating the location and design of any proposed signage (including traffic directional signage) shall be prepared to the specification of the City of Joondalup and the satisfaction of the Western Australian Planning Commission (Recommended Condition 10); and
- The access points for the proposed development shall be designed to connect seamlessly with abutting roads and public footpath infrastructure, to the specification of the City of Joondalup and the satisfaction of the Western Australian Planning Commission (Recommended Condition 11)

Standard advice notes are recommended to:

- All development must comply with the provisions of the Health Regulations, Building Code of Australia, Public Building Regulations and all other relevant Acts, Regulations and Local Laws. This includes the provision of access and facilities for people with disabilities in accordance with the Building Codes of Australia (Advice Note 7).
- Remind the applicant of their obligations under the *Building Act 2011* (Advice Note 8).

Conclusion:

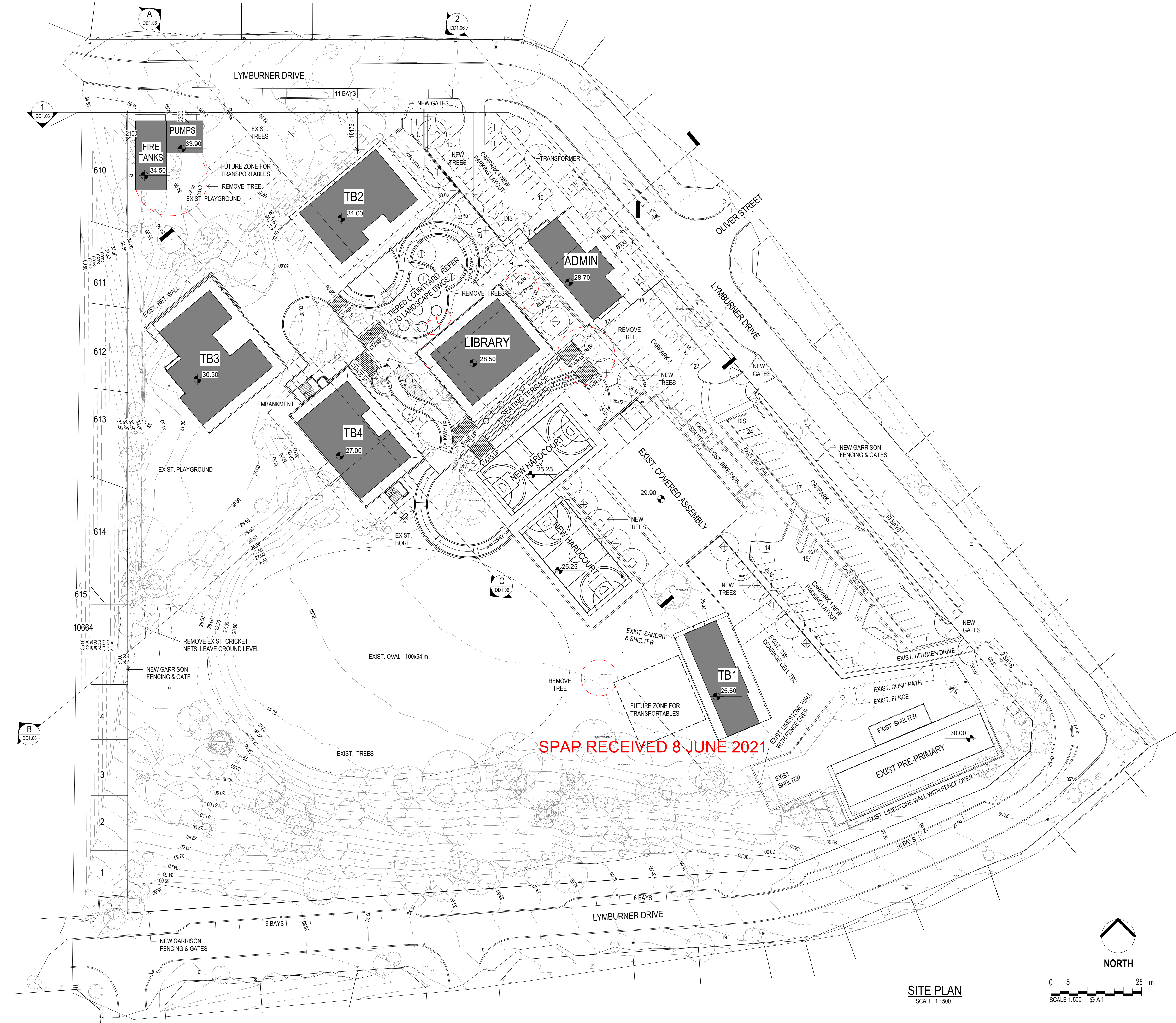
The application is considered capable of support for the following reasons:

- The proposed redevelopment of Hillarys Primary School is consistent with the intent of the public purposes reserve;
- The proposed development has adequately demonstrated that regard has been given to the provisions of LPS No. 3; and
- The proposed development is generally consistent with the relevant Local and State Government Planning policies.

Alternatives

N/A

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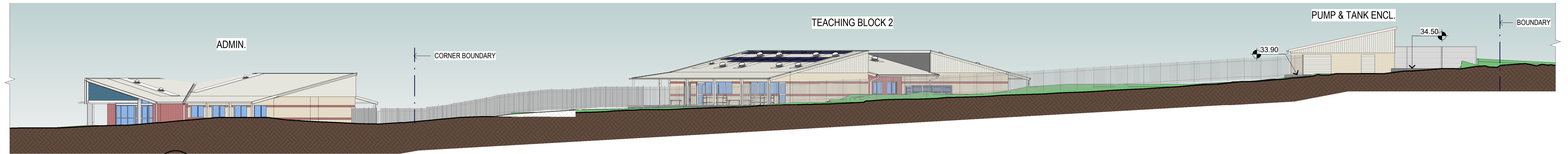


PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYBURNER DRIVE, HILLARYS
SITE PLAN

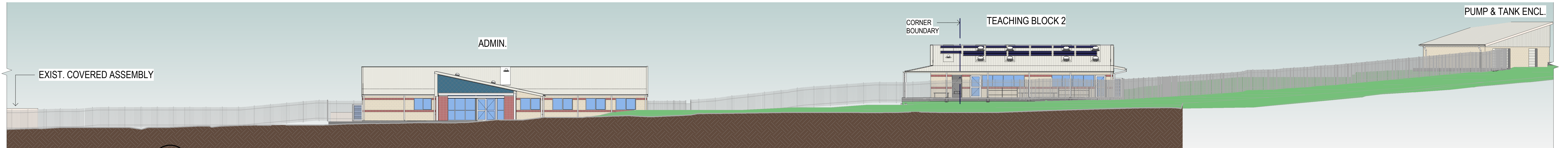
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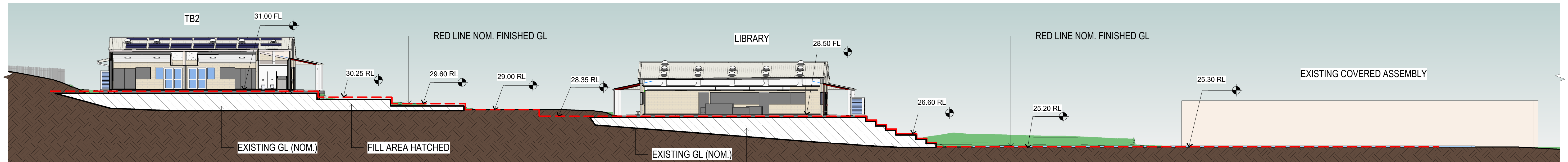
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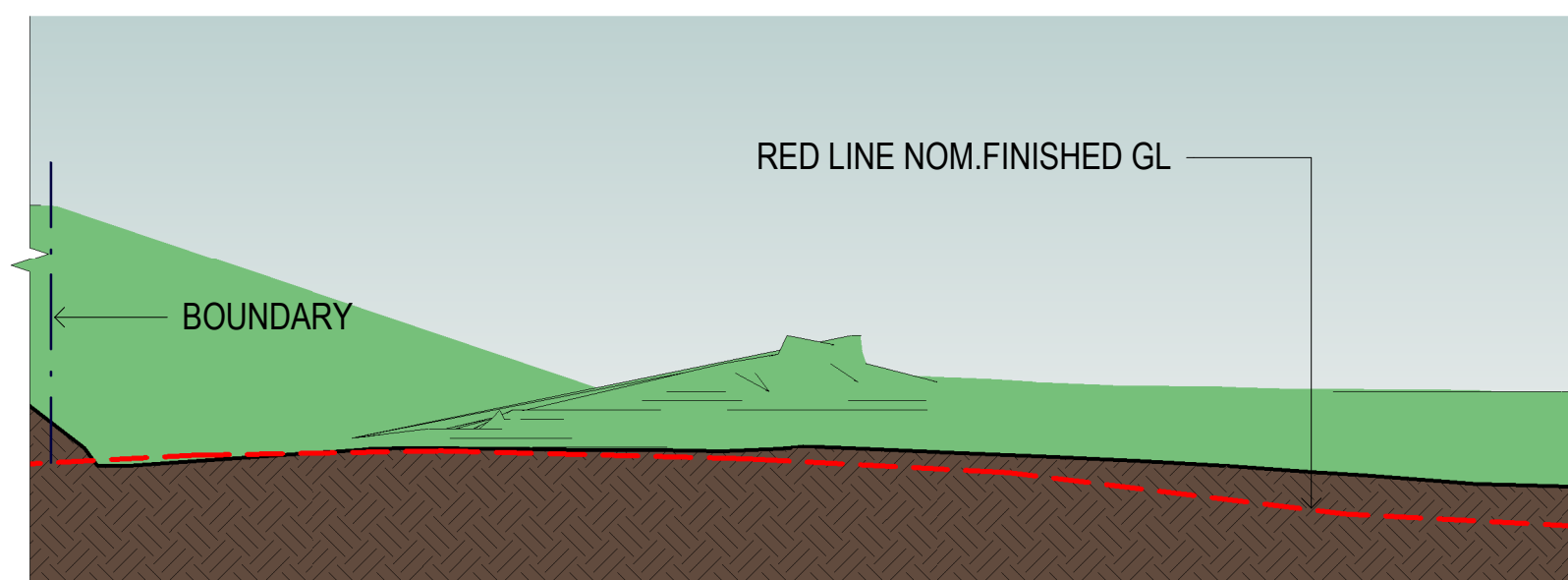
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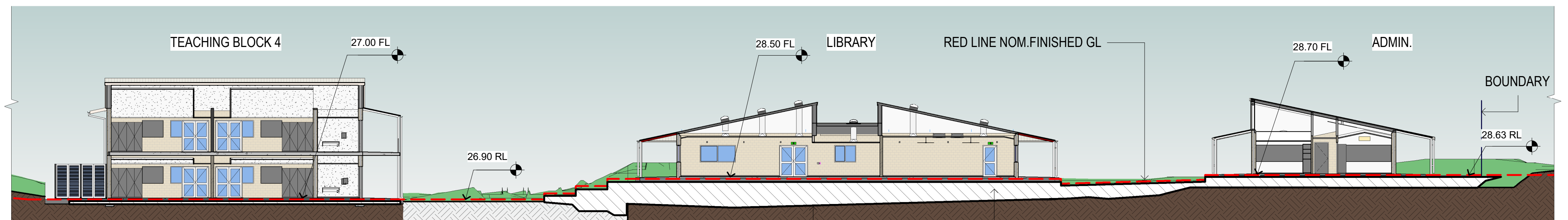
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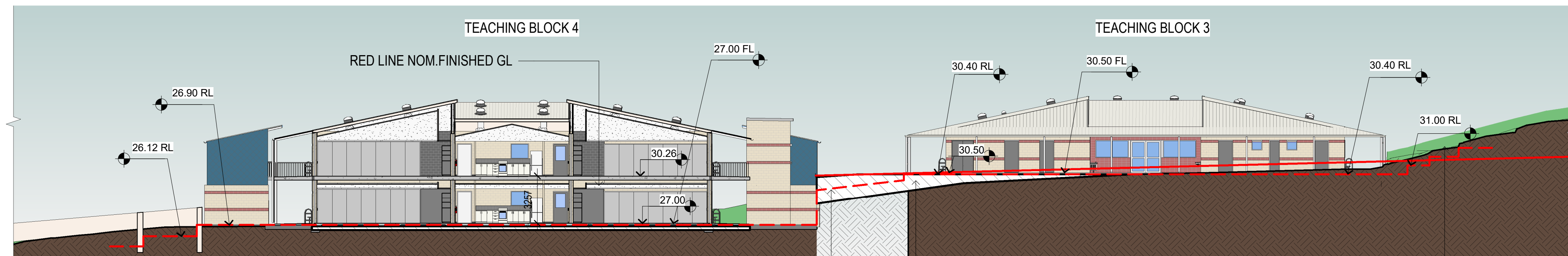
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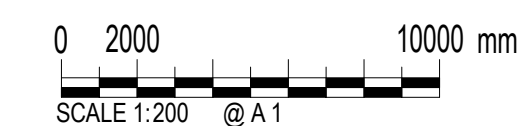
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C SECTION D
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PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
SITE PLAN

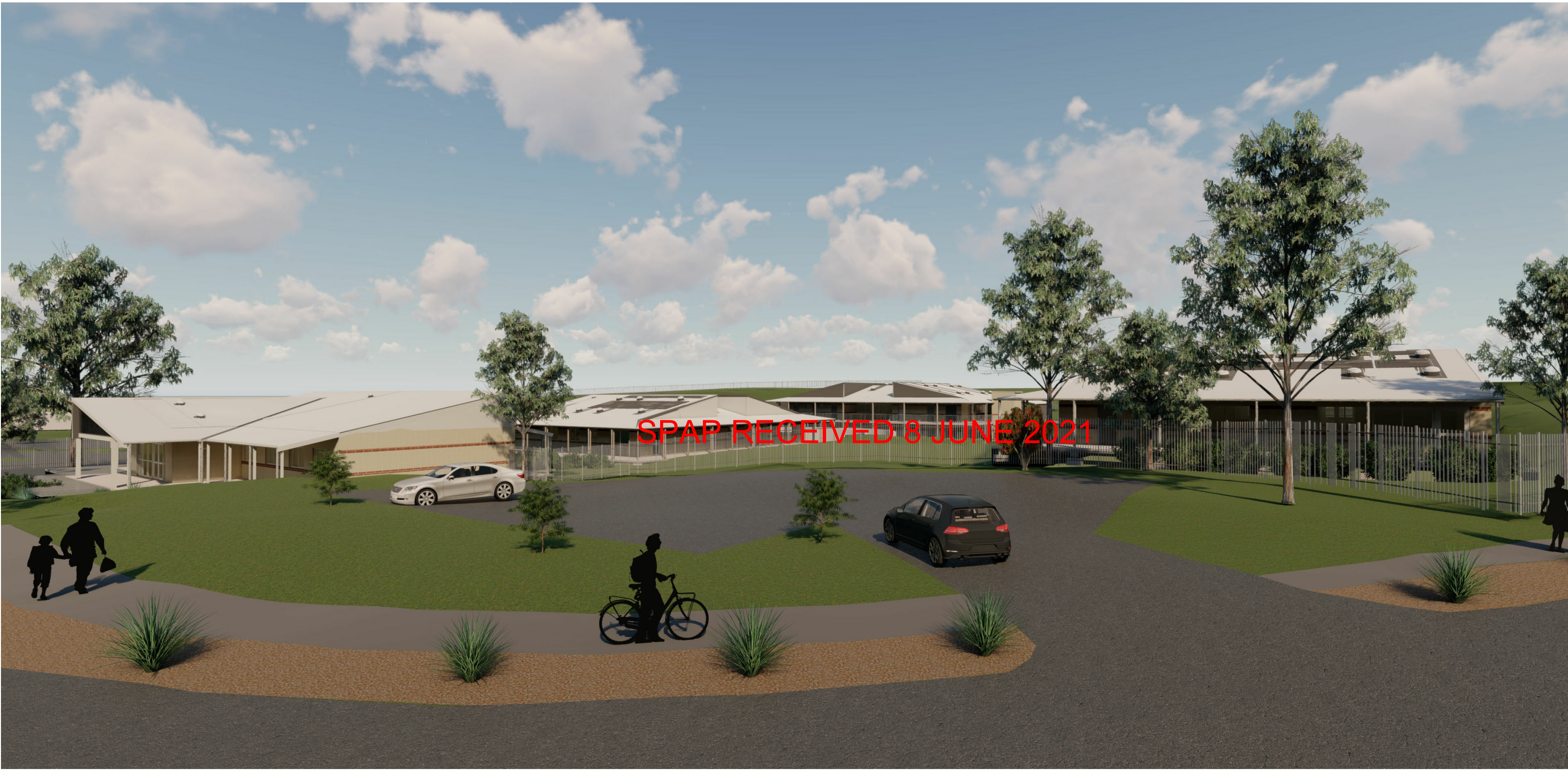
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VIEW TOWARDS ADMIN. BLOCK



NORTH VIEW FROM LYMBURNER DRIVE.

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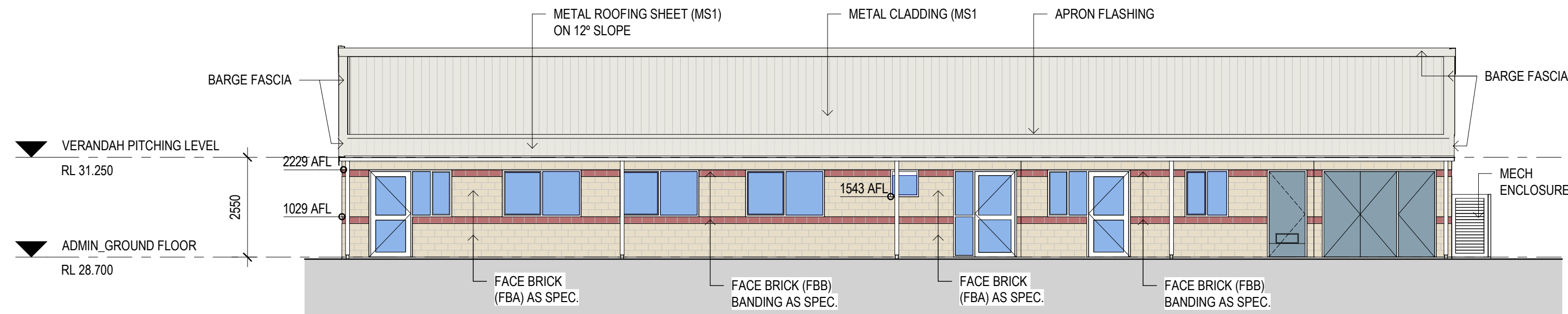
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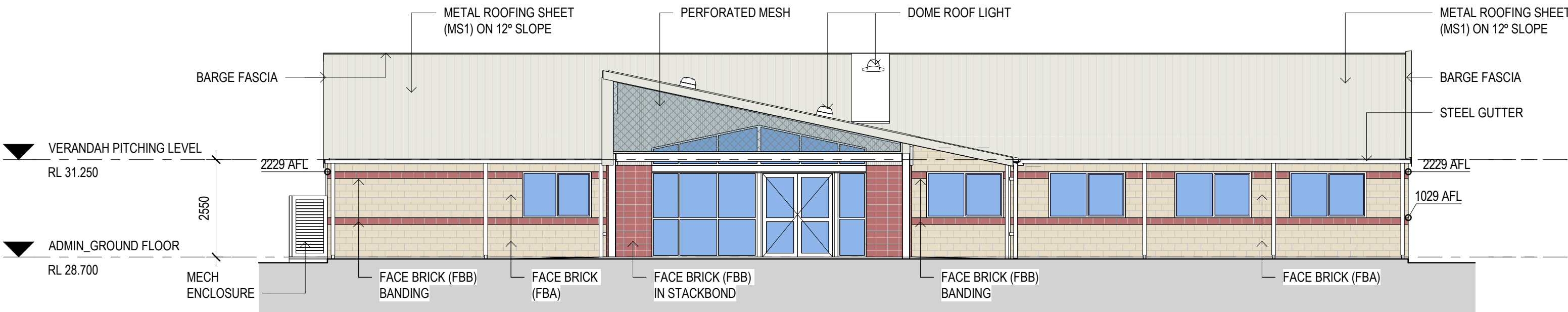
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HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
SITE PLAN

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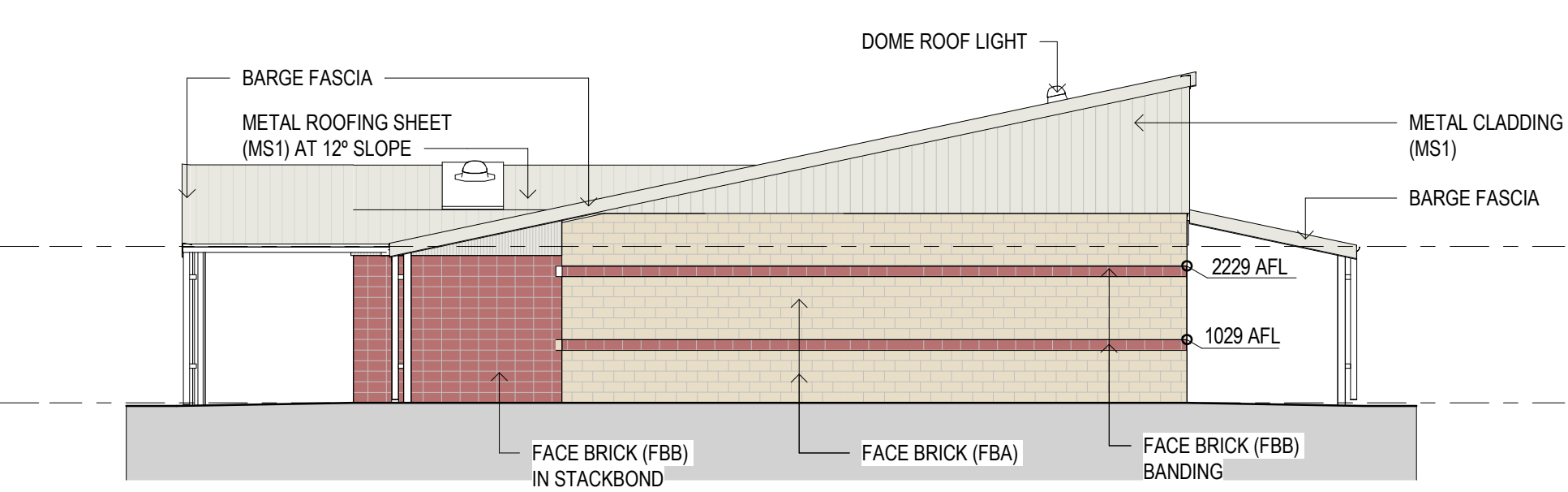
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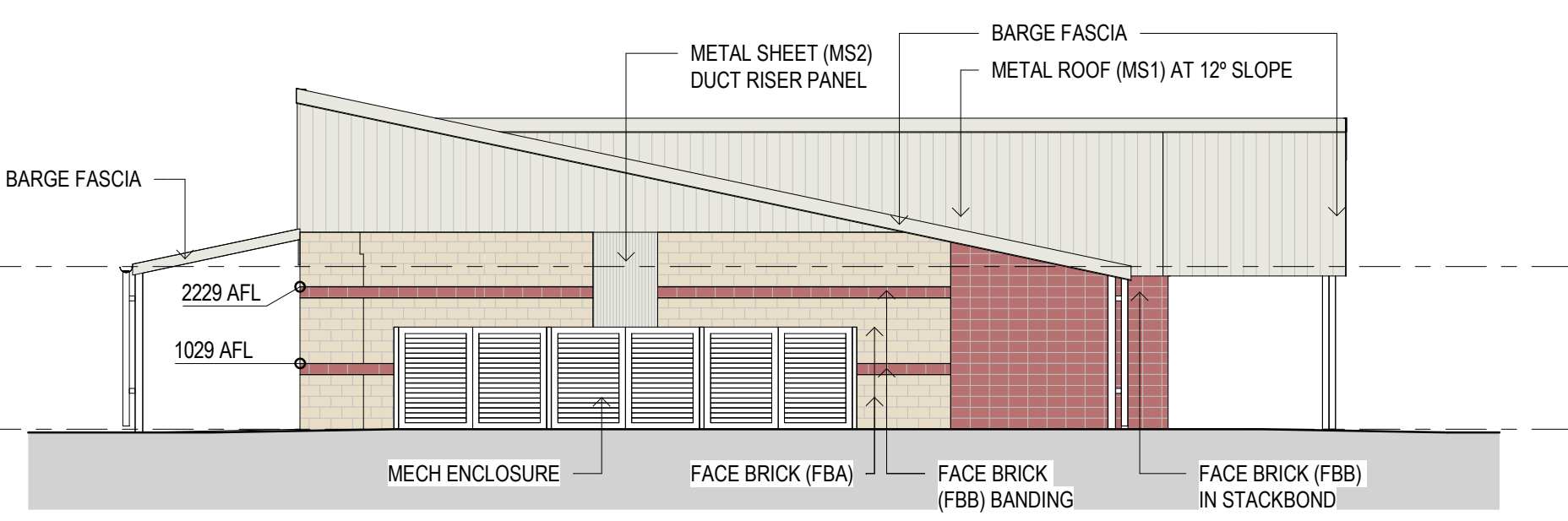
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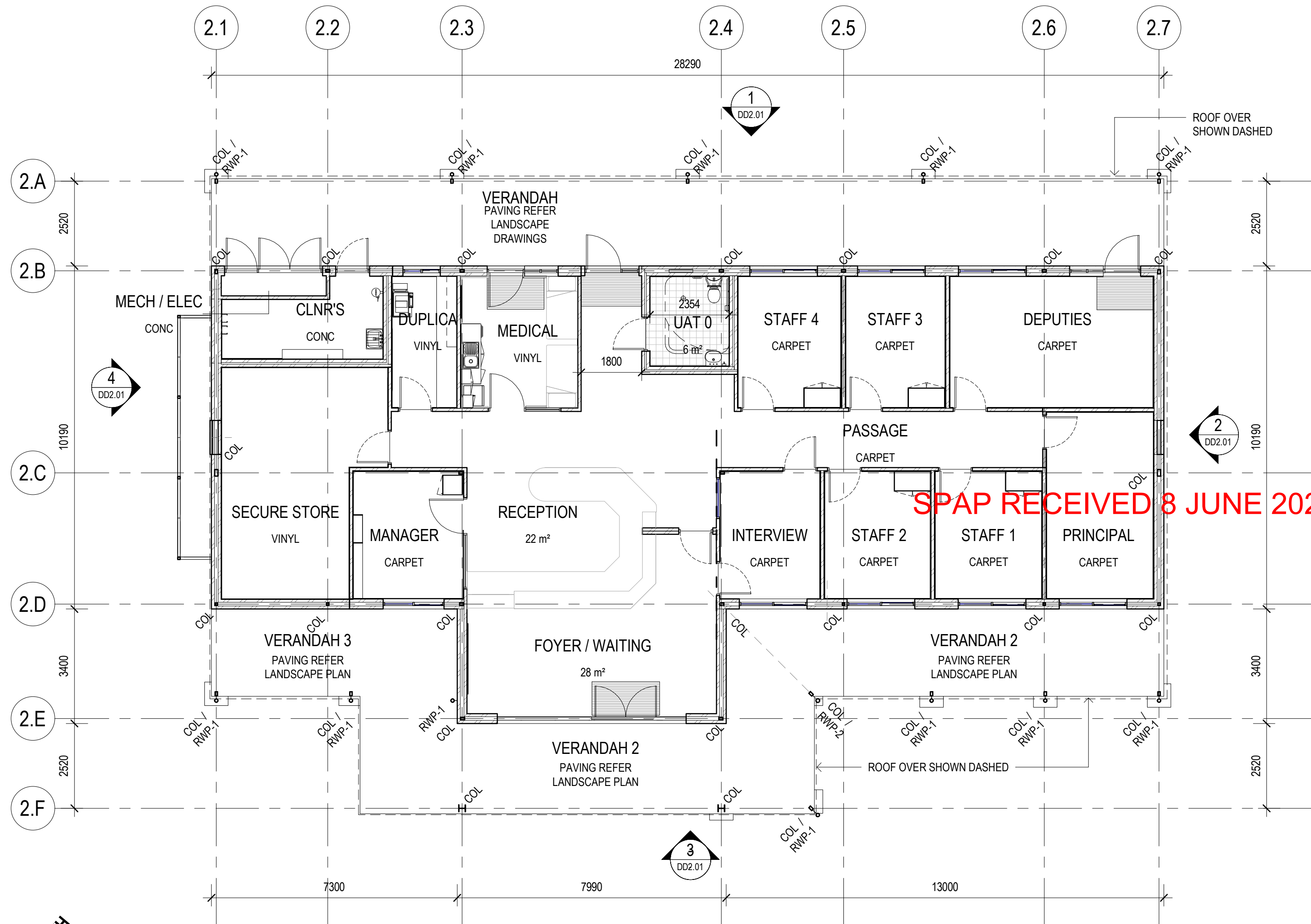
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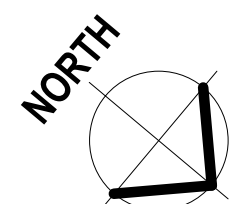
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4 SOUTH EAST ELEVATION
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FLOOR PLAN - ADMIN
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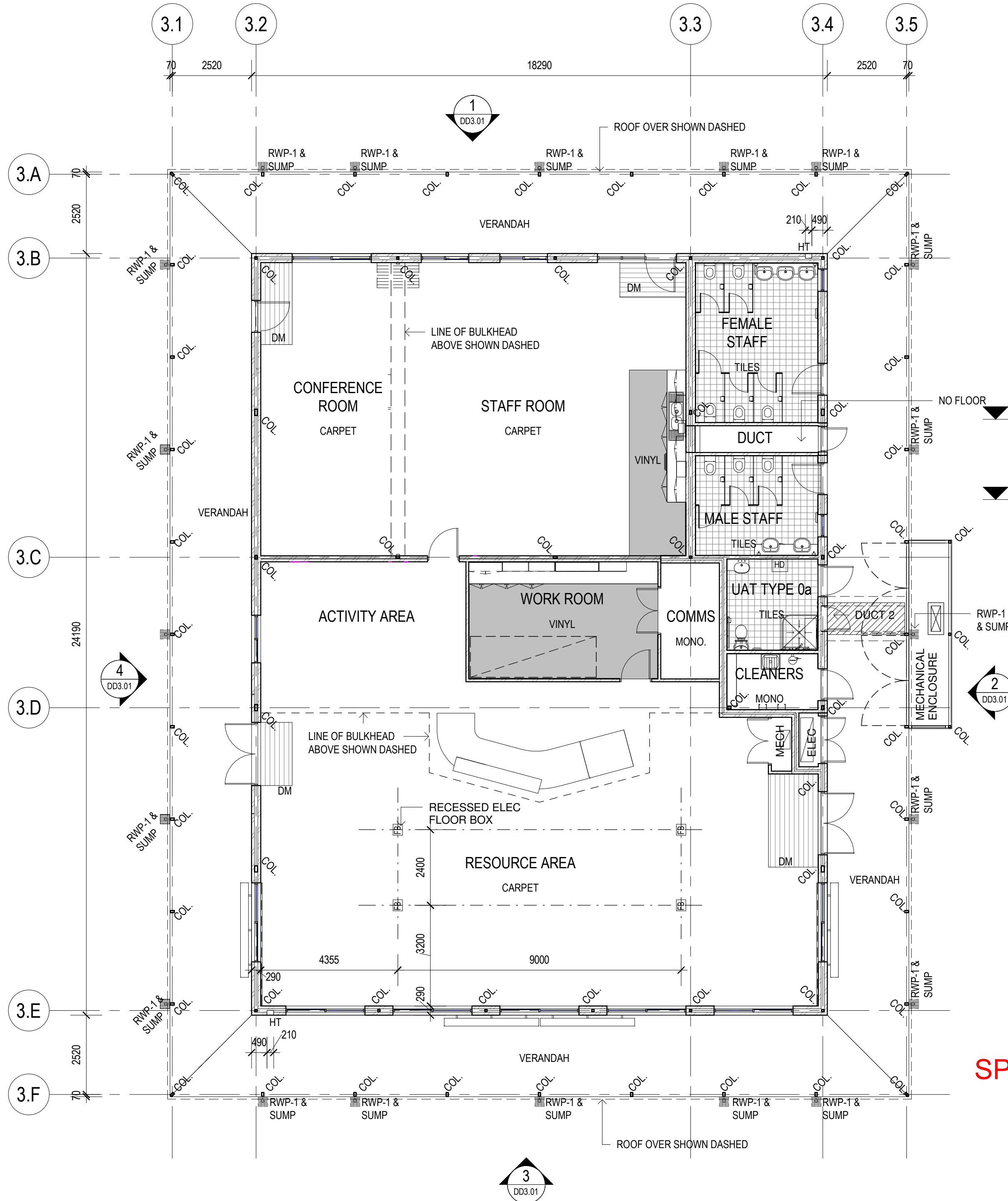
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PROJECT:
HILLARYS PS - REBUILD
75 LYMBURNER DR, HILLARYS WA
ADMIN

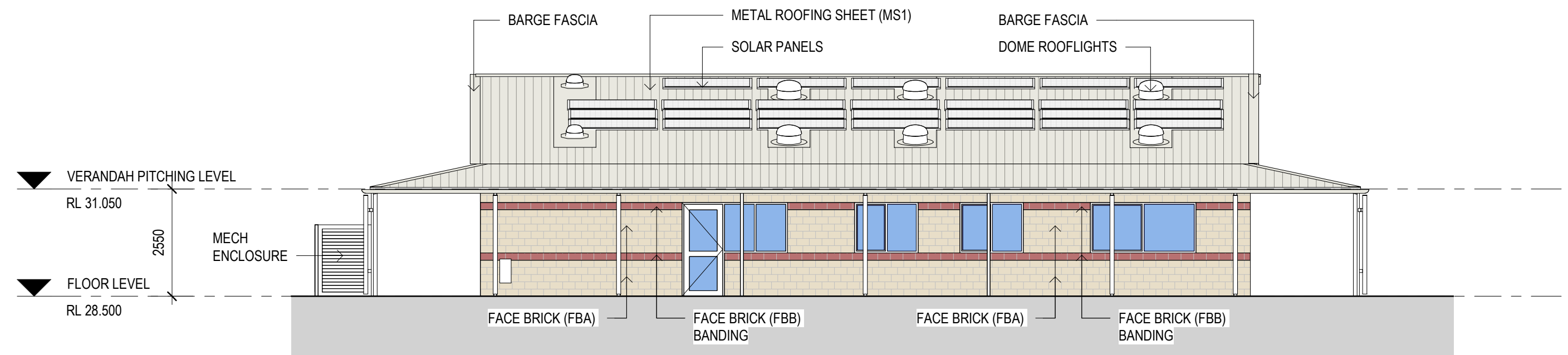
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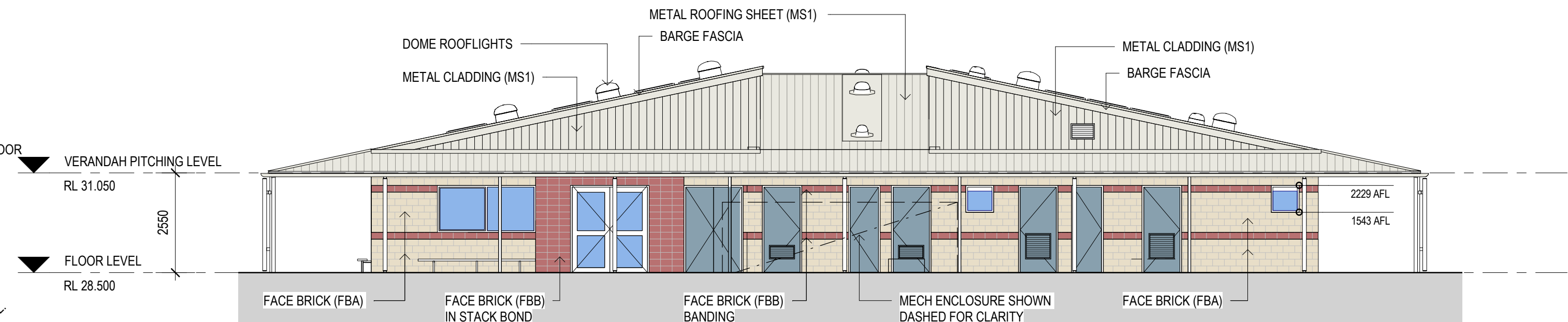
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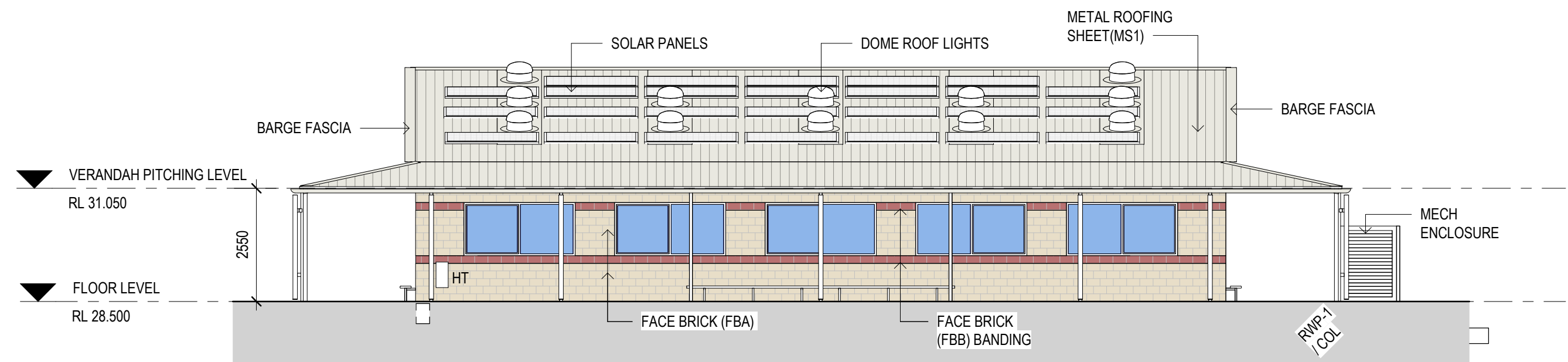
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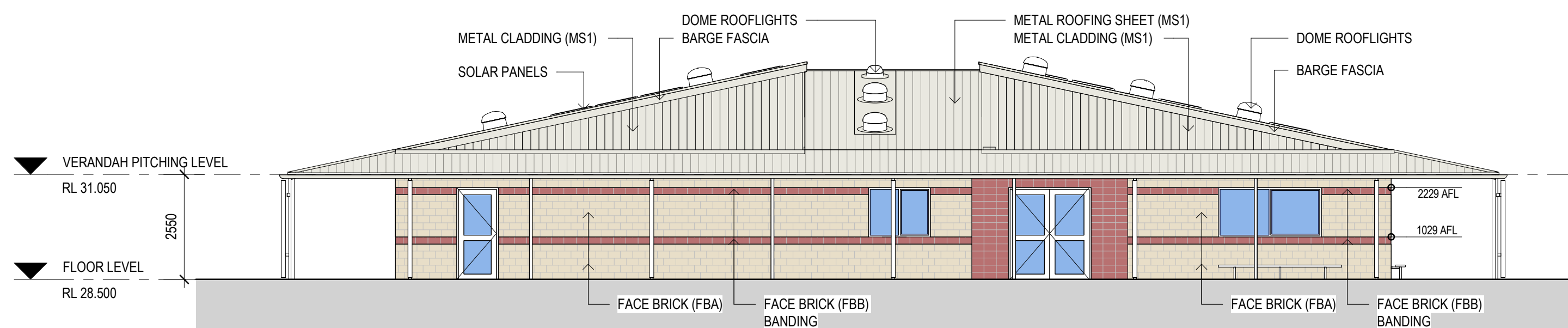
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2 SOUTH EAST ELEVATION
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3 SOUTH WEST ELEVATION
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4 NORTH WEST ELEVATION
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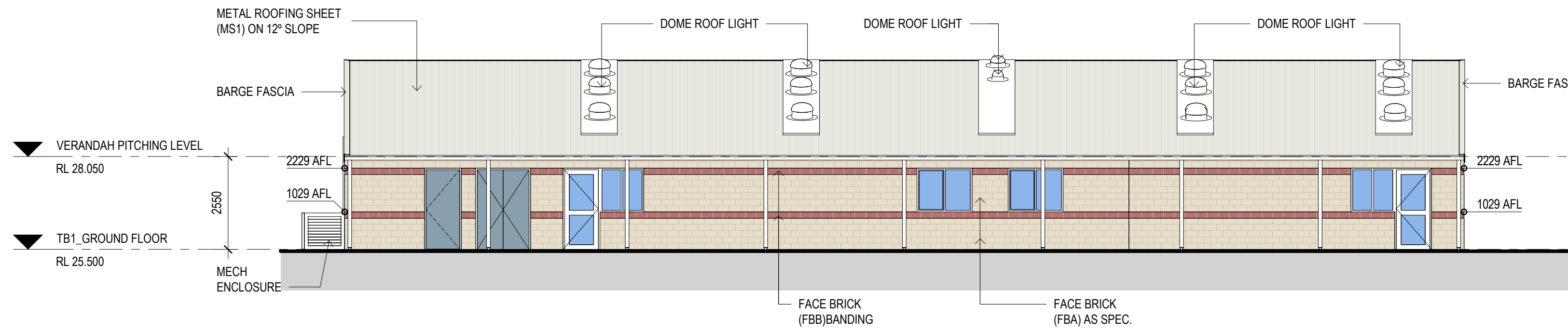
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LIBRARY

FLOOR PLAN & ELEVATIONS

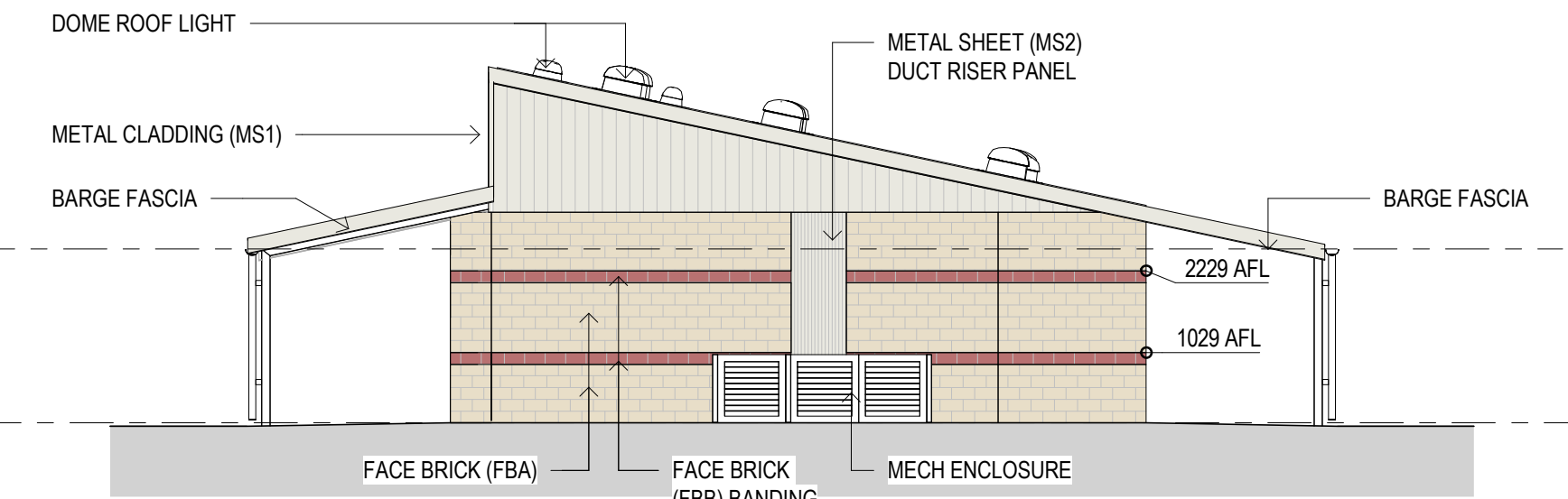
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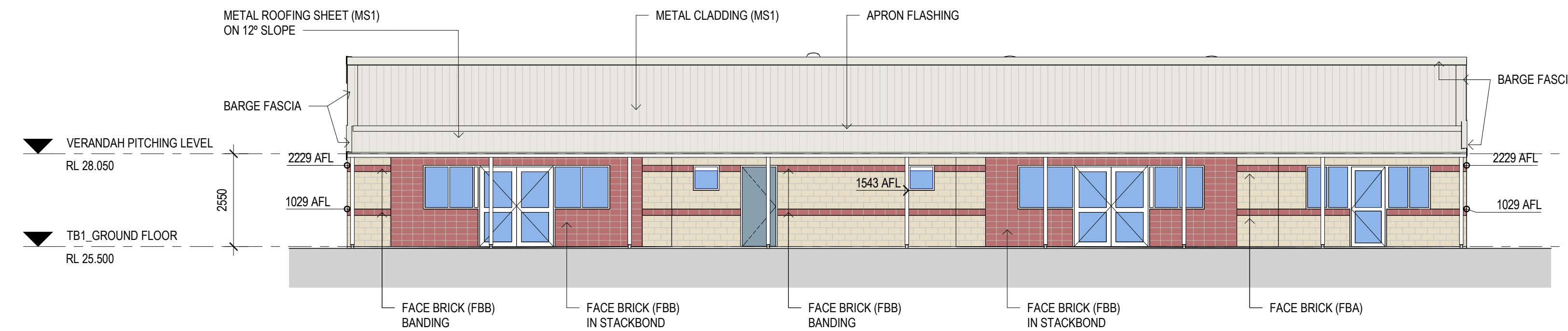
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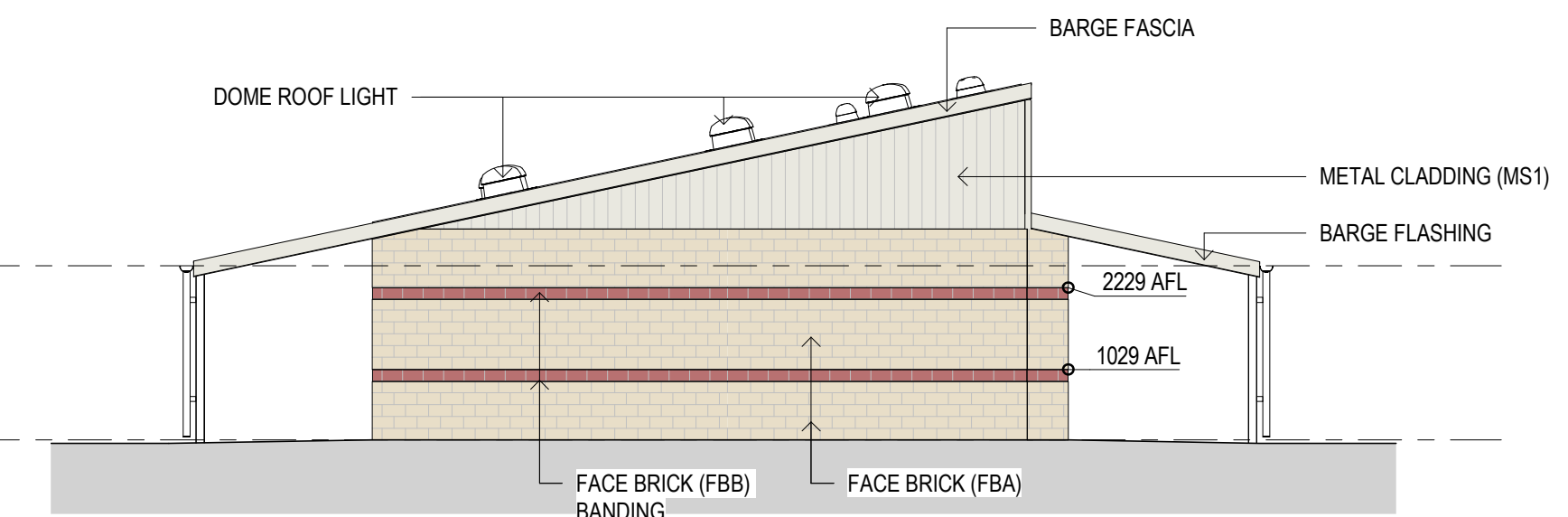
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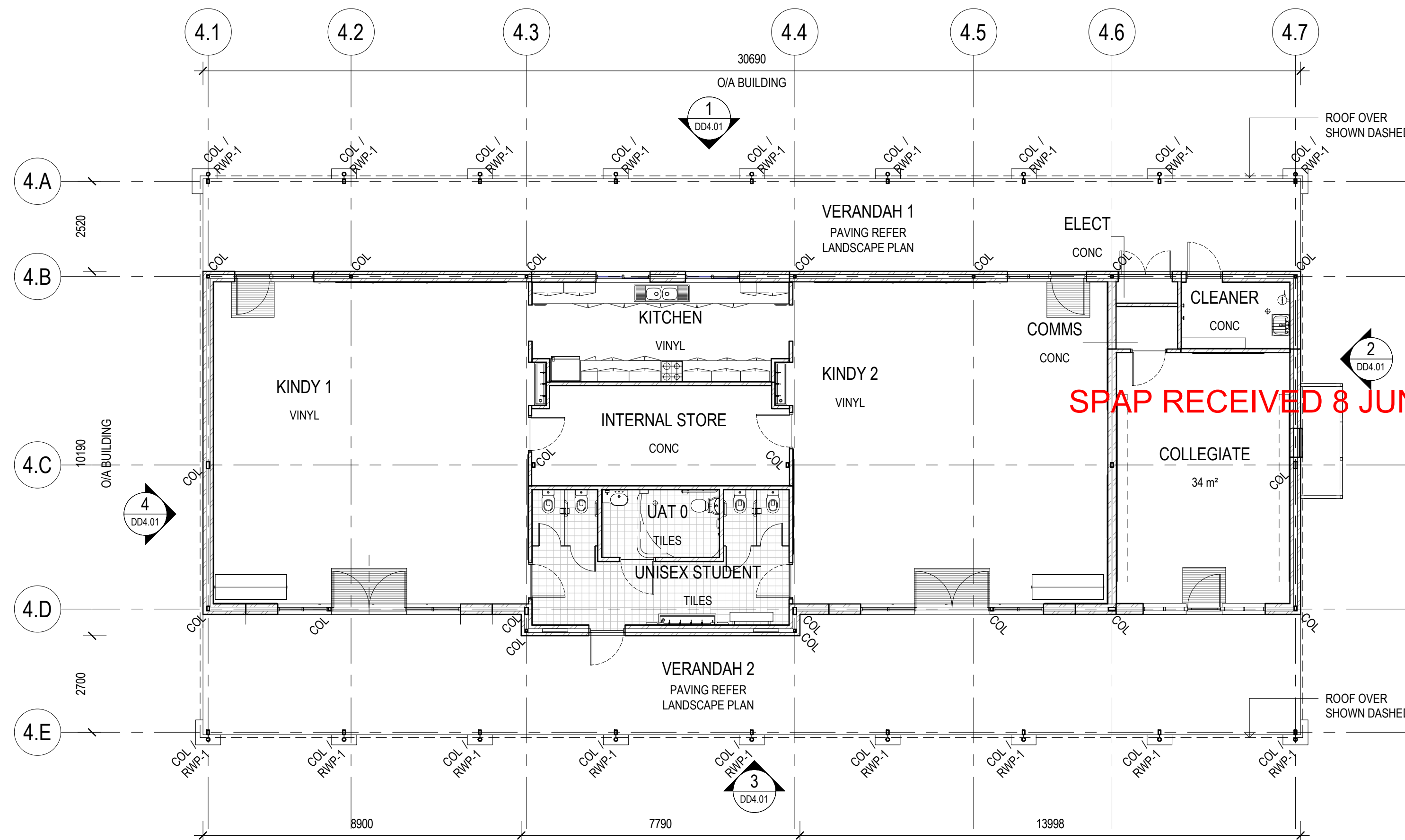
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4 SOUTH ELEVATION
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- FLOOR PLAN - TB1
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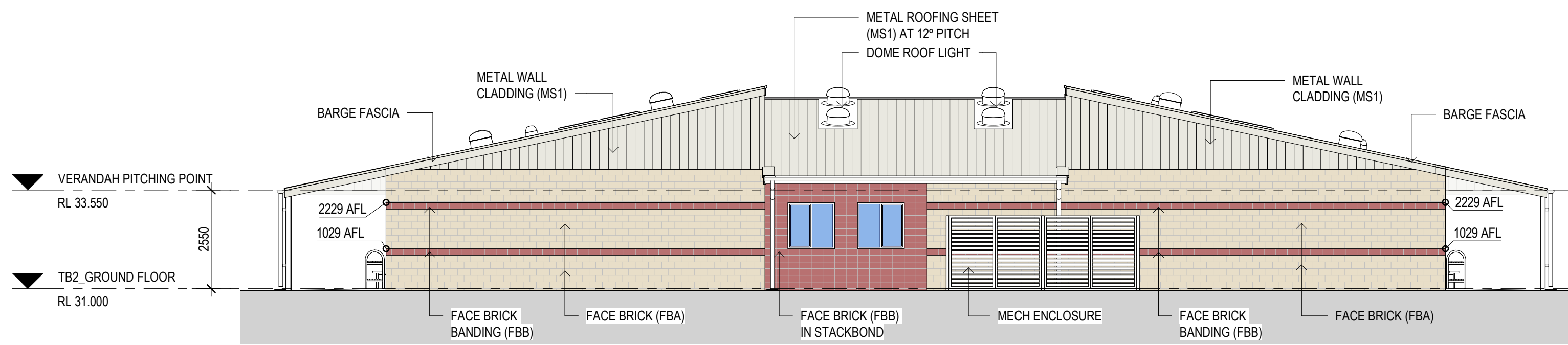
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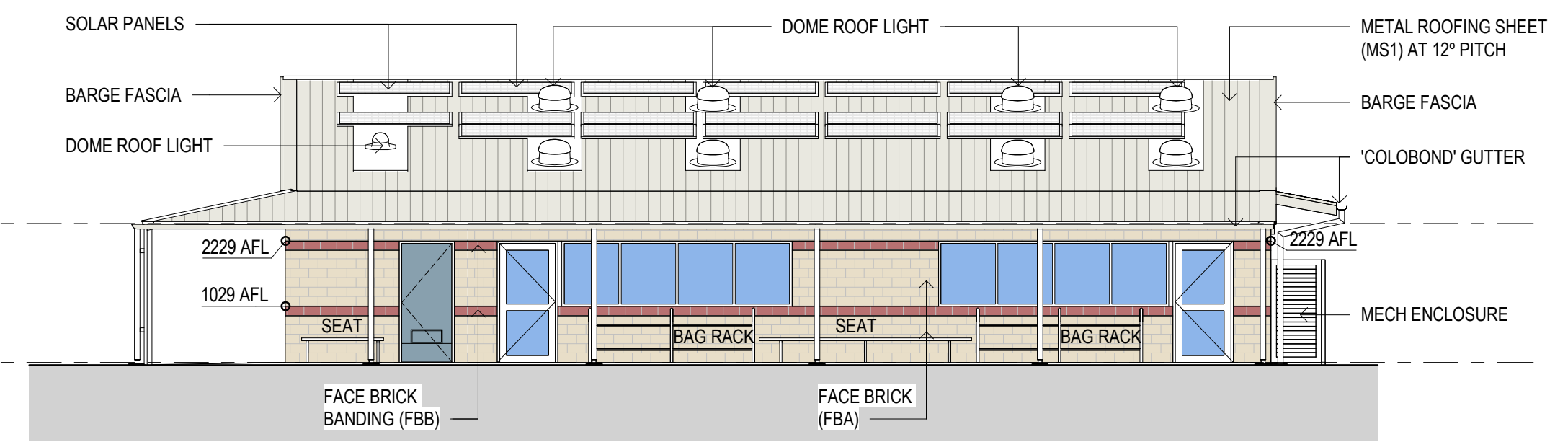
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75 LYMBURNER DR, HILLARYS WA
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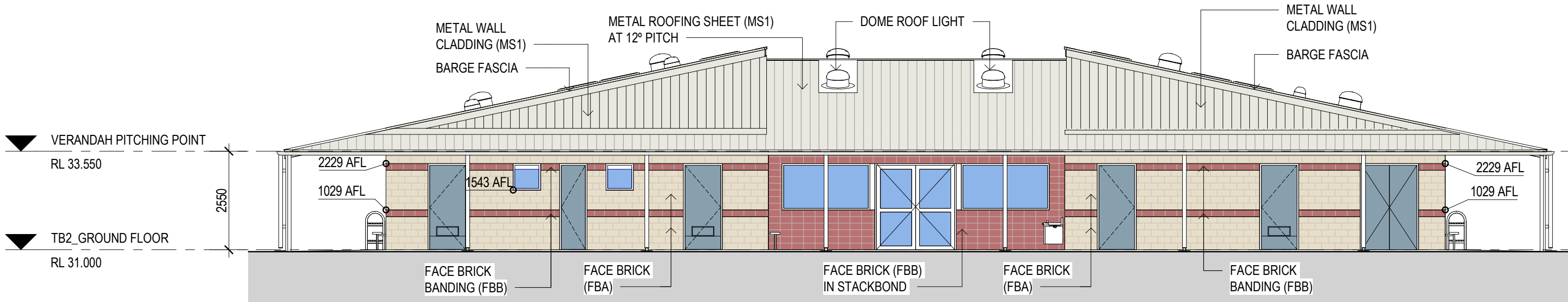
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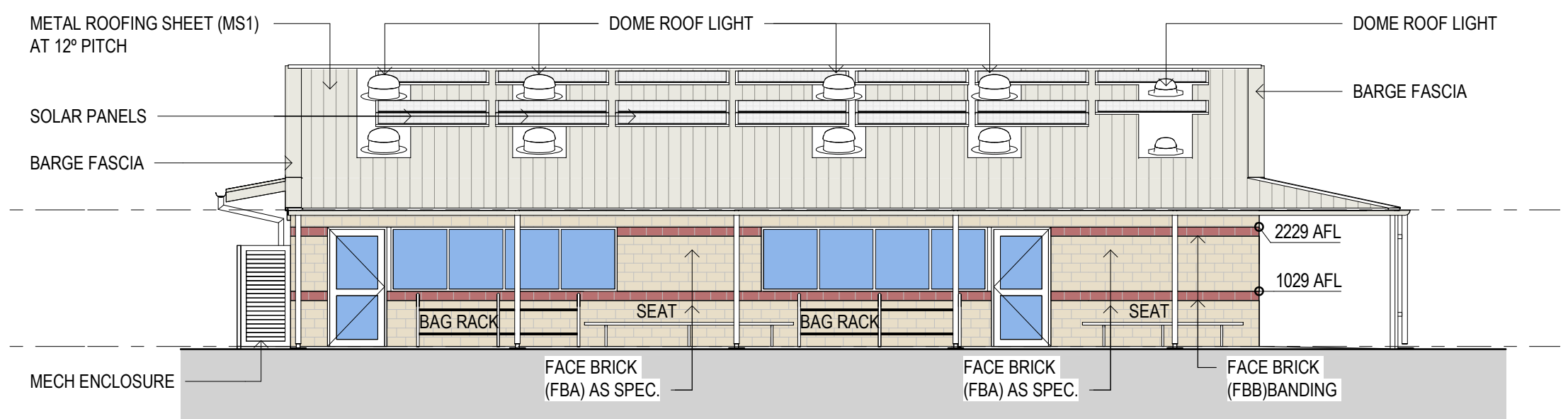
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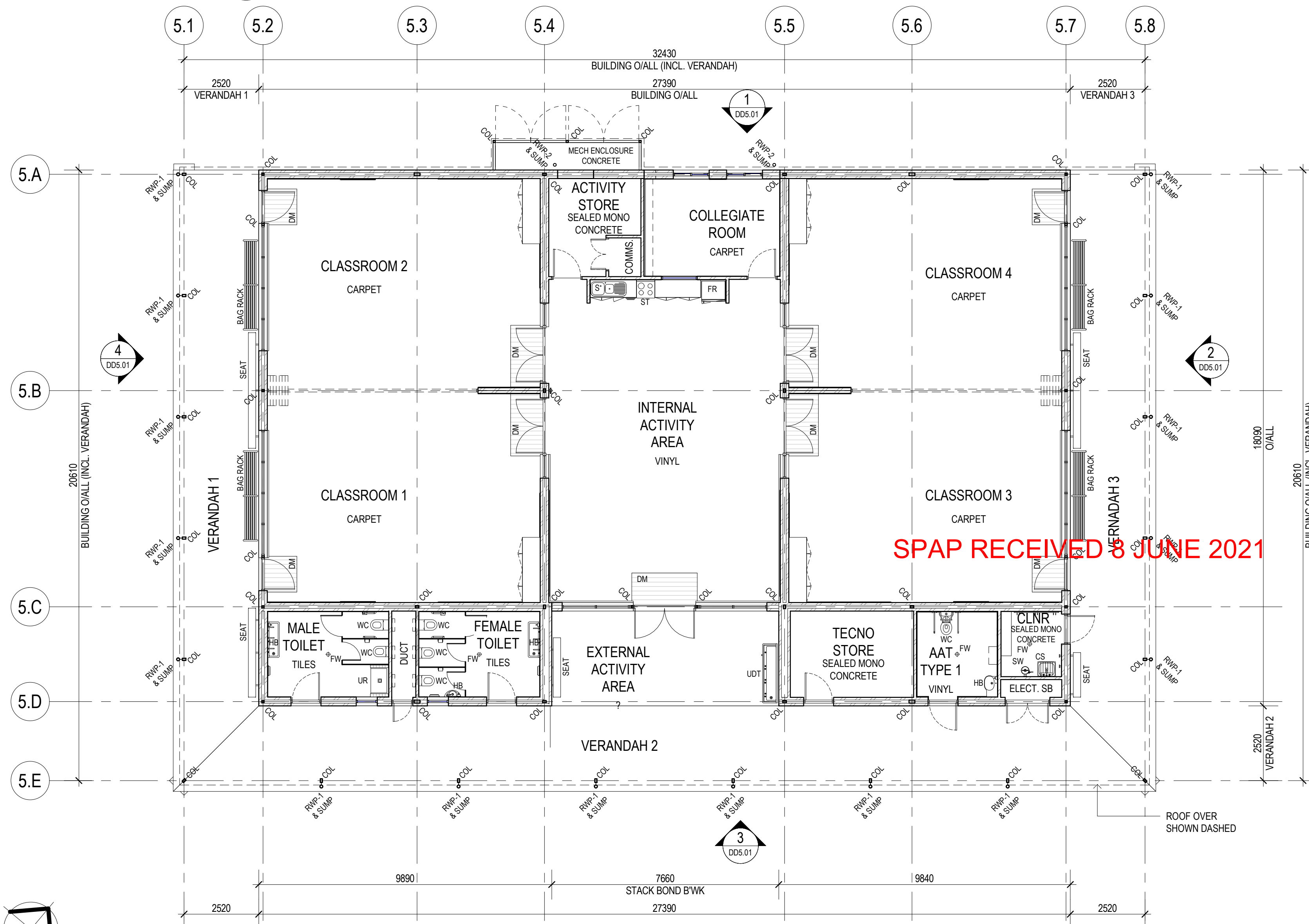
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4 SOUTH WEST ELEVATION
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FLOOR PLAN - TB2
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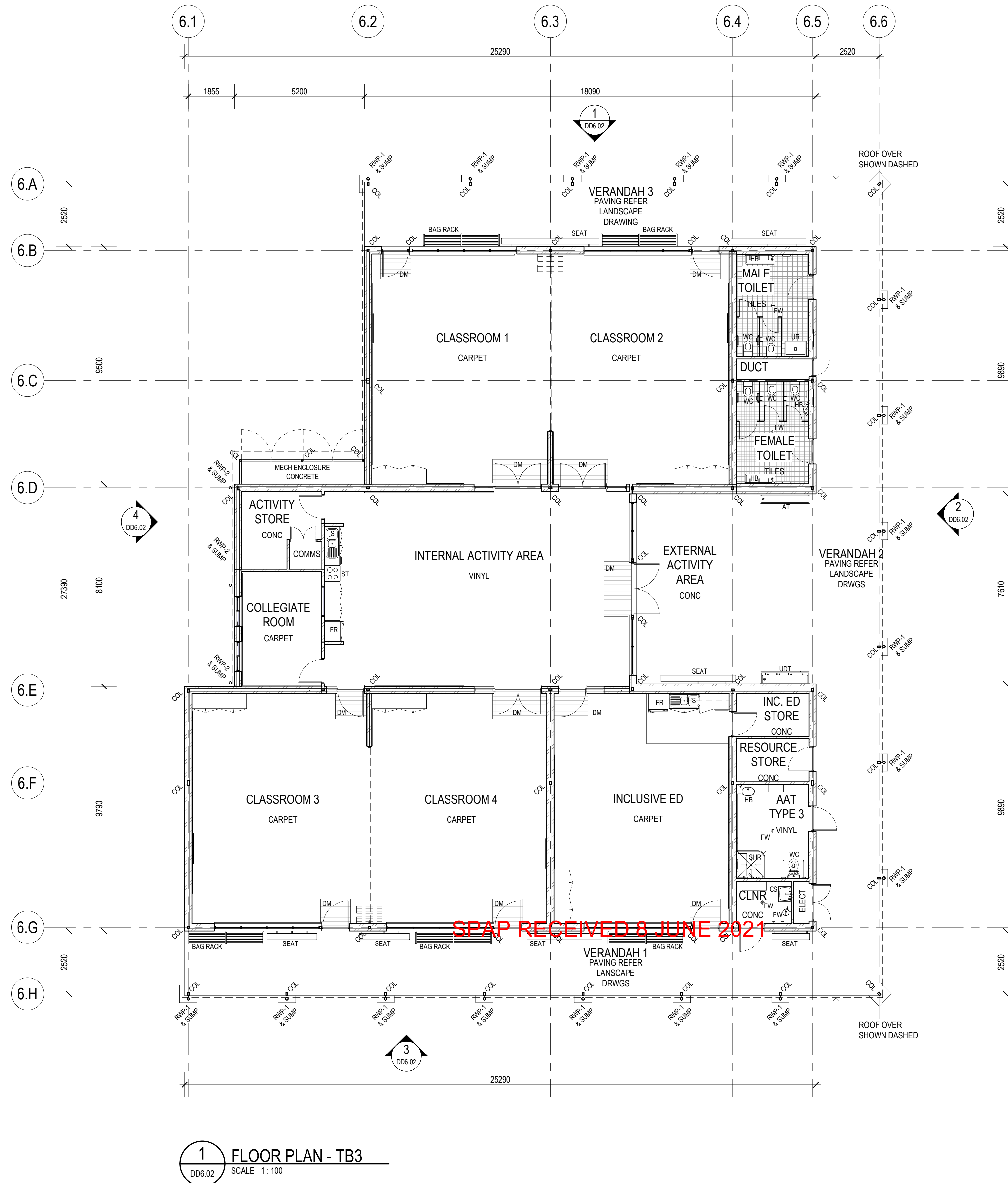
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PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYBURNER DRIVE, HILLARYS
TEACHING BLOCK 2

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1 FLOOR PLAN - TB3
SCALE 1 : 100

26/05/21	P1	DA SUBMISSION	
DATE	ISSUE	DESCRIPTION	ISSUE
		DA SUBMISSION	P1

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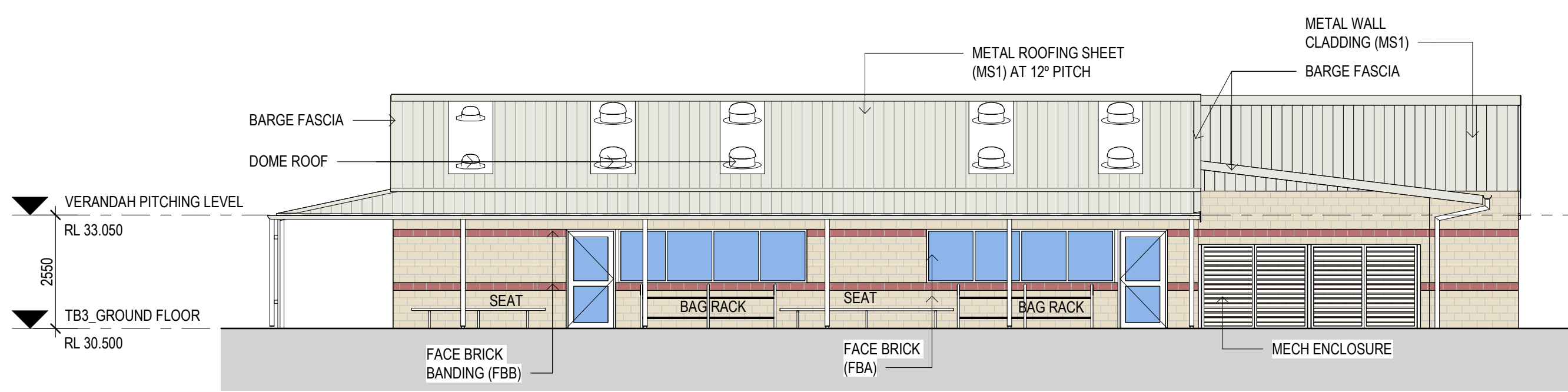


PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
TEACHING BLOCK 3

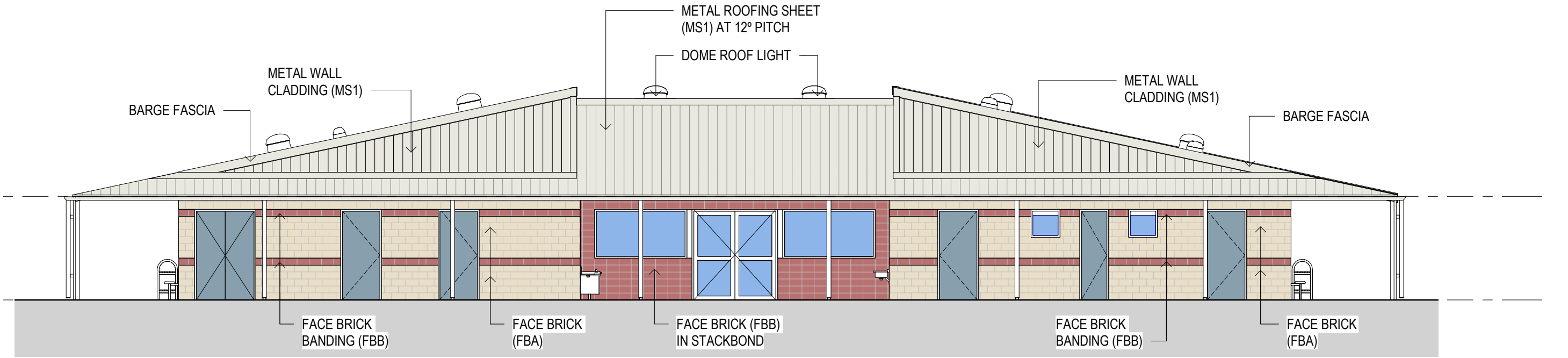
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CHECKED: Checker		PRINCIPAL:		
APPROVED:				
SCALE: 1 : 100	DATE: APRIL 2021			
FIN PROJECT No: 15026	EIW PROJECT No: 2013			
FIN FILE No: 2021/00431	EIW FILE No: HPSDD6.01 P5			

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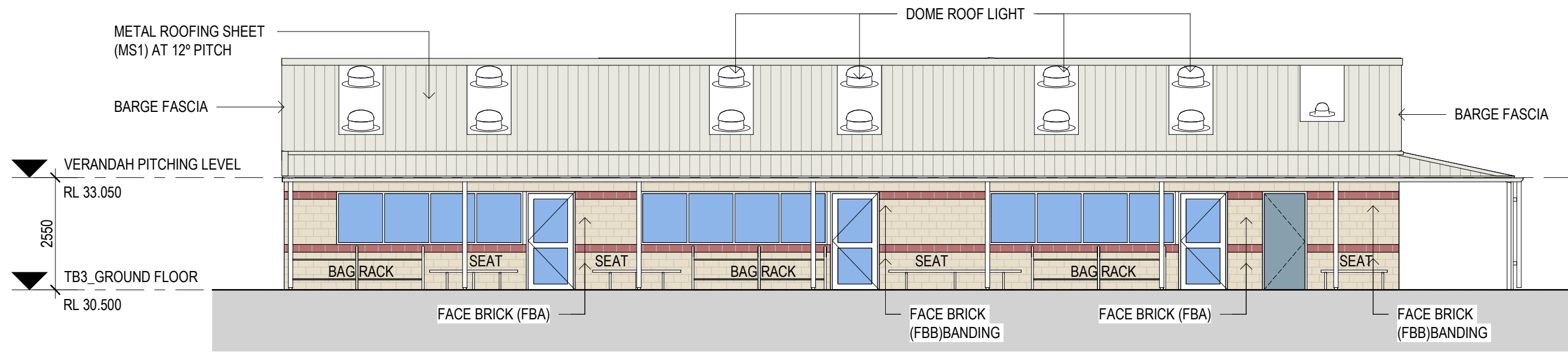
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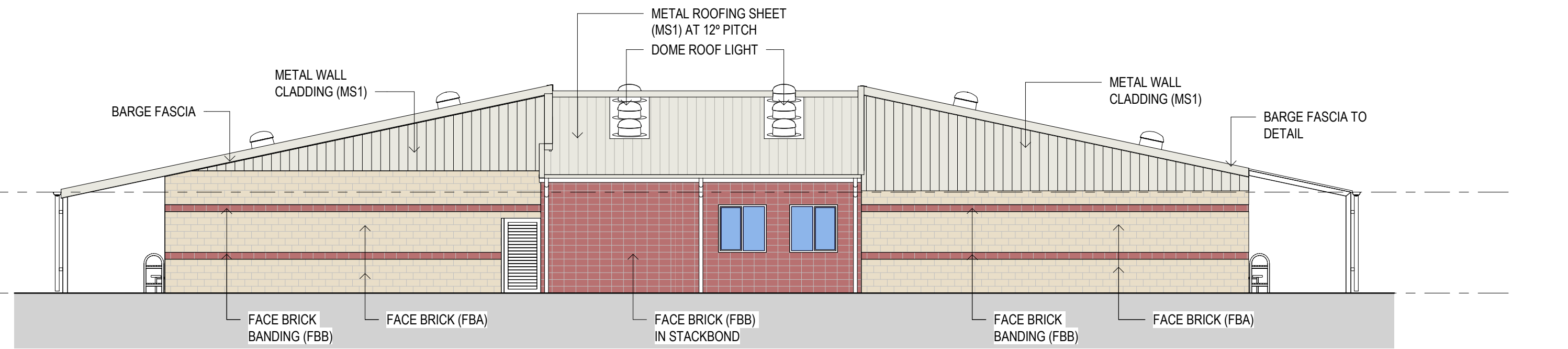
1 NORTH ELEVATION
DD6.01 SCALE 1:100



2 EAST ELEVATION
DD6.01 SCALE 1:100



3 SOUTH ELEVATION
DD6.01 SCALE 1:100



4 WEST ELEVATION
DD6.01 SCALE 1:100

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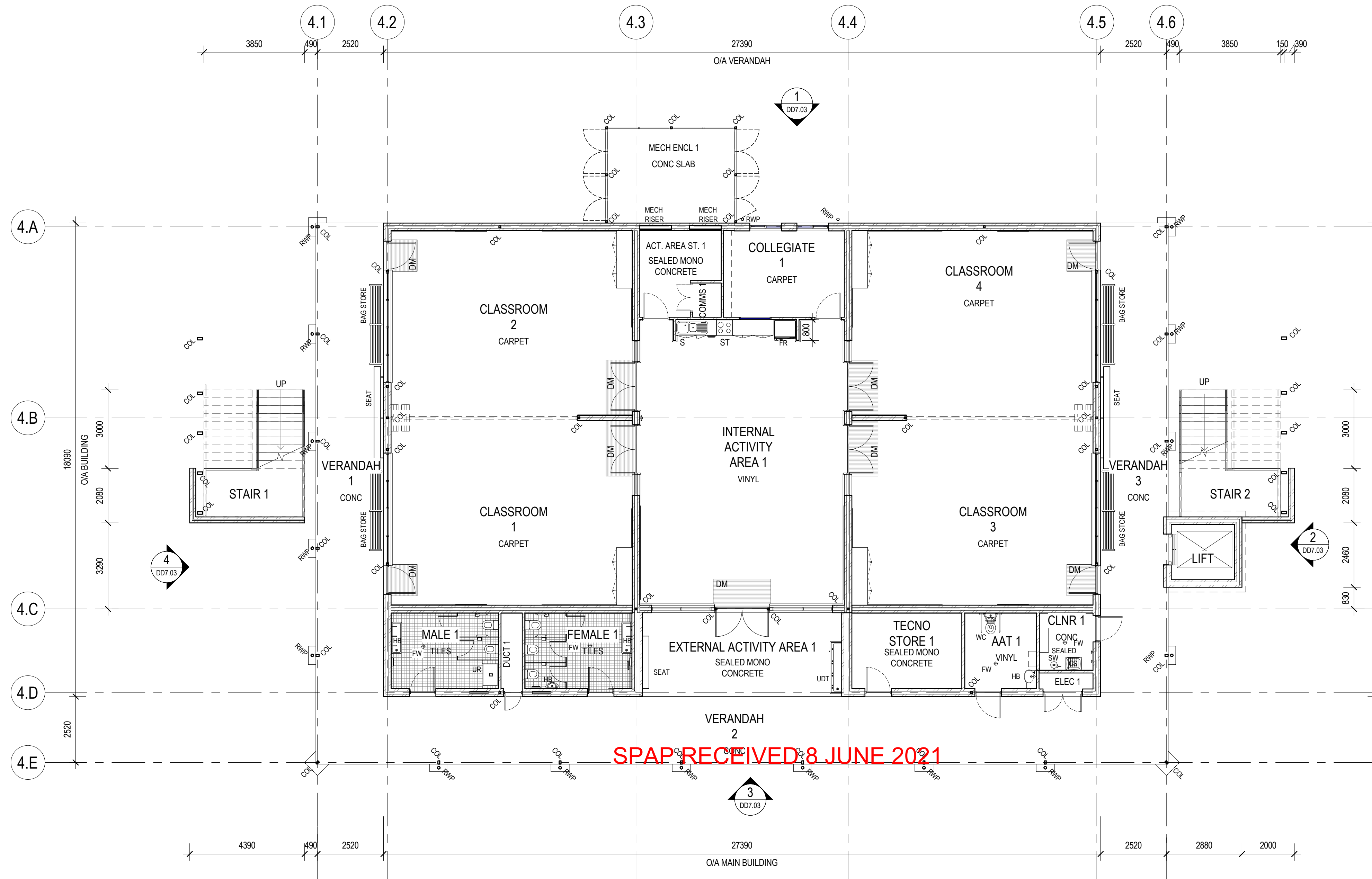
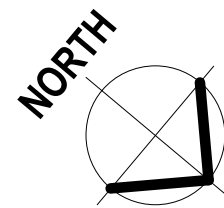
Government of Western Australia
Department of Finance
Building Management and Works

PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
TEACHING BLOCK 3

ELEVATION			
DRAWN: PQ	DESIGNED: Designer		
CHECKED: Checker	PRINCIPAL:		
APPROVED:			
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FIN PROJECT No: 15026	EW PROJECT No: 2013		
FIN FILE No: 2021/00431	EW FILE No: HPSDD6.02 E5		

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1 GROUND FLOOR PLAN - TB4
SCALE 1 : 100

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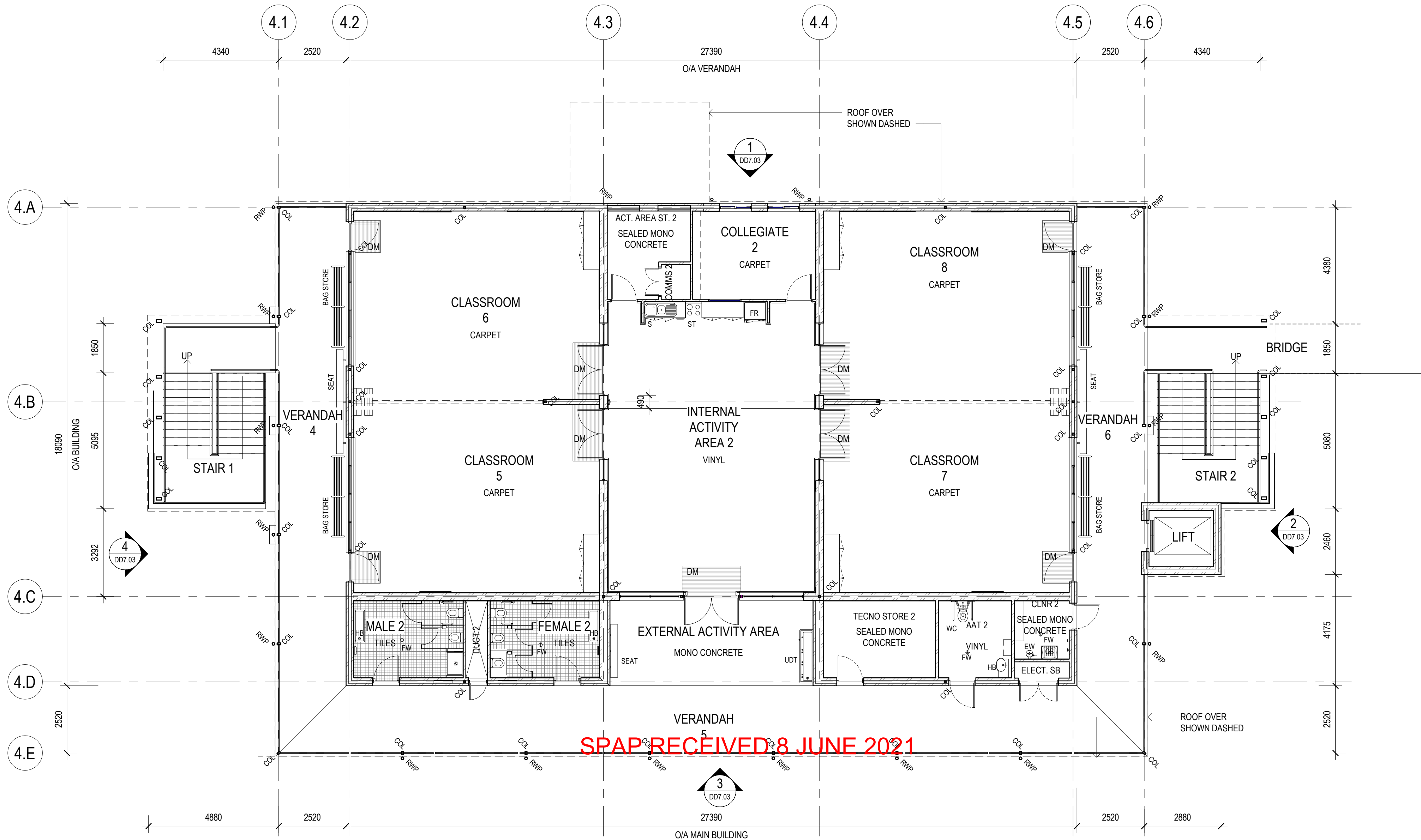
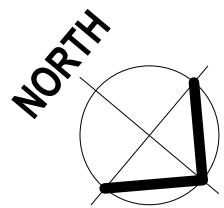
PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
TEACHING BLOCK 4

DRAWN: LH	DESIGNED: EIW	
CHECKED: TD	PRINCIPAL:	
APPROVED:		
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FIN PROJECT No: 15026	EW PROJECT No: 2013	DD7.01
FIN FILE No: 2021/00431	EW FILE No: HPSDD7.01 P5	

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1 FIRST FLOOR PLAN - TB4
SCALE 1:100

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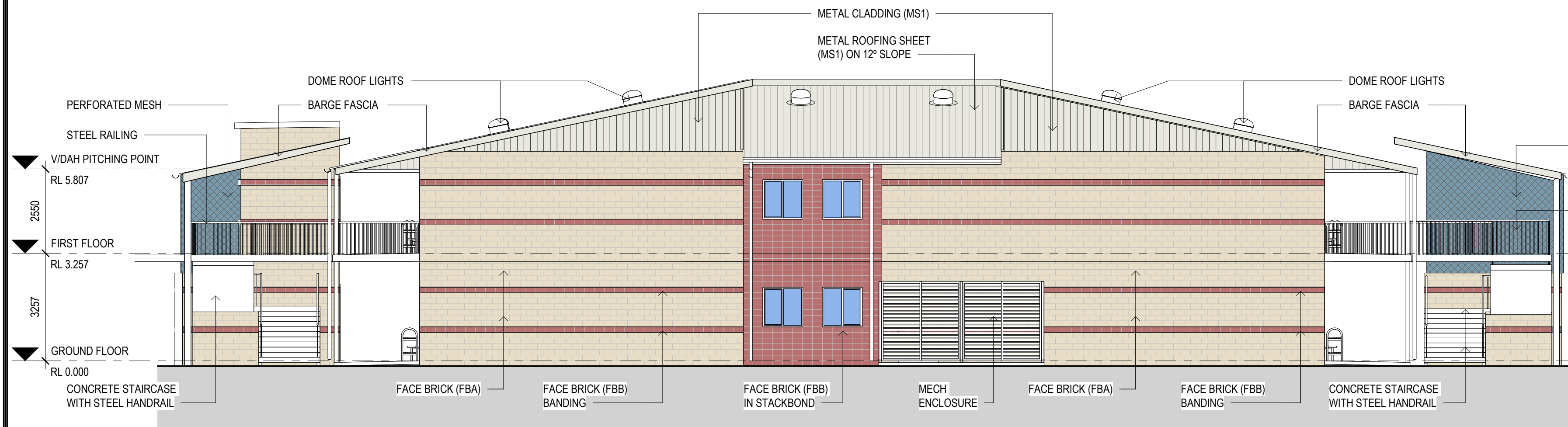


PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
TEACHING BLOCK 4

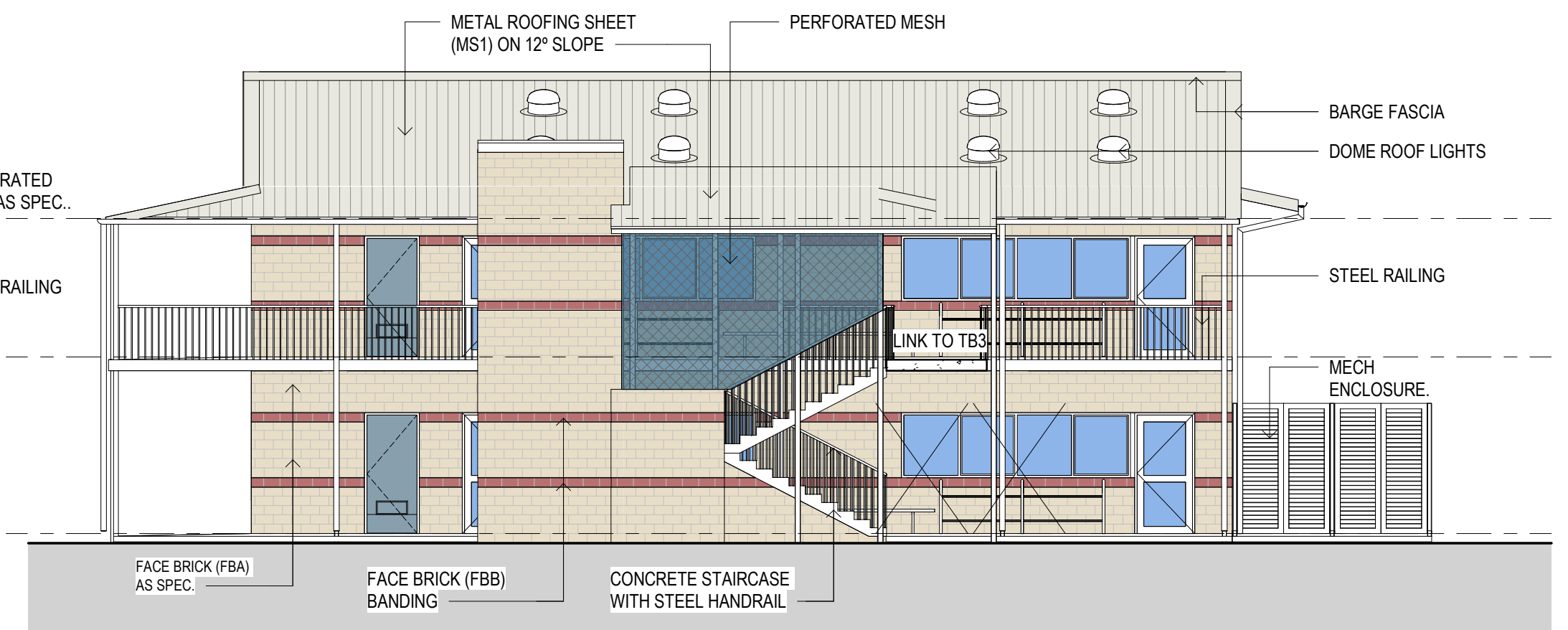
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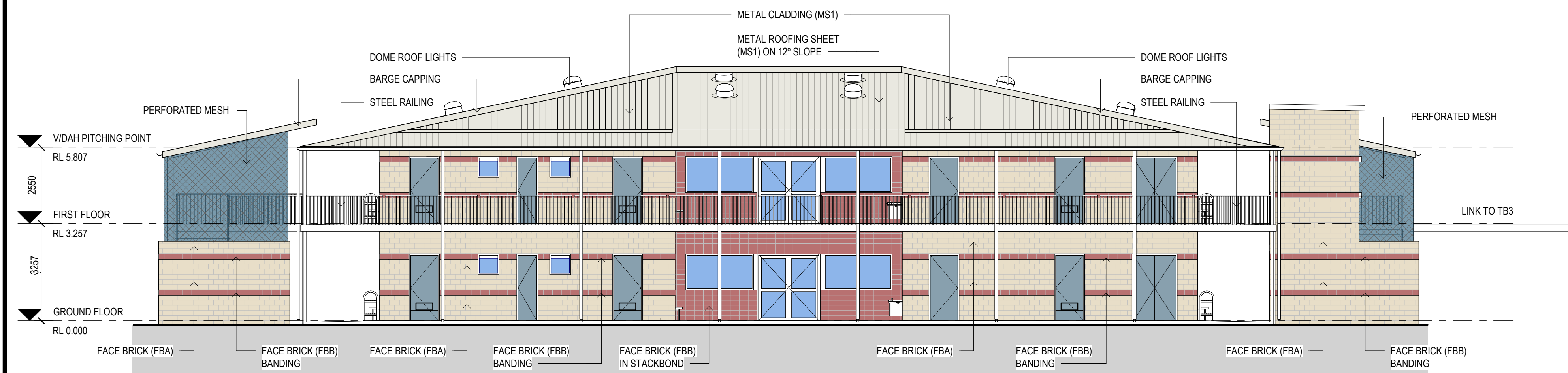
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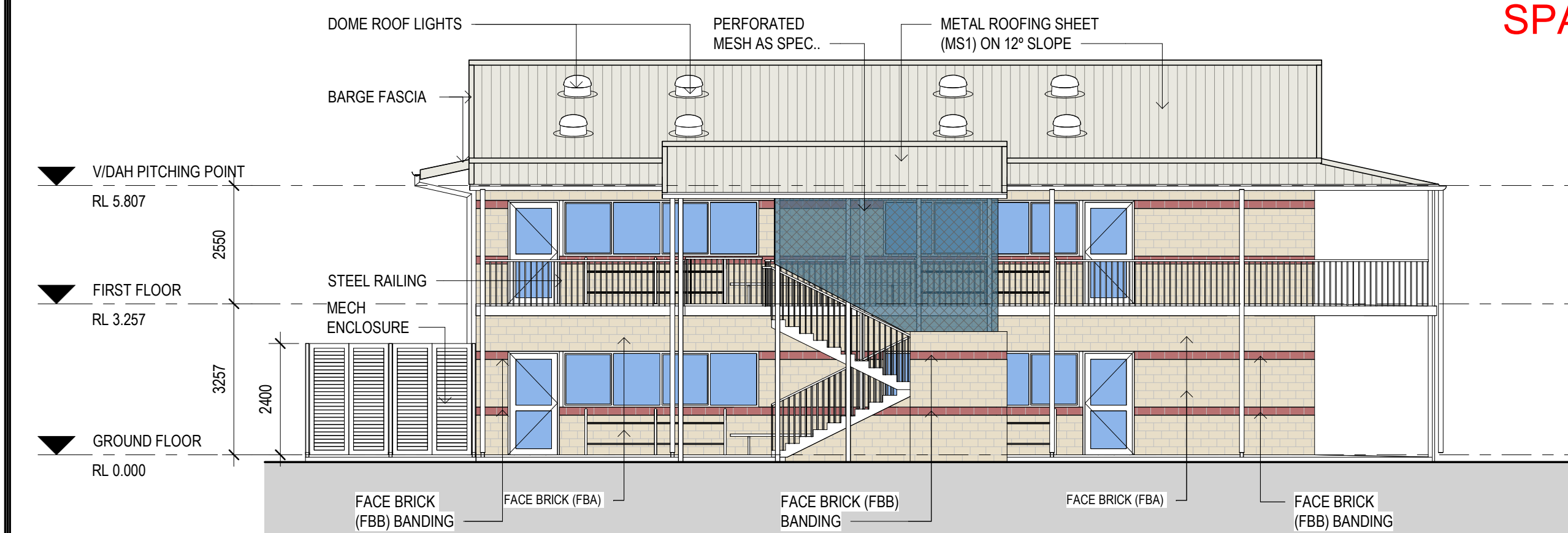
1 SOUTH WEST ELEVATION
DD7.01 SCALE 1 : 100



2 NORTH WEST ELEVATION
DD7.01 SCALE 1 : 100



3 NORTH EAST ELEVATION
DD7.01 SCALE 1 : 100



4 SOUTH EAST ELEVATION
DD7.01 SCALE 1 : 100

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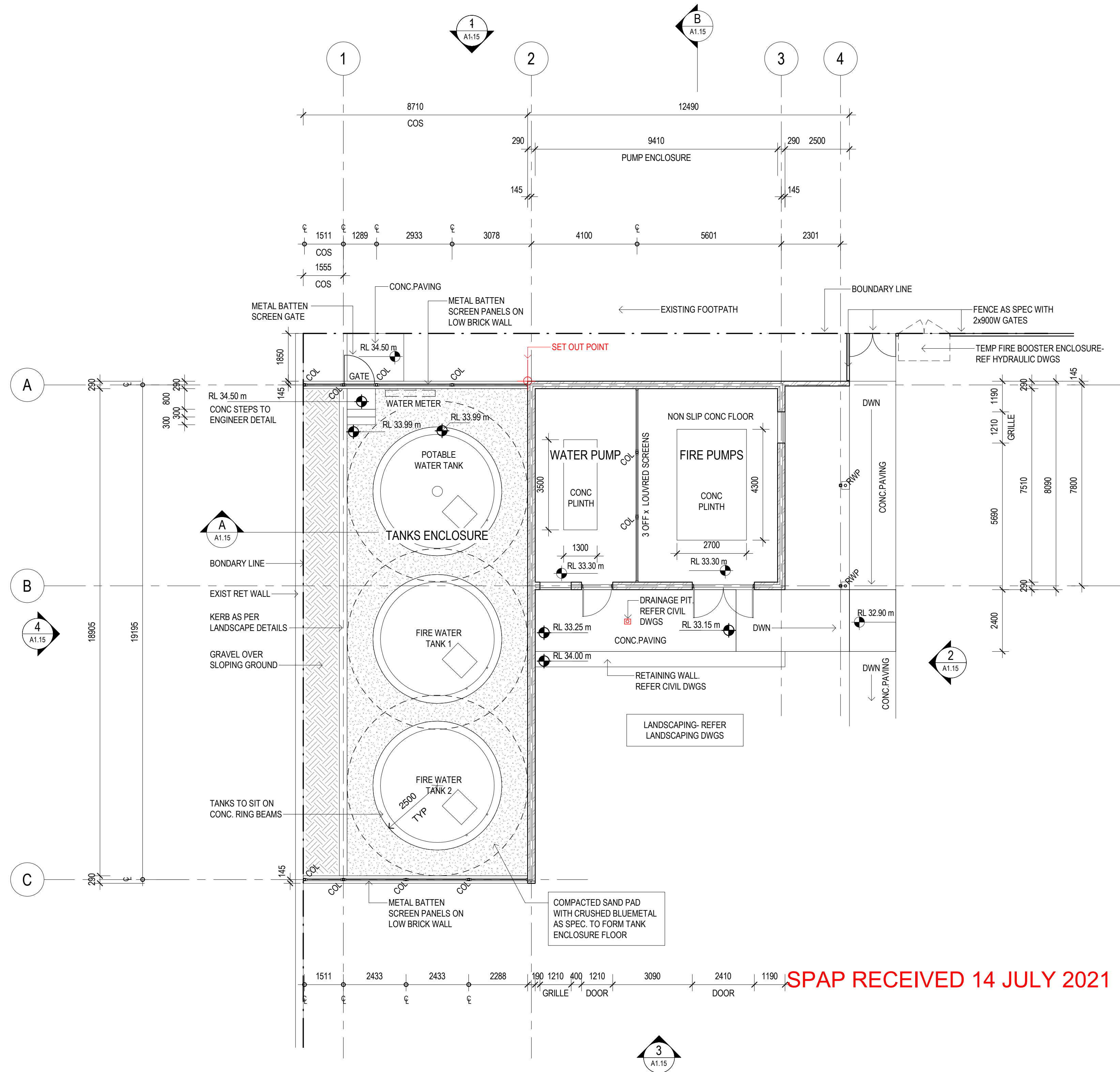
Government of Western Australia
Department of Finance
Building Management and Works

PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
TEACHING BLOCK 4

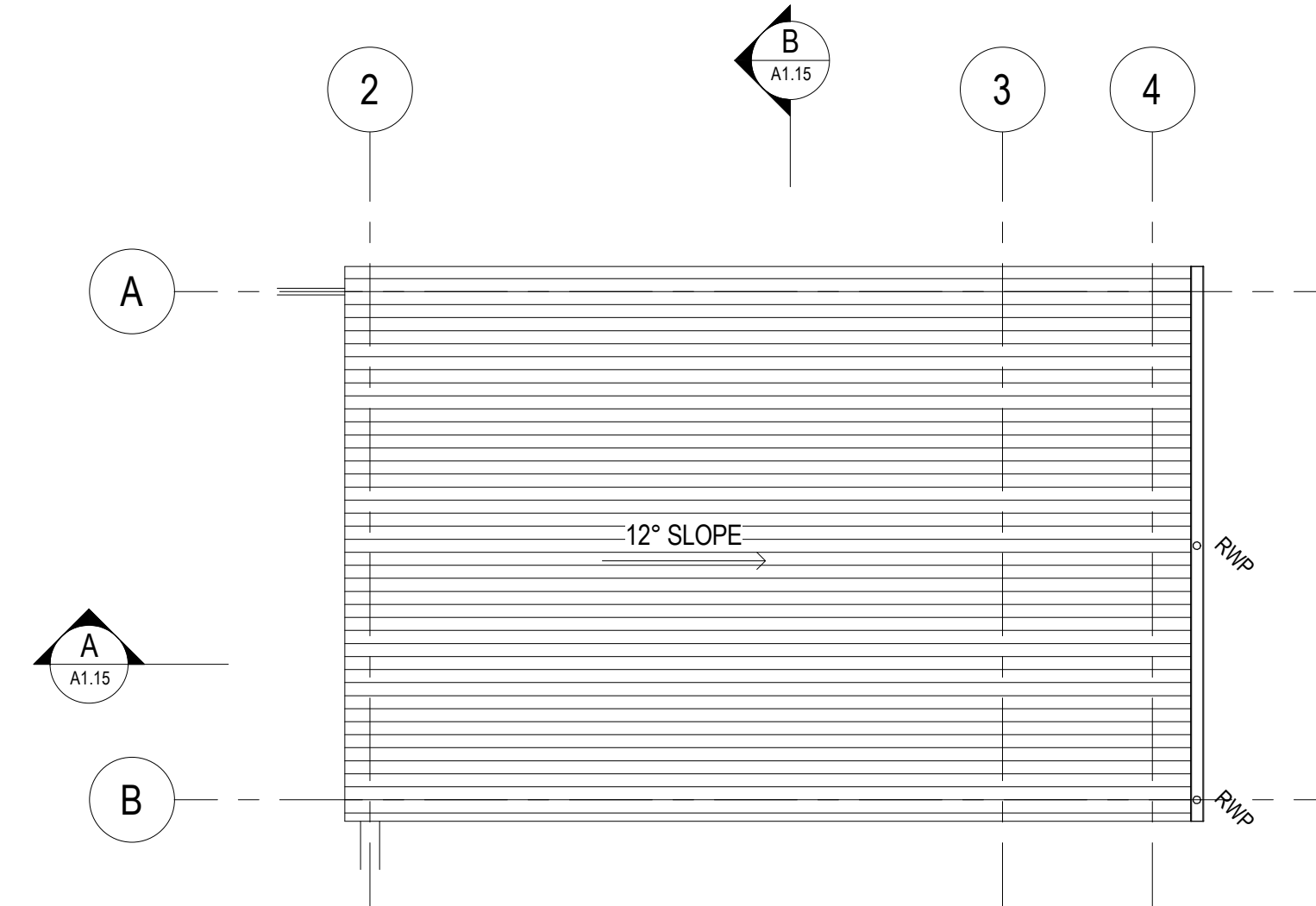
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1 FLOOR PLAN
SCALE 1:100



2 ROOF PLAN
SCALE 1:100

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09/06/2021	P1	ISSUED TO CONSULTANTS
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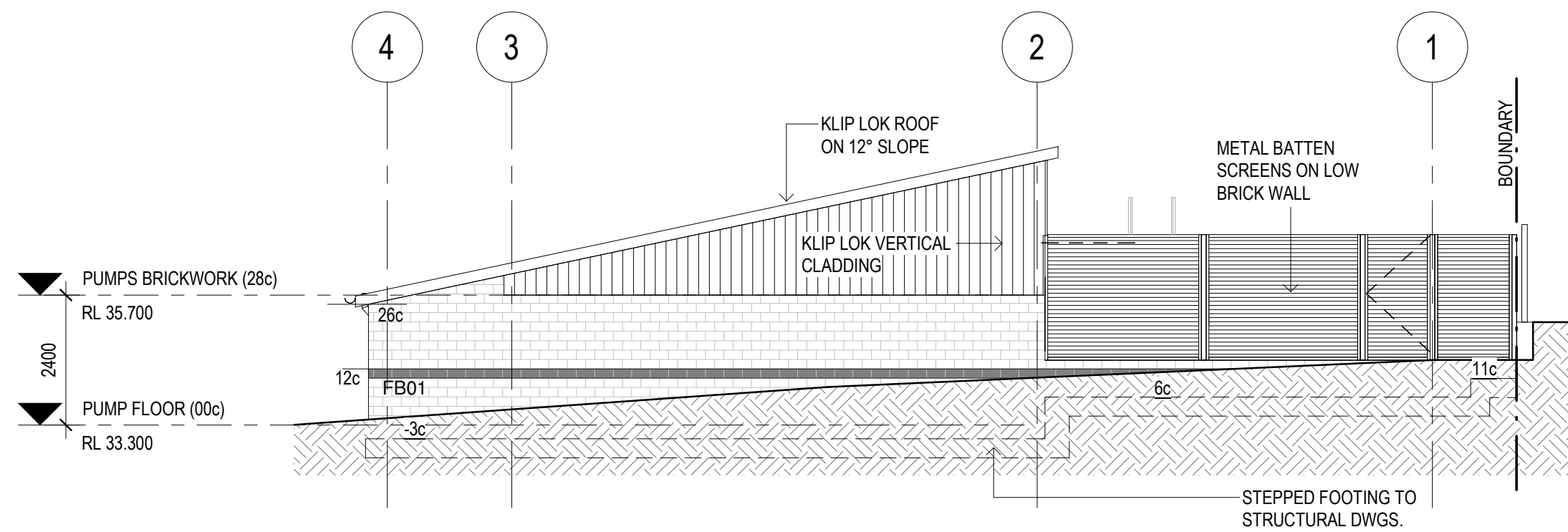


PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
PUMPS & TANKS ENCLOSURE

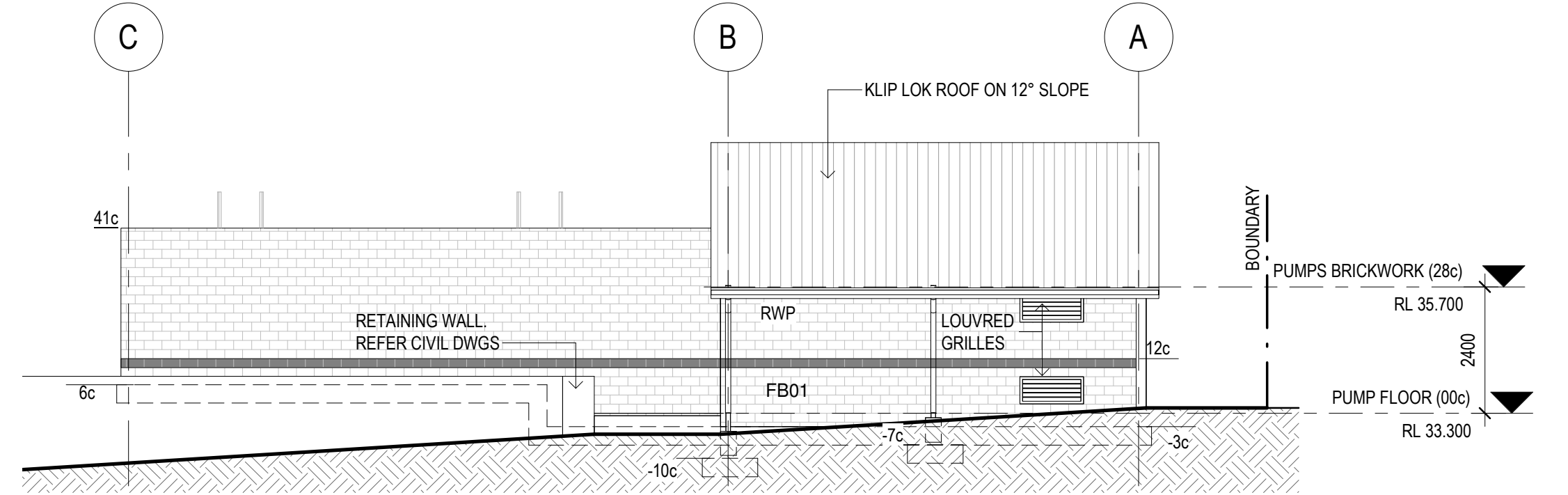
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CHECKED: TD	PRINCIPAL:		
APPROVED:	DATE: JUNE 2021	DRAWING No: A1.14	
SCALE: 1:100	DATE: JUNE 2021	DRAWING No: A1.14	
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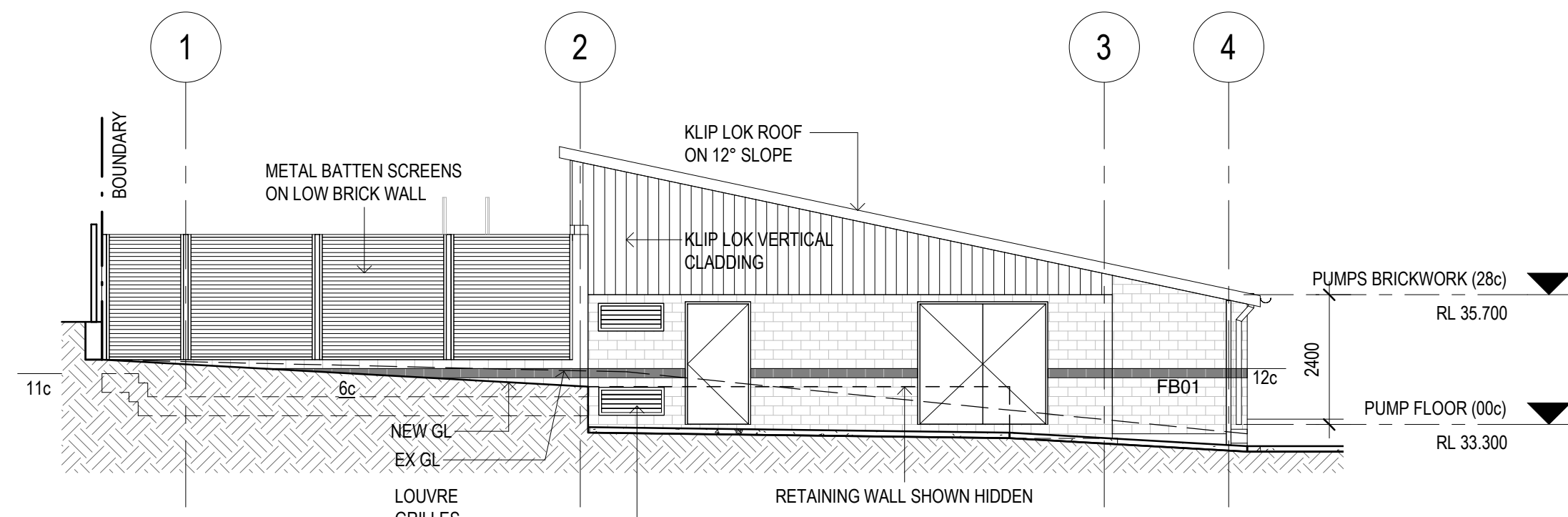
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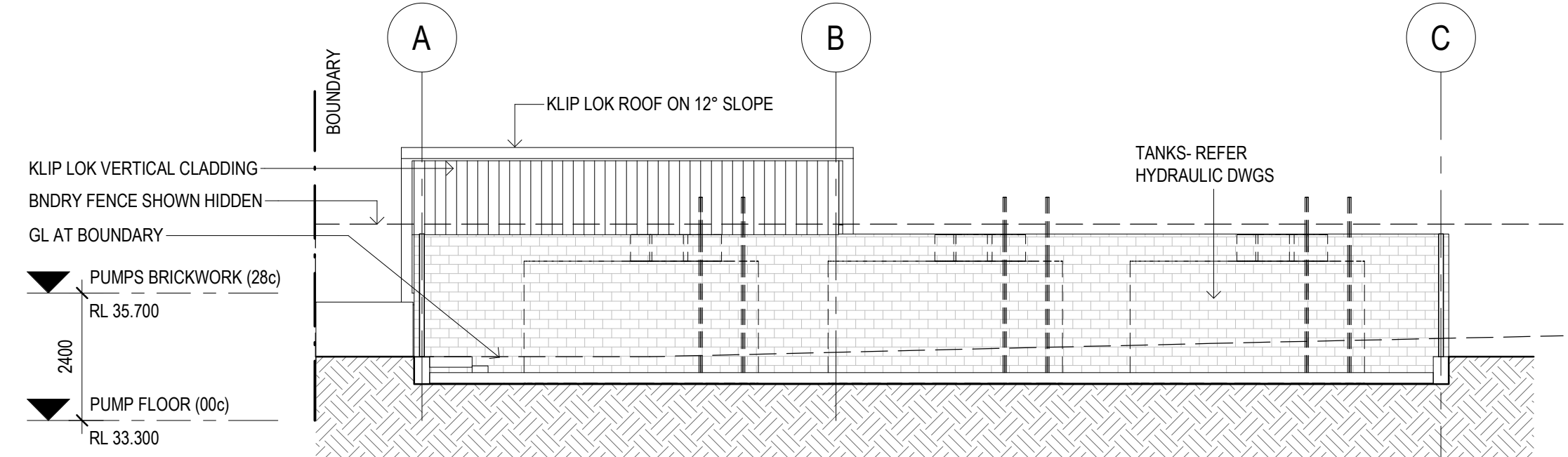
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SCALE 1:100



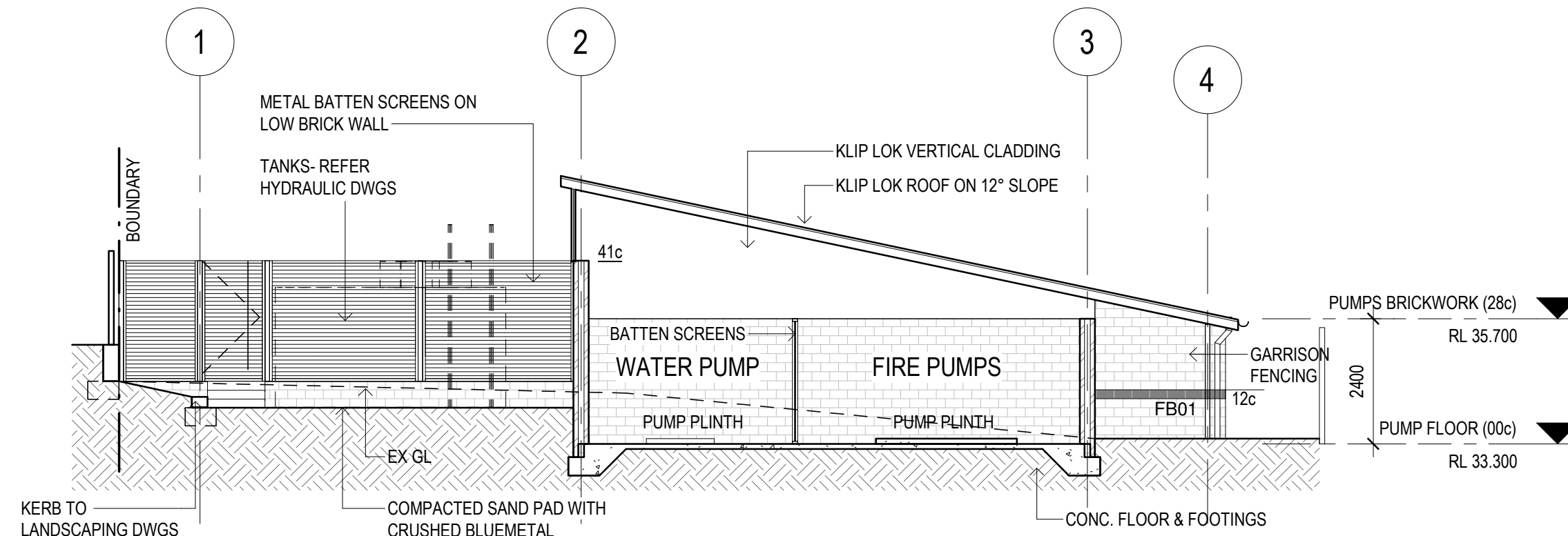
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SCALE 1:100



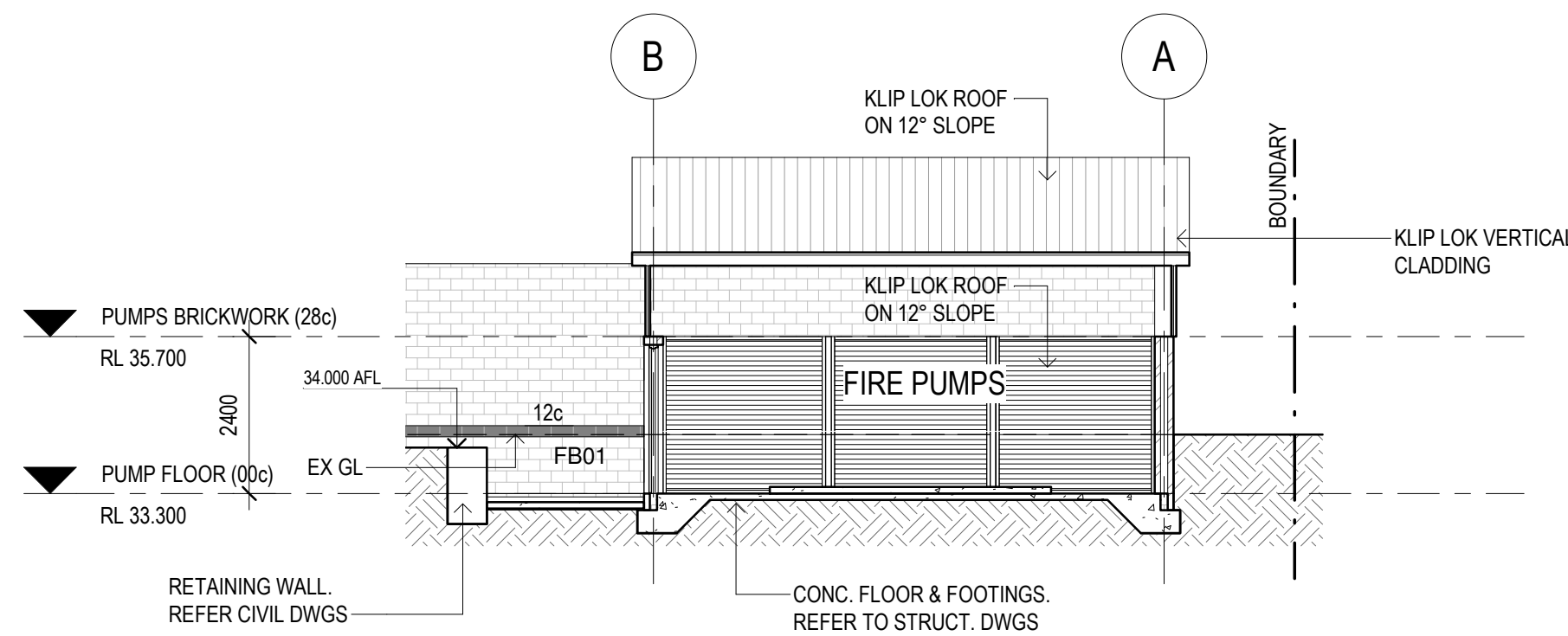
3 SOUTH ELEVATION
SCALE 1:100



4 WEST ELEVATION
SCALE 1:100

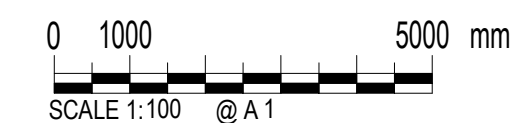


A SECTION A
SCALE 1:100



B SECTION B
SCALE 1:100

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PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS
PUMPS & TANKS ENCLOSURE

ELEVATIONS & SECTIONS

DRAWN: LH	DESIGNED: EIW	
CHECKED:	PRINCIPAL:	
APPROVED:		
SCALE: 1:100	DATE: JUNE 2021	DRAWING No:
FIN PROJECT No: 15026	EIW PROJECT No: 2013	A1.15
FIN FILE No: 2021/00431	EIW FILE No: HPS A1.15 E5	

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- RETAIN EX PRE PRIMARY & COVERED ASSEMBLY
- RETAIN EX GLAS, LIBRARY & ADMIN
- RELOCATE EX GLA TO OVAL, DEMOLISH KINDY TRANSPORTABLES & REPLACE WITH 2No. NEW EC TRANSPORTABLES. RELOCATE EX TOILET BLOCK (BY OTHERS)
- CONSTRUCT NEW TB1 & TB3

INDICATES EXTENT OF
PROPOSED BUILDING SITE

ACCESSIBLE SCHOOL BUILDINGS

PROPOSED NEW WORKS

PROPOSED LOCATION OF
RELOCATED EX GLA & TOILET PLUS
2 NEW EC TRANSPORTABLES.
FINAL LOCATION TBC

DEMOLISH²⁸⁰ HARDCOURTS

SHEET 1/3

PROPOSED STAGING - SP1

SCALE.: 1:500@A1

HILLARYS PRIMARY SCHOOL - REBUILD
75 LYMBURNER DRIVE HILLARYS

JOB NO.:2013

DATE : FEB 2021

DWG NO.:SKA00 REV : C

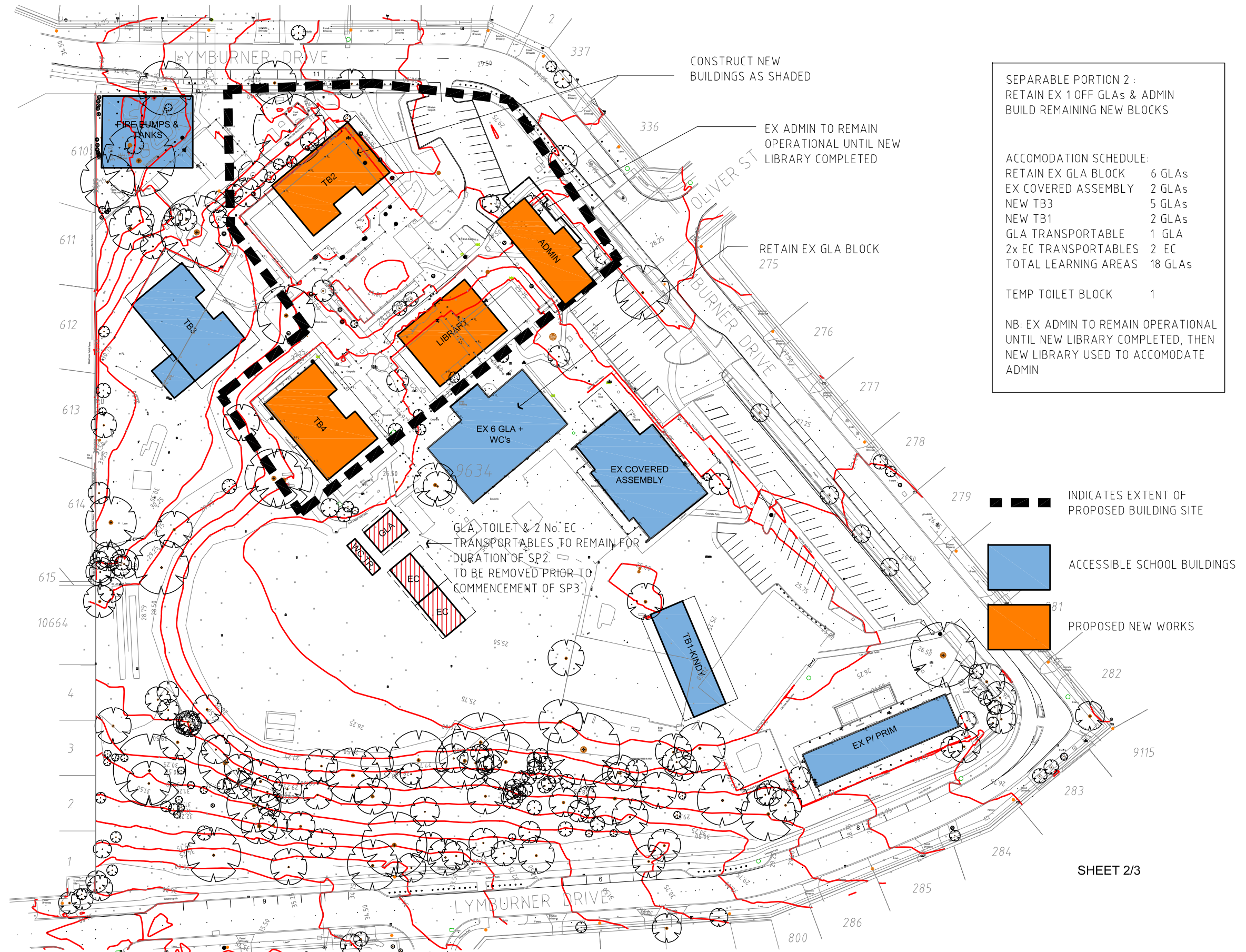
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ARN 88 1290 054 672

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SEPARABLE PORTION 2 :
RETAIN EX 1 OFF GLAs & ADMIN
BUILD REMAINING NEW BLOCKS

ACCOMODATION SCHEDULE:
RETAIN EX GLA BLOCK 6 GLAs
EX COVERED ASSEMBLY 2 GLAs
NEW TB3 5 GLAs
NEW TB1 2 GLAs
GLA TRANSPORTABLE 1 GLA
2x EC TRANSPORTABLES 2 EC
TOTAL LEARNING AREAS 18 GLAs

TEMP TOILET BLOCK 1

NB: EX ADMIN TO REMAIN OPERATIONAL
UNTIL NEW LIBRARY COMPLETED, THEN
NEW LIBRARY USED TO ACCOMODATE
ADMIN

INDICATES EXTENT OF
PROPOSED BUILDING SITE

ACCESSIBLE SCHOOL BUILDINGS

PROPOSED NEW WORKS

PROPOSED STAGING - SP2

HILLARYS PRIMARY SCHOOL - REBUILD

75 LYMBURNER DRIVE HILLARYS
JOB NO.:2013 DATE :FEB 2021 DWG NO.:SKA00 REV : D

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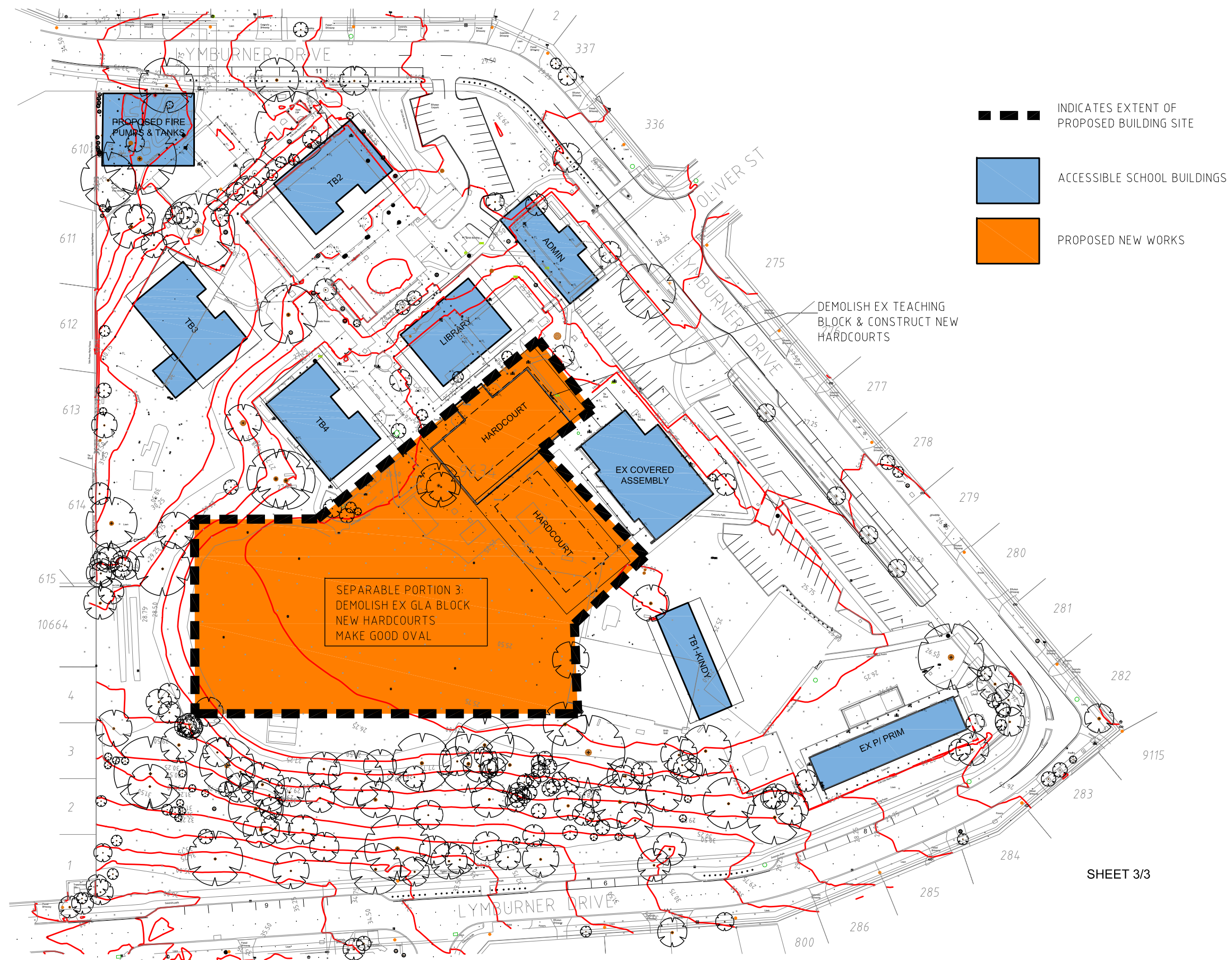
SHEET 2/3



SCALE : 1:500@A1

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SHEET 3/3



PROPOSED STAGING - SP3

SCALE: 1:500@A1

0 5 10 50m

HILLARYS PRIMARY SCHOOL - REBUILD

75 LYMBURNER DRIVE HILLARYS

JOB NO.:2013

DATE:FEB 2021

DWG NO.:SKA00

REV: C

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DRAWING LIST

DRG No.	TITLE
C0.01	COVER SHEET
C0.02	CIVIL WORKS - OVERALL SITE PLAN
C0.03	CIVIL WORKS - SITE PREPARATION PLAN
C0.04	CIVIL WORKS - CIVIL SITE PLAN - SHEET 1 OF 3
C0.05	CIVIL WORKS - CIVIL SITE PLAN - SHEET 2 OF 3
C0.06	CIVIL WORKS - CIVIL SITE PLAN - SHEET 3 OF 3
C0.07	CIVIL WORKS - STANDARD ROAD DETAILS - SHEET 1 OF 2
C0.08	CIVIL WORKS - STANDARD ROAD DETAILS - SHEET 2 OF 2
C0.09	CIVIL WORKS - STANDARD DRAINAGE DETAILS
C0.10	CIVIL WORKS - STANDARD RETAINING WALL DETAILS



Government of **Western Australia**
Department of **Finance**
Building Management and Works


HILLARYS PRIMARY SCHOOL
COVER SHEET

MARCH 2021

CIVIL

BMW PROJ No. 15026

DF FILE No. 2021/00431



pritchard
francis

civil and structural
engineering consultants

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admin@pfeng.com.au

DRAWING NOTES

1. ALL DIMENSIONS SHOWN ARE IN METRES U.S.O.
2. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND CONSULTANT SPECIFICATIONS AND DRAWINGS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED.
3. ALL WORKMANSHIP AND MATERIAL SHALL COMPLY WITH THE BUILDING CODE OF AUSTRALIA AS AMENDED AND THE APPROPRIATE CURRENT AUSTRALIAN STANDARDS.
4. DO NOT SCALE FROM DRAWINGS. ONLY USE WRITTEN DIMENSIONS. ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR ONSITE PRIOR TO COMMENCEMENT OF CONSTRUCTION OR FABRICATION. CONFLICTING INFORMATION SHALL BE CONFIRMED WITH THE CONSULTING ENGINEER BEFORE PROCEEDING.

SURVEY NOTES

1. ALL CO-ORDINATES AND LEVELS SHOWN ON THIS DRAWING SHALL BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR IMMEDIATELY.
2. SURVEY INFORMATION SUPPLIED BY VERIS. SITE CONTROLS TO BE PROVIDED BY VERIS.
3. ALL HEIGHTS ARE TO AUSTRALIAN HEIGHT DATUM (AHD) AND ALL LEVELS SHALL BE DERIVED FROM ESTABLISHED BENCHMARKS.
4. ALL BENCHMARKS ARE TO BE PROTECTED AND PRESERVED UNLESS NOTED ON PLANS.

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND ALSO THE REQUIREMENTS OF CITY OF JOONDALUP.
2. THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE ALL EXISTING SERVICES WITHIN THE CONTRACT AREA PRIOR TO THE COMMENCEMENT OF WORK. SERVICE INFORMATION SHOWN ON THE DRAWINGS IS INDICATIVE ONLY AND MAY NOT BE COMPLETE. WHERE EXISTING AND PROPOSED WORKS CONFLICT, LEVELS ARE TO BE TAKEN AND SUPPLIED TO THE CONTRACT ADMINISTRATOR IMMEDIATELY. THE CONTRACTOR SHALL COMPLETE SURVEY AND ISSUE TO THE CONTRACT ADMINISTRATOR PRIOR TO THE REMOVAL, DISCONNECTION OR CONSTRUCTION IN THE VICINITY OF THOSE SERVICES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPORT OF ALL EXISTING SERVICES.
4. CONTRACTOR SHALL OBTAIN COUNCIL APPROVAL AND PAY ALL FEES/BONDS PRIOR TO COMMENCEMENT OF WORKS.
5. CONTRACTOR SHALL NOTE THAT NON-TRAFFICABLE SUBTERRANEAN STRUCTURES (SOAKWELLS ETC.) MAY EXIST ON SITE. PRIOR TO EARTHWORKS COMMENCING, CONTRACTOR SHALL LOCATE ANY SOAKWELLS, SEPTIC TANKS, DELETERIOUS MATERIALS AND OTHER SUBTERRANEAN STRUCTURES. THESE MATERIALS AND STRUCTURES ARE TO BE REMOVED AND THE LOCATION BACKFILLED IN ACCORDANCE WITH PROCEDURES SET OUT IN SPECIFICATION (IF APPLICABLE). THE CONTRACT ADMINISTRATOR IS TO BE ADVISED OF ANY UNUSED PIPE WORK ENCOUNTERED PRIOR TO REMOVAL.
6. IN THE EVENT THAT EXCAVATION OR OTHER SITEWORKS UNCOVER MANMADE STRUCTURES NOT PREVIOUSLY VISIBLE OR DOCUMENTED, WORKS SHOULD CEASE IN THAT VICINITY AND DIRECTION OBTAINED FROM THE CONTRACT ADMINISTRATOR PRIOR TO CONTINUING.
7. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AS REQUIRED.
8. ALL EXCESS EXCAVATED MATERIAL AND DEMOLISHED MATERIAL SHALL BE DISPOSED OF OFFSITE AT AN APPROVED DISPOSAL FACILITY AT THE CONTRACTOR'S EXPENSE.
9. THE SITE IS TO BE LEFT CLEAN AND FREE OF RUBBISH/DEBRIS UPON COMPLETION OF WORKS.
10. TIE INTO ADJACENT BOUNDARIES AND FEATURES TO BE SEAMLESS (TYP.).
11. SHOULD THE CONTRACTOR WISH TO USE AN ALTERNATE PRODUCT OTHER THAN THAT SPECIFIED IN THE SPECIFICATIONS OR ON THE DRAWINGS, APPROVAL FROM THE CONTRACT ADMINISTRATOR IS REQUIRED.
12. 'AS CONSTRUCTED' DRAWINGS ARE TO BE PREPARED TO THE REQUIREMENTS OF CITY OF JOONDALUP AND THE CIVIL SPECIFICATION.

EARTHWORKS NOTES

1. THE CONTRACTOR SHALL PREPARE A DUST MANAGEMENT PLAN IN ACCORDANCE WITH THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (D.E.C.) GUIDELINES SITE CLASSIFICATION 3 AND OBTAIN APPROVAL FROM THE LOCAL AUTHORITY FOR THE DUST MANAGEMENT PLAN. DUST SUPPRESSION METHODS SHALL BE APPLIED BY THE CONTRACTOR DURING EARTHWORKS OPERATIONS IN ACCORDANCE WITH THE APPROVED MANAGEMENT PLAN.
2. NO CLEARING TO OCCUR UNTIL CONTRACT ADMINISTRATOR HAS IDENTIFIED TREES TO BE RETAINED.
 - 2.1. ALL TREES TO BE RETAINED SHALL BE FENCED OFF FOR THE DURATION OF THE WORKS.
 - 2.2. ALL TREES AND VEGETATION NOT FOR RETENTION SHALL BE MULCHED AND STOCKPILED FOR REUSE OR REMOVAL AS NOTED.
3. THE CONTRACTOR SHALL MAINTAIN PROPER SITE DRAINAGE TO ALL AREAS THROUGHOUT THE CONSTRUCTION PERIOD AND SHALL BE RESPONSIBLE FOR MAINTAINING EXCAVATIONS IN A SAFE AND STABLE CONDITION AT ALL TIMES.
4. TOPSOIL IS TO BE STRIPPED AND MANAGED IN ACCORDANCE WITH THE SPECIFICATION OR AS NOTED ON THE DRAWINGS.
5. ALL ROOTS, BOULDERS AND ANY OTHER DELETERIOUS MATERIAL SHALL BE TOTALLY REMOVED TO A DEPTH OF 600mm BELOW THE LOWER OF THE NATURAL/CUT SURFACE.
6. MINOR AMENDMENTS TO THE EXTENT OF EARTHWORKS MAY OCCUR TO PRESERVE IDENTIFIED TREES.
7. ALL BATTERS TO BE NOMINALLY 1 IN 6, OR FLATTER, UNLESS SHOWN OTHERWISE (U.S.O.).
8. ALL FILL SHALL BE CLEAN AND BE FREE FROM DELETERIOUS AND/OR ORGANIC MATERIAL.
9. FILL MATERIAL TO BE TESTED BY A REGISTERED MATERIALS TESTING LAB AND RESULTS PROVIDED TO THE CONTRACT ADMINISTRATOR PRIOR TO THE IMPORTATION AND PLACEMENT OF MATERIAL.
10. PENETROMETERS USED FOR TESTING MUST BE CALIBRATED FOR SITE AND RECALIBRATED FOR IMPORTED FILL AS REQUIRED.
11. ALL FILL SHALL BE PLACED IN UNIFORM LAYER NOT EXCEEDING 300mm THICKNESS AND COMPACTED TO A DENSITY NOT LESS THAN 95% M.M.D.D. REFER TO SPECIFICATION FOR DETAILED INFORMATION.
12. CONTRACTOR TO COMPLETE ALL BACKFILLING AND EARTHWORKS REQUIRED TO ACHIEVE LEVELS SHOWN.

STORMWATER DRAINAGE NOTES

1. REFER TO DRAINAGE SPECIFICATIONS FOR DETAILS RELATING TO SETOUT, MATERIALS, EXCAVATION, BEDDING, BACKFILL AND FINALISATION OF STORMWATER DRAINAGE PIPES AND STRUCTURES.
2. WHERE CONNECTING INTO EXISTING DRAINAGE, THE CONTRACTOR IS TO PICK UP UPSTREAM AND DOWNSTREAM INVERT LEVELS OF EXISTING DRAINAGE LINE IMMEDIATELY DOWNSTREAM OF PROPOSED CONNECTION. THE CONTRACTOR TO SUPPLY THIS SURVEY INFORMATION TO THE CONTRACT ADMINISTRATOR PRIOR TO THE COMMENCEMENT OF ANY DRAINAGE CONSTRUCTION. THE CONTRACTOR TO THEN AWAIT NOTIFICATION FROM THE CONTRACT ADMINISTRATOR THAT DRAINAGE CONSTRUCTION MAY COMMENCE.
3. ALL STORMWATER PIPES SHALL BE REINFORCED CONCRETE RUBBER JOINT - CLASS 2 UNLESS SHOWN OTHERWISE (U.S.O.).
4. ALL MANHOLES AND GULLY GRATES TO BE FLUSH WITH SURROUNDING PAVEMENT LEVELS U.S.O.
5. JUNCTION AND ENTRY PITS ARE TO BE LOCATED IN POSITIONS SHOWN, IRRESPECTIVE OF THE INDICATED PIPE LENGTHS.
6. ALL STORMWATER DRAINAGE PIPES SHALL BE FLUSHED BY THE CONTRACTOR PRIOR TO THE PRACTICAL COMPLETION INSPECTION (TYP.).

ROADWORKS NOTES

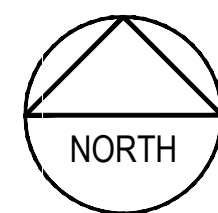
1. THE CONTRACTOR SHALL INSTALL ALL DUCTS FOR ROAD CROSSINGS 10m BEHIND BACK OF KERB/EDGE OF PATH.
2. ALL KERBING TO BE SEMI-MOUNTABLE TYPE U.S.O. KERBING ON CORNER SWEEPS TO BE SEMI MOUNTABLE U.S.O. (ALL KERBING ON A RADIUS OF 40m OR LESS MUST BE KEYED).
3. TRANSITIONS BETWEEN DIFFERENT KERB TYPES SHALL BE MADE OVER A LENGTH OF 15m WHERE SHOWN. KERB TYPE CHANGES OCCURRING AT KERB RAMPS AND DRAINAGE STRUCTURES SHALL NOT REQUIRE A TRANSITION AND THEREBY HAVE NOT BEEN SHOWN FOR CLARITY.
4. ALL SETOUT POINTS AND RADII ARE TO FACE OF KERB.
5. ALL CONSTRUCTION SHALL MAKE SMOOTH CONNECTION TO EXISTING WORK (TYP.).
6. ROAD VERGES SHALL BE SURFACED WITH MINIMUM 75mm OF TOPSOIL - FREE OF DELETERIOUS MATERIAL. HYDROMULCHING MAY BE REQUIRED AS PER DUST MANAGEMENT PLAN OR REQUIRED AND INSTRUCTED BY CITY OF JOONDALUP.
7. THE CONTRACTOR SHALL CONTACT THE CONTRACT ADMINISTRATOR WHEN ALL CONCRETE FORMWORK IS IN POSITION FOR INSPECTION AND APPROVAL, PRIOR TO THE POURING OF ANY CONCRETE.
8. PEDESTRIAN CROSSINGS / KERB RAMPS TO INCLUDE TACTILE PAVERS AND CONSTRUCTED IN ACCORDANCE WITH CITY OF JOONDALUP SPECIFICATIONS AND DETAILS.
9. PEDESTRIAN CROSSINGS / KERB RAMPS TO INCLUDE TACTILE PAVERS AND CONSTRUCTED IN ACCORDANCE WITH CITY OF JOONDALUP SPECIFICATIONS AND DETAILS AND/OR AS1428.1, AS1428.4 AND THE CIVIL SPECIFICATIONS AND DETAILS.

LINEMARKING AND SIGNAGE NOTES

1. ALL WORKS SHALL TO BE CARRIED OUT IN ACCORDANCE WITH THE CIVIL SPECIFICATION.
2. ALL TRAFFIC MANAGEMENT SIGNAGE AND PAVEMENT MARKINGS ARE INDICATIVE ONLY.
3. ALL TRAFFIC MANAGEMENT SIGNAGE AND PAVEMENT MARKINGS TYPES AND DIMENSIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE BELOW STANDARDS IN ORDER OF PRECEDENCE.
 - 3.1. AS2890.1 - PARKING FACILITIES PART 1: OFF-STREET CAR PARKING
 - 3.2. AS2890.6 - PARKING FACILITIES PART 6: OFF-STREET PARKING FOR PEOPLE WITH DISABILITIES
 - 3.3. AS1742 SERIES, AS1743 AND AS1744
4. ALL PAVEMENT MARKING WORK SHALL BE WHITE U.S.O.
5. CAR BAYS SHALL BE MARKED WITH 80mm WIDE REFLECTIVE NON-SLIP WHITE PAVEMENT MARKING TO AS2890.1.
6. PAVEMENT ARROWS SHALL BE MARKED WITH REFLECTIVE NON-SLIP WHITE PAVEMENT MARKING TO AS2890.1 - FIGURE 4.3.
7. DIAGONAL MARKINGS SHALL BE MARKED WITH REFLECTIVE NON-SLIP YELLOW PAVEMENT MARKING (200mm BAND WITH 300m GAP).
8. CONTRACTOR TO PROVIDE SPOTTING TO MRWA GUIDELINES AT THE PROPOSED POSITIONS OF PAVEMENT MARKINGS. MAIN ROADS W.A. SHALL INSPECT AND APPROVE THE PAVEMENT MARKING SPOTTING PRIOR TO PAVEMENT MARKING'S BEING APPLIED (TYP.).
9. CONTRACTOR SHALL REMOVE EXISTING PAVEMENT MARKING IN ACCORDANCE WITH THE SPECIFICATION SUCH THAT THE PAVEMENT MARKING IS REMOVED WITHOUT DAMAGE TO THE UNDERLYING ROAD PAVEMENT (TYP.). ANY DAMAGE TO THE SEAL SURFACE SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE PRINCIPAL (TYP.).
10. POST SIGN LOCATION AND INSTALLATION TO CONFORM TO MRWA STANDARD DRAWINGS AND SPECIFICATIONS (600 SERIES). CONTRACTOR SHALL ENSURE SLEEVES INSTALLED PRIOR TO SIGN INSTALLATION ARE Ø150 PVC AS DETAILED ON MRWA DRG: 9548-106

LEGEND

	PROPOSED BUILDING
	PROPOSED PAVEMENT
	EXISTING PAVEMENT
	PROPOSED PLAYING COURTS PAVEMENT
	PROPOSED PATH / PAVING REFER TO ARCHITECT'S DRAWINGS
	PROPOSED PATH / PAVING REFER TO ARCHITECT'S DRAWINGS
	EXISTING PATH / PAVING REFER TO ARCHITECT'S DRAWINGS
	PROPOSED LANDSCAPING REFER TO LANDSCAPE ARCHITECT'S DRAWINGS
	EXISTING SOFTSCAPE TO BE MAINTAINED REFER TO ARCHITECT'S DRAWINGS FOR DETAILS
	KERB TRANSITION PROPOSED KERBING (TYPE DEFINED BY TEXT)
	FLUSH KERB (REINFORCED)
	SEMI-MOUNTABLE KERB (PF DETAIL)
	SEMI-MOUNTABLE KERB (CITY OF JOONDALUP)
	BARRIER KERB
	EXISTING KERBING
	PROPOSED KERB RAMP REFER TO STANDARD DETAIL DRAWING
	SIGN AND POST
	PROPOSED BOLLARD
	PROPOSED GARRISON FENCING
	PROPOSED TRENCH GRATE
	PROPOSED PVC DRAINAGE PIPE
	EXISTING STORMWATER DRAINAGE PITS JUNCTION / SIDE ENTRY PIT
	PROPOSED GRATED / BURIED SOAKWELL
	EXISTING GRATED / BURIED SOAKWELL AND PIPE TO BE REMOVED
	PROPOSED GRATED GULLY LID REFER HYDRAULICS DRAWINGS FOR DETAILS
	DESIGN LEVEL
	EXISTING LEVEL
	PROPOSED RETAINING WALL
	EXISTING COMMUNICATIONS AND ASSOCIATED STRUCTURES
	EXISTING STORMWATER DRAINAGE AND ASSOCIATED STRUCTURES
	EXISTING ELECTRICAL CABLE AND ASSOCIATED STRUCTURES
	EXISTING GAS PIPELINE AND ASSOCIATED STRUCTURES
	EXISTING SEWER NETWORK AND ASSOCIATED STRUCTURES
	EXISTING WATER PIPELINE AND ASSOCIATED STRUCTURES
	EXISTING OVERHEAD POLE
	EXISTING OPTICAL FIBRE
	EXISTING SURFACE SPOT LEVEL
	SEPARABLE PORTION 1
	SEPARABLE PORTION 2
	SEPARABLE PORTION 3



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HILLARYS PRIMARY SCHOOL
CIVIL WORKS
OVERALL SITE PLAN

DRAWN	LL	DESIGNED	CN	REDUCTION
CHECKED	CN	PRINCIPAL		0 25
APPROVED	AT	SIGNATURE		
SCALE	0 20m	DATE	MARCH 2021	DRAWING No.
DF PROJ No.	15026	DF FILE No.	2021/00431	C0.02 A

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The Essential First Step.

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CONSTRUCTION**

NOTE:
• REFER TO DRAWING 21048-C0.02 FOR
TYPICAL DRAWING NOTES AND
LOCALITY PLAN SETOUT



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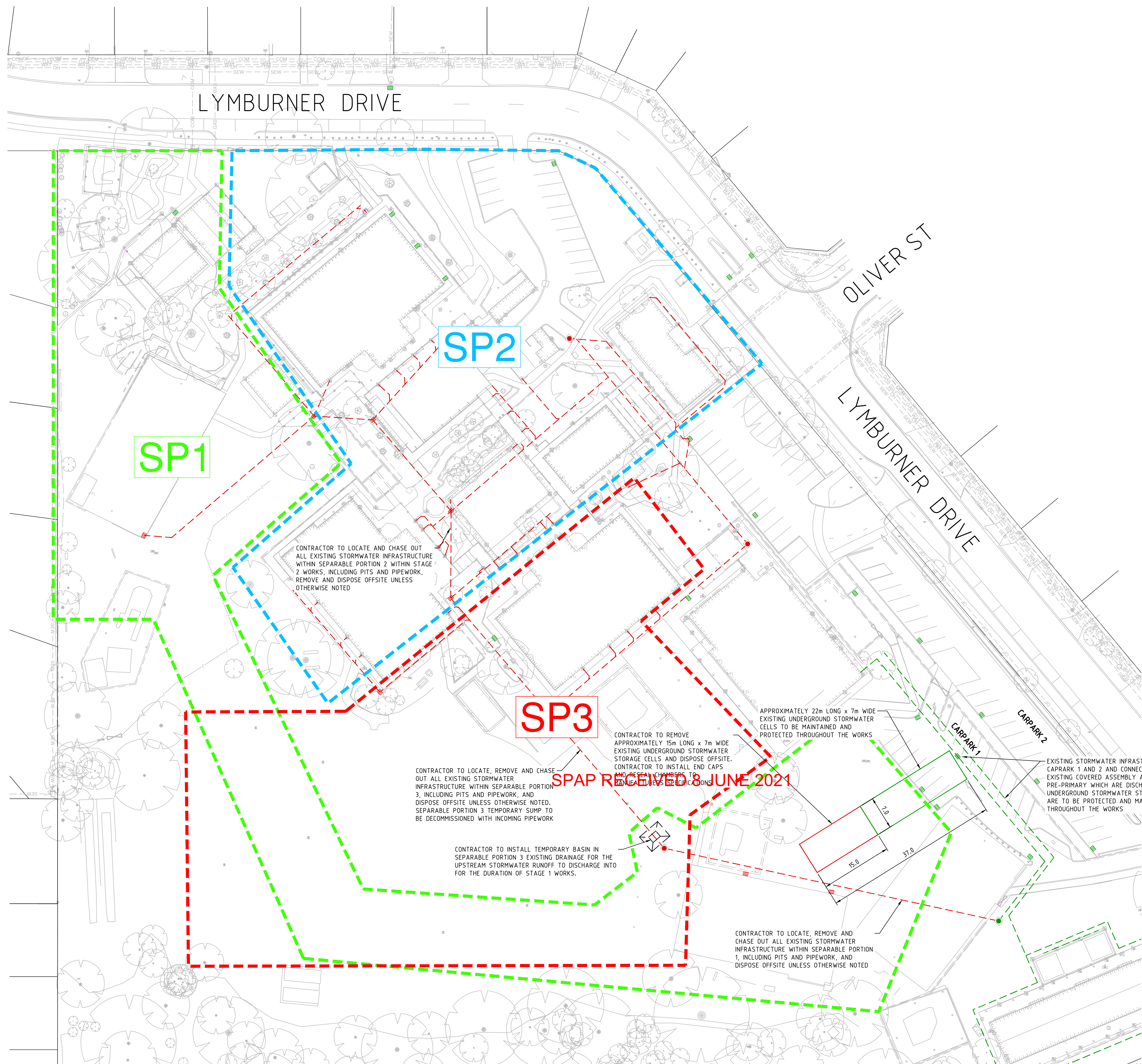
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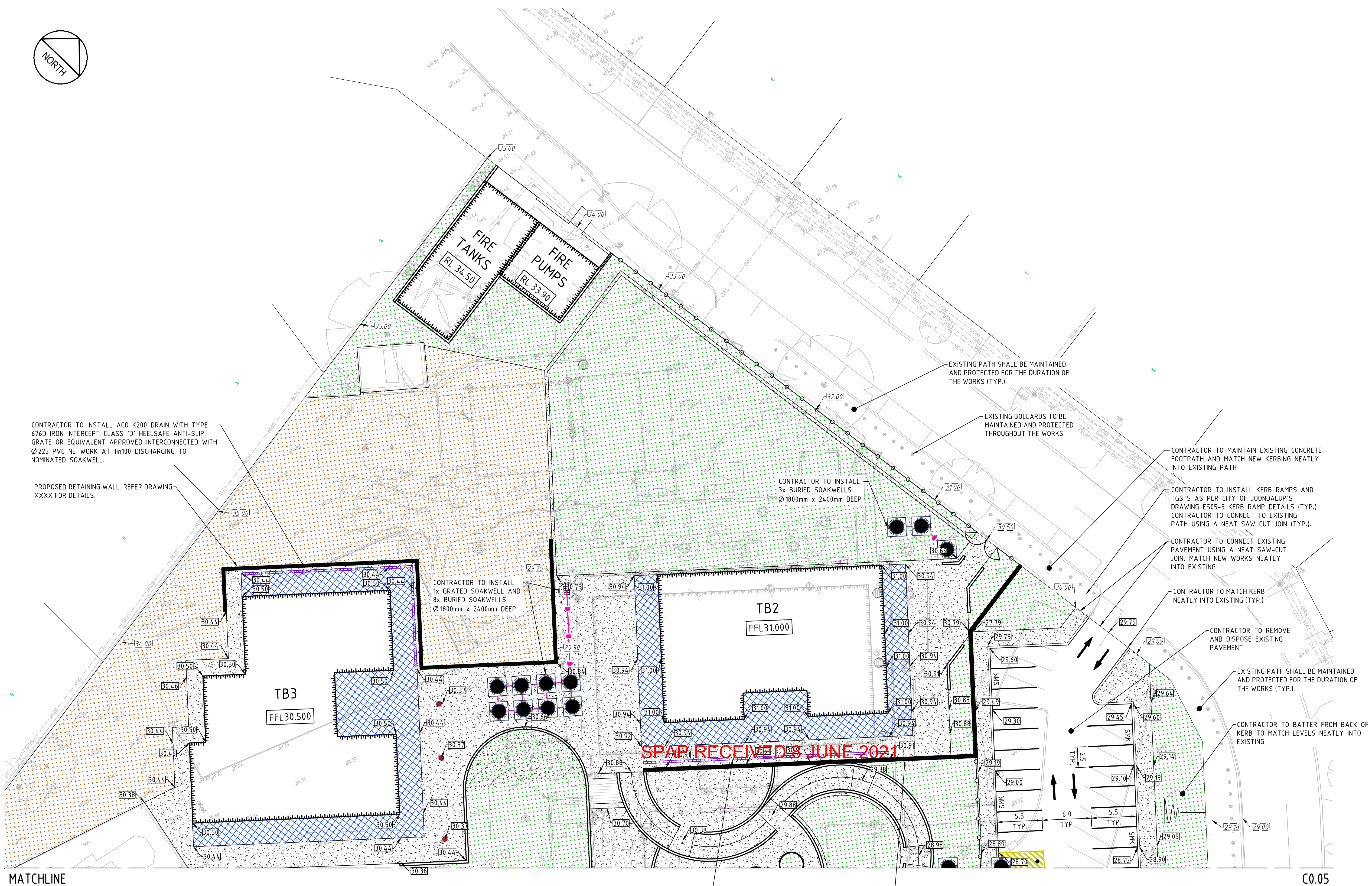
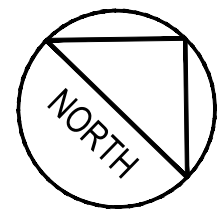
HILLARYS PRIMARY SCHOOL
CIVIL WORKS
SITE PREPARATION PLAN

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MATCHLINE

C0.05

CONTRACTOR TO INSTALL ACO K200 DRAIN WITH TYPE 676D IRON INTERCEPT CLASS 'D' HEELSAFE ANTI-SLIP GRATE OR EQUIVALENT APPROVED INTERCONNECTED WITH Ø225 PVC NETWORK AT 1m100 DISCHARGING TO NOMINATED SOAKWELL.

PROPOSED RETAINING WALL. REFER DRAWING C0.10 FOR DETAILS.



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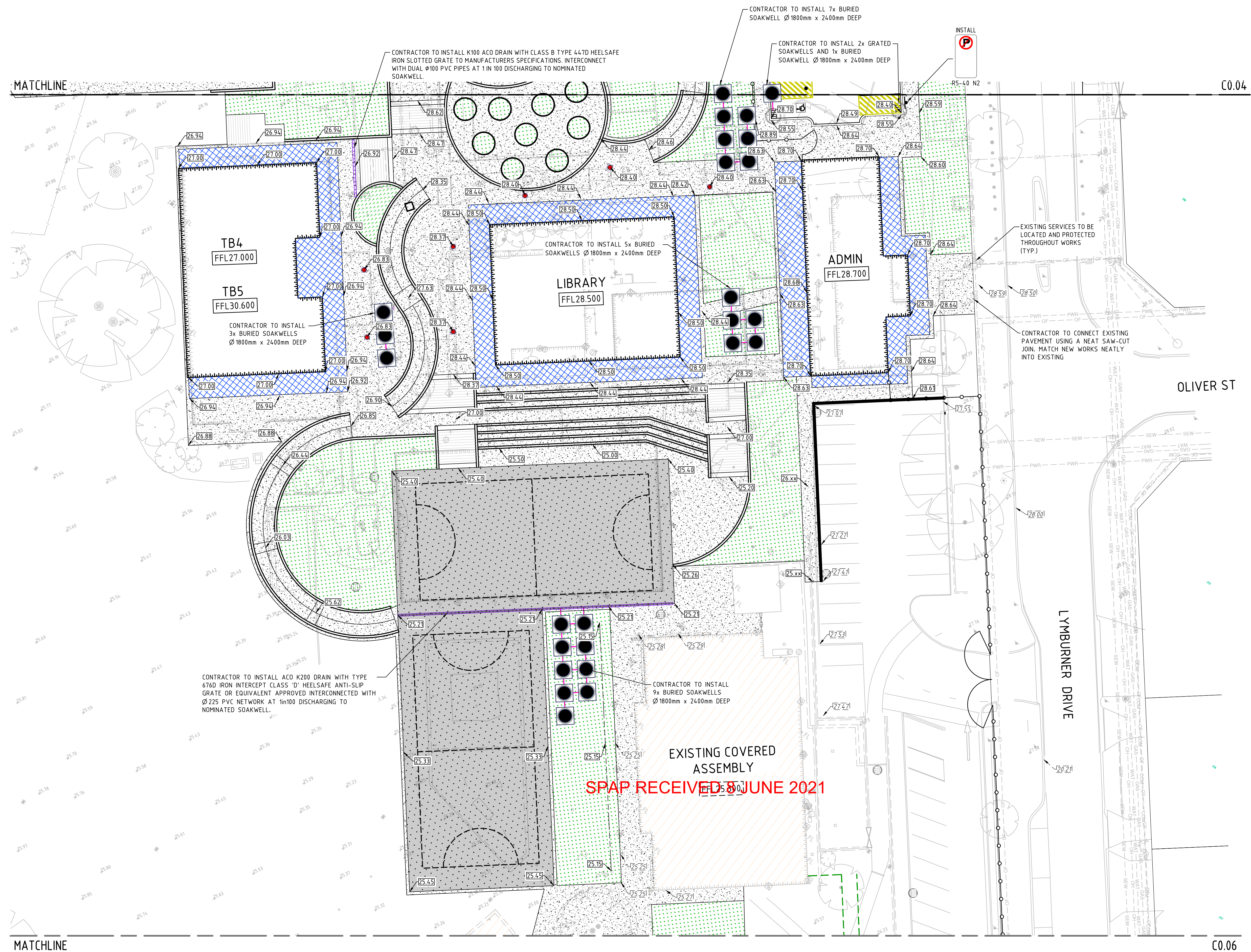


HILLARYS PRIMARY SCHOOL
CIVIL WORKS
CIVIL SITE PLAN
SHEET 1 OF 3

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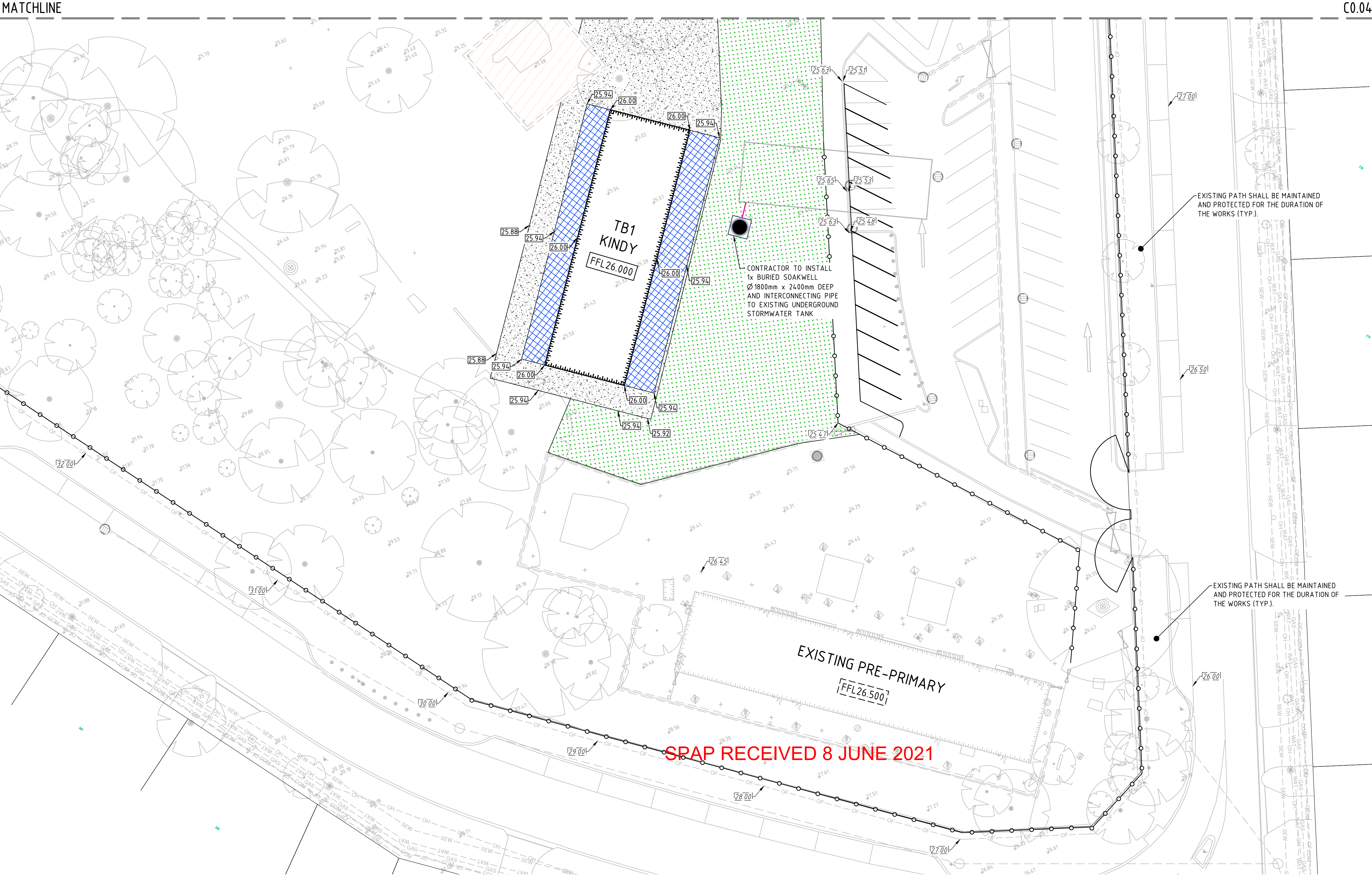
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HILLARYS PRIMARY SCHOOL
CIVIL WORKS
CIVIL SITE PLAN
SHEET 2 OF 3

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HILLARYS PRIMARY SCHOOL
CIVIL WORKS
CIVIL SITE PLAN
SHEET 3 OF 3

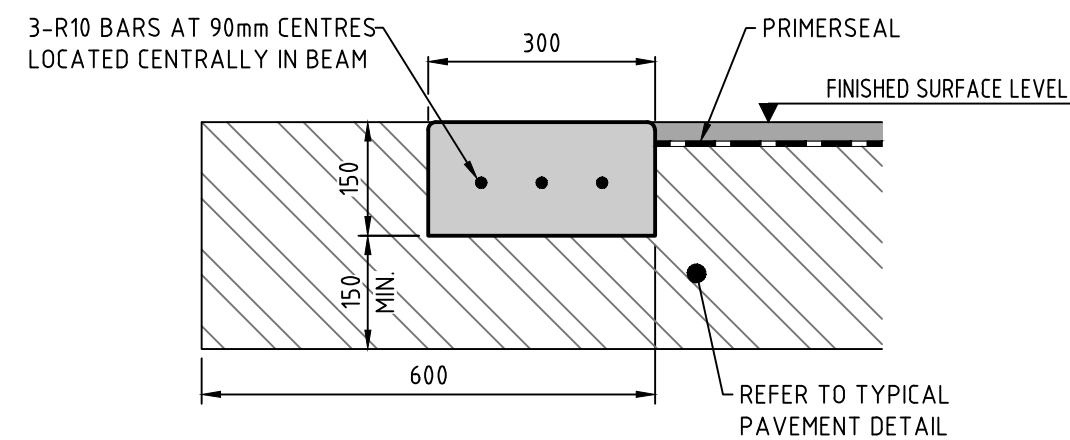
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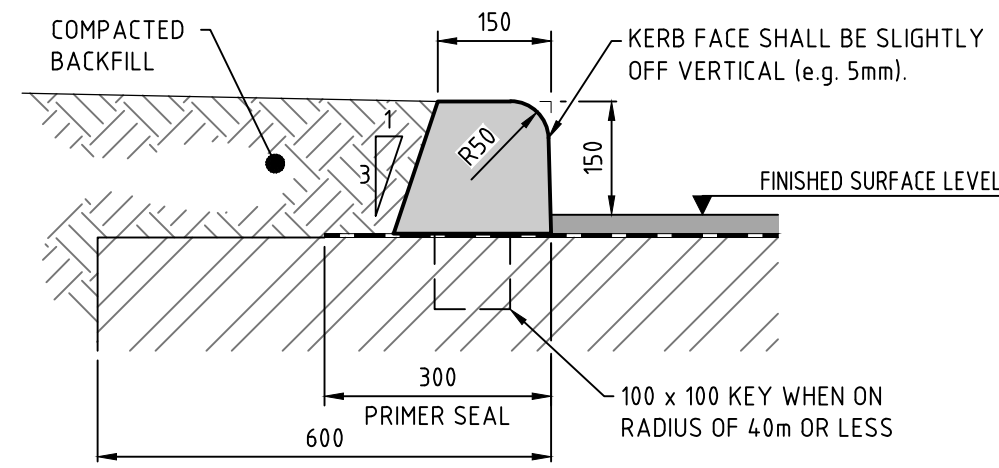


The Essential First Step.

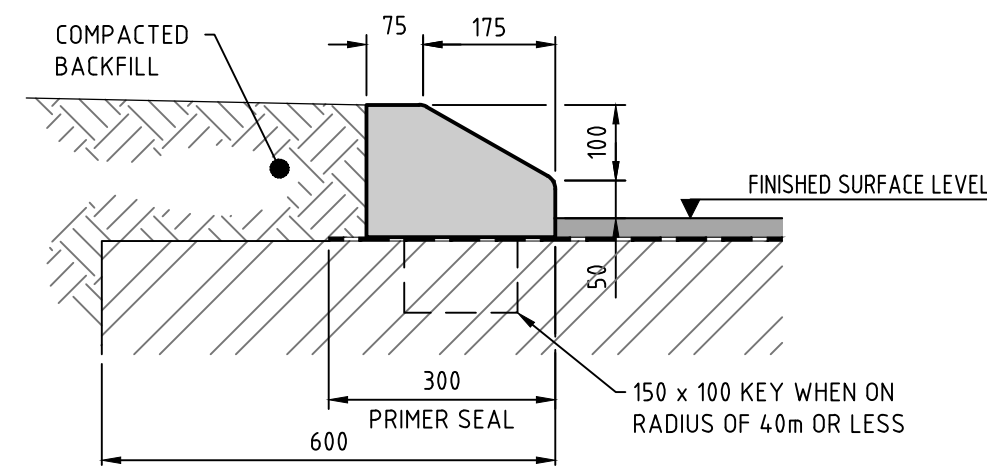
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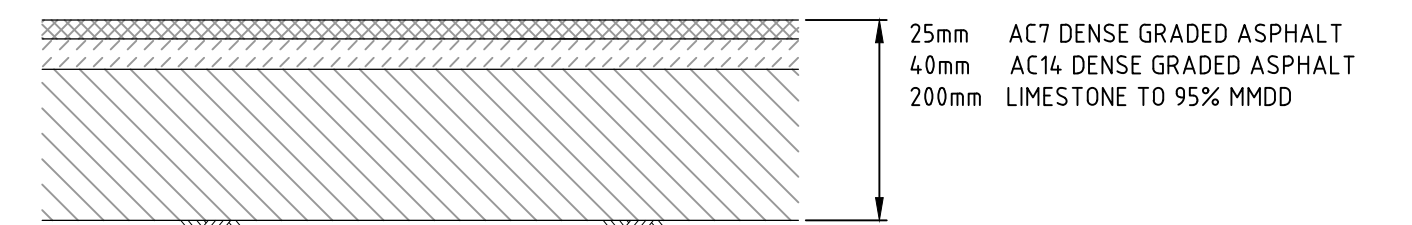
TYPICAL FLUSH KERB DETAIL



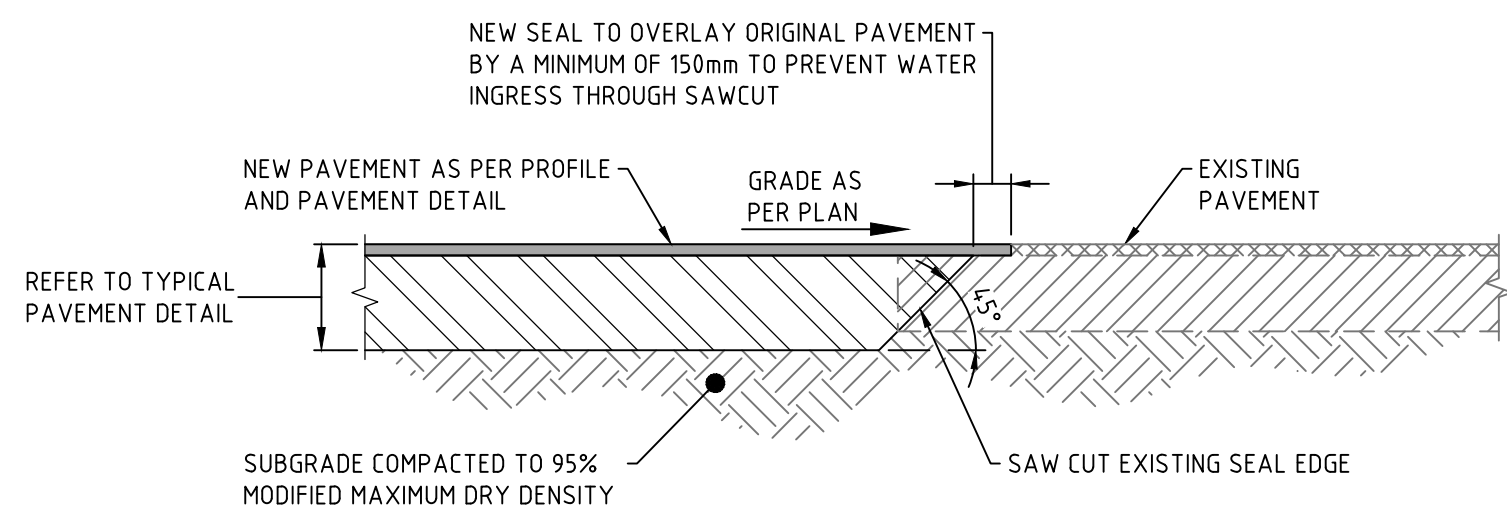
TYPICAL BARRIER KERB DETAIL



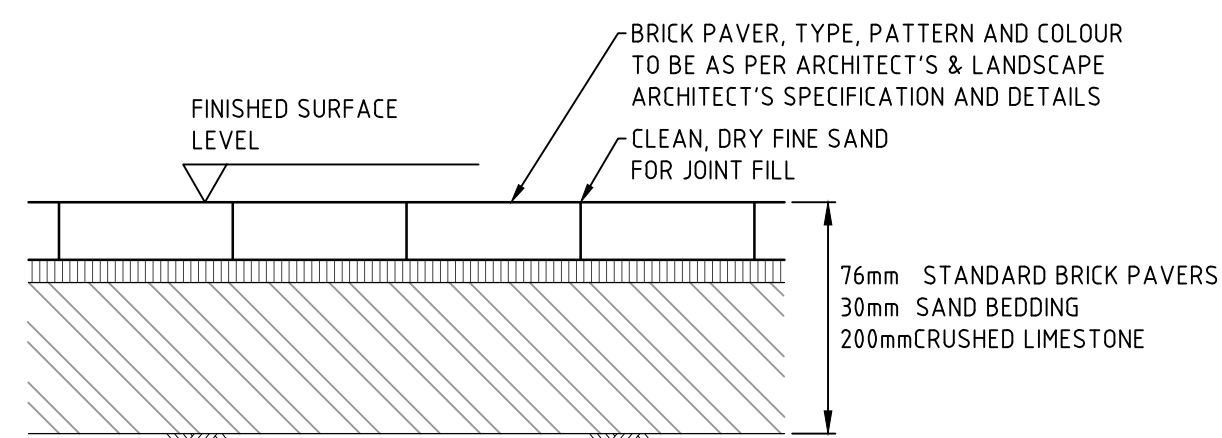
TYPICAL SEMI-MOUNTABLE KERB DETAIL



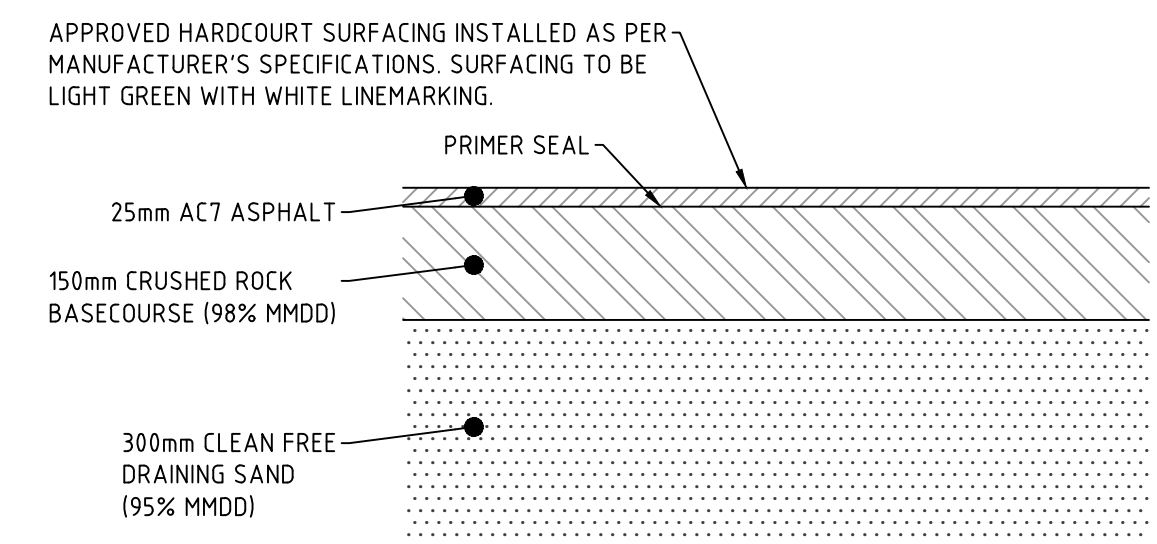
TYPICAL ASPHALT PAVEMENT DETAIL



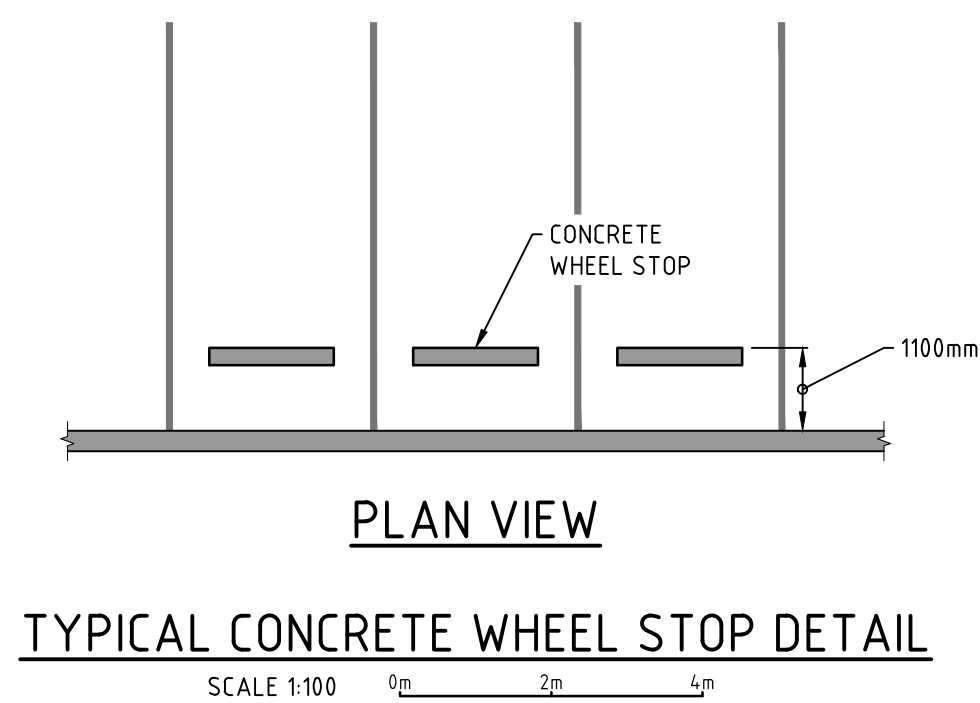
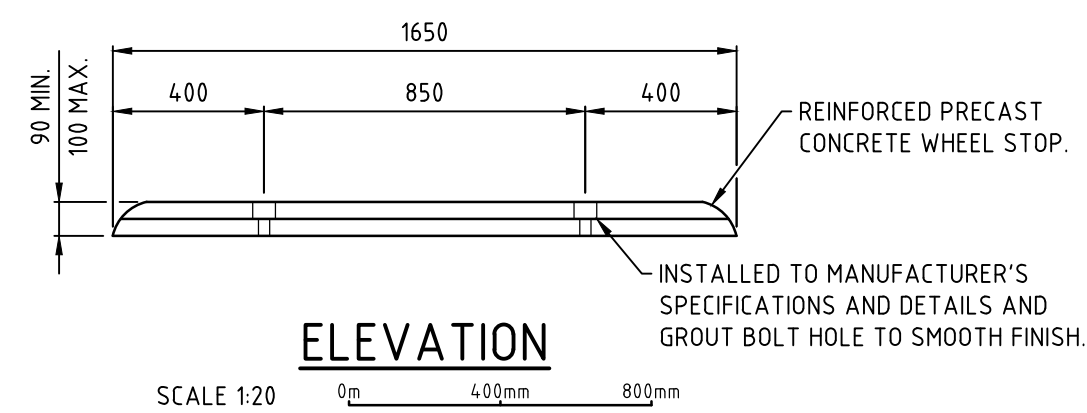
TYPICAL SAW CUT DETAIL



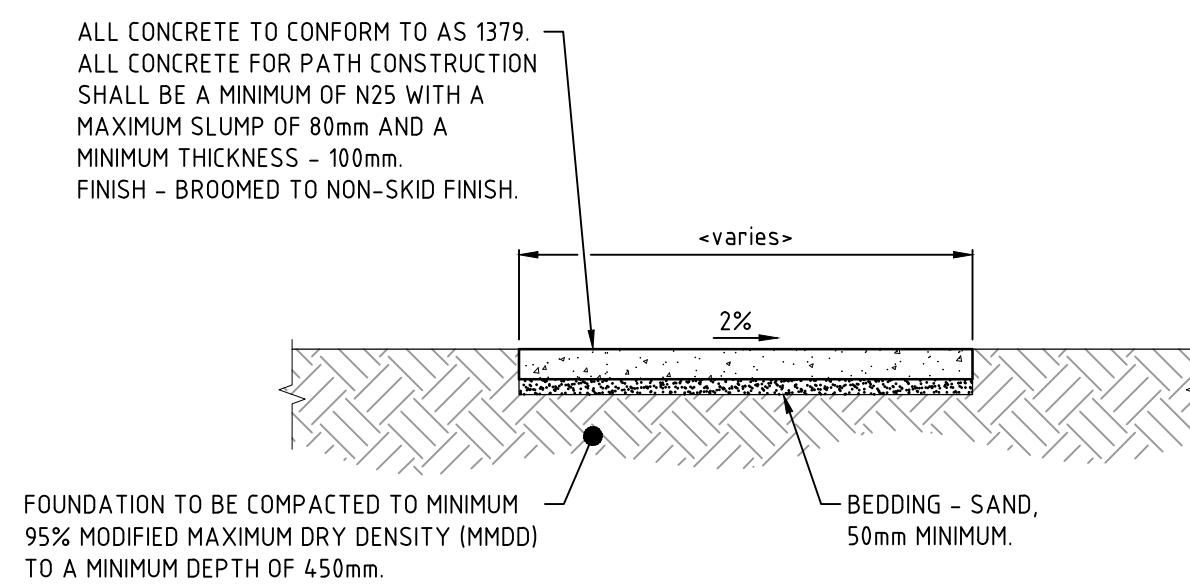
TYPICAL BRICK PAVING DETAIL



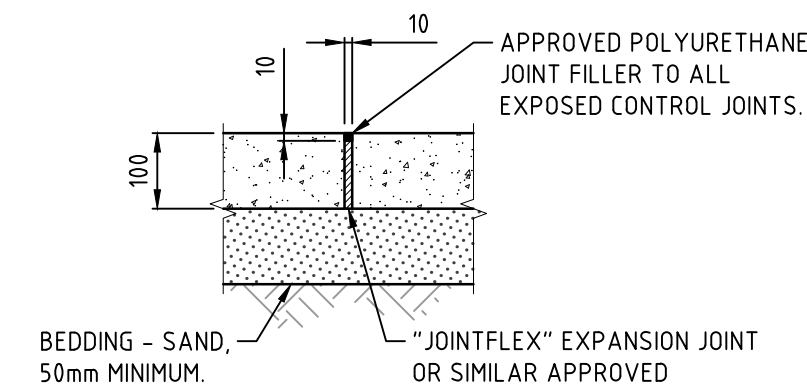
TYPICAL SPORT COURT PAVEMENT DETAIL



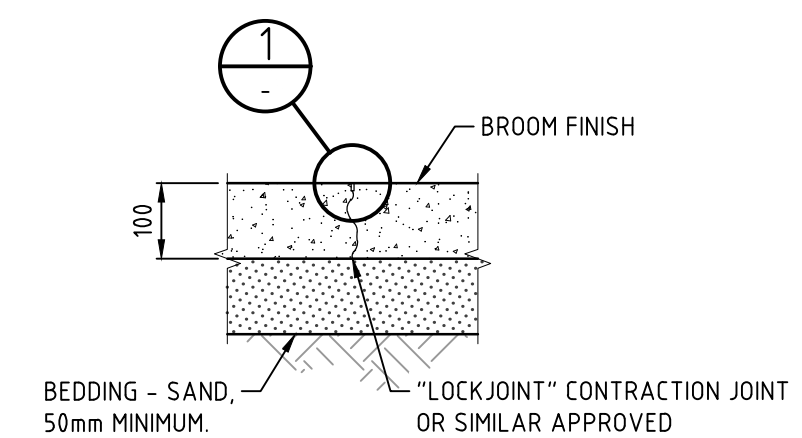
TYPICAL CONCRETE WHEEL STOP DETAIL



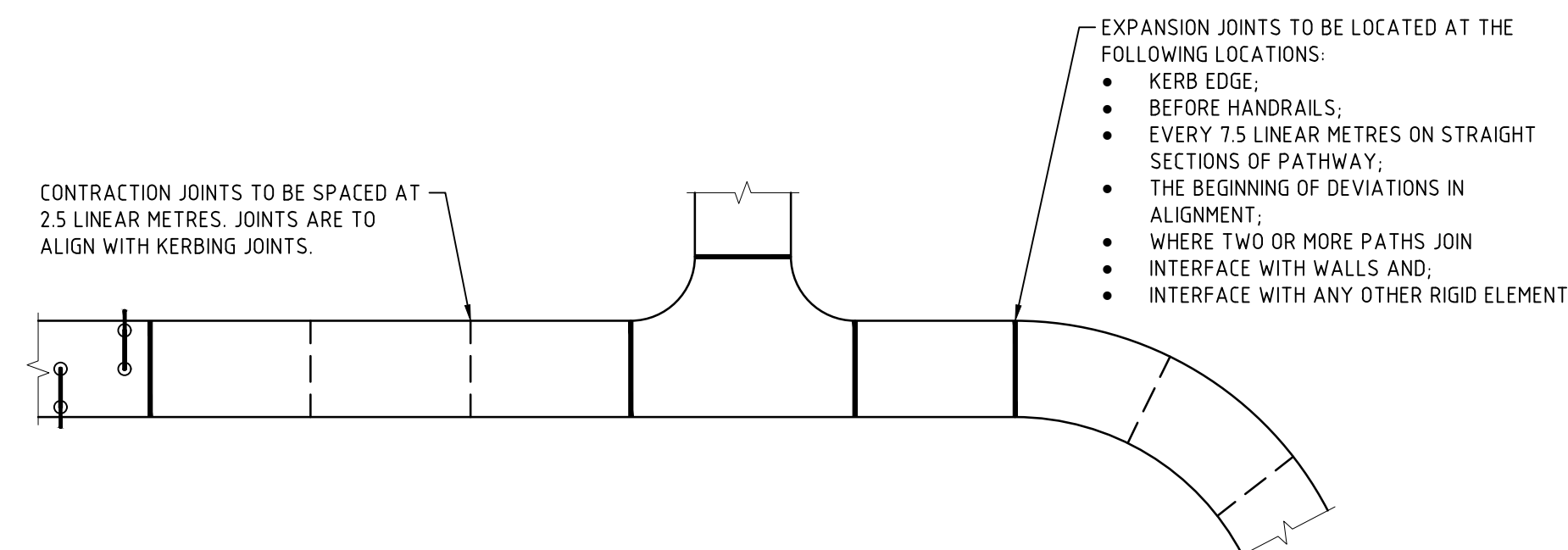
CONCRETE PATH SECTION



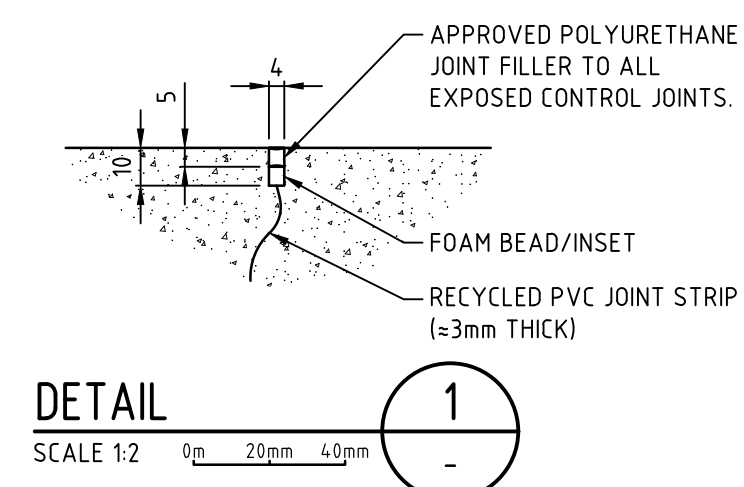
EXPANSION JOINT



CONTRACTION JOINT



TYPICAL CONCRETE PATH PLAN



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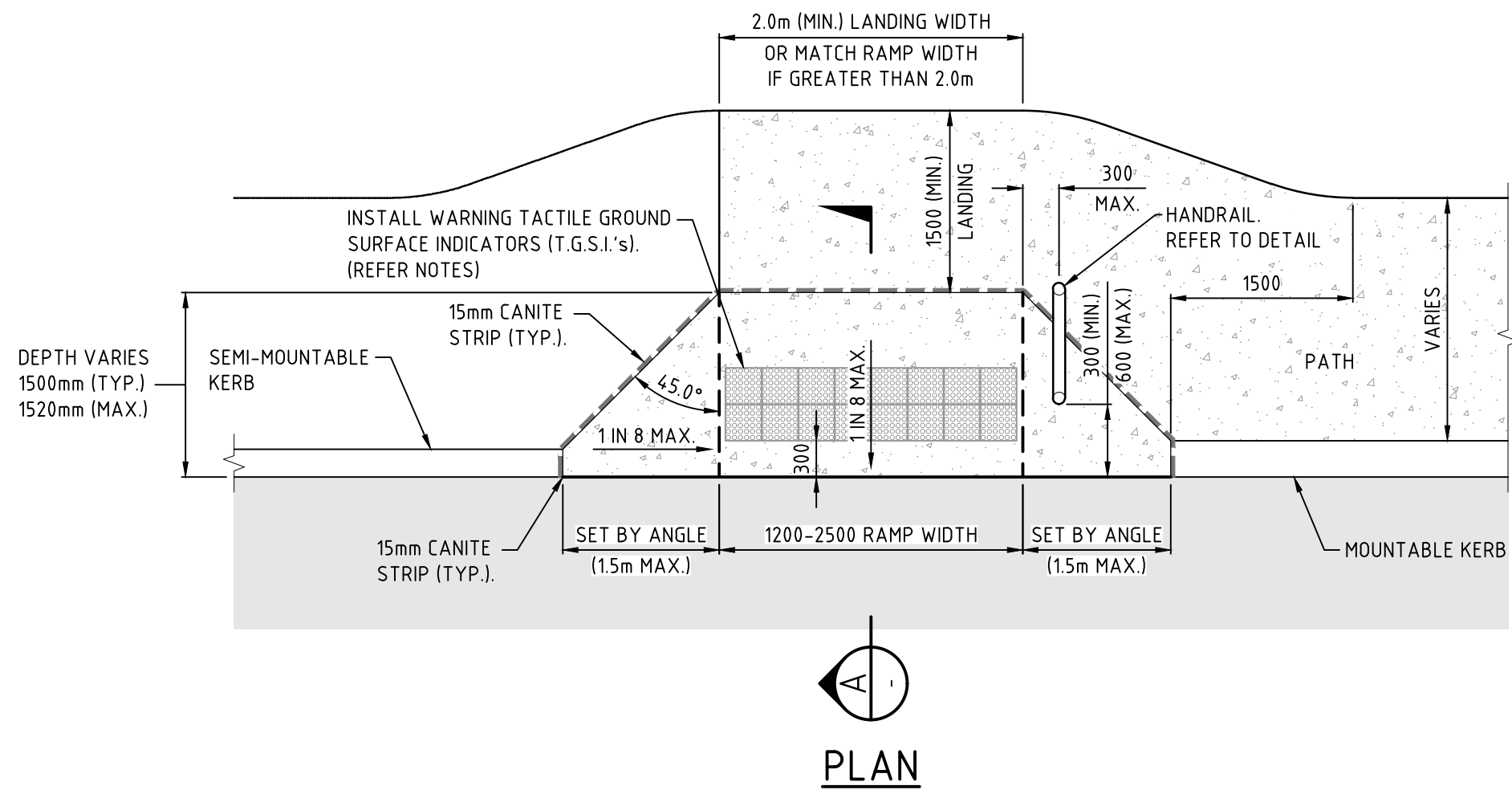
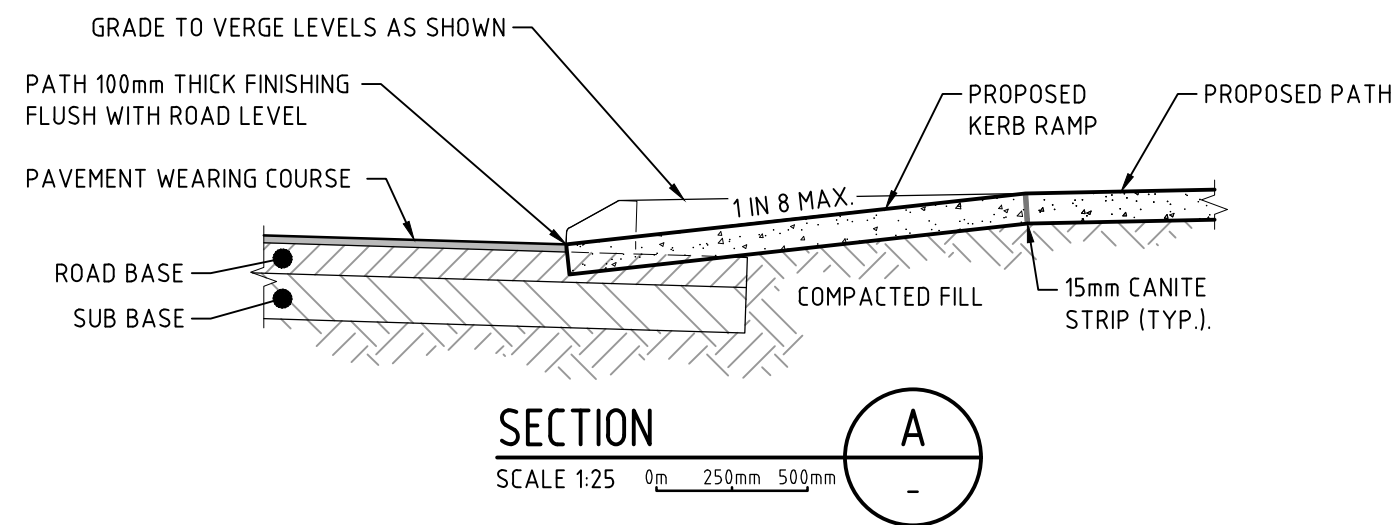
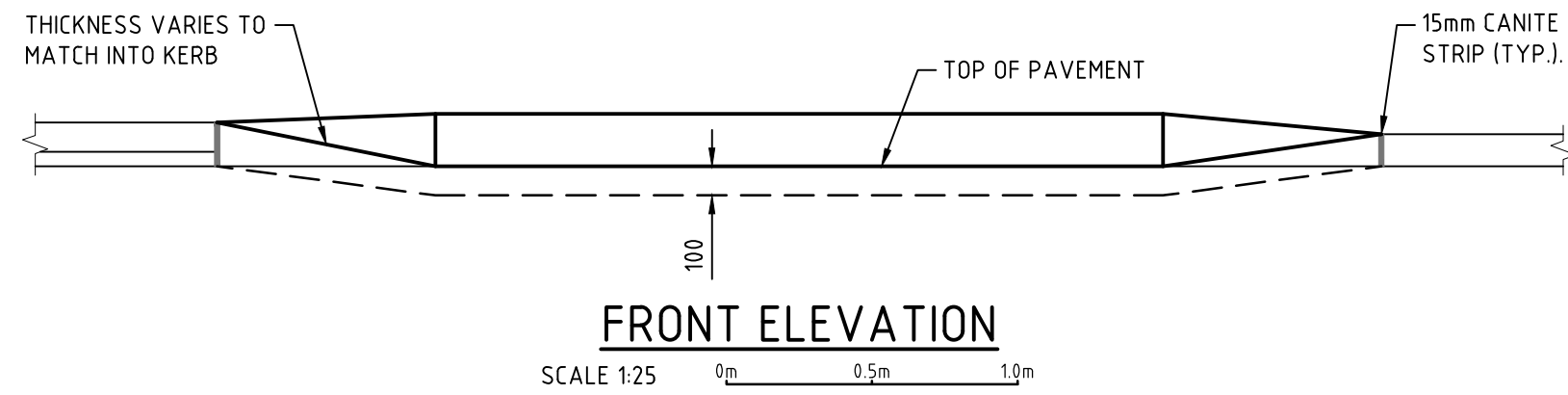
CIVIL WORKS

STANDARD ROAD DETAILS

SHEET 1 OF 2

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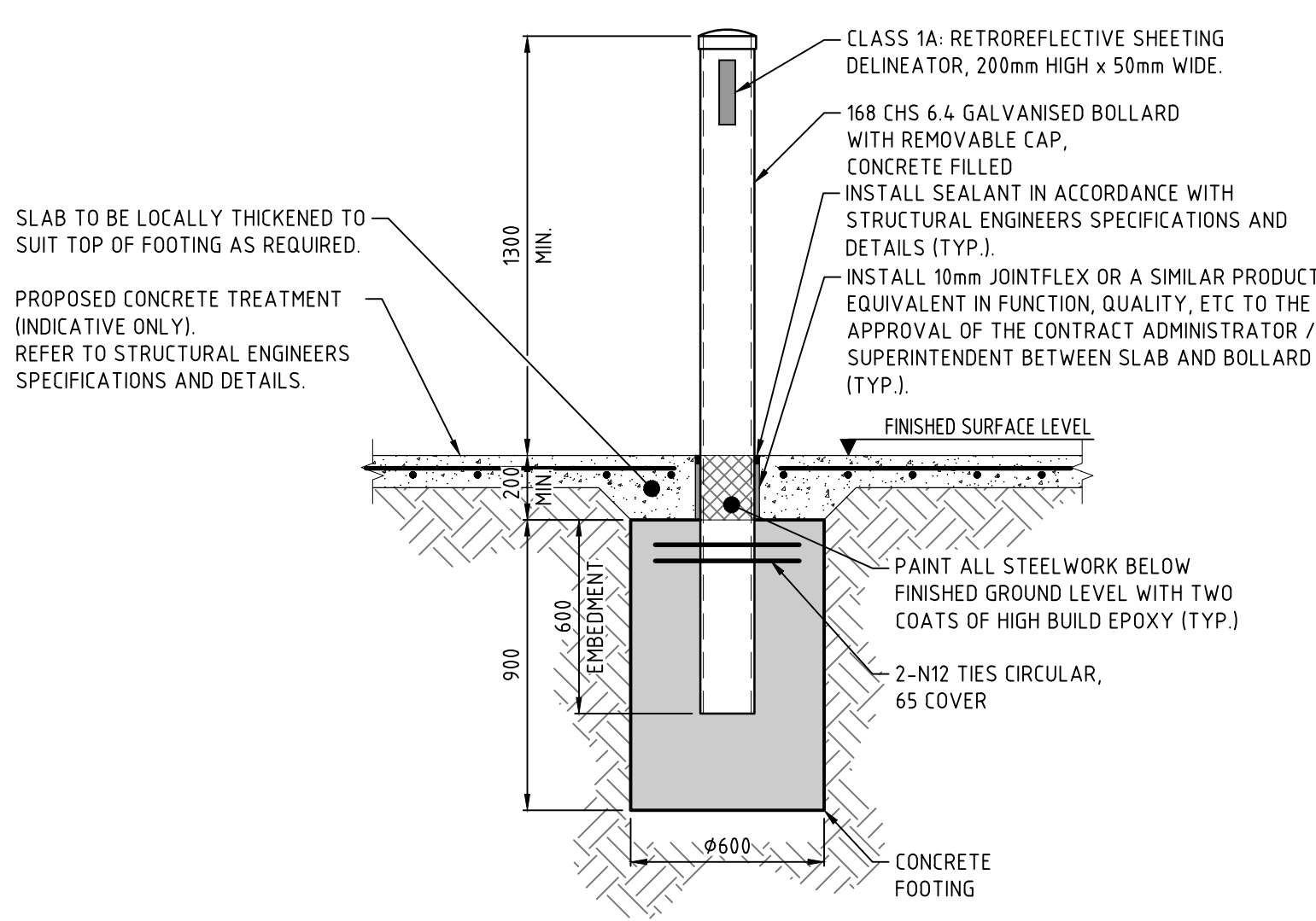
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TYPICAL KERB RAMP DETAIL

NOTES

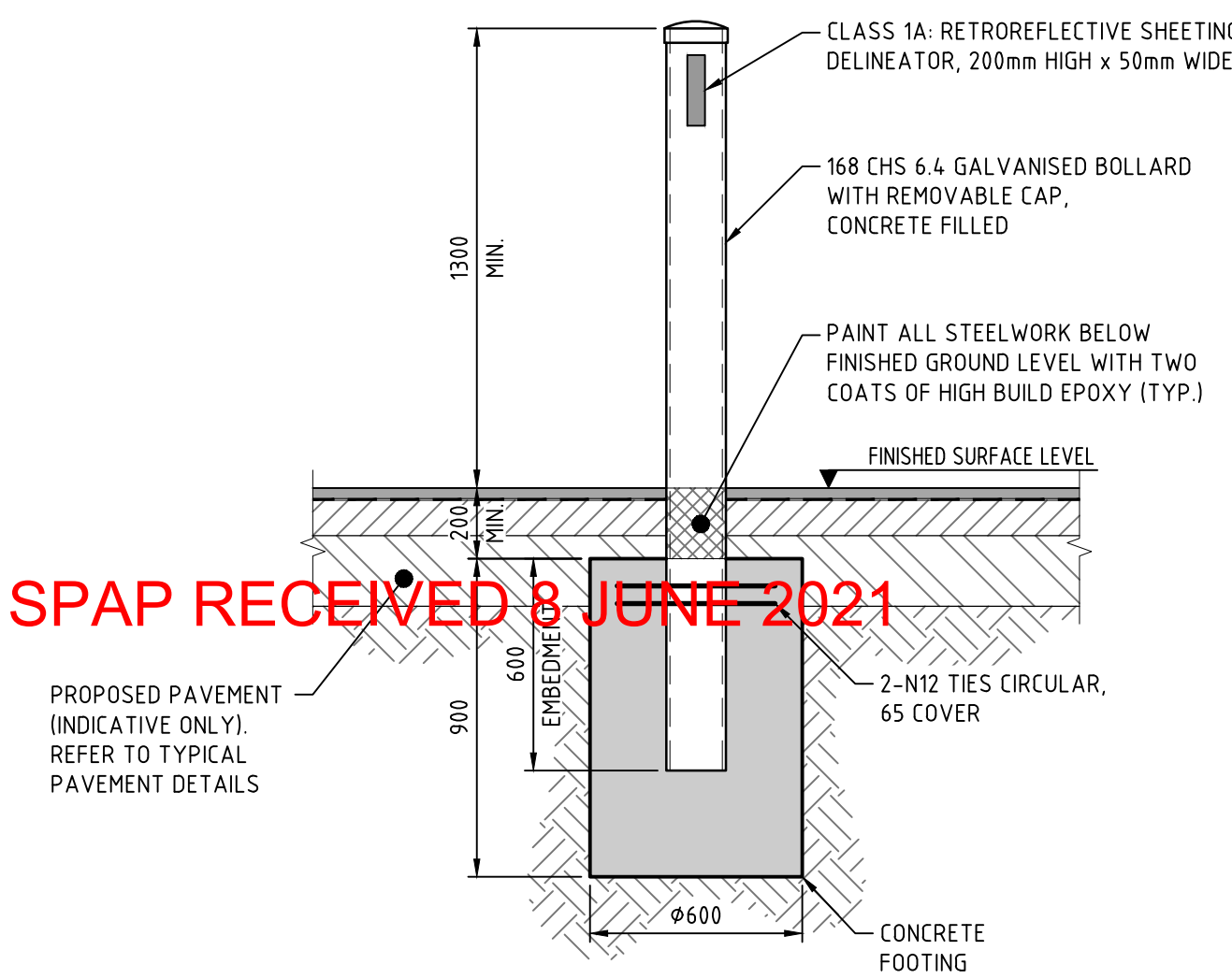
1. ALL CONCRETE TO BE A MINIMUM OF 25MPa, 20mm AGGREGATE AND A MAXIMUM SLUMP OF 80mm, FROM AN APPROVED PRE-MIX BATCH PLANT
2. MINIMUM THICKNESS - 100mm.
3. BEDDING - SAND, 50mm MINIMUM.
4. FINISH - BROOMED TO NON-SKID FINISH PARALLEL TO LINE OF KERB WITH TOOLED EDGES
5. EXPANSION JOINTS - APPROVED MATERIAL SHALL BE EXPANDITE-FLEXICELL.
6. TACTILE GROUND SURFACE INDICATORS (T.G.S.I.'s) SHALL BE IN ACCORDANCE WITH AS1428.1 AND AS1428.4.
7. CONTRACTOR TO INSTALL 2x ROWS OF TERRACOTTA WARNING T.G.S.I.'s (ADHESIVE TYPE) FOR FULL WIDTH OF CONCRETE KERB RAMP.
8. WARNING T.G.S.I.'s ARE NOT TO BE CUT. CONTRACTOR SHALL SELECT SUITABLE SIZE TO EXTEND ACROSS FULL WIDTH OF KERB RAMP (EXCLUDING SPLAYS).
9. WHERE THE KERB RAMP IS CONSTRUCTED USING BLOCK PAVERS, THE CONTRACTOR SHALL INSTALL T.G.S.I. PAVERS IN A CONTRASTING COLOUR CONFORMING WITH AS1428.4 LUMINANCE REQUIREMENTS.



TYPICAL BOLLARD IN CONCRETE PAVEMENT DETAIL

NOTES

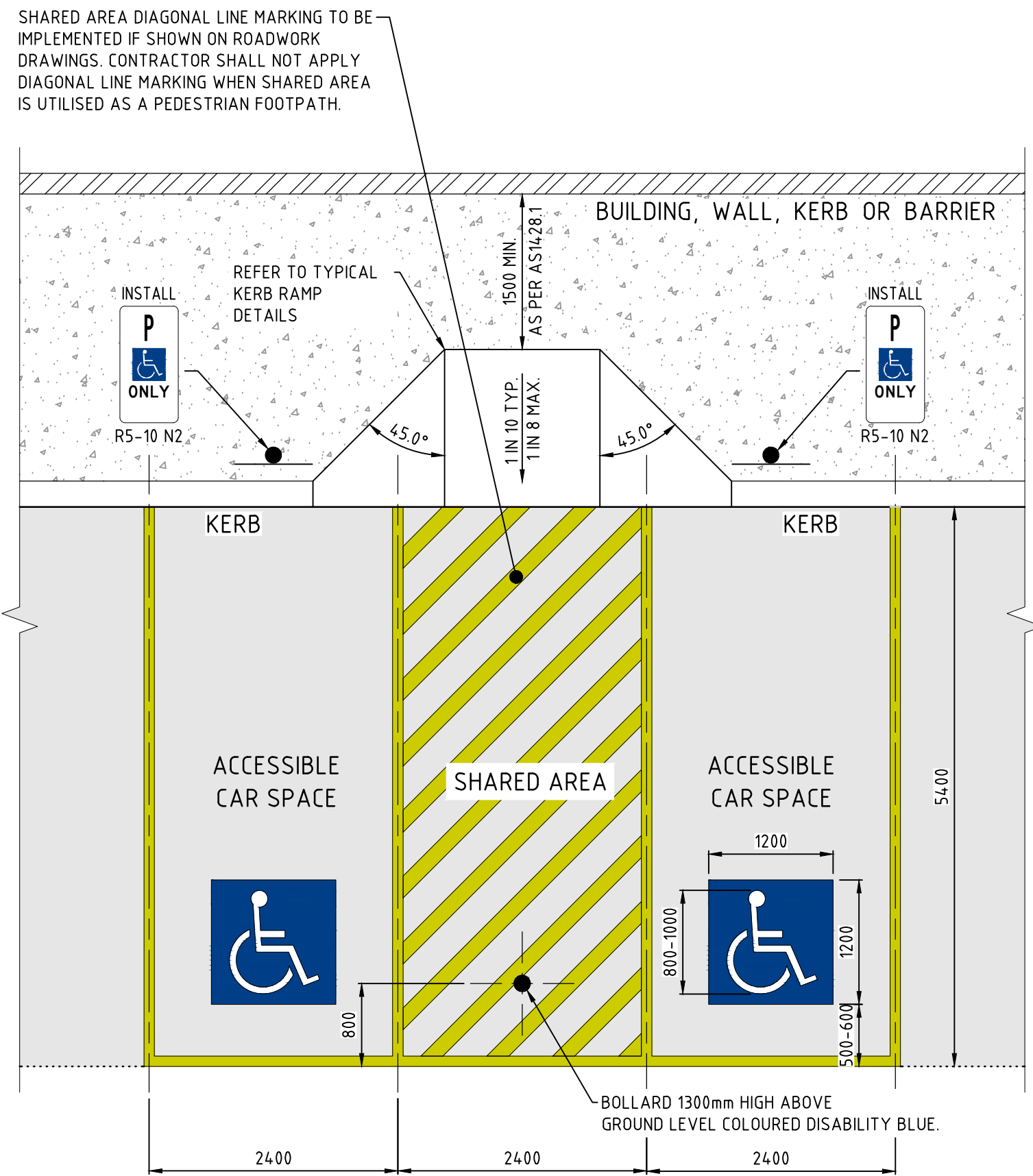
1. THE BOLLARD SHALL COMPLY WITH AS3845.
2. BOLLARD DESIGNED FOR 10kN INCIDENTAL LOAD ONLY. NOT DESIGNED TO AS1170.1 BARRIER LOADS.
3. REFER TO THE ARCHITECTS DOCUMENTATION FOR LOCATIONS AND HEIGHTS.



TYPICAL BOLLARD IN ASPHALT PAVEMENT DETAIL

NOTES

1. THE BOLLARD SHALL COMPLY WITH AS3845.
2. BOLLARD DESIGNED FOR 10kN INCIDENTAL LOAD ONLY. NOT DESIGNED TO AS1170.1 BARRIER LOADS.
3. REFER TO THE ARCHITECTS DOCUMENTATION FOR LOCATIONS AND HEIGHTS.



PERPENDICULAR ACCESSIBLE CAR PARKING SPACES
IN ACCORDANCE WITH AS2890.6

SCALE 1:50

ACCESIBLE PARKING SPACE NOTES

SPACE IDENTIFICATION

EACH DEDICATED SPACE SHALL BE IDENTIFIED BY MEANS OF A WHITE SYMBOL OF ACCESS IN ACCORDANCE WITH AS1428.1 BETWEEN 800mm AND 1000mm HIGH PLACED ON A BLUE RECTANGLE WITH NO SIDE MORE THAN 1200mm, PLACED AS A PAVEMENT MARKING IN THE CENTRE OF THE SPACE BETWEEN 500mm AND 600mm FROM ITS ENTRY POINT AS ILLUSTRATED.

SPACE DELINEATION

PAVEMENT MARKINGS SPECIFIED IN ITEMS (A) AND (B) OF THIS CLAUSE SHALL BE YELLOW AND SHALL HAVE A SLIP RESISTANT SURFACE. RAISED PAVEMENT MARKERS SHALL NOT BE USED FOR SPACE DELINEATION.

PAVEMENT MARKINGS SHALL BE PROVIDED AS FOLLOWS:

1. LINEMARKING:
 - 1.1. DEDICATED PARKING SPACES SHALL BE OUTLINED WITH UNBROKEN LINES 80 TO 100mm WIDE ON ALL SIDES EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL.
2. SHARED AREAS SHALL BE MARKED AS FOLLOWS:
 - 2.1. WALKWAYS WITHIN OR PARTLY WITHIN A SHARED AREA SHALL BE MARKED WITH UNBROKEN LONGITUDINAL LINES ON BOTH SIDES OF THE WALKWAY EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL.
 - 2.2. OTHER VACANT NON-TRAFFICKED AREAS, WHICH MAY BE INTENTIONALLY OR UNINTENTIONALLY OBSTRUCTED (E.G. BY UNINTENDED PARKING), SHALL BE OUTLINED WITH UNBROKEN LINES 80mm TO 100mm WIDE ON ALL SIDES EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL, AND MARKED WITH DIAGONAL STRIPES 150mm WIDE WITH SPACES 300mm BETWEEN STRIPES. THE STRIPES SHALL BE AT AN ANGLE OF 45° TO THE SIDE OF THE SPACE.
 - 2.3. NO SHARED AREA MARKINGS SHALL BE PLACED IN TRAFFICKED AREAS.
- 2.4. ALL LINEMARKING MUST BE NON SLIP.
3. BOLLARDS:
 - 3.1. MINIMUM HEIGHT 1300mm.
 - 3.2. RECOMMENDED COLOUR BLUE TO CONTRAST AGAINST YELLOW LINE MARKING.

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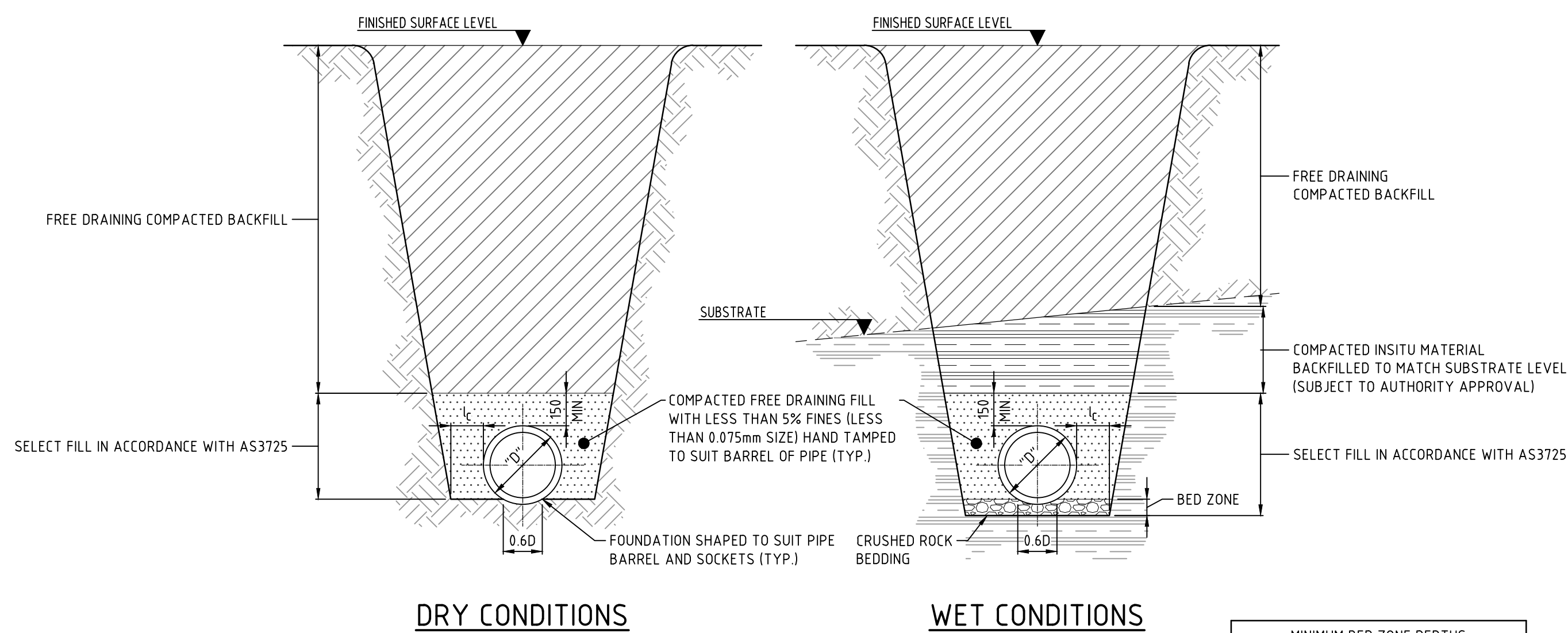
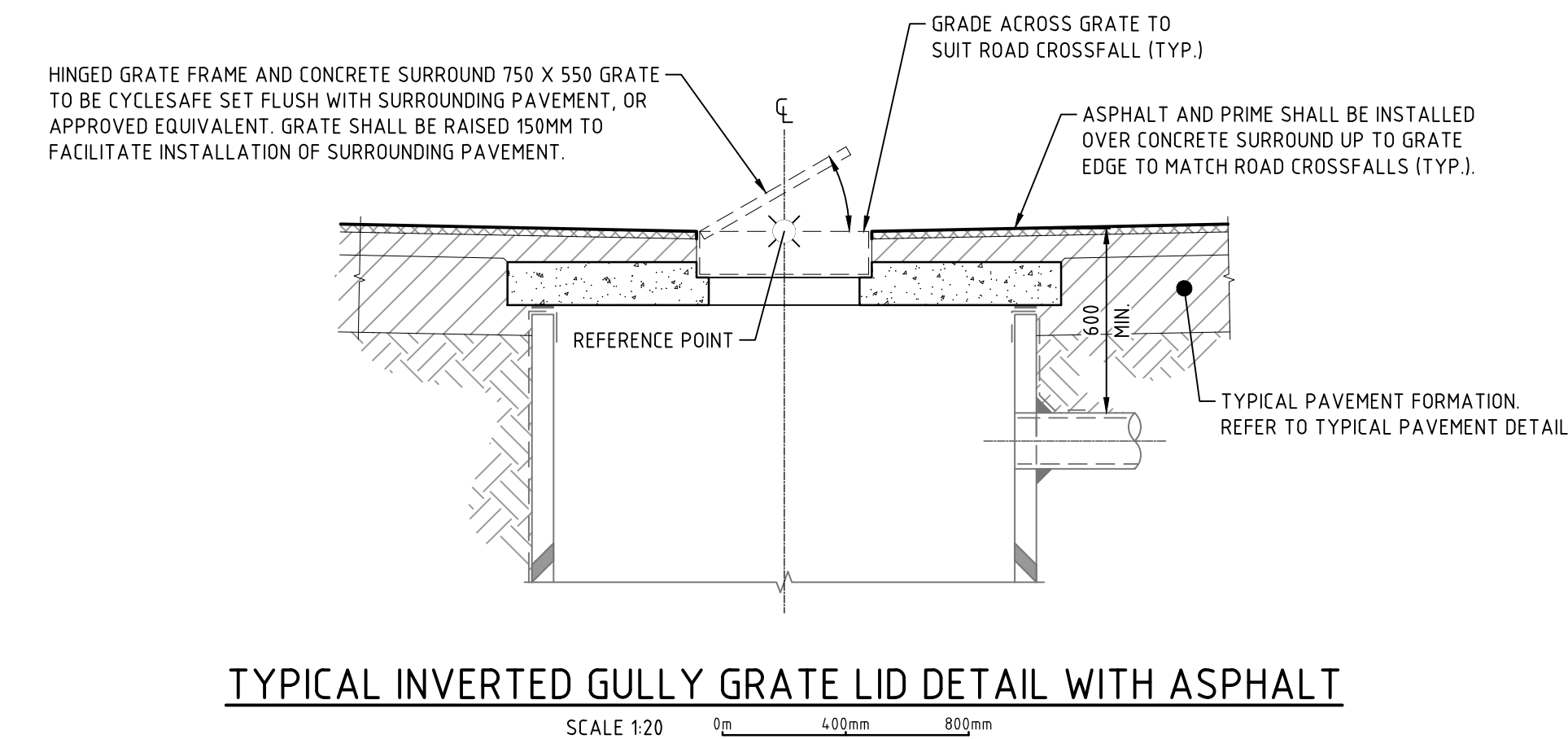
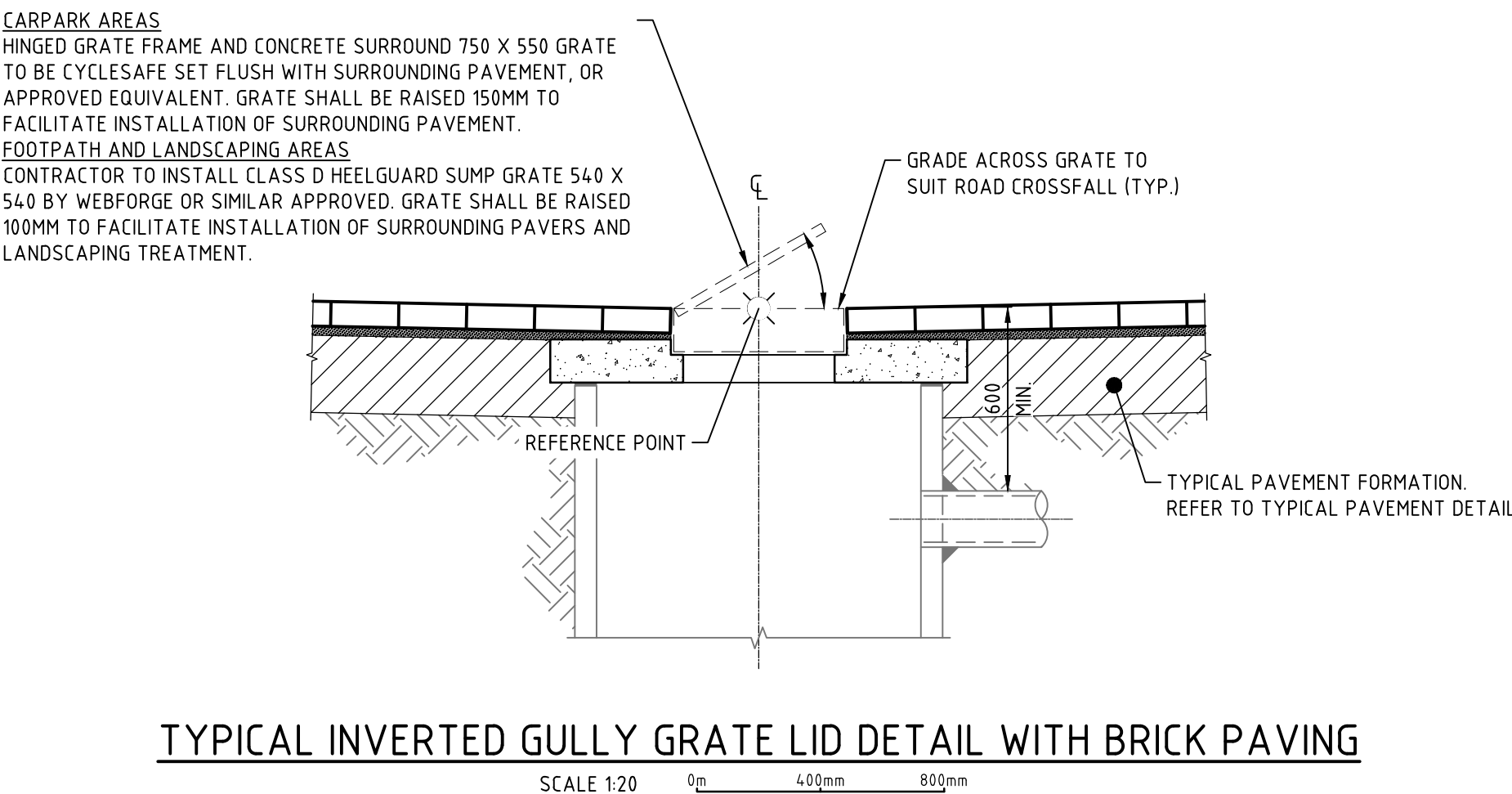
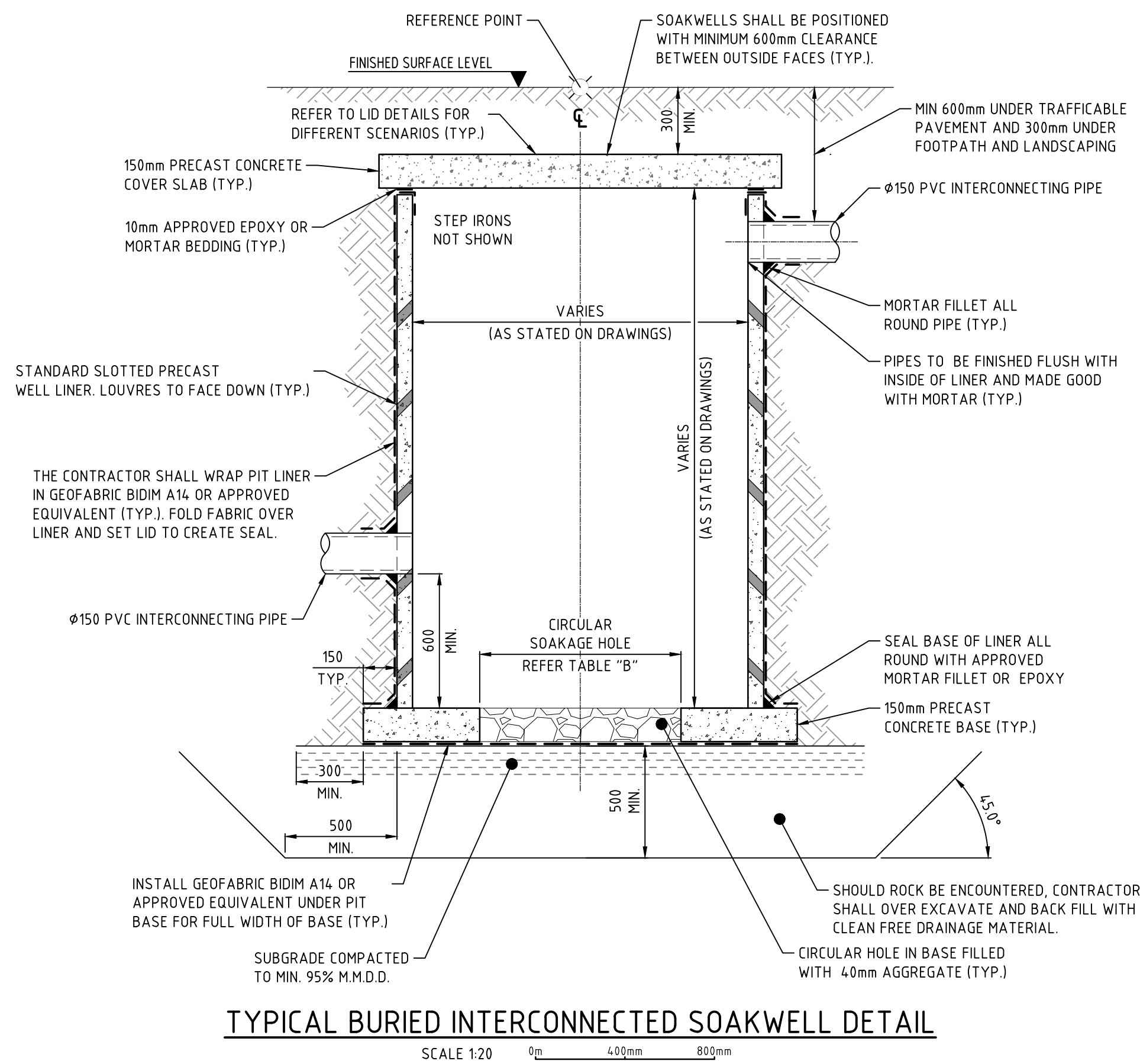
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HILLARYS PRIMARY SCHOOL
CIVIL WORKS
STANDARD ROAD DETAILS
SHEET 2 OF 2

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TRENCH DETAIL NOTES

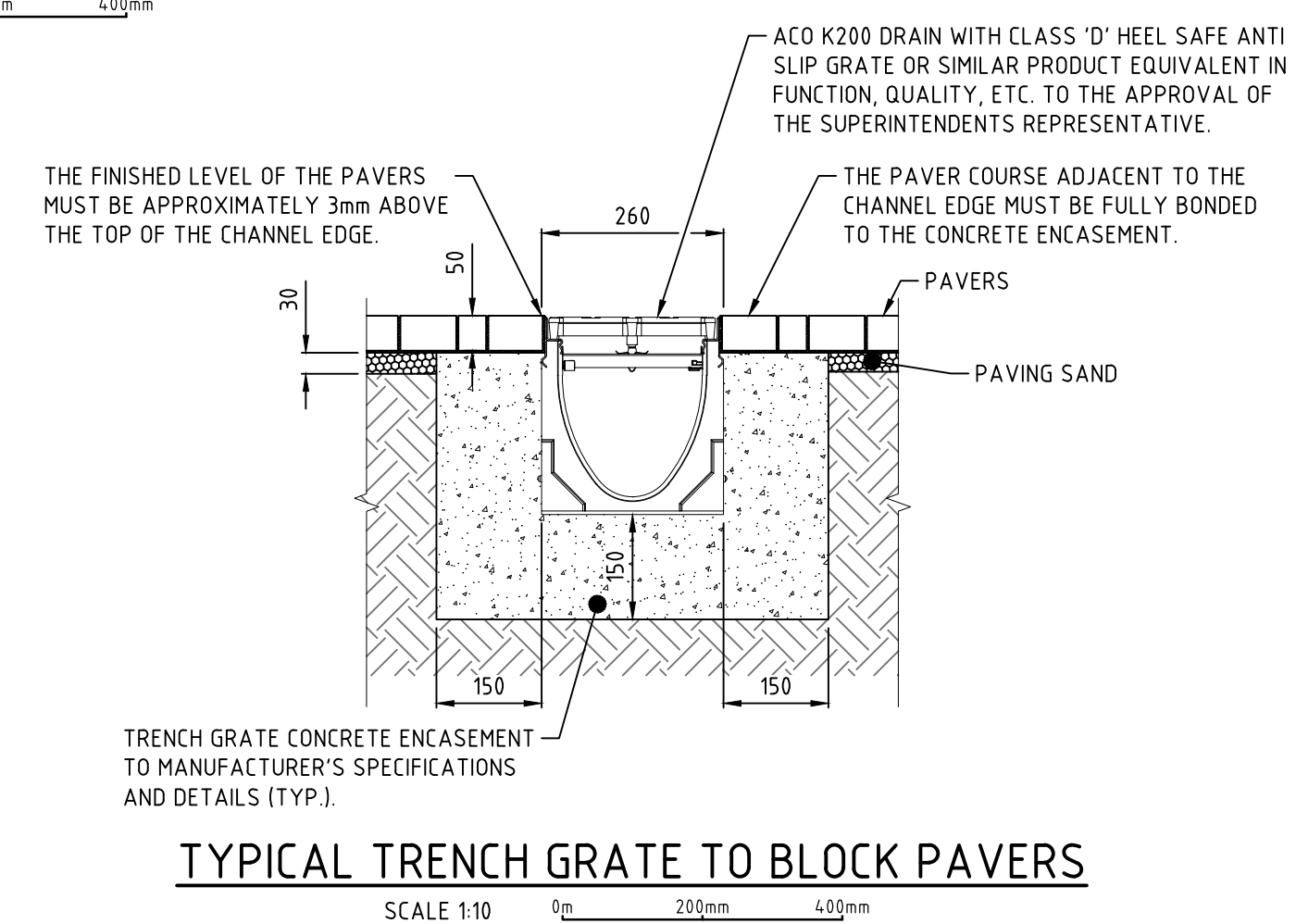
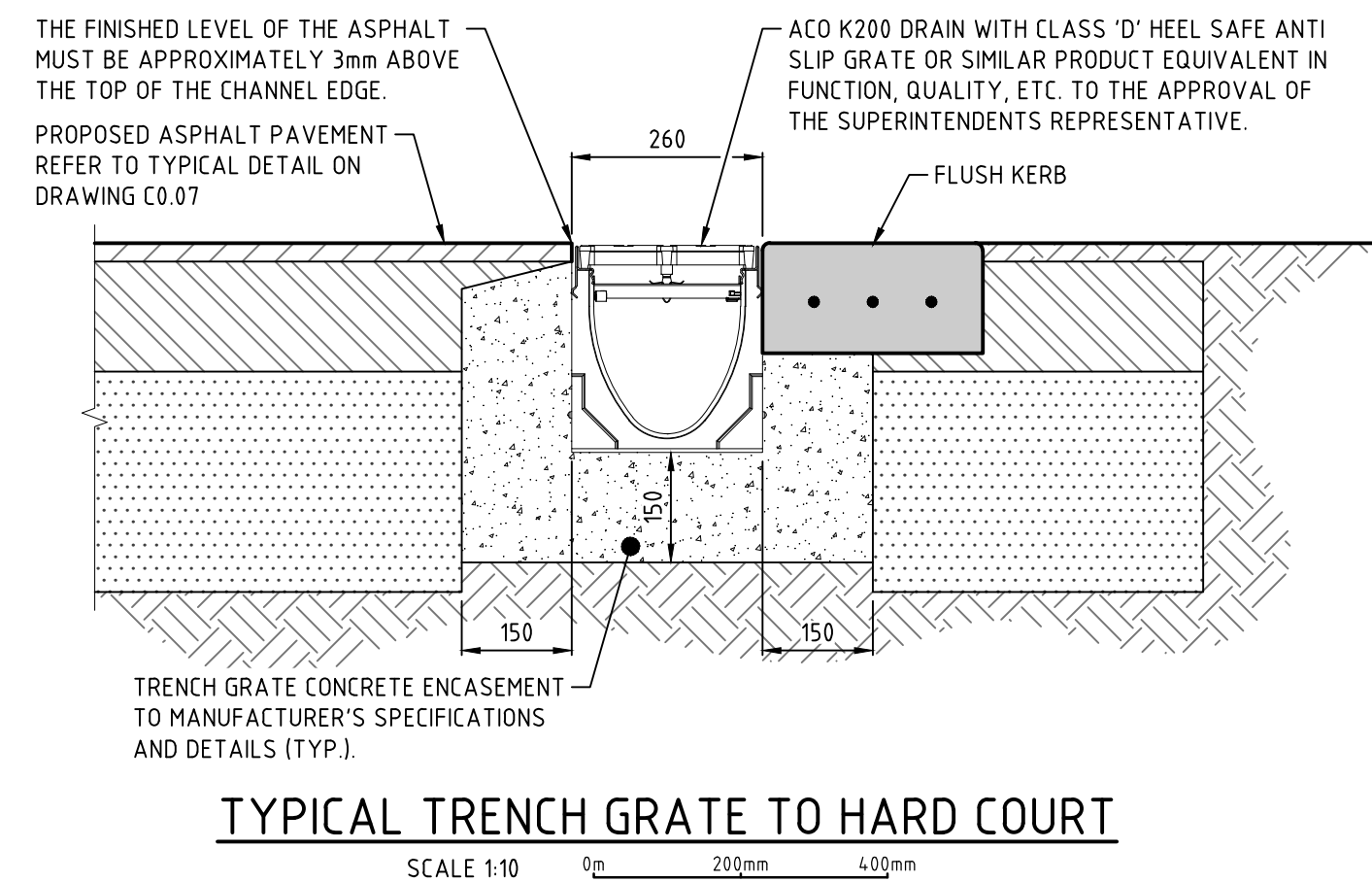
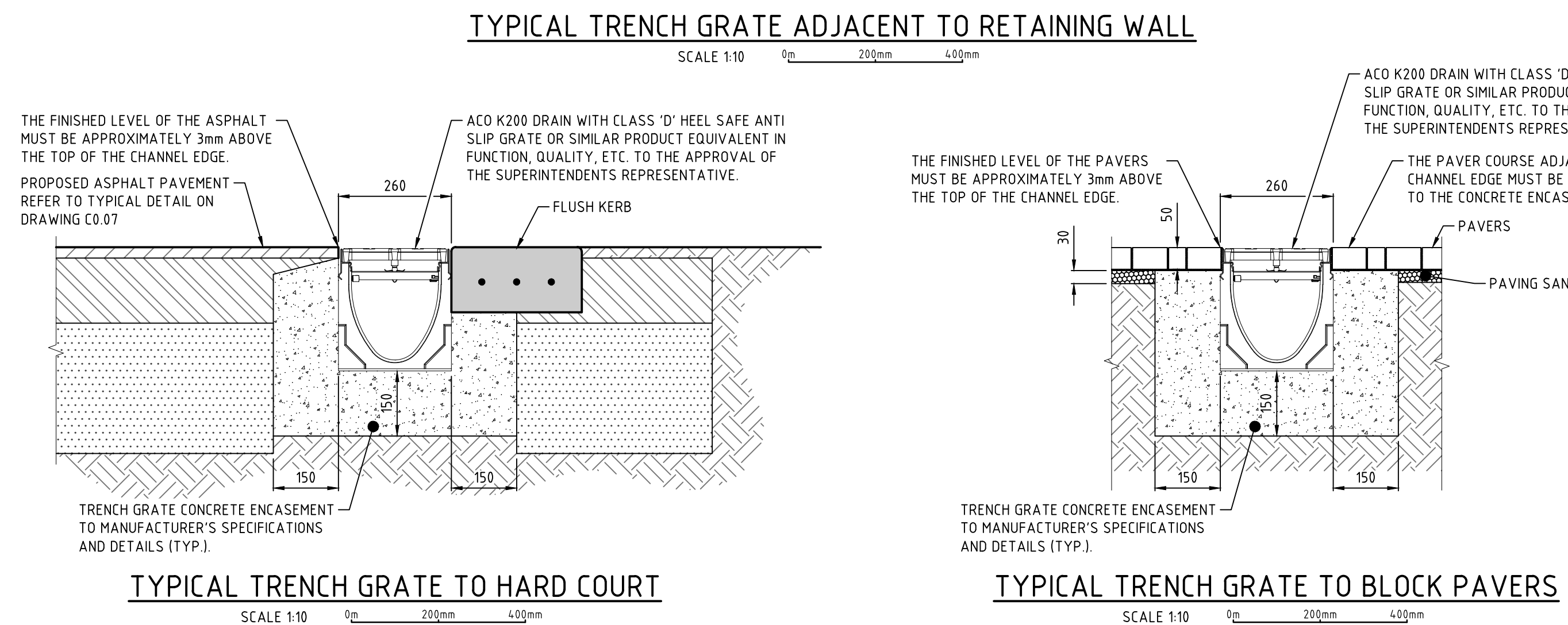
- ALL PIPE TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AS3725 - DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES. SHOULD DISCREPANCIES EXIST, AS3725 TAKES PRECEDENCE.
- DRY CONDITIONS SHALL BE SAND SOIL WHERE THE MAXIMUM PREDICTED G.W.L. IS A MINIMUM 300mm BELOW PIPE INVERT.
- WET CONDITIONS SHALL BE CONSIDERED AS BEING IN ROCK, CLAY OR SAND WHERE THE MAXIMUM PREDICTED G.W.L. IS HIGHER THAN 300mm BELOW PIPE INVERT.
- BEDDING CONDITION SHALL BE CARRIED PAST ALL MANHOLES, GULLIES & OTHER DRAINAGE STRUCTURES DOWNSTREAM.
- WHERE PIPES HAVE PROTRUDING SOCKETS, SUITABLE RECESSES SHALL BE PROVIDED IN THE SUPPORTING MATERIALS TO ENSURE THAT THE PIPES DO NOT BEAR ON THE SOCKETS (TYP.).

MINIMUM BED ZONE DEPTHS	
SUPPORT TYPE	DEPTH (mm)
U	75
H / HS ≤ Ø1500	100
H / HS > Ø1500	150

MINIMUM SIDE CLEARANCE "Lc" (D/6 or Lc, WHICHEVER IS GREATER)	
PIPE DIAMETER	Lc
≤600	150
>600 - ≤1200	200
>1200	D/6

NOTE:
THE MINIMUM Lc VALUES SHALL ONLY BE USED WHERE NECESSARY COMPACTION VALUES CAN BE ASSURED.

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- NOTES**
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE SPECIFICATION AND ALSO THE REQUIREMENTS OF THE CITY OF JOONDALUP.
 - THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE ALL EXISTING SERVICES WITHIN THE CONTRACT AREA PRIOR TO THE COMMENCEMENT OF WORK. SERVICES INFORMATION SHOWN ON THE DRAWINGS IS INDICATIVE ONLY AND MAY NOT BE COMPLETE. WHERE EXISTING AND PROPOSED WORKS CONFLICT, LEVELS ARE TO BE TAKEN AND SUPPLIED TO THE SUPERINTENDENT IMMEDIATELY FOR DIRECTION.
 - ALL COORDINATES & QUANTITIES SHOWN ON THIS DRAWING SHALL BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPORT OF ALL EXISTING SERVICES. ALL SEWERS SHALL BE PROVIDED WITH EITHER TIMBER BEARERS OR KEEL WITH TIMBER PILES AS REQUIRED.
 - WHERE CONNECTING INTO EXISTING DRAINAGE, THE CONTRACTOR IS TO PICK UP UPSTREAM AND DOWNSTREAM INVERT LEVELS OF EXISTING DRAINAGE LINE IMMEDIATELY DOWNSTREAM OF PROPOSED CONNECTION. THE CONTRACTOR TO SUPPLY THIS SURVEY INFORMATION TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF ANY DRAINAGE CONSTRUCTION. THE CONTRACTOR TO THEN AWAIT NOTIFICATION FROM THE SUPERINTENDENT THAT DRAINAGE CONSTRUCTION MAY COMMENCE.
 - ALL HEIGHTS ARE TO A.H.D. AND ALL LEVELS SHALL BE DERIVED FROM ESTABLISHED BENCHMARKS.
 - ALL BENCHMARKS ARE TO BE PROTECTED AND PRESERVED.
 - STORMWATER PIPES ARE TO BE REINFORCED CONCRETE RUBBER JOINT - CLASS 2 UNLESS SHOWN OTHERWISE (U.S.O.).
 - ALL MANHOLES AND GULLY GRATES TO BE FLUSH WITH SURROUNDING PAVEMENT LEVELS U.S.O.
 - JUNCTION AND ENTRY PITS ARE TO BE LOCATED IN POSITIONS SHOWN, IRRESPECTIVE OF THE INDICATED PIPE LENGTHS.
 - ALL EXCESS EXCAVATED MATERIAL AND DEMOLISHED MATERIAL SHALL BE DISPOSED OF OFFSITE AT AN APPROVED DISPOSAL FACILITY AT THE CONTRACTOR'S EXPENSE.
 - 'AS CONSTRUCTED' DRAWINGS ARE TO BE PREPARED TO THE REQUIREMENTS OF THE CITY OF JOONDALUP.

TABLE B DRAINAGE PIT BASE SOAKAGE HOLE SIZE	
LINER SIZE MIN. (mm)	SOAKHOLE DIAMETER (mm)
1050	600
1200	600
1500	900
1800	1200

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pritchard francis
civil and structural
engineering consultants

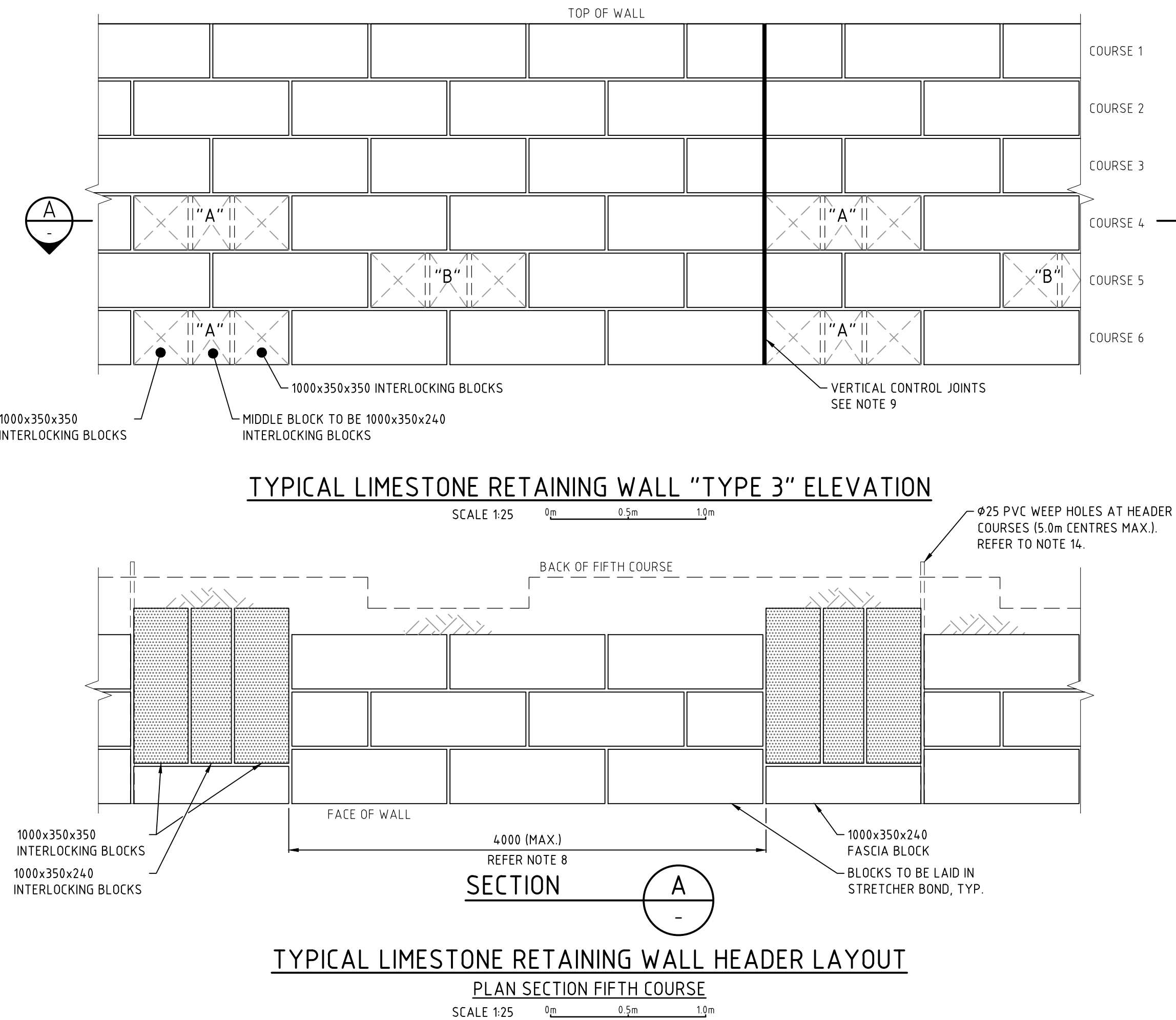
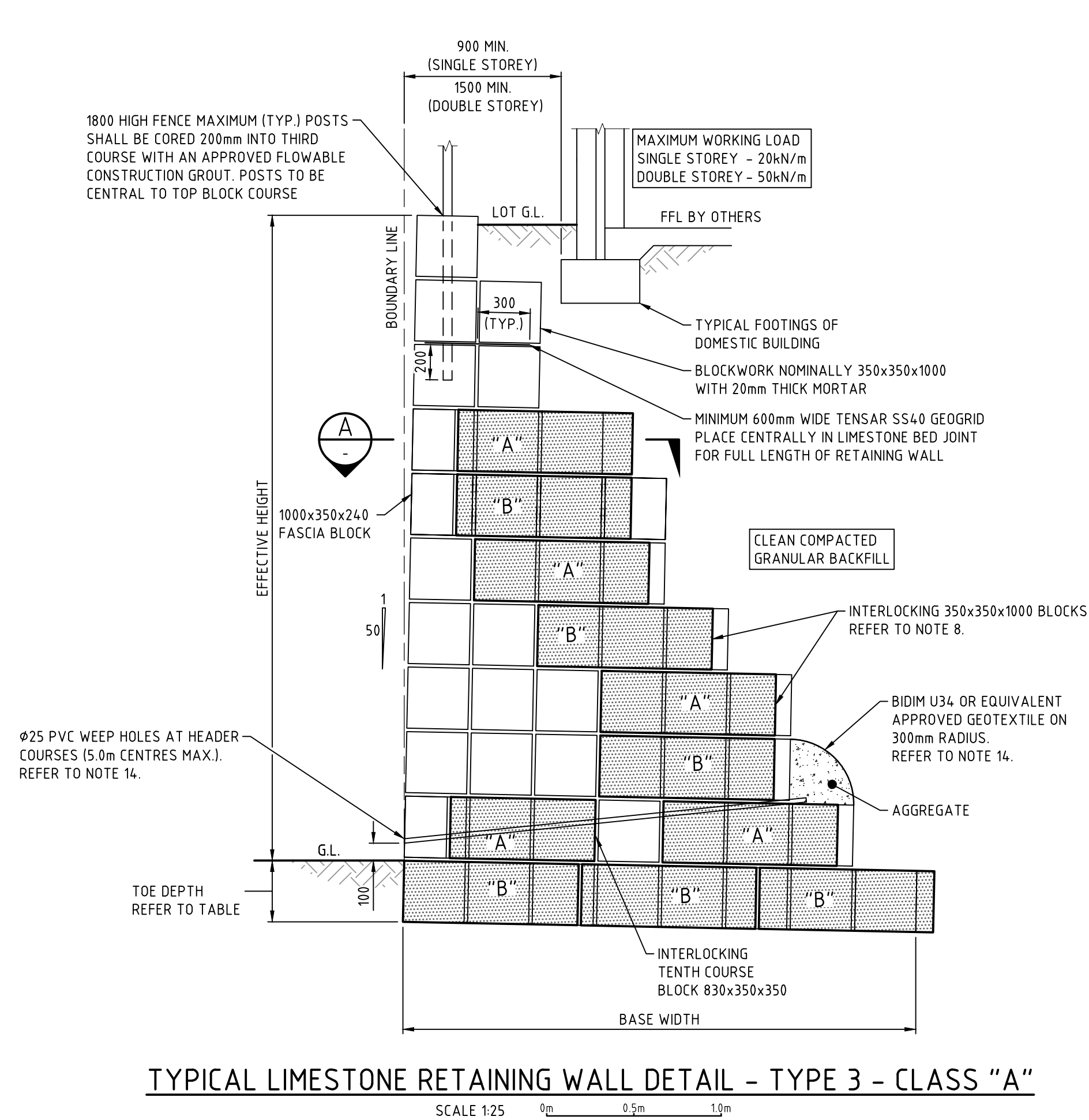
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Buildings and Contracts

HILLARYS PRIMARY SCHOOL
CIVIL WORKS
STANDARD DRAINAGE DETAILS

DRAWN	LL	DESIGNED	CN	REDUCTION
CHECKED	CN	PRINCIPAL		
APPROVED	AT	SIGNATURE		
SCALE	AS SHOWN	DATE	MARCH 2021	DRAWING No.
DF PROJ No.	15026	DF FILE No.	2021/00431	C0.09 A

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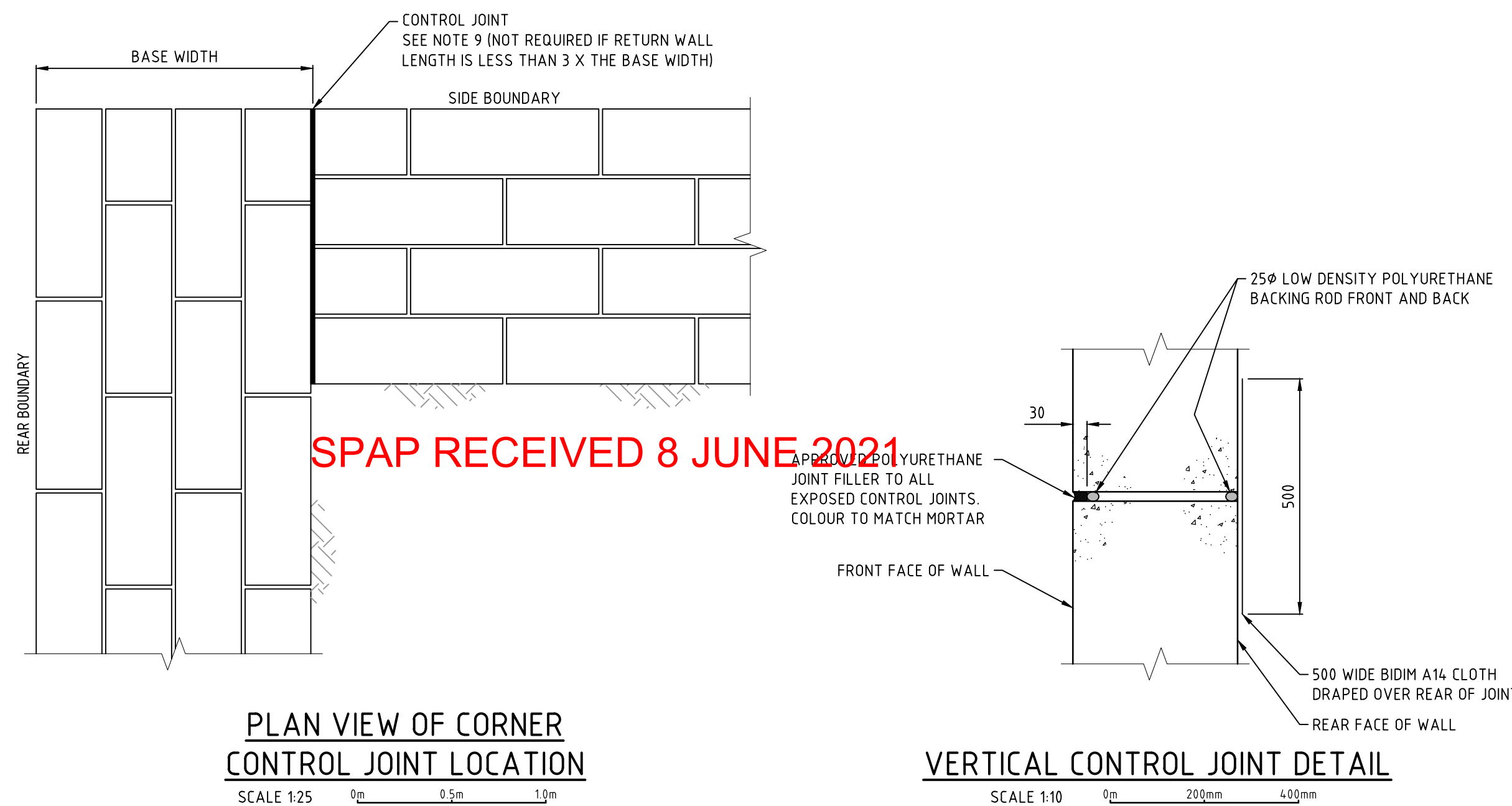
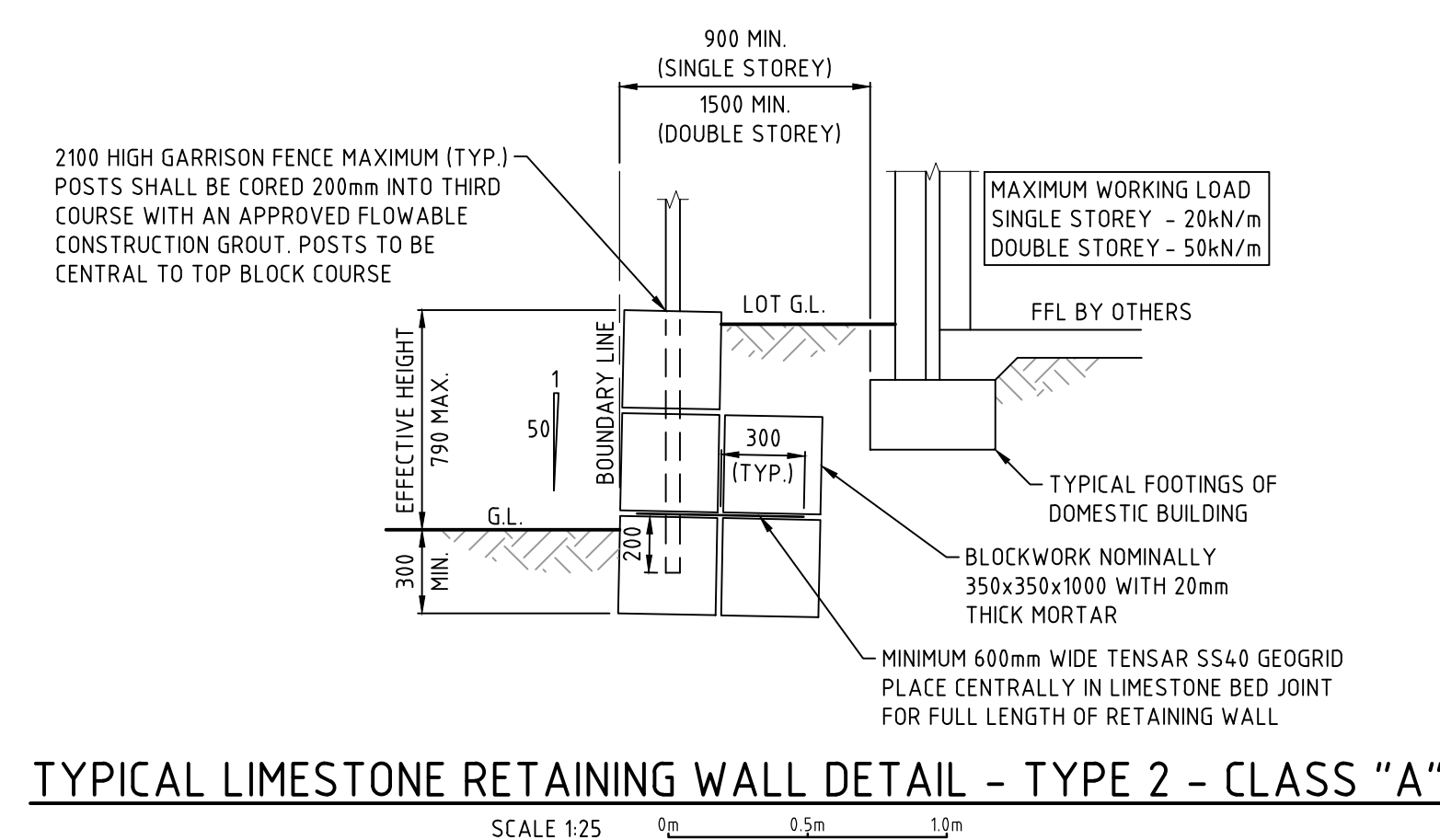


LIMESTONE RETAINING WALL AND FENCE NOTES

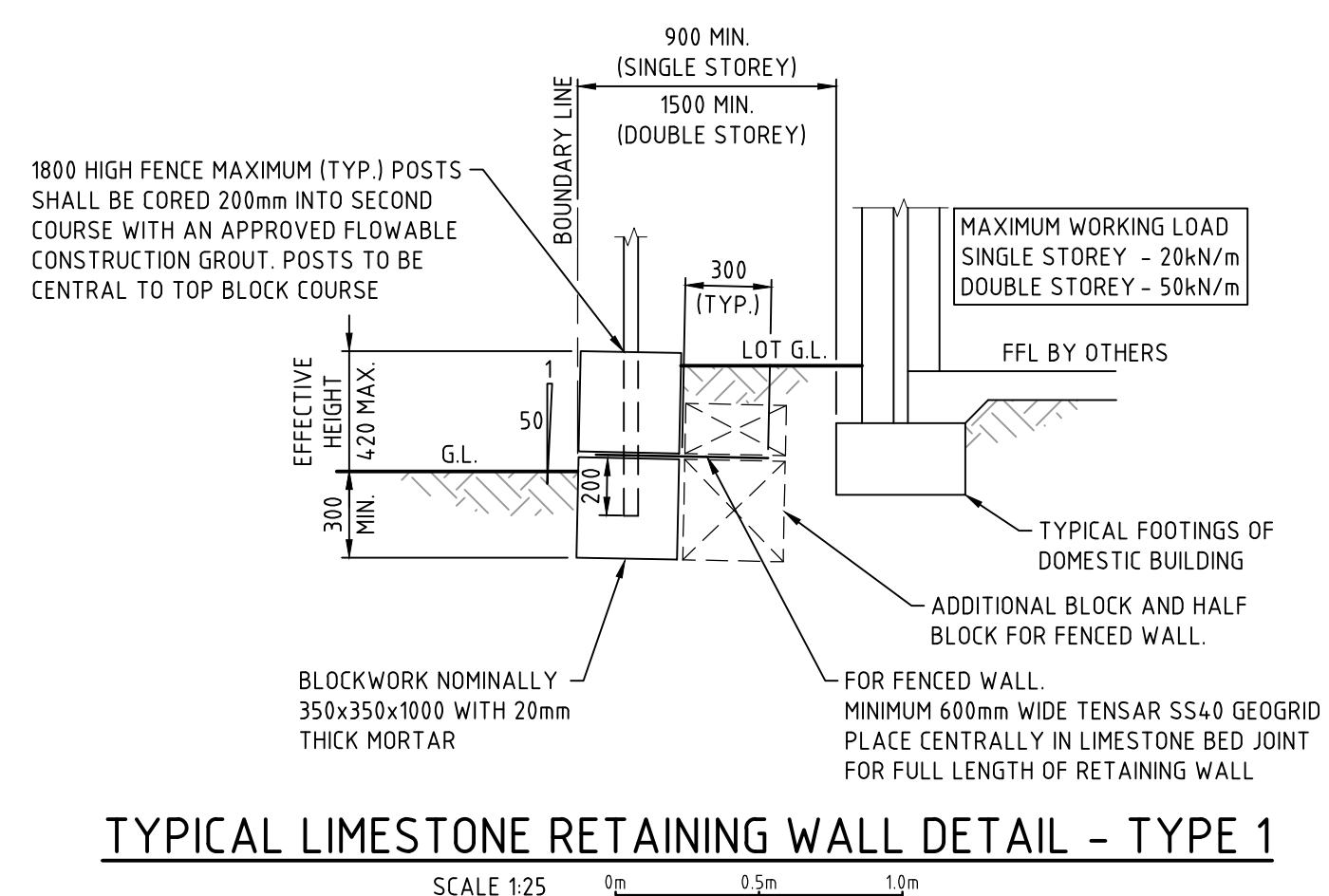
1. COMPACT GROUND UNDER FOOTING TO RESIST 8 BLOWS PER 300mm OF A STANDARD 16mm DIA. PENETROMETER OVER A DEPTH OF 600mm
2. LIMESTONE BLOCKS TO BE A MINIMUM DENSITY OF 1500kg/m³ (DRY). RECONSTITUTED LIMESTONE BLOCKS TO BE A MINIMUM DENSITY OF 1800kg/m³ (DRY).
3. MORTAR MIX SHALL COMPRISE 1 PART WHITE CEMENT, 1 PART LIME PUTTY, AND 6 PARTS CLEAN YELLOW SAND OR 1 PART WHITE CEMENT, 0.5 PART LIME PUTTY AND 4.5 PARTS YELLOW SAND IF LESS THAN 1km FROM THE COAST. ALL BLOCK WORK SHALL BE FULLY MORTARED TO ADJACENT BLOCKS.
4. THESE WALLS ARE APPLICABLE FOR CLASS 'A' CONDITIONS ONLY TO AS 2870. ALL OTHER CONDITIONS TO BE REFERRED TO ENGINEER.
5. ALL RETAINING WALLS HAVE BEEN CALCULATED WITH A HORIZONTAL BACKFILL. ANY OTHER CIRCUMSTANCES TO BE ASSESSED INDIVIDUALLY.
6. THE RETAINING WALL HAS BEEN DESIGNED TO SUPPORT A 5kPa SURCHARGE.
7. INTERLOCKING BLOCK COURSING TO BE STAGGERED AS PER TYPICAL DETAIL.
8. WALL TO HAVE INTERLOCKING BLOCKS COMMENCING AT 4th COURSE FROM TOP, PERPENDICULAR TO FACING AT MAXIMUM 4m SPACING TO ACHIEVE INTERLOCK OF STRUCTURE.
9. WALLS SHALL HAVE VERTICAL CONTROL JOINTS AT INTERVALS OF NO MORE THAN 10 METRES FOR TYPE 1 WALLS, 15 METRES FOR TYPE 2 AND 3 WALLS, PREFERABLY LOCATED AT PROPERTY BOUNDARIES. JOINTS REQUIRED ALSO ON CORNERS AS PER ATTACHED DETAIL. JOINTS SHALL BE 20mm WIDE, BE FILLED WITH A 25mm CLOSED CELL FOAM AND SEALED WITH AN APPROVED POLYURETHANE JOINT FILLER.
10. NO BACKFILLING UNTIL 7 DAYS AFTER WALLS HAVE BEEN BUILT. COMPACT USING LIGHT EQUIPMENT TO DISTANCE BACK FROM THE FACE OF WALL EQUAL TO THE EFFECTIVE HEIGHT.
11. FENCE TO BE PROPRIETARY SYSTEM BY OTHERS - WALL DESIGNED FOR WIND REGION A ONLY.
12. FENCE POSTS SHALL BE AT 2400mm MAXIMUM CENTRES.
13. A NON SACRIFICIAL ANTI GRAFFITI COATING IS TO BE APPLIED TO WALLS FACING A ROAD, P.A.W. OR P.O.S.
14. WEEPHOLES TO BE CONSTRUCTED IN WALLS WHERE FOOTINGS ARE IN CLAY, ROCK, CAPSTONE OR LESS THAN 600mm OF SAND AND/OR IN AREAS OF HIGH GROUND WATER (TYP.).

WALL TYPE "3"

COURSES	TOTAL HEIGHT	EFFECTIVE HEIGHT RANGE	BASE WIDTH	MIN. TOE DEPTH
4	1460	790 - 1110	1090	350
5	1830	1111 - 1480	1460	350
6	2200	1481 - 1850	1460	350
7	2570	1851 - 2170	1830	400
8	2940	2171 - 2540	2200	400
9	3310	2541 - 2810	2200	500
10	3680	2811 - 3180	2570	500
11	4050	3181 - 3550	2940	500



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HILLARYS PRIMARY SCHOOL CIVIL WORKS STANDARD RETAINING WALL DETAILS

DRAWN	LL	DESIGNED	CN	REDUCTION
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L A N D S C A P E D R A W I N G S

L00	COVER PAGE
L01	EXISTING TREE PLAN
L02	LANDSCAPE SITE PLAN
L03	PART HARD LANDSCAPE PLAN
L04	PART HARD LANDSCAPE PLAN
L05	PART HARD LANDSCAPE PLAN
L06	PART HARD LANDSCAPE PLAN
L07	PART SOFT LANDSCAPE PLAN
L08	PART SOFT LANDSCAPE PLAN
L09	PART SOFT LANDSCAPE PLAN
L10	PART SOFT LANDSCAPE PLAN

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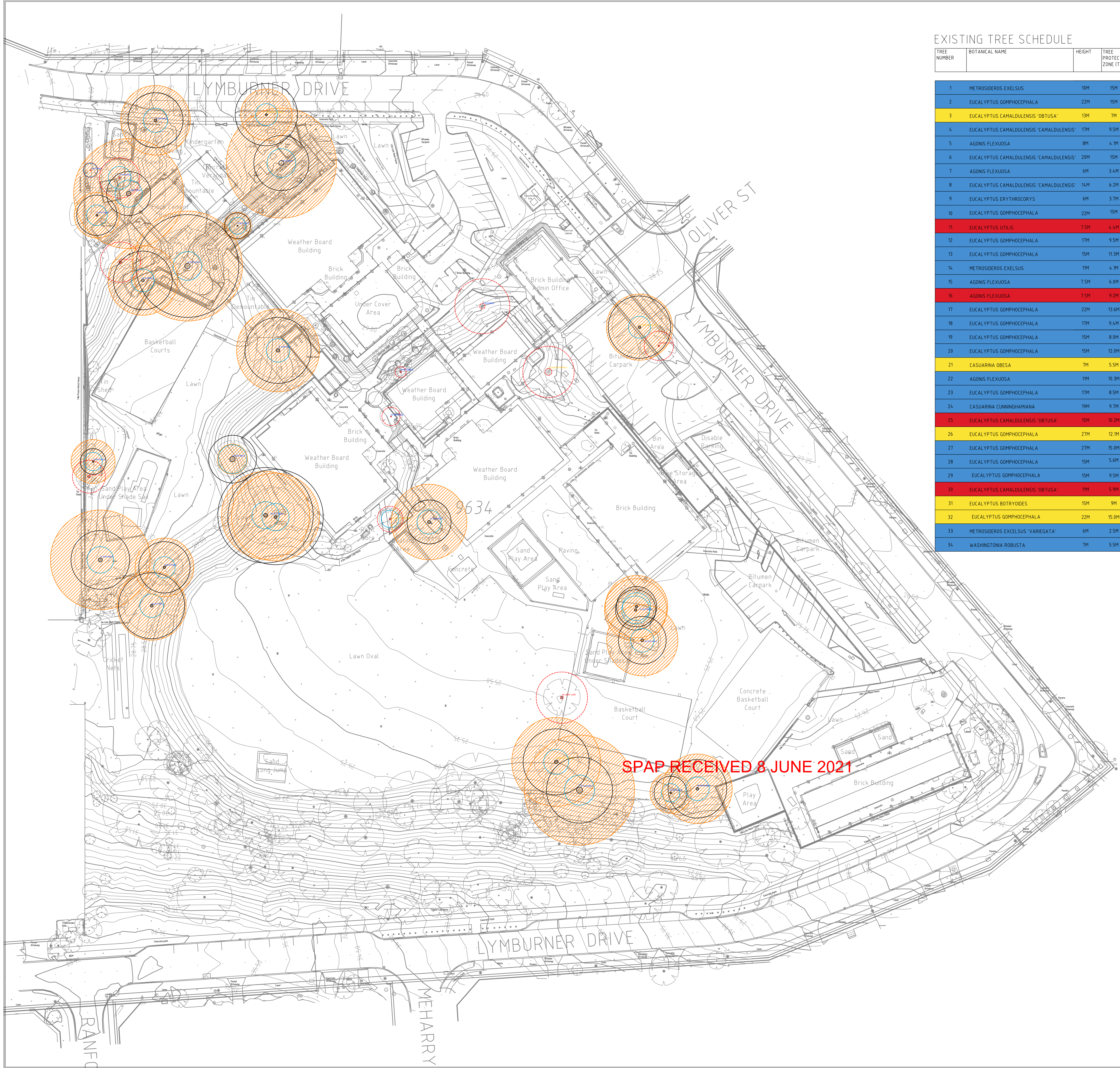
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DEPARTMENT OF EDUCATION
HILLARYS PRIMARY SCHOOL

LANDSCAPE COVER PAGE

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EXISTING TREE SCHEDULE

TREE NUMBER	BOTANICAL NAME	HEIGHT	TREE PROTECTION ZONE (TPZ)	STRUCTURAL ROOT ZONE (SRZ)	ORIGIN	RETAIN / REMOVE
1	METROSIDEROS EXELSUS	10M	15M	3.9M	EXOTIC	REMOVE
2	EUCALYPTUS GOMPHOCEPHALA	22M	15M	3.9M	WA NATIVE	RETAIN
3	EUCALYPTUS CAMALDULENSIS 'OBTUSA'	13M	7M	3M	AUS NATIVE	RETAIN
4	EUCALYPTUS CAMALDULENSIS 'CAMALDULENSIS'	17M	9.5M	3.3M	AUS NATIVE	RETAIN
5	AGONIS FLEXUOSA	8M	4.1M	3.1M	WA NATIVE	REMOVE
6	EUCALYPTUS CAMALDULENSIS 'CAMALDULENSIS'	20M	15M	3.7M	AUS NATIVE	REMOVE
7	AGONIS FLEXUOSA	6M	3.4M	1.9M	WA NATIVE	RETAIN
8	EUCALYPTUS CAMALDULENSIS 'CAMALDULENSIS'	14M	6.2M	2.8M	AUS NATIVE	RETAIN
9	EUCALYPTUS ERYTHROCORYS	6M	3.7M	2.3M	WA NATIVE	RETAIN
10	EUCALYPTUS GOMPHOCEPHALA	22M	15M	3.9M	WA NATIVE	RETAIN
11	EUCALYPTUS UTILIS	7.5M	4.4M	2.6M	WA NATIVE	REMOVE
12	EUCALYPTUS GOMPHOCEPHALA	17M	9.5M	3.1M	WA NATIVE	RETAIN
13	EUCALYPTUS GOMPHOCEPHALA	15M	11.3M	3.2M	WA NATIVE	RETAIN
14	METROSIDEROS EXELSUS	11M	4.1M	3.9M	EXOTIC	RETAIN
15	AGONIS FLEXUOSA	7.5M	6.0M	2.5M	WA NATIVE	RETAIN
16	AGONIS FLEXUOSA	7.5M	9.2M	3.6M	WA NATIVE	REMOVE
17	EUCALYPTUS GOMPHOCEPHALA	22M	13.6M	3.6M	WA NATIVE	RETAIN
18	EUCALYPTUS GOMPHOCEPHALA	17M	9.4M	3.2M	AUS NATIVE	RETAIN
19	EUCALYPTUS GOMPHOCEPHALA	15M	8.0M	2.9M	WA NATIVE	RETAIN
20	EUCALYPTUS GOMPHOCEPHALA	15M	12.0M	3.7M	WA NATIVE	RETAIN
21	CASUARINA OBESA	7M	5.5M	2.4M	WA NATIVE	REMOVE
22	AGONIS FLEXUOSA	11M	10.3M	3.3M	WA NATIVE	RETAIN
23	EUCALYPTUS GOMPHOCEPHALA	17M	8.5M	3.8M	WA NATIVE	RETAIN
24	CASUARINA CUNNINGHAMIANA	19M	9.7M	3.2M	AUS NATIVE	RETAIN
25	EUCALYPTUS CAMALDULENSIS 'OBTUSA'	15M	10.2M	3.1M	AUS NATIVE	REMOVE
26	EUCALYPTUS GOMPHOCEPHALA	27M	12.1M	3.4M	WA NATIVE	RETAIN
27	EUCALYPTUS GOMPHOCEPHALA	27M	15.0M	4.1M	WA NATIVE	RETAIN
28	EUCALYPTUS GOMPHOCEPHALA	15M	5.6M	2.5M	WA NATIVE	RETAIN
29	EUCALYPTUS GOMPHOCEPHALA	15M	9.5M	3.2M	WA NATIVE	RETAIN
30	EUCALYPTUS CAMALDULENSIS 'OBTUSA'	11M	5.9M	2.8M	AUS NATIVE	REMOVE
31	EUCALYPTUS BOTRYOIDES	15M	9M	3M	AUS NATIVE	RETAIN
32	EUCALYPTUS GOMPHOCEPHALA	22M	15.0M	4.8M	WA NATIVE	REMOVE
33	METROSIDEROS EXELSUS 'VARIEGATA'	6M	2.5M	2.2M	EXOTIC	REMOVE
34	WASHINGTONIA ROBUSTA	7M	5.5M	2.6M	EXOTIC	REMOVE

- LEGEND:
- EXISTING TREES TO BE RETAINED WITH REFERENCE NUMBER AND SUITABILITY - REFER ARBORICULTURAL REPORT
 - EXISTING TREES TO BE REMOVED WITH REFERENCE NUMBER. REFER SCHEDULE AND ARBORICULTURAL REPORT
 - STRUCTURAL ROOT ZONE (SRZ)
 - TREE PROTECTION ZONE (TPZ)
 - SUITABLE TREE - REFER EXISTING TREE SCHEDULE AND ARBORICULTURAL REPORT
 - QUESTIONABLE TREE - REFER EXISTING TREE SCHEDULE AND ARBORICULTURAL REPORT
 - VERY LOW RETENTION VALUE TREE (REMOVE) - REFER EXISTING TREE SCHEDULE AND ARBORICULTURAL REPORT

C	DA SUBMISSION	26.05.2021	AT	
B	ISSUE FOR COORDINATION	20.05.2021	AT	
A	ISSUE FOR COORDINATION	25.02.2021	AT	
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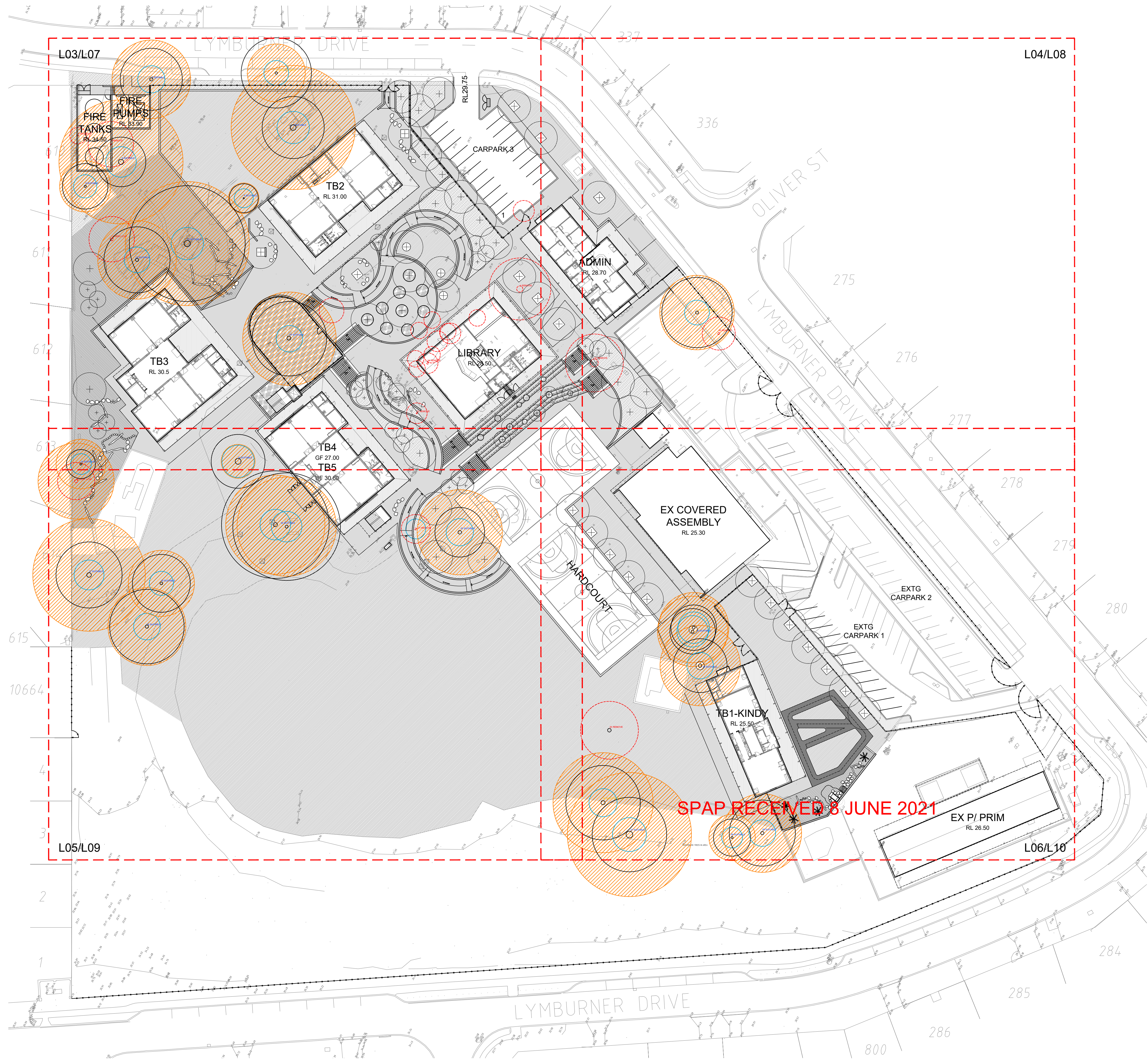
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EXISTING TREE PLAN		REDUCTION	
DRAWN	4LS	DESIGNED	4LS
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DF PROJ NO.	XXXXX	DF FILE NO.	202X/XXXXX
DRAWING NO.		REV NO.	
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- LEGEND :
- PROPOSED TREES - REFER PART LANDSCAPE PLAN
 - EXISTING TREES TO BE REMOVED - REFER PART LANDSCAPE PLAN
 - EXISTING TREES TO BE RETAINED - REFER PART LANDSCAPE PLAN
 - PROPOSED IRRIGATED TURF - REFER PART LANDSCAPE PLAN
 - PROPOSED GARDEN BED - REFER PART LANDSCAPE PLAN
 - PROPOSED SOFT FALL MULCH - REFER PART LANDSCAPE PLAN
 - PROPOSED INSITU CONCRETE PAVING - REFER PART LANDSCAPE PLAN
 - PROPOSED COLOURED INSITU CONCRETE PAVING - REFER PART LANDSCAPE PLAN
 - PROPOSED UNIT PAVING - REFER PART LANDSCAPE PLAN

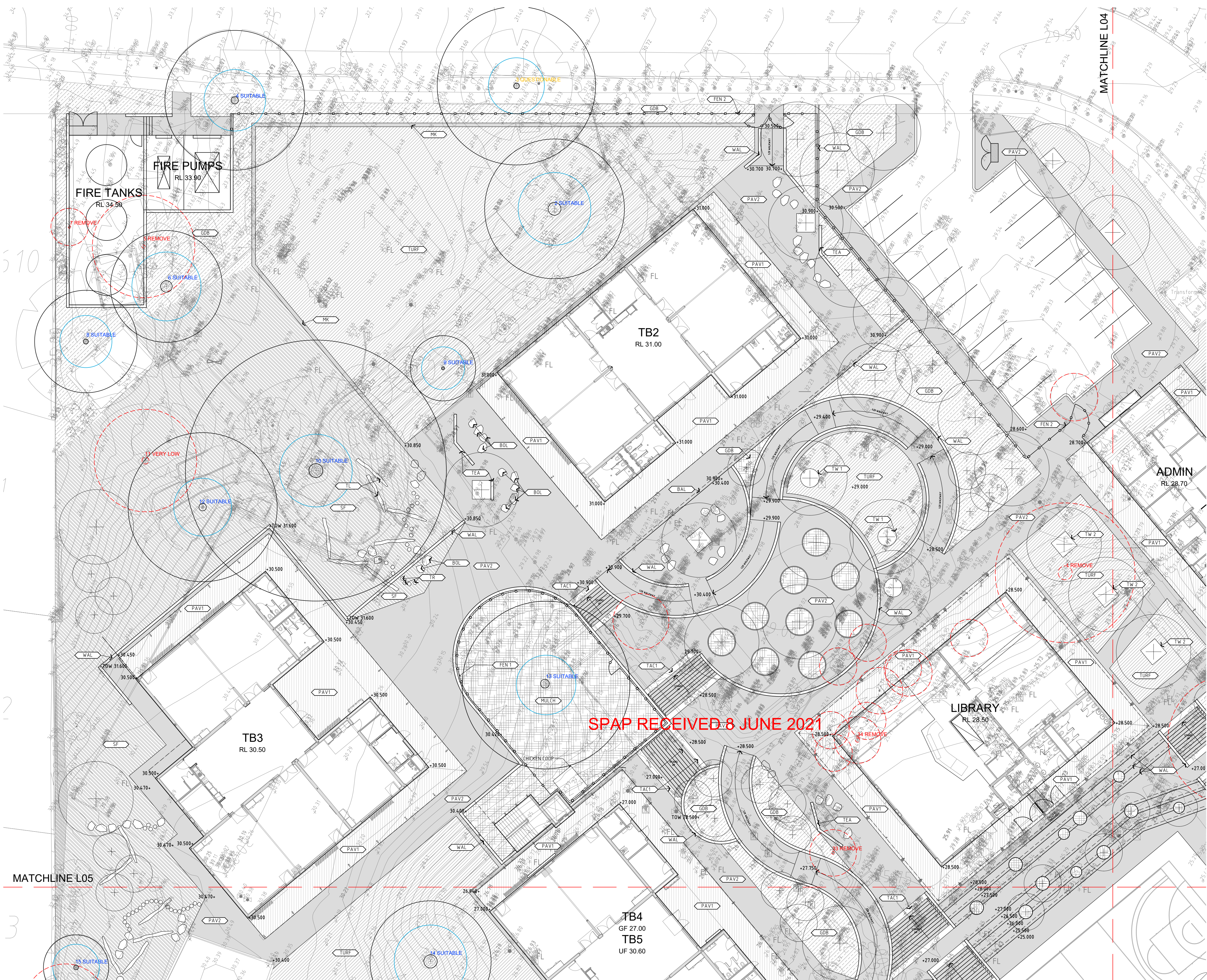
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A	ISSUE FOR COORDINATION	08.03.2021	AT
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LANDSCAPE SITE PLAN			
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SCALE	1 : 500 @ A1	DATE	MAY 2021
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		DRAWING NO.	L02
		REV NO.	C

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- LEGEND :
- PROPOSED TREES - REFER PART LANDSCAPE PLAN
 - PAV 1 PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - PAV 2 PAVING TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
 - PAV 3 PAVING TYPE 3 - REFER SPECIFICATION & TYPICAL DETAIL
 - TAC1 TACTILE PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - MK MOW KERB - REFER SPECIFICATION & TYPICAL DETAIL
 - WAL WALL - REFER SPECIFICATION & TYPICAL DETAIL
 - TEA TEACHING WALL - REFER SPECIFICATION & TYPICAL DETAIL
 - GDB GARDEN BED SHRUB PLANTING - REFER SOFT LANDSCAPE PLAN
 - TURF ROLL ON TURF - REFER SOFT LANDSCAPE PLANS
 - MULCH MULCH ONLY - REFER SPECIFICATION & TYPICAL DETAIL
 - SF SOFT FALL MULCH - REFER SPECIFICATION & TYPICAL DETAIL
 - TW1 TREE WELL TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - TW2 TREE WELL TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
 - FN BENCH - REFER SPECIFICATION & TYPICAL DETAIL
 - BR BIKE RACKS - REFER SPECIFICATION & TYPICAL DETAIL
 - FEN1 FENCE TYPE 1 - REFER SPECIFICATION
 - FEN2 FENCE TYPE 2 - REFER SPECIFICATION
 - FEN3 FENCE TYPE 3 - REFER SPECIFICATION
 - BAL BALUSTRADE - REFER SPECIFICATION
 - GATE GATE - REFER SPECIFICATION
 - HR HANDRAIL - REFER SPECIFICATION
 - BOL BOULDER - REFER SPECIFICATION
 - TL TIMBER LOG - REFER SPECIFICATION
 - TR TREE ROUND - REFER SPECIFICATION
 - +7.900 PROPOSED LEVELS
 - +TOW 0.000 TOP OF WALL HEIGHTS

NOTE: EXPANSION JOINTS TO PAV 1 & 2 EVERY 3M- REFER TYPICAL DETAILS.

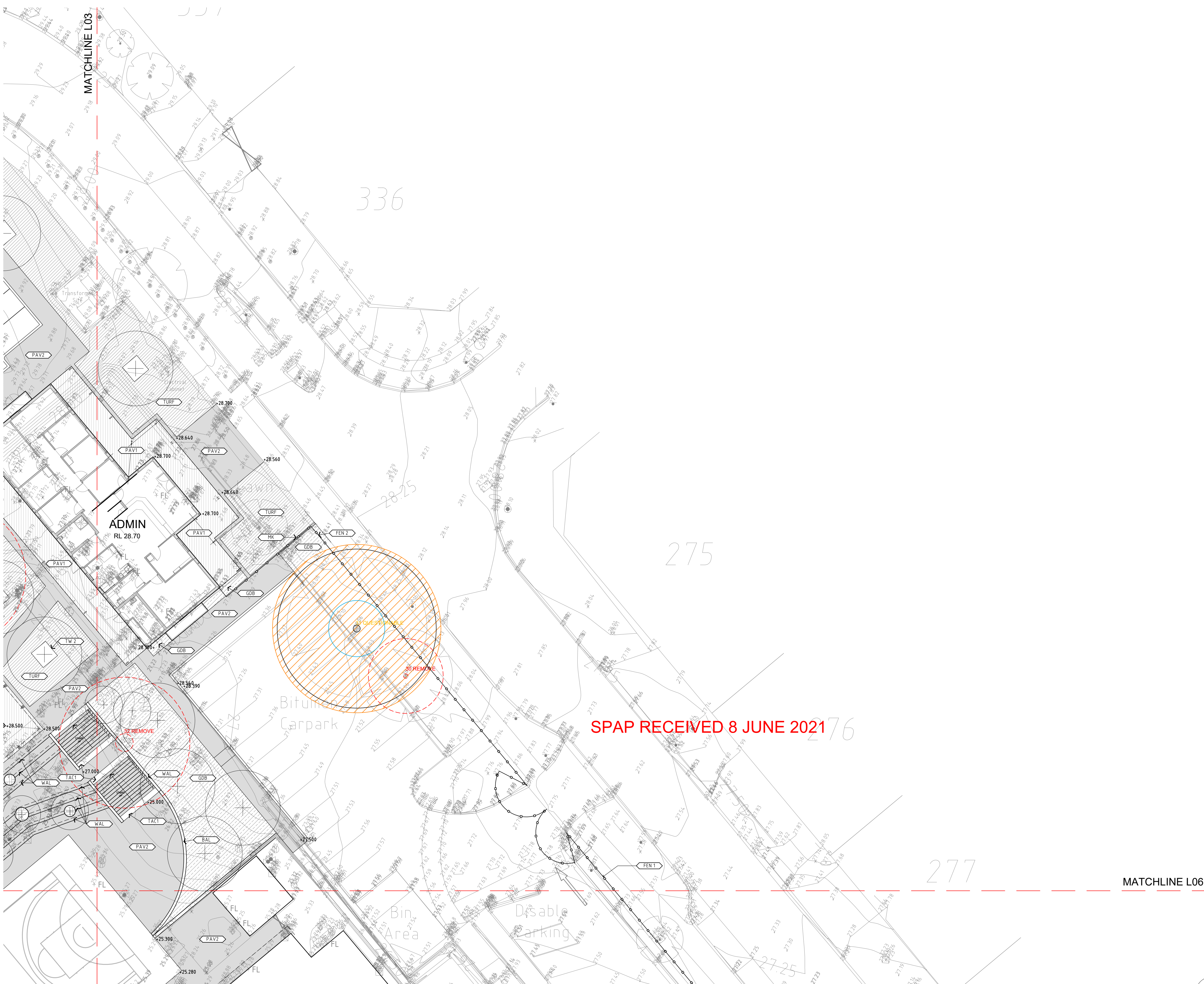
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PART HARD LANDSCAPE PLAN			
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SCALE	1 : 200 @ A1	DATE	MAY 2021
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		L03	B

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- LEGEND :
- PROPOSED TREES - REFER PART LANDSCAPE PLAN
 - PAV 1 - PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - PAV 2 - PAVING TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
 - PAV 3 - PAVING TYPE 3 - REFER SPECIFICATION & TYPICAL DETAIL
 - TAC 1 - TACTILE PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - MK - MOW KERB - REFER SPECIFICATION & TYPICAL DETAIL
 - WAL - WALL - REFER SPECIFICATION & TYPICAL DETAIL
 - TEA - TEACHING WALL - REFER SPECIFICATION & TYPICAL DETAIL
 - GDB - GARDEN BED SHRUB PLANTING - REFER SOFT LANDSCAPE PLAN
 - TURF - ROLL ON TURF - REFER SOFT LANDSCAPE PLANS
 - MULCH - MULCH ONLY - REFER SPECIFICATION & TYPICAL DETAIL
 - SF - SOFT FALL MULCH - REFER SPECIFICATION & TYPICAL DETAIL
 - TW 1 - TREE WELL TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
 - TW 2 - TREE WELL TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
 - FN - BENCH - REFER SPECIFICATION & TYPICAL DETAIL
 - BR - BIKE RACKS - REFER SPECIFICATION & TYPICAL DETAIL
 - FEN 1 - FENCE TYPE 1 - REFER SPECIFICATION
 - FEN 2 - FENCE TYPE 2 - REFER SPECIFICATION
 - FEN 3 - FENCE TYPE 3 - REFER SPECIFICATION
 - BAL - BALUSTRADE - REFER SPECIFICATION
 - GATE - GATE - REFER SPECIFICATION
 - HR - HANDRAIL - REFER SPECIFICATION
 - BOL - BOULDER - REFER SPECIFICATION
 - TL - TIMBER LOG - REFER SPECIFICATION
 - TR - TREE ROUND - REFER SPECIFICATION
 - +7.900 - PROPOSED LEVELS
 - +TOW 0.000 - TOP OF WALL HEIGHTS

NOTE: EXPANSION JOINTS TO PAV 1 & 2 EVERY 3M- REFER TYPICAL DETAILS.

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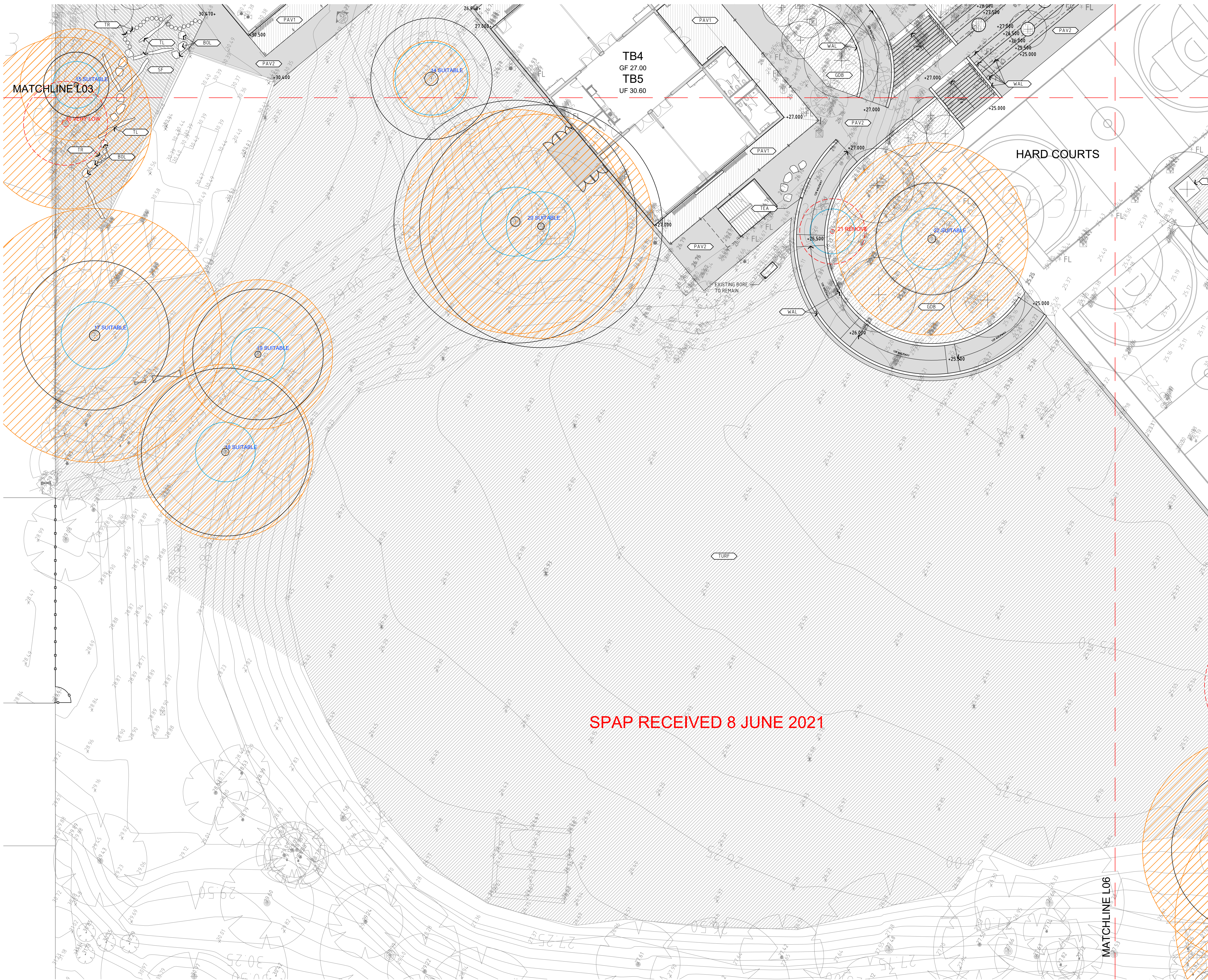
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PART HARD LANDSCAPE PLAN

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LEGEND :

- PROPOSED TREES - REFER PART LANDSCAPE PLAN
- PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
- PAVING TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
- PAVING TYPE 3 - REFER SPECIFICATION & TYPICAL DETAIL
- TACTILE PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
- MOW KERB - REFER SPECIFICATION & TYPICAL DETAIL
- WALL - REFER SPECIFICATION & TYPICAL DETAIL
- TEACHING WALL - REFER SPECIFICATION & TYPICAL DETAIL
- GARDEN BED SHRUB PLANTING - REFER SOFT LANDSCAPE PLAN
- ROLL ON TURF - REFER SOFT LANDSCAPE PLANS
- MULCH ONLY - REFER SPECIFICATION & TYPICAL DETAIL
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- BIKE RACKS - REFER SPECIFICATION & TYPICAL DETAIL
- FENCE TYPE 1 - REFER SPECIFICATION
- FENCE TYPE 2 - REFER SPECIFICATION
- FENCE TYPE 3 - REFER SPECIFICATION
- BALUSTRADE - REFER SPECIFICATION
- GATE - REFER SPECIFICATION
- HANDRAIL - REFER SPECIFICATION
- BOULDER - REFER SPECIFICATION
- TIMBER LOG - REFER SPECIFICATION
- TREE ROUND - REFER SPECIFICATION
- PROPOSED LEVELS
- TOP OF WALL HEIGHTS

NOTE: EXPANSION JOINTS TO PAV 1 & 2 EVERY 3M- REFER TYPICAL DETAILS.

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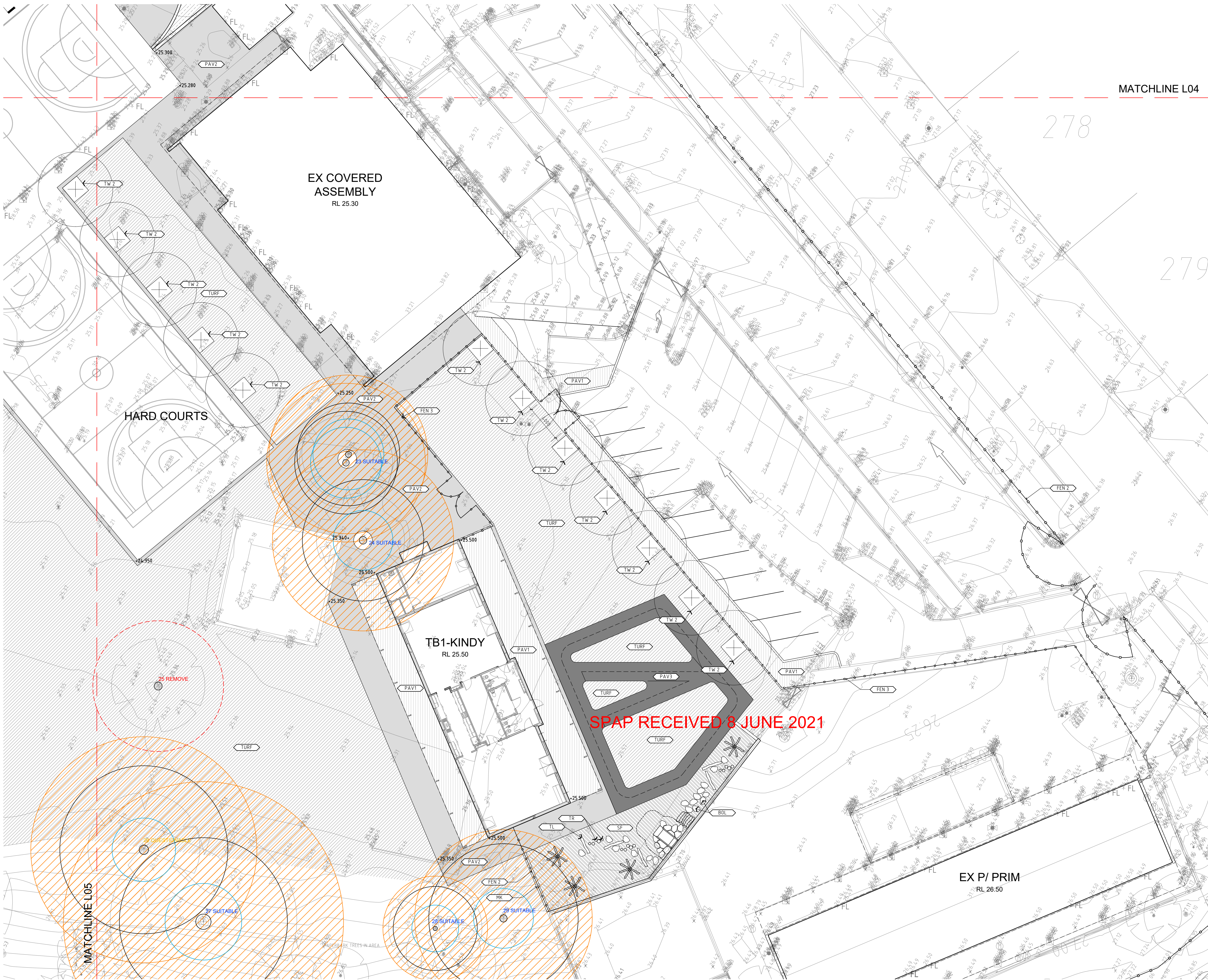
ISSUE FOR COORDINATION

DEPARTMENT OF EDUCATION
HILLARYS PRIMARY SCHOOL

PART HARD LANDSCAPE PLAN

DRAWN	4LS	DESIGNED	4LS	REDUCTION
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LEGEND :

- PROPOSED TREES - REFER PART LANDSCAPE PLAN
- PAV 1 PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
- PAV 2 PAVING TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
- PAV 3 PAVING TYPE 3 - REFER SPECIFICATION & TYPICAL DETAIL
- TAC1 TACTILE PAVING TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
- MK MOW KERB - REFER SPECIFICATION & TYPICAL DETAIL
- WAL WALL - REFER SPECIFICATION & TYPICAL DETAIL
- TEA TEACHING WALL - REFER SPECIFICATION & TYPICAL DETAIL
- GDB GARDEN BED SHRUB PLANTING - REFER SOFT LANDSCAPE PLAN
- TURF ROLL ON TURF - REFER SOFT LANDSCAPE PLANS
- MULCH MULCH ONLY - REFER SPECIFICATION & TYPICAL DETAIL
- SF SOFT FALL MULCH - REFER SPECIFICATION & TYPICAL DETAIL
- TW 1 TREE WELL TYPE 1 - REFER SPECIFICATION & TYPICAL DETAIL
- TW 2 TREE WELL TYPE 2 - REFER SPECIFICATION & TYPICAL DETAIL
- FN BENCH - REFER SPECIFICATION & TYPICAL DETAIL
- BR BIKE RACKS - REFER SPECIFICATION & TYPICAL DETAIL
- FEN 1 FENCE TYPE 1 - REFER SPECIFICATION
- FEN 2 FENCE TYPE 2 - REFER SPECIFICATION
- FEN 3 FENCE TYPE 3 - REFER SPECIFICATION
- BAL BALUSTRADE - REFER SPECIFICATION
- GATE GATE - REFER SPECIFICATION
- HR HANDRAIL - REFER SPECIFICATION
- BOL BOULDER - REFER SPECIFICATION
- TL TIMBER LOG - REFER SPECIFICATION
- TR TREE ROUND - REFER SPECIFICATION
- +7.900 PROPOSED LEVELS
- +TOW 0.000 TOP OF WALL HEIGHTS

NOTE: EXPANSION JOINTS TO PAV 1 & 2 EVERY 3M- REFER TYPICAL DETAILS.

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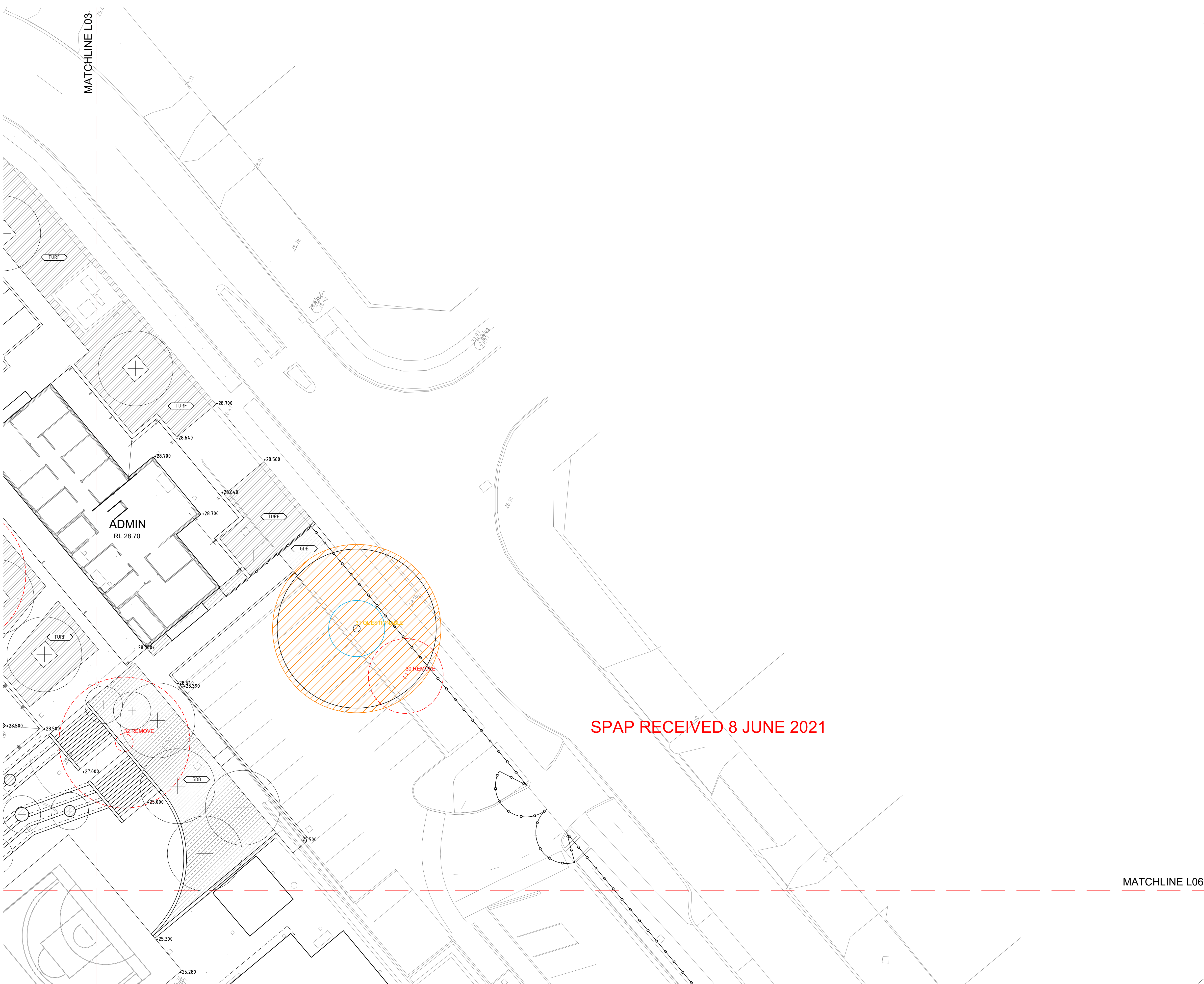
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SPAP RECEIVED 8 JUNE 2021

LEGEND:

- AF-1 + PROPOSED TREE - REFER SCHEDULE
- DA-5 SR-1 PROPOSED SHRUB PLANTING - REFER SCHEDULE
- TURF ROLL ON TURF- REFER DETAILS AND SPECIFICATION
- MULCH MULCH ONLY- REFER DETAILS AND SPECIFICATION
- GDB IRRIGATED GARDEN BED- REFER DETAILS AND SPECIFICATION

NOTE: PLANTS TO BE LAID OUT IN CLUSTERED GROUPS 1, 3, 5, OR 7 OF THE SAME SPECIES. PLANTING SPECIES AND NUMBERS INDICATED ON PLAN.

PLANT SCHEDULE

SYMB	BOTANICAL NAME	SIZE	SPACING
TREES			
AF	AGONIS FLEXUOSA	45L	as indicated
CO	CASUARINA OBESA	45L	as indicated
CC	CASUARINA CUNNINGHAMIANA	45L	as indicated
CR	CITRUS RETICULATA	45L	as indicated
EG	EUCALYPTUS GOMPHOCEPHALA	45L	as indicated
EE	EUCALYPTUS ERYTHROCORYS	45L	as indicated
EL	CITRUS LIMON 'EUREKA LEMON'	45L	as indicated
SHRUBS			
CA	CARPOBROTUS 'AUSSIE RAMBLER'	140MM	4/M2
EK	EREMOPHILA 'KALBARRI CARPET'	140MM	4/M2
FN	FICINIA NODOSA	140MM	4/M2
HP	HEMIANDRA PUNGENS	140MM	4/M2
LB	LEUCOPHYTA BROWNII	140MM	4/M2
LG	LEPIDOSPERMA GLADIATUM	140MM	4/M2
MP	MYOPORUM INSULARE PROSTRATE	140MM	4/M2
SP	SCAEOVOLA 'AUSSIE SALUTE BLUE'	140MM	4/M2
WF	WESTRINGIA FRUITICOSA 'BLUE GEM'	140MM	4/M2

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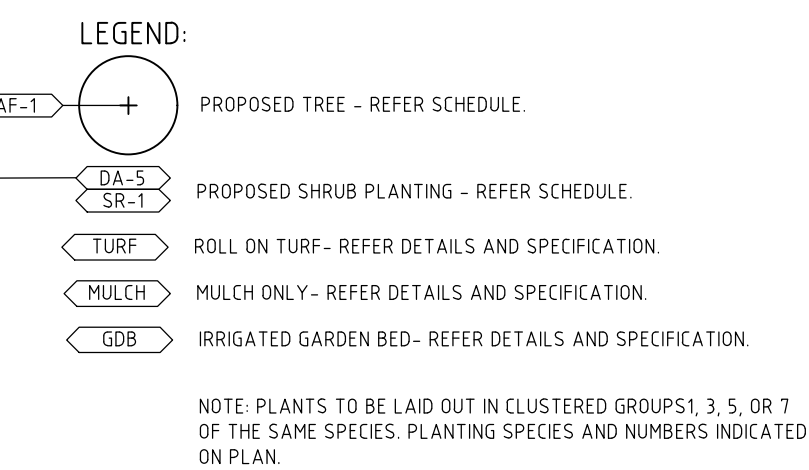
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HILLARYS PRIMARY SCHOOL

PART SOFT LANDSCAPE PLAN

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PLANT SCHEDULE

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CO	CASUARINA OBESA	45L	as indicated
CC	CASUARINA LUNNINGHAMIANA	45L	as indicated
CR	CITRUS RETICULATA	45L	as indicated
EG	EUCALYPTUS GOMPHOCEPHALA	45L	as indicated
EE	EUCALYPTUS ERYTHROCYRS	45L	as indicated
EL	CITRUS LIMON 'EUREKA LEMON'	45L	as indicated

SHRUBS			
CA	CARPOBROTUS 'AUSSIE RAMBLER'	160MM	4/12
EK	EREMPHILA 'KALBARRI CARPET'	160MM	4/12
FN	FICINIA NODOSA	160MM	4/12
HP	HEMIANDRA PUNGENS	160MM	4/12
LB	LEUCOPHYTTA BROWNII	160MM	4/12
LG	LEPIDOSPERMA GLADIATUM	160MM	4/12
MP	MYOPORUM INSULARE PROSTRATE	160MM	4/12
SP	SCAEVOLA 'AUSSIE SALUTE BLUE'	160MM	4/12
WF	WESTRINGIA FRUTICOSA 'BLUE GEM'	160MM	4/12

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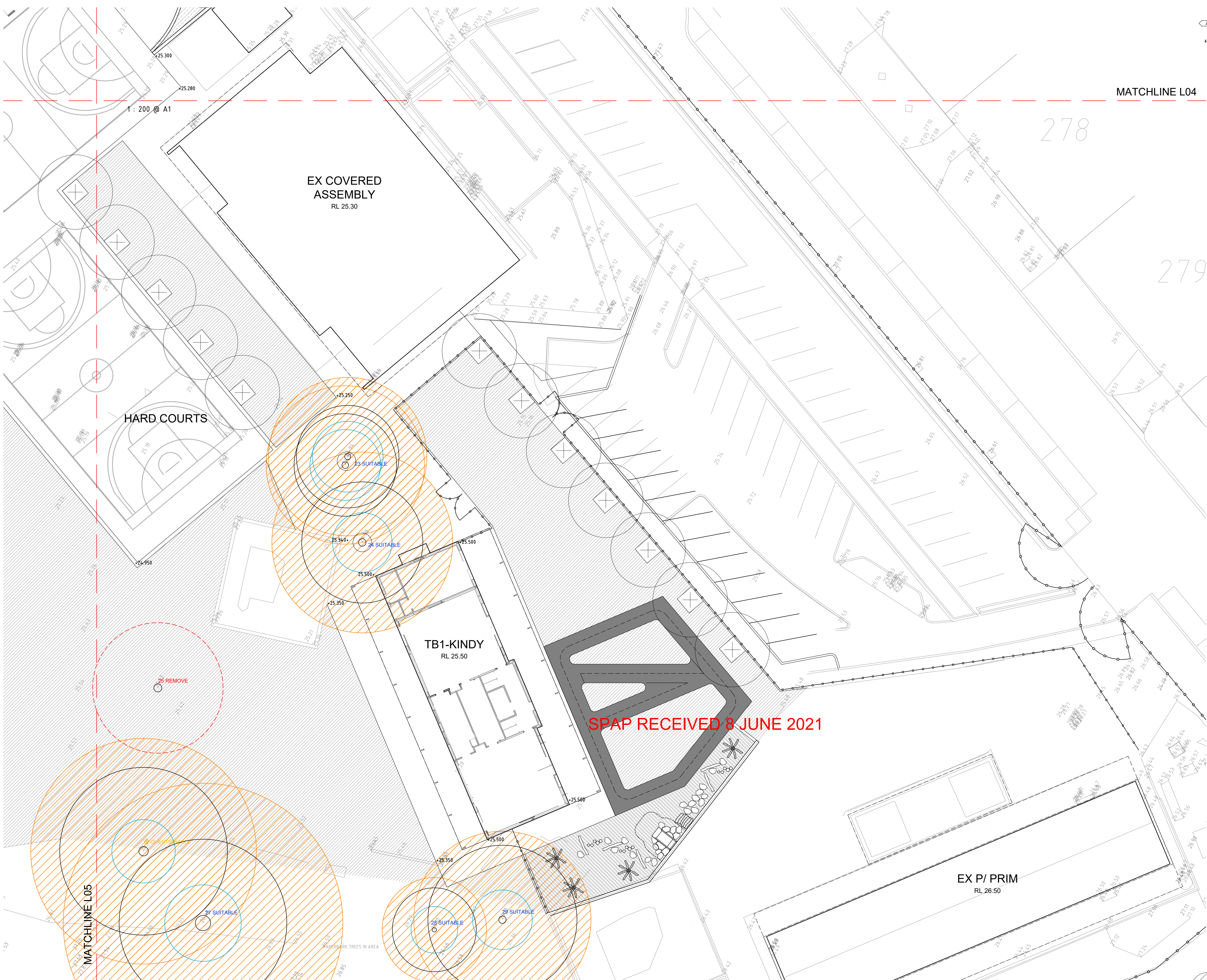
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LEGEND:

- AF-1 PROPOSED TREE - REFER SCHEDULE
- DA-5 PROPOSED SHRUB PLANTING - REFER SCHEDULE
- TURF ROLL ON TURF- REFER DETAILS AND SPECIFICATION
- MULCH MULCH ONLY- REFER DETAILS AND SPECIFICATION
- GDB IRRIGATED GARDEN BED- REFER DETAILS AND SPECIFICATION

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EE	EUCALYPTUS ERYTHROCORYS	45L	as indicated
EL	CITRUS LIMON 'EUREKA LEMON'	45L	as indicated

SHRUBS

CA	CARPOBROTUS 'AUSSIE RAMBLER'	140MM	4/M2
EK	EREMOPHILA 'KALBARRI CARPET'	140MM	4/M2
FN	FICINIA NODOSA	140MM	4/M2
HP	HEMIANDRA PUNGENS	140MM	4/M2
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February 17, 2021

ElW Architects
Level 12, 109 St Georges Tce
Perth WA 6000

ATTENTION: Tony D'Andrea

RE: Assessment of Trees at Hillary's Primary School

Dear Tony,

Further to your request, the following is a brief summary of my assessment of the identified trees at the Hillary's Primary School.

Should you have any queries regarding the findings of this report, or if I can be of any further assistance in the management of the identified trees, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read "J. Royal".

JASON ROYAL
Dip. Arboriculture (UK)
Tech. Arbor A

Preliminary Assessment of identified Trees; Hillary's Primary School

Prepared For

EIW Architects

Prepared By



Contents

1.	Particulars to this Assessment_____	Page	1
2.	Scope of Works_____	Page	1
3.	Assessment Methodology Applied_____	Pages	2 - 3
4.	Brief Summary of the Key Findings of the Assessment_____	Pages	4 - 8
5.	Table of the Findings of the Assessment_____	Pages	9 - 23
6.	Recommendations_____	Pages	24 - 26

Attachments to the Report

- Attachment 1; Location Guide with Retention Value overlaid
- Attachment 2; Glossary of arboricultural terms
- Attachment 3; Company Information & Disclaimer

1. Particulars to the Assessment

1.1 Terms Used

The following terms have been used in this report:

'Site'	meaning the area that encompasses the proposed development
'Tree'	meaning any tree shown on the Plan provided to be included in the assessment
'TPZ'	meaning 'Tree Protection Zone'; the area where the majority of the Tree's root mass is considered likely to be found. Any works required in this zone are considered likely to have the potential to have an impact the Tree's future health.
'SRZ'	meaning 'structural root zone; the area where the majority of the Tree's larger in-ground supportive root mass is considered likely to be found. Any works required in this zone are considered likely to have some potential to impact the Tree's future health and possibly its in-ground stability as well. Important Note: the SRZ of a tree does not need to be considered unless works and encroachment occur within the tree's nominal TPZ.
'AS 4970'	meaning Australian Standards 4970; Protection of Trees on Development Sites
'AS 4373'	meaning Australian Standards 4373; Pruning of Amenity Trees

1.2 Limitations and Particulars of this Assessment

The information and opinions provided in this document are based on the findings from the visual observations of the Trees on the Site during the inspections undertaken February 14, 2021.

All observations of all of the Trees were undertaken from ground level.

No exploratory excavations were undertaken as part of this particular assessment to verify the actual root spread of any given Tree.

As such the allocation of TPZ for each Tree has at this stage been based on AS 4970 guidelines, with some amendments being made for the physical size and canopy dimensions of the Tree, its condition, the known root zone morphology of its given species in the sort of soil profile considered to be typical to this area of Western Australia.

2. Scope of Works

- Undertake an inspection of the trees in the identified areas of Hillary's Primary School.
- Provide basic cursory information on each of the identified trees in terms of their species, approximate height, approximate canopy spread (metres diameter in both N-S and E-W dimensions), DBH (Diameter at breast height), DRF (Diameter at Root flare), Nominal TPZ (Tree Protection Zone radius), Nominal SRZ (Structural Root Zone radius), Health & structural condition, any comments deemed pertinent to the given tree and an opinion on the suitability for retention of the given tree in the context of a school site.
- Provide any broad-brush purposeful and practical recommendations for any design and construction implications that may apply for any trees identified as being able to be retained in the context of the proposed development so to ensure their preservation if undertaken remains successful.

3. Methodology of the Assessment

All of the Trees in the identified areas of the school were assessed in the course of this assessment from ground level (on all sides where the absence of any obstructions and/or access restrictions allowed) in accordance with 'visual tree assessment'¹ ("VTA") methods and principles.

The VTA method is based on the sciences of tree biology, physiology, tree structure, and tree bio-mechanics. It is a method widely used by arborists worldwide to identify visible signs on trees that indicate any health or potential structural issues that in turn could increase the risks associated with the given tree. There are many variables that require consideration as part of this process including the structure of the given tree, its health condition, known natural species traits, environmental factors such as direction of prevailing (and storm) winds and how they would affect the subject tree and the occurrence of potential Targets within its projected Fall Zone.

The overall health of each Tree was adjudged from an inspection of its leaf, overall percentage of leaf mass present in the canopy of the Tree, and the presence (or absence) of any pest or disease factor that could have an effect on its health.

The structural integrity of each Tree was determined from a visual inspection of its main stem, primary (and secondary) branch unions to determine the presence of any areas considered to be a structural 'defect' or 'imperfection' such as unions with included bark, swelling, or noticeable splitting at them. Symptoms of decay, growth patterns and defects are identified and assessed as to their potential to cause whole tree, part tree or branch failure, and where considered necessary further investigation by way of the use of sounding techniques was utilised to determine the presence and general extent of any areas of cavity or associated decay within a tree's main stem structure. Each Tree's root plate area was also inspected to identify any visible signs of root plate, movement, cracking or heave from which a determination of its in-ground stability can be ascertained. It is however important to note that there are limitations in verifying the in-ground stability of a tree based on a 'one-off' cursory visual observation; particularly if the inspection is undertaken during a period of 'fine' weather with little to no wind; as was the case over the period of this assessment.

The natural species traits of the given Tree was also considered as part of the assessment process; i.e. its typically anticipated natural life span for the Perth area, if it is a species known to be subject to issues associated with decay, termites (and how that would affect its structural integrity), or can be subject to the 'sudden branch drop' phenomenon, known to have large diameter surface root system, declared weed species etc.

The Trees were also assessed using the principles of SULE; "Safe-Useful-Life-Expectancy"².

SULE is a system that can be used to provide an indication of the length of time an individual tree can be retained with an acceptable level of risk based on the information available at the time of inspection.

It is a snapshot in time of the potential an individual tree has for survival in the eyes of the assessor based on the tree's current health and structural condition, and the known typical life span of specimens of its given species for the given area/situation.

There are many factors that can affect SULE of a tree, and as such, at best the SULE for any given tree can only be estimated within a 'range' of years, with the following ranges typically used; Long Term (>40 years), Medium Term (15-40 years), Short Term (5-15 years), and Limited (<5yrs).

¹ Field Guide for Visual Tree Assessment (VTA); The Body Language of Trees, A Handbook for Failure Analysis; C Matlack, H Breloer

² SULE: Its use and status into the new millennium; J Barrell; 2001

4. Summary of the Key Findings of the Assessment

4.1 No of Trees Identified

A total of 32 individual Trees of note were identified and included in this assessment.

4.2 Species Identified

20 different species of tree were identified on the Site including some local West Australian native, Australian native and 'exotic' introduced species of tree.

Tuart (*Eucalyptus gomphocephala*) were noted to be the most common species present; a few of which look to be remnant trees for the area and were probably present when the School was originally developed.

None of the tree species identified are considered to be (or are known to be classed as) an endangered species, or found on the Environment Protection and Biodiversity Conservation Act 1999.

None of the tree species identified are known to have been declared a weed species³.

There are a few Northern River Red Gum (*Eucalyptus camaldulensis* subsp. 'Obtusa') which are considered to be higher risk species in terms of their propensity for branch failures than others. Trees of higher risk species are generally considered unsuitable for school sites (other than in areas where there are few or no 'targets').

4.3 Health Condition

The majority of the Trees showed to be in good health at this time.

An Auger Beetle (New Zealand pinhole borer (*Platypus apicalis*) was noted to be affecting parts of the canopy of a number of the New Zealand Christmas Tree (*Metrosideros excelsus*) with dead tips of their canopy visible. Whilst this is a treatable issue, treatments can be 'hit and miss as timing is key to the success and at this time impact to the health of the affected Trees looks to be minimal and doesn't require any management intervention.

'Witches Broom' (caused by Armoured Scale; *Maskellia globosa*) was noted in a number of the Tuart. At this time its presence looks to be impacting the health of some of the Trees at the School to varying extents; some showing decline as a result, others showing no signs of any impact at this time. Note: This is a host specific pest and generally only affects Tuart. Other species present at this School are unlikely to be affected by this pest insect. Treatment is generally not required.

There was no visible evidence of any other pest or disease pathogen that could have a major impact to the health of the Trees at this School at the time of my inspection.

Whilst a number showed to have varying amounts of varying diameter sized deadwood in their canopy, it looks to have occurred as part of the natural growth processes of tree's rather than being caused by any pest or disease pathogen.

³ Reference; Declared Plant Species in Western Australia (Department of Agriculture and Food, Western Australia 2008)

4. Summary of the Key Findings of the Assessment

4.4 Structural Condition

The majority of the Trees showed to have (what is considered to be) typical structural forms for specimens of their given species.

Whilst a number of the Trees showed to have what are considered to be 'structural defects' such as bi-furcated unions with signs of swelling and included bark (which are considered to potentially have an increased likelihood for failure than other forms of branch unions) for the most part any structural defect or imperfections were not considered to be of any major concern at this time.

A couple of the Trees were noted to have grown on a lean or have relatively one-sided canopy due to their proximity and influence to each other. Whilst not or any major concerns at this time to the structural integrity of these Trees their retention may become questionable if the adjacent Tree is removed as a result of development and results in an increase of exposure to wind forces their currently being protected from.

4.5 SULE

Most of the Trees look to have a medium or long-term SULE remaining as most are of a long-lived species and currently show good health and structural form.

4.6 Suitability for inclusion into an area of Development

Retention value of the various tree species and even individual tree specimens will always be open to some personal opinion.

In general trees displaying good health and deemed to have a good aesthetic quality will be generally considered to have a high retention value.

Conversely, dead or declining trees, or tree species known (or considered) to be problematic in terms of having a propensity for branch failures, or ones that could self-seed freely, or one that display low aesthetic traits would typically be considered to have a low retention value.

Whilst all of the Trees on this Site may have high environmental benefits, as part of ascertaining the suitability for inclusion into a development, other aspects of the tree must be considered; primarily its structural form and suitability for inclusion into an urbanised area with high volumes of potential targets (such as people, structures etc.), and its potential to cope with changes to its soil and surrounding environment that typically occur as part of a development process.

With this in mind, based on the findings of the assessment:

1. 25 Trees were considered to be good specimens of their species and were considered to suitable for retention in the context of a development.

Retention of some however may be questionable if adjacent Trees are removed (due to impact of sudden exposure and the issues it can cause to trees), and some would be better retained as a group rather than individual trees.


Retention of some of these Trees may however also be subject to aspects of detailed design and what additional 'targets' may be introduced into their fall zone as a result of development of the area around them.

4. Summary of Key Findings of the Assessment

2. The retention of 5 Trees is considered questionable in the context of what is proposed due to their species, current health and/or structural condition and risks that they look likely to represent to the 'targets' that will be introduced into their fall zone as a result of the proposed development.
3. 4 other Trees are considered to have a **very low** retention value and would not be considered suitable for retention as part of the development of the Site; due to their species and/or structural condition.

The aerial below provides an overview of the Site with the retention value of each Tree overlaid and colour coded for ease of reference.



<p>Key</p> <p>● Suitable Tree</p> <p>● Questionable Retention</p> <p>● Very Low Retention Value (remove)</p>	<p>Client; EIW Architects Site; Hillary's Primary School Drawn by; J Royal Revision; 0 Date; 17/02/2020 Aerial Source; Nearmap.com Scale; 1:2250</p>	 <p>ARBOR logic PO Box 1025, Balcatta, WA 6914 Ph: (08) 9240 7555 info@arborlogic.com.au</p>
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4. Summary of Key Findings of the Assessment

4.7 Visual Summary of Key Findings



Kindy area with a mix of species including some River Red Gum, Tuart, WA Peppermint.

Most currently show good health and structural form and no major issues visible at this time.

Also a couple of mature trees that are outside of the fence, but their canopy extends over the boundary line. Note; At least one of these Trees may be on council land but development of the School may impact the tree depending on details of design.

Most of these Trees (whilst not necessarily wholly reliant on) will likely be used to some level of supplementary watering over the summer period which is a factor that needs to be considered if they are desired to be successfully retained.

4. Summary of Key Findings of the Assessment



Group of trees including a very large mature Tuart as well as another younger but mature Tuart and a mature Coastal Moort.

The Coastal Moort looks to be slumping over so has questionable retention.

The larger Tuart looks to be a remnant tree for this area and was probably present when the School was originally developed.

Levels will be a key consideration for this area given the slope of the embankment as will the physical size of the larger Tuart and the extent of its nominal TPZ area.



Number of trees including a large mature Tuart and a couple of WA Peppermint.

All currently show good health and have typical structural form although splits look to be developing in the lower main stem unions of one of the WA Peppermint.

Most of these Trees (whilst not necessarily wholly reliant on) will likely be used to some level of supplementary watering over the summer period which is a factor that needs to be considered if they are desired to be successfully retained.



Number of large mature Tuart on the edge of the embankment.

All currently show good health and have typical structural form and no major issues or concerns visible at this time.

Levels will be a key consideration for this area given the slope of the embankment.

Most of these Trees (whilst not necessarily wholly reliant on) will likely be used to some level of supplementary watering over the summer period which is a factor that needs to be considered if they are desired to be successfully retained.

4. Summary of Key Findings of the Assessment



Group of mature trees along the embankment and edge of the oval that form a good windbreak and visual screen for the School.

Mix of species but predominantly Tuart and Coastal Moort.

All mature and most possibly only as old as the School although a few of the larger Tuart may actually be remnant trees.

Most currently show good health and structural form and no major issues visible at this time from a risk management point of view.

Their location on an embankment means that they are possibly not going to be impacted by any development of the School unless works start to encroach along the edge of the oval.



Couple of mature trees; one River Sheoak, one Tuart.

Both currently show good health and structural form and no major issues visible at this time.

There is also a Northern River Red Gum in this area which (whilst in good health and has typical form) is a species generally considered to have a higher propensity for failure so not necessarily suited to school situations.

Whilst not necessarily wholly reliant on these Trees will likely be used to some level of supplementary watering over the summer period which is a factor that needs to be considered if they are desired to be successfully retained.



Couple of trees on the boundary; one Northern River Red Gum, one Bangalay. Both ok, but the Northern River Red Gum) is a species generally considered to have a higher propensity for failure so not necessarily suited to school situations.

There is also a very large, very old Tuart. Clearly a remnant tree for this area but not necessarily in the best condition and looks to have declined considerably over the last few years.

Most currently show good health although they all look to have been previously topped at some stage in the past so their structure looks likely to cause

4. Summary of Key Findings of the Assessment



Few trees of note in the middle area of the School.

There is one large old New Zealand Christmas tree in this area that is considered to have a high retention value due to its size and condition.

Otherwise no others of note.

5. Table of the Key Findings of the Assessment

The following pages provide further information on the Trees identified during this assessment.

Explanation of Fields of Information in the Table

Tree ID.	Provides an identification number for the identified Tree corresponding to its tree tag number on Site
Species	Provides the botanical and most commonly used species name of the Tree.
Height	Provides the height of the Tree (in metres) to the nearest metre.
DBH (Trunk Calliper)	Provides the diameter of the Tree's main stem (trunk) in centimetres, and generally measured at 1.4 metres above ground level as per the industry standard. Should lower canopy formation start below 1.4 metres above ground level, the DBH is estimated at the point below the furcation of its main stem. In instances where the tree has multiple main stem structures, the DBH of all has been provided.
Estimated Canopy Spread	Provides an estimated spread of the Tree's canopy; provided in metres diameter. Both north-south and east – west canopy dimensions have been provided.
Health Condition	Provides a view of the Tree's health/vigour condition at the time of inspection based on a number of predetermined criteria.

Health Rating	Explanation
Excellent	Shows to have typical foliage condition and amount of foliage mass for a specimen of the species. May have a minor amount of deadwood, but no signs of any pest or disease factor that may affect its health.
Good	Shows to have typical foliage condition. Canopy foliage may be slightly chlorotic, or it may have a slightly higher percentage of deadwood than usual, or exhibit signs of being affected by environmental conditions. May have a minor pest or disease present that could start to affect its health.
Fair	Shows to have a relatively high percentage of deadwood than considered typical for a specimen of the given species and/or a low volume of live canopy leaf mass for a specimen of the given species. Apical sections of the canopy (may also be) dead. Signs of a pest or disease factor evident.
Poor	Canopy mass and foliage condition shows to be in a poor state for a specimen of the species. Has a high percentage of deadwood material in its canopy and a low volume of live canopy mass (typically <20%).
Dead	Shows to have either no live tissue within its structure, or at best has <5% live foliage mass remaining in its canopy.

5. Table of Information on the individual Trees identified during the Assessment

Structural Form Provides a view of the Tree's structural form at the time of inspection based on a number of predetermined criteria.

Structure Rating	Explanation
Good	Shows typical structural form for a specimen of the species. Branch unions show typical form at the point of attachment. May have a small number of minor structural defects; but are within the scope of tree surgery management to rectify. Shows to be root-stable.
Acceptable	Shows an acceptable form, but may have a number of structural defects present i.e. bi-furcation (but with no major swelling or movement), or areas of stem cavities, but structure remains within the scope of management at this stage; albeit with a higher risk/management requirement. Can include previously lopped trees that are known to have good points of attachment of any regrowth that occurs.
Questionable (‘Undesirable’ for juvenile/semi-mature trees)	Shows an undesirable structure for a specimen of the species. Structural condition likely to cause future issues in regards to the potential for branch or even complete tree failure to occur. Generally includes previously lopped trees, trees with large areas of cavity and/or associated decay that may be starting to affect its structural integrity, trees with bi-furcated unions with notable included bark and swelling that are considered to have an increased potential to fail.
Poor	Major structural defects evident. May have very large stem cavities, extensive termite damage, or noticeable movement in main stem, branch unions or root plate area.

Age Class Provides the age class of the given Tree.

SULE; Provides an indication of the safe-useful-life-expectancy remaining for the given Tree based on its current health and structural condition. This has been expressed as:

- Limited (<5yrs)
- Short Term (5-20 years),
- Medium Term (20-40 years)
- Long Term (>40 years)

Comment Provides any additional information (seen as relevant in the context of this report) to the Tree. Comments are (generally) self-explanatory. An explanation of arboricultural terms has been provided as an attachment to this document.



TPZ Meaning the Tree's protection zone; the area where the majority of the given Tree's root mass is considered likely to be found. **Any works required in this zone are considered likely to have some potential to impact the Tree.**




SRZ Meaning the Tree's 'structural root zone; the area where the majority of the Tree's larger in-ground supportive root mass is considered likely to be found. **Important Note: the SRZ of a tree does not need to be considered unless works and encroachment occur within the tree's nominal TPZ.**

Retention Value Provides an overall 'opinion' on the quality of the Tree and its suitability for retention as part of the development.




This opinion rating has been colour-coded for ease of reference.




Suitable Questionable Very Low




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
1	New Zealand Christmas Tree (Metrosideros excelsus)	10	150	14-15	14-15	Excellent	Good	Mature	Medium term (15-40 yrs)		Large mature specimen. Good aesthetic form/value. Very good specimen of its species. Few dead tips from Auger Beetle issue	15.0	3.9	Suitable	On edge of embankment so level changes need to be considered. May be partly reliant on irrigation
2	Tuart (Eucalyptus gomphocephala)	22	138	11--12	14-15	Excellent	Good	Mature	Long term (>40 yrs)		Large mature specimen. Good specimen. Armoured Scale noted but looks to be having minimal impact to its health at this time	15.0	3.9	Suitable	On edge of embankment so level changes need to be considered. Potential issues from leaf drop need to be mitigated by way of good design
3	Northern River Red Gum (Eucalyptus camaldulensis 'Obtusa')	13	58	11--12	16-17	Excellent	Good	Mature	Long term (>40 yrs)		Reasonably good specimen. Small diameter (<10cm) broken branch hanging in the canopy. Species generally considered to be a higher risk species for the propensity for branch failures. Outside of the School but a section of its canopy extends over the boundary. Possibly cross with Flooded Gum	7.0	3.0	Questionable	Council tree but section of its canopy extends over the boundary. Species generally considered to have a higher propensity for branch failure than others




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
4	River Red Gum (Eucalyptus camaldulensis 'Camaldulensis')	17	79	14-15	12--13	Excellent	Good	Mature	Long term (>40 yrs)		Large mature tree. No issues or concerns visible at this time. Outside of the School but a section of its canopy extends over the boundary. May be on School land depending on the actual boundary alignment	9.5	3.3	Suitable	Outside of the fence but may still be on School land depending on the actual boundary alignment. Potential issues from leaf drop Main stem will continue to expand
5	West Australian Peppermint (Agonis flexuosa)	8	34, 27, 27, 26, 23	6--7	10--11	Excellent	Good	Early-mature	Long term (>40 yrs)		Reasonably good specimen. Multi-stemmed from ground level possibly more than one tree. No issues or major concerns visible at this time. Effectively forms the one canopy with the adjacent Tree	4.1	3.1	Suitable	
6	River Red Gum (Eucalyptus camaldulensis 'Camaldulensis')	20	123	11--12	10--11	Excellent	Good	Mature	Long term (>40 yrs)		Large mature tree. No issues or concerns visible at this time. Canopy is relatively one sided north due to past pruning	15.0	3.7	Suitable	




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
7	West Australian Peppermint (Agonis flexuosa)	6	28	3--4	3--4	Excellent	Acceptable	Early-mature	Long term (>40 yrs)		Reasonably good specimen. Multi-stemmed from near ground level	3.4	1.9	Suitable	
8	River Red Gum (Eucalyptus camaldulensis 'Camaldulensis')	14	52	10--11	10--11	Excellent	Good	Mature	Long term (>40 yrs)		Reasonably good specimen. No issues or concerns visible at this time. Bark wound on lower main stem (impact damage)	6.2	2.8	Suitable	Potential issues from leaf drop need to be mitigated by way of good design
9	Illyarrie (Eucalyptus erythrocorys)	6	31	6--7	6--7	Excellent	Good	Mature	Medium term (15-40 yrs)		Reasonably good specimen. No issues or concerns visible at this time	3.7	2.3	Suitable	Situated on a tiered embankment so levels may make retention of this tree difficult




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
10	Tuart (Eucalyptus gomphocephala)	22	150	26-28	22-24	Excellent	Good	Mature	Long term (>40 yrs)		Large mature tree. No issues or concerns visible at this time. OLD tree. Widespread canopy form. Bark damage noted (typical of that caused by birds). Few hollows in upper canopy structure but not a major concern at this time	15.0	3.9	Suitable	Physical size and canopy spread needs to be considered. Levels around the Tree given its location on an embankment. Potential issues from leaf drop need to be mitigated by way of good design
11	Coastal Moort (Eucalyptus utilis)	7.5	37	10--11	9--10	Excellent	Poor	Mature	Short-term (5-15 yrs)		OLD tree. Grown on a major lean/angle. Canopy is one-sided north due to proximity of the adjacent tree. Area of decay. Possibly impacting structural integrity. Section of its canopy looks to have been removed. Possibly slowly slumping over	4.4	2.6	Not Suitable	Structure looks likely to cause issues longer term
12	Tuart (Eucalyptus gomphocephala)	17	79	14-15	15-16	Excellent	Good	Mature	Long term (>40 yrs)		Large mature tree. Some larger deadwood but otherwise ok. Good specimen. Few exposed roots on the embankment due to erosion and play	9.5	3.1	Suitable	Levels need to be considered given its location on the embankment. Potential issues from leaf drop need to be mitigated by way of good design. Will continue to increase in physical size so proximity of built formula




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
13	Tuart (Eucalyptus gomphocephala)	15	94	17-18	17-18	Excellent	Good	Mature	Long term (>40 yrs)		Good specimen. No issues or concerns visible at this time	11.3	3.2	Suitable	Levels need to be considered given its location on an embankment Will continue to increase in physical size as it matures Potential issues from leaf drop need to be mitigated by way of good design
14	New Zealand Christmas Tree (Metrosideros excelsus)	11	34 (multiple)	11--12	12--13	Excellent	Good	Mature	Long term (>40 yrs)		Good specimen. Good aesthetic form/value. Low spreading canopy. Multi-stemmed from ground level possibly more than one tree. Few dead tips from Auger Beetles	4.1	3.9	Suitable	Levels need to be considered given its location on an embankment Low spreading canopy form. Potential issues from leaf drop need to be mitigated by way of good design
15	West Australian Peppermint (Agonis flexuosa)	7.5	50	5--6	6--7	Excellent	Acceptable	Early-mature	Long term (>40 yrs)		Reasonably good specimen. Good aesthetic form/value. Main stem bifurcates. Included bark at the union. Low spreading canopy	6.0	2.5	Suitable	Close to boundary Slight slope Irrigated area so used to supplementary watering Will continue to grow and increase in physical size (possibly double its current dimensions)




Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
16	West Australian Peppermint (Agonis flexuosa)	7.5	77	8--9	6--7	Excellent	Poor	Early-mature	Short-term (5-15 yrs)		Main stem furcates into three near ground level. Evidence of an area of decay in the lower main stem and one of its stems looks to be failing already. Structure looks likely to cause issues longer term	9.2	3.0	Not Suitable	Structure looks likely to cause issues longer term
17	Tuart (Eucalyptus gomphocephala)	22	113	15-16	11--12	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Bark damage noted (typical of that caused by birds). Main stem furcates into numerous first order branch structures. Unions look to be ok at this time but may become crowded longer term	13.6	3.6	Suitable	Looks to be an irrigated area so the Tree may be accustomed to receiving supplementary watering Potential issues from leaf drop need to be mitigated by way of good design Will continue to increase in physical size as it matures
18	Tuart (Eucalyptus gomphocephala)	17	78	15-16	17-18	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Minor amount of moderate diameter sized deadwood. Main stem bi-furcates. Union looks to be Ok at this stage. Widespread canopy form	9.4	3.2	Suitable	On a steep embankment so levels need to be considered. Looks to be an irrigated area so the Tree may be accustomed to receiving supplementary watering Potential issues from leaf drop need to be mitigated by way of good design Will continue to increase in physical size as it matures

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
19	Tuart (Eucalyptus gomphocephala)	15	67	13-14	13-14	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Minor amount of moderate diameter sized deadwood. Main stem bi-furcates. Union looks to be Ok at this stage. Widespread canopy form. Canopy is one sided north and has grown on a slight lean	8.0	2.9	Suitable	On a steep embankment so levels need to be considered. Looks to be an irrigated area so the Tree may be accustomed to receiving supplementary watering. Potential issues from leaf drop need to be mitigated by way of good design. Will continue to increase in physical size as it matures. Canopy is relatively one sided
20	Tuart (Eucalyptus gomphocephala)	15	100, 71 & 52	24-26	20-22	Excellent	Acceptable	Mature	Long term (>40 yrs)		Two large mature trees in close proximity that effectively form the one canopy. Treat as one for the purposes of preservation, protection and management.. Area of decay and cavity noted but not of a major concern at this time	12.0	3.7	Suitable	Canopy is relatively one sided north. Bark Canker may start to impact its health if excessive root disturbance occurs during development. Potential issues from leaf drop need to be mitigated by way of good design
21	Swamp Sheoak (Casuarina obesa)	7	46	6--7	6--7	Excellent	Undesirable	Mature	Short-term (5-15 yrs)		Ok tree. Multi-stemmed from ground level. Included bark at union and looks likely to cause issues longer term	5.5	2.4	Questionable	Structure looks likely to cause issues longer term

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
22	West Australian Peppermint (Agonis flexuosa)	11	86	11--12	10--11	Excellent	Good	Mature	Long term (>40 yrs)		Good specimen. No issues or concerns visible at this time	10.3	3.3	Suitable	Will continue to increase in physical size as it matures. Potential issues from leaf drop need to be mitigated by way of good design
23	Tuart (Eucalyptus gomphocephala)	17	71, 64	10--11	10--11	Good	Acceptable	Mature	Medium term (15-40 yrs)		Reasonably good specimen. No issues or concerns visible at this time. Bark Canker noted. No visible impact at this time. Area of decay. Not of a major concern at this time. Multi-stemmed from ground level possibly more than one tree. Canopy is relatively one-sided north due to proximity of the adjacent tree	8.5	3.8	Suitable	Canopy is relatively one sided north Bark Canker may start to impact its health if excessive root disturbance occurs during development. Potential issues from leaf drop need to be mitigated by way of good design. Possibly used to irrigation
24	River Sheoak (Casuarina cunninghamiana)	19	81	11--12	12--13	Excellent	Good	Mature	Long term (>40 yrs)		Large mature tree. No issues or concerns visible at this time	9.7	3.2	Suitable	Possibly used to irrigation Potential issues from leaf drop need to be mitigated by way of good design

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
25	Northern River Red Gum (Eucalyptus camaldulensis 'Obtusa')	15	85	13-14	13-14	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Minor amount of moderate (5-10cm diameter) deadwood. Species generally considered to be a higher risk species for the propensity for branch failures. Area of decay. Not of a major concern at this time	10.2	3.1	Not Suitable	Species generally considered to have a higher propensity for branch failure. Possibly used to irrigation
26	Tuart (Eucalyptus gomphocephala)	27	101	17-18	13-14	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Canopy is one-sided north due to proximity of the adjacent tree. Evidence of a history of (various sized) branch failures (storm damage)	12.1	3.4	Questionable	Physical size of the Tree Structure ok at this time but may cause some issues longer term Potential issues from leaf drop need to be mitigated by way of good design
27	Tuart (Eucalyptus gomphocephala)	27	163	17-18	16-17	Excellent	Acceptable	Mature	Long term (>40 yrs)		Large mature specimen. Evidence of a history of (various sized) branch failures (storm damage). Bark damage at branch unions (typical of birds). Minor amount of moderate (5-10cm diameter) deadwood. Multi-stemmed from near ground level	15.0	4.1	Suitable	Physical size of the tree may cause issues Areas of its structure may cause issues longer term Potential issues from leaf drop need to be mitigated by way of good design

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
28	Tuart (Eucalyptus gomphocephala)	15	47	8--9	6--7	Excellent	Undesirable	Early-mature	Medium term (15-40 yrs)		Ok tree. Canopy is one-sided west due to proximity of the adjacent tree. Effectively forms the one canopy with the adjacent Tree	5.6	2.5	Suitable	Possibly wouldn't be missed from the landscape if removed. Would probably question retention if the adjacent Tree was removed
29	Tuart (Eucalyptus gomphocephala)	15	79	15-16	15-16	Excellent	Good	Mature	Long term (>40 yrs)		Good specimen. No issues or concerns visible at this time. Good aesthetic form/value	9.5	3.2	Suitable	Physical size of the tree. Potential issues from leaf drop need to be mitigated by way of good design
30	Northern River Red Gum (Eucalyptus camaldulensis 'Obtusa')	11	49	7--8	7--8	Excellent	Good	Mature	Medium term (15-40 yrs)		Ok tree. Leaf is chlorotic (yellow) in appearance. Species generally considered to be a higher risk species for the propensity for branch failures	5.9	2.8	Not Suitable	Levels need to be considered given the proximity of the (twin side) retaining wall. Likely to cause damage to the wall as it continues to mature and increase in physical size Species generally considered to have a higher propensity for branch failure than others

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
31	Bangalay (Eucalyptus botryoides)	15	75	16-17	11--12	Excellent	Acceptable	Mature	Medium term (15-40 yrs)		Ok tree. Leggy canopy form. Evidence of previous branch failure (100-200mm diameter). Marginal weight loading at this time	9.0	3.0	Questionable	Levels need to be considered given the proximity of the (twin side) retaining wall. Likely to cause damage to the wall as it continues to mature and increase in physical size. Generally considered to be a moderately high risk species for their propensity for branch failures
32	Tuart (Eucalyptus gomphocephala)	22	152, 131	13-14	11--12	Fair	Acceptable	Mature	Medium term (15-40 yrs)		Large mature tree. Old tree and possibly on the order of 150-200yrs old or more. Currently shows reasonably good health although one side of its canopy is dead. This Tree has been over pruned in the past due to concerns about its structural integrity and its physical size will likely continue to cause concerns	15.0	4.8	Questionable	Could be a contentious tree given its size/age and prominent location within the School. Retention of this Tree very much dependent on details of design. Levels need to be considered given its location on a slope. Physical size will probably continue to cause concerns. Potential issues from leaf drop need to be mitigated by way of good design
33	Variegated New Zealand Christmas Tree (Metrosideros excelsus 'Variegata')	6	21 (multiple)	4--5	4--5	Fair	Good	Mature	Medium term (15-40 yrs)		Ok tree. Few dead tips which looks to be an Auger Beetle issue	2.5	2.2	Suitable	Relatively small tree so relatively low retention value. Canopy condition suggests that it may have fairly limited life span remaining due to Auger Beetle issue

Tree Number	Species	Approx. Height (metres)	DBH (cm)	Canopy Spread (metres diameter)		Health	Structure	Age Class	SULE	Image	Comments	Nominal TPZ (metres radius)	Nominal SRZ (metres radius)	Opinion	Considerations
				N-S	E-W										
34	Cotton Palm (Washingtonia robusta)	7	46	2--3	2--3	Excellent	Good	Early-mature	Long term (>40 yrs)		Ok specimen. No issues or concerns visible at this time	5.5	2.6	Suitable	Generally considered to have a low retention value. Transplantable if desired

6. Further Considerations; Development Design and Construction

6.1 Protection of Trees as part of Development

It is difficult to provide any further specific comments for each Tree as to the potential of the impact from the development of this Site at this stage, as much of the impact caused will be very much dependent on the detailed design aspects of any proposed development.

The retention of the existing current ground level and soil profile and limiting excavations within a Tree's designated TPZ will however be of paramount and key importance in the success of the retention of any Tree.

Effective tree protection must also begin with good design and specifications, so that protection during the construction/landscape stages of a development will be achievable and practicably possible.

As an initial recommendation:

1. The Trees considered to have a very low retention value would be recommended to be removed as part of the development process. Removal of any tree directly adjacent to a Tree to be retained must be undertaken in a manner that does not cause any damage to any of the above or below ground parts of the Tree being retained. Some of these Trees will need to be removed using sectional dismantling methods.
2. Retention of the Trees considered to be unsuitable may be questionable in the context of what is proposed and they too would be suggested to be removed as part of the development process. Whilst some of these Trees are large mature trees that are in good health their structural condition and/or their typical species traits are considered likely to represent a high risk that may not be able to be managed or mitigated through canopy works without either extensive resources (expense) or the extent of canopy pruning undertaking resulting in the retention of the Tree being questionable anyway (i.e. the Tree is topped).

Retention of a few of these Trees may however be viable in areas where there will be no or few 'targets' introduced into their fall zone.
3. Retention of the suitable Trees identified during this survey would be recommended as they are considered to be good mature specimens of their given species that are currently in good health and structural form and highly suitable for the proposed situation..
4. The nominal TPZ of each Tree is strongly recommended to be overlaid onto all drawings and designs of the proposed development where the Tree is proposed to be retained.

Where encroachments into a designated TPZ are found to be required, further discussion with an experienced independent arboricultural consultant is an important part of the tree protection process.

This is not to say that some encroachment and development activity would not be permitted to be undertaken within a TPZ area as part of a development process. However any encroachment required/proposed will require further input and discussion with the arboricultural consultant as part of any detailed design process to determine what the potential impact on the given Tree will be, and what design modifications or measures may need to be implemented to mitigate any potential negative impact on the given Tree.

7. Further Considerations; Development Design and Construction

If considered necessary, some exploratory excavation works may also be required to verify actual root spread and determine what impact could occur.

Aspects such as resulting levels, delineation of any underground service pipework, drainage, sewerage etc. can all have (potentially) a major impact on a tree's root zone, and in turn its future health and potential lifespan.

Of key considerations for this site;

1. Given the extent of level changes that occurs across the site, the need for any retaining to be installed (and how that relates to the TPZ of Trees desired to be retained) needs to be considered to minimise impact to the existing Trees.
2. Some of the Trees (whilst not wholly reliant on) may be accustomed to receiving some level of supplementary irrigation. Any change to this could have an adverse impact on their future health.
3. The physical size of some of the Trees, the extent of their canopy spread and potential for future growth.
4. Potential issues from leaf drop onto roofs/gutters also needs to be considered and mitigated as much as possible by way of good design and canopy pruning will not necessarily address this issue unless the extent of pruning results in so limited canopy remaining that the retention of the Tree becomes questionable.

During the detailed design process further arboricultural input will likely be required to discuss:

- Current existing ground levels and proposed resulting levels of the various areas of the Site. Note: As previously mentioned, retaining and maintaining current existing ground levels within the designated TPZ of any tree is of paramount importance to the success of tree retention.
- Delineation of any underground services pipework including drainage, sewerage, water, gas, electricity, telecommunications and the like; specifically should they pass through any designated TPZ.
- Location of any drainage near to the Trees and their TPZ.
- Any further site remediation requirements within TPZ areas as part of the Site clearing process.

Once development design has been furthered, tree protection method statements are recommended to be drafted for use during the construction stages of the development and include specific details of any:

- Protection measures for each Tree's TPZ area,
- Specifications for any works designed to occur within a TPZ area during the construction process,
- Canopy pruning works,
- Watering requirements,
- Monitoring requirements during construction

Including a degree of further arboricultural input is considered key to the success of the retention of any of the Tree's during the proposed development, and effective protection of trees during a development process must be with good design and construction specifications so that physical impact to any Tree's root zone during the construction stages will be limited.

7. Further Considerations; Development Design and Construction

7.2 Physical Protection of Trees during Development

Physical protection measures in accordance with AS 4970 will also be required for any Tree selected for retention; details of any measures to be implemented will be very much dependent on the final detailed design.

It will be of critical importance that the appropriate protection measures are set up and maintained from the outset.

Implementing tree protection measures after damage has occurred from works is often of little to no value other than affording some protection from further damages occurring.

7.3 Canopy Works

Minor amounts of canopy work may be required on a number of the Trees as part of the development process.

To some degree, the extent of canopy works on each Tree is however very much dependent on the eventual landscape around the Tree and what potential targets (people, structures etc.) may eventually be within the given Tree's projected fall zone.

At this stage canopy works are likely to be restricted to the removal of any larger diameter deadwood (i.e. any dead branches 50mm or greater in diameter) and/or the raising of canopy's where necessary to provide clearances for future footpaths, structures and/or roads.

All canopy works are recommended to be undertaken by suitably qualified and experienced tree surgeons, who possess a minimum qualification of AQF certificate 3 arboriculture or recognised equivalent qualification.

All canopy pruning works must also comply with Australian Standards 4373; Pruning of Amenity Trees.

Attachments to the Report

- Attachment 1; Location Guide with Retention Value overlaid
- Attachment 2; Glossary of arboricultural terms
- Attachment 3; Company Information & Disclaimer

Attachment 1; Location Guide with Retention Value overlaid



<p>Key</p> <p>● Suitable Tree</p> <p>● Questionable Retention</p> <p>● Very Low Retention Value (remove)</p>	<p>Client; EIW Architects</p> <p>Site; Hillary's Primary School</p> <p>Drawn by; J Royal</p> <p>Revision; 0</p> <p>Date; 17/02/2020</p> <p>Arial Source; Nearmap.com</p> <p>Scale; 1:2250</p>	<div> </div> <div> <p>ARBOR logic</p> <p>PO Box 1025, Balcatta, WA 6914</p> <p>Ph; (08) 9240 7555</p> <p>info@arborlogic.com.au</p> </div>
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Attachment 2; Glossary of Commonly Used Arboricultural Terms

Absorbing Root	Smaller root structures that are utilised in the uptake of water and essential elements and soil minerals from the surrounding soil profile.
Bark	All tissue outside the vascular cambium. Bark can be divided into 'inner bark' (active phloem) and 'outer bark' (aging and dead phloem).
Basal	Lower trunk area of the tree.
Branch	Part of the tree which supports its leaves flowers and fruit organs. Can be further classified into: Primary Branch Structures; meaning the larger first order branches that arise off the main stem or trunk of the tree. Secondary Branch Structures; meaning smaller diameter sized branches that arise off the Primary Branch Structures.
Branch Collar	Bark tissue that forms around the base of a branch where it meets its 'parent source' be it the main stem/trunk of the tree or primary branch structure. Formed as the bark layers of both sections of the plant meet and by their expansion as part of their natural growth processes and radial expansion.
Branch Bark Ridge	Bark tissue that forms at the union of a branch where it meets its 'parent source' be it the main stem/trunk of the tree or another branch structure. Formed as the bark layers of both sections of the plant meet and by their expansion as part of their natural growth processes.
Canopy	The part of the crown of a tree composed of the branch and leaf mass.
Cavity	An open wound, characterized by the presence of decay and resulting in a hollow. (Matheny & Clarke, 1994).
Co-dominant stem	A primary branch structure of about the same size as the trunk, arising from the trunk and competing to become the main dominant leading stem/trunk.
Compaction	Compaction of soils causes roots to die due to lack of oxygen and water.
Compartmentalization	Dynamic tree defence process involving protection features that resist the spread of pathogens.
Decay	Degeneration and delignification of plant tissue, including wood, by pathogens and/or micro organisms.
Decline	Decline is a general loss of vitality over the entire tree either caused by a systemic disease or by a series of events that disrupt the essential plant processes.
Epicormic shoots	Shoots produced by dormant buds within the bark or stems of a tree as a result of stress, lopping or increased light factors. Epicormic shoots usually have a weaker form of branch attachment.
Furcation	A point where two (or more) trunk or branch structures arise from the same point of union and subsequently compete for the same physical space at the point of attachment.

Glossary of Commonly Used Arboricultural Terms

Hollows	Hollows form when wood-digesting microorganisms digest wood within the boundaries set by the reaction zone or the barrier zone.
Included bark	Inwardly formed bark or bark found in between the union of a co-dominant or 'furcated' branch/trunk. Typically (although not always) this leads to an area of decay forming at the point of union leading to an increased risk of failure.
Kino	A dark red to brown resin-like substance produced by the trees in the genera <i>Eucalyptus</i> and <i>Corymbia</i> . Kino forms when living cells are injured and infected.
Live Crown Ratio	The volume of canopy of the tree relative to its overall height.
Lopping	Random cutting of branches or a tree's trunk between a union or not at a proper pruning point or in accordance with Australian Standards Guidelines.
Main Stem Structure	The main stem section of the tree. Also commonly referred to as the trunk of a tree.
Mycorrhiza	A symbiotic non pathogenic (or weakly pathogenic) relationship between fungi and the non-woody absorbing roots of plants. Note: Research has shown that certain mycorrhiza can aid a tree with mineral absorption, especially phosphorus.
Micro-organisms	An organism of microscopic size.
Pathogen	Any agent that causes disease or adversely affects the health of the plant. Can include insect, fungal, viral and bacterial agents.
Photosynthesis	A process where a combination of water, sunlight and carbon dioxide are utilised by the plant for the production of simple sugars.
Scaffolding Limbs/Branch Structures	The parts of the tree that provide support to the smaller secondary branch structures. Can also be sometimes referred to as the primary branch structures, or stems.
Supportive Root Structures	An organ of a tree that serves to maintain the mechanical support and in-ground stability of the plant.
Stem	The parts of the tree that provide support to the smaller secondary branch structures. Can also be sometimes referred to as the primary branch structures, or 'scaffolding' limbs/branch structures.
Tree	Long lived woody perennial plant greater than (or potentially greater than) 3m in height with one or relatively few stems.
Trunk	The main stem section of the tree. Also commonly referred to as a stem or main stem.
Wound	An opening that is created when the bark is cut, removed or injured.

Attachment; Company Information and Disclaimer

Company Name:



A.C.N.:

107 194 061

A.B.N.:

66 566 369 687

Insurance Details:

General Liability;	Woodina	\$20 million
Professional Indemnity;	Woodina	\$5 million
Personal Protection;	Zurich	

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Member No. 1254



J. Royal; 172723



Lisc. No. 1743

Disclaimer

This Report has been provided in good faith and based upon the material information provided by the Client to Arbor logic, and/or based on the visual inspection of the tree(s) at the time this advice was prepared.

The contents of this Report should be read in full, and at no time shall any part of the Report be referred to unless taken in full context with the remainder of the document.

The contents of this Report may not be reissued to another party or published in part or full without Arbor logic's written permission.

Arbor logic does not accept liability arising out of loss or damage that results from: -

- Material information not being provided by the Client to Arbor logic at the time this advice was prepared.
- The provision of misleading or incorrect information by the Client or any other party to Arbor logic upon which this advice was prepared.
- This advice being used by the Client or any other party in circumstances or situations other than the specific subject of this advice.
- Failure by the Client to follow this advice.
- The action(s) or inaction(s) of the Client or any other party that gives rise to the loss of, or damage to, the tree(s) that are the subject of this advice.

It is also important to take into consideration that all trees are living organisms and as such there are many variables that can affect their health and structural properties that remain beyond the scope of reasonable management practices or the advice provided in this Report based on the visual inspection of the tree(s).

As such a degree of risk will still remain with any given tree(s) despite the adoption of any best management practices or recommendations made in this Report.

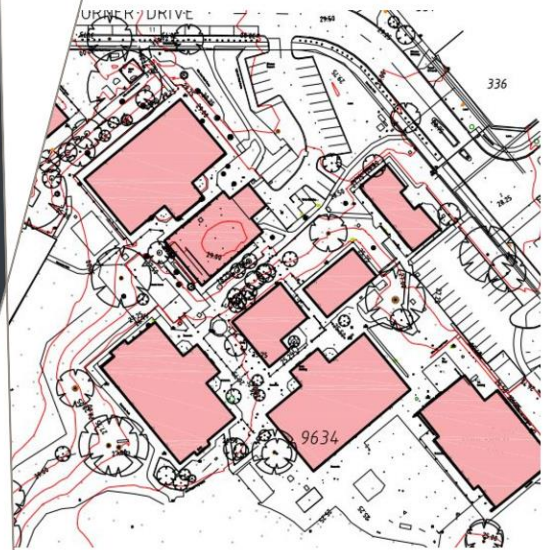
Transport Impact Assessment

Proposed Rebuild of Hillarys Primary
School - No. 75 Lymburner Drive,
Hillarys

CW1164300

Prepared for
EIW Architects

9 April 2021



Contact Information

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1 Introduction

1.1 Background

Cardno has been commissioned by EIW Architects to conduct a Traffic Impact Assessment for a proposed rebuild of Hillarys Primary School located at No. 75, Lymburner Drive, Hillarys (the "Site").

This report has been prepared in accordance with the *Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines Volume 4 – Individual Developments (2016)* and the relevant WAPC Checklist included at **Appendix A**.

This report will specifically focus on traffic access, circulation, and safety. Discussion regarding pedestrian, cycle and public transport considerations are also provided.

2 Existing Situation

2.1 Site Context

The Site is located at No. 75 Lymburner Drive, Hillarys. **Figure 2-1** shows an aerial image of the Site.

The Site currently consists of an existing Primary School (Hillary's Primary School). However, it is proposed the school be demolished and rebuilt, with a few builds retained.

Figure 2-1 Aerial Image of Site

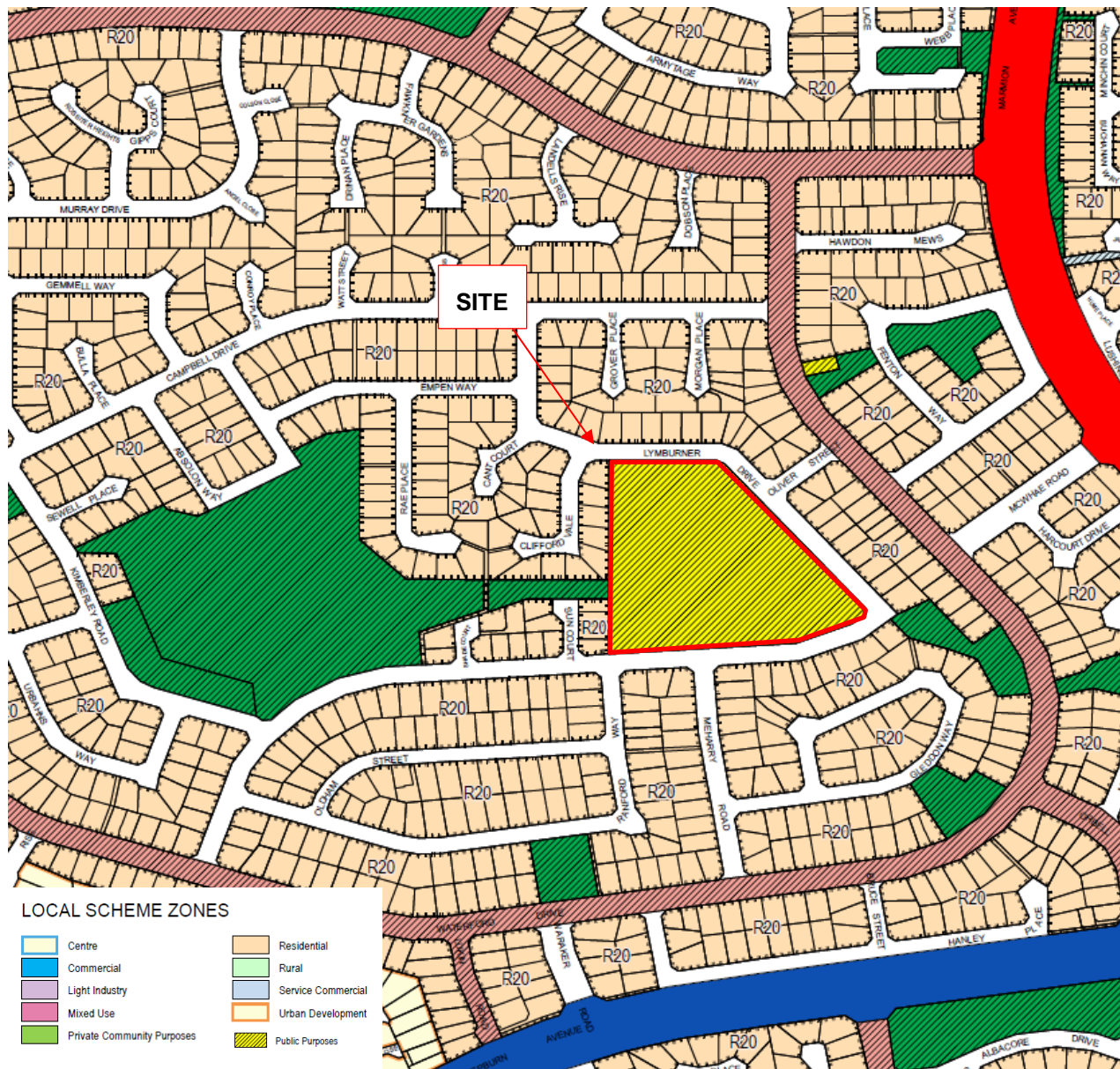


Source: Nearmap (2021)

2.2 Surrounding Land Uses

Pursuant to the provision of the *City of Joondalup Local Planning Scheme No.3 (LPS3)*, the Site is zoned 'Public Purpose' as shown in **Figure 2-2**. The Site is wholly surrounded by residential land uses.

Figure 2-2 City of Joondalup Zoning



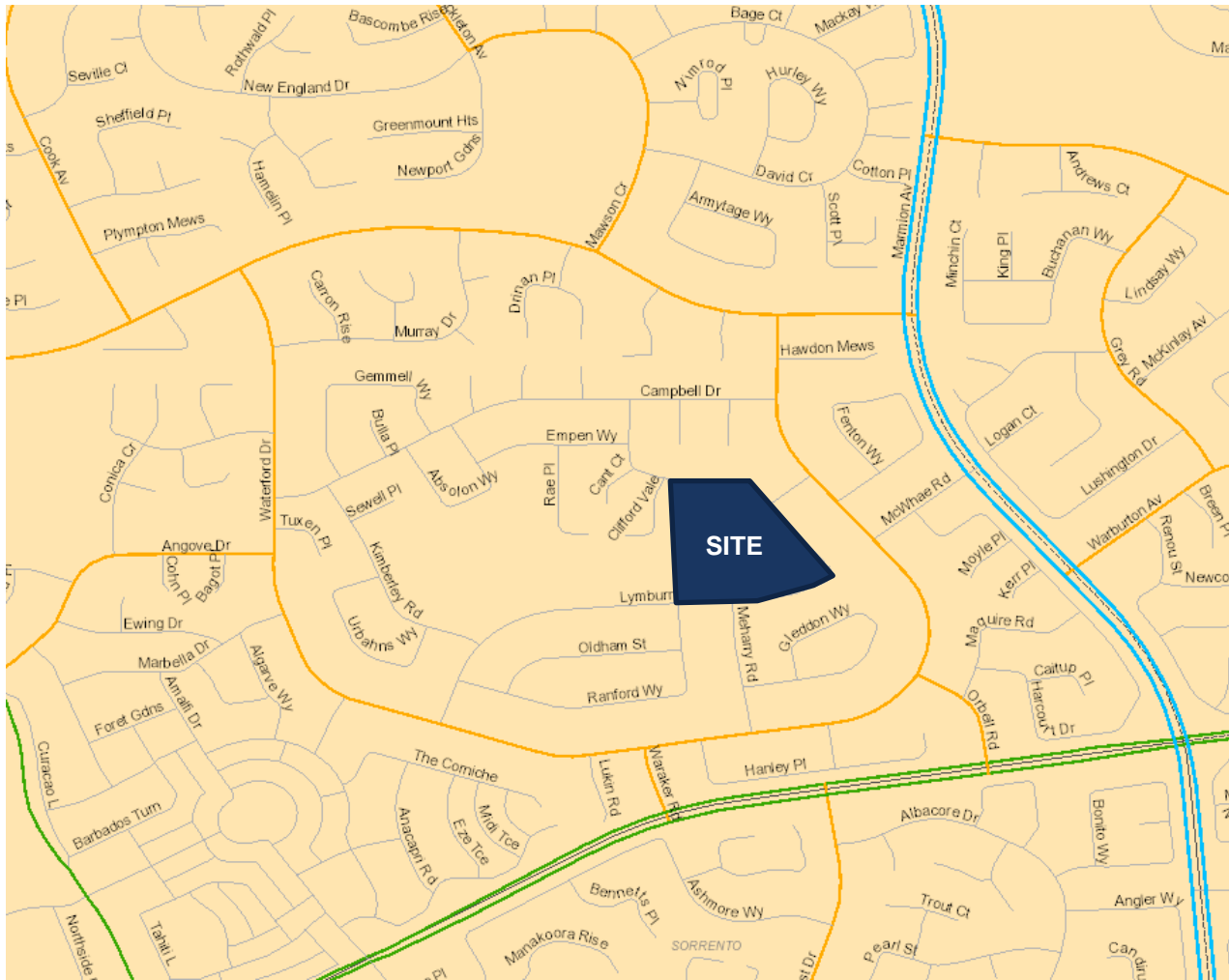
Source: City of Joondalup Local Planning Scheme No. 3

2.3 Road Network

Figure 2-3 shows the layout and classification of the roads surrounding the Site. Road classifications are defined in the Main Roads Functional Hierarchy as follows:

- > **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State roads. They are managed by Main Roads.
- > **Regional Distributors (red):** Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- > **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- > **District Distributor B (dark blue):** Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- > **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.
- > **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local government.

Figure 2-3 Existing Road Network



Source: Main Roads Mapping Information Centre (2021)

The existing road network is described below in **Table 2-1**.

Table 2-1 Existing Road Network

Road Hierarchy				Road Network		
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed
Lymburner Drive	Access Road	Local Government	2	1	7.5m	50
Oliver Street	Access Road	Local Government	2	1	7m	50
Meharry Road	Access Road	Local Government	2	1	7m	50
Ranford Way	Access Road	Local Government	2	1	7m	50
Waterford Drive	Local Distributor	Local Government	2	1	9.5 (2m median)	50

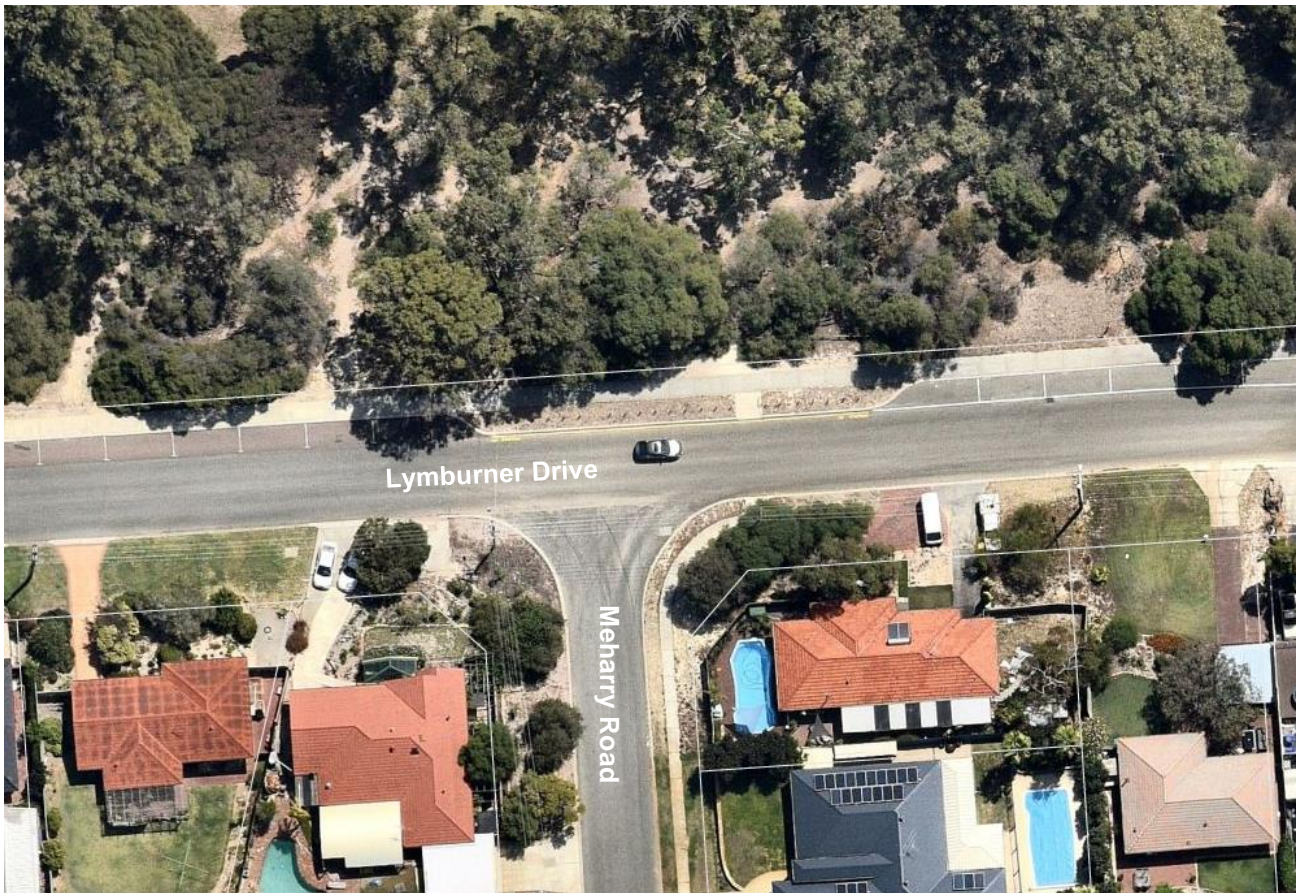
2.4 Existing Intersections

- > **Lymburner Drive / Oliver Street** is located east of the Site. It is a three-way-intersection with existing pedestrian refuge island on the northwest leg of Lymburner Drive.

Figure 2-4 Existing Lymburner Drive / Oliver Street Intersection



- > **Lymburner Drive / Meharry Road** is located south of the Site. It is a three-way-intersection.



- > **Lymburner Drive/Ranford Way** is located south west of the Site. It is a three-way intersection.



2.5 Existing Road Network Traffic Volumes

The most recent traffic volumes for the roads in the vicinity of the Site were obtained from the City of Joondalup and are summarised in **Table 2-2**.

Table 2-2 Daily Traffic Volumes

Road Name	Year	Average Two-way Daily Traffic Volume (Weekday)	Average Two-way AM Peak Traffic Volume	Average Two-way PM Peak Traffic Volume
Lymburner Drive (east of Meharry Road)	2010	225	28	20
Lymburner Drive (west of Ranford)	2010	140	13	22
Oliver Street (west of Waterford Drive)	2017	1115	-	-

**The traffic volumes provided by the City of Joondalup date back to 2010. However, the City has no other recent traffic volumes/counts within close proximity to the Site*

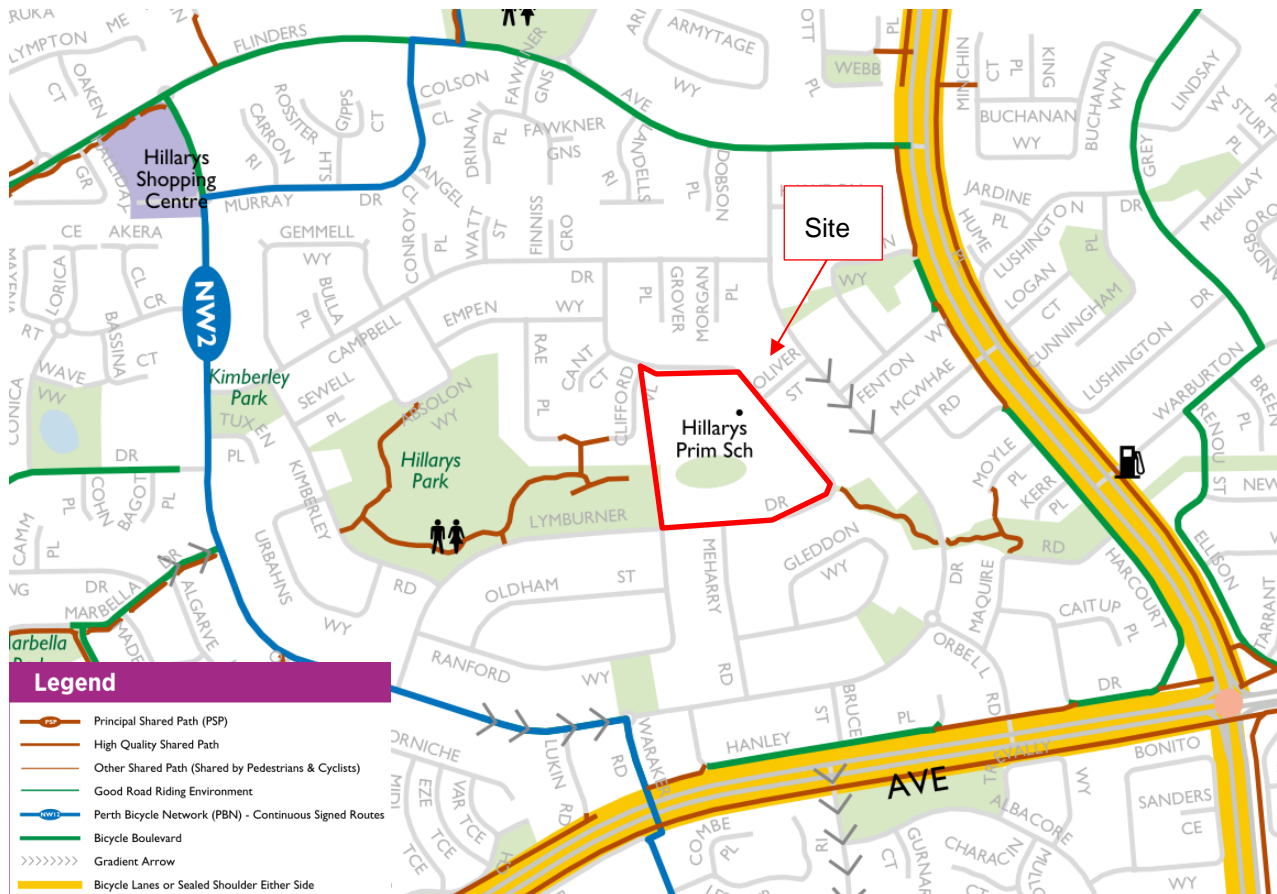
It is noted that Hillarys is a long-time established suburb and the local street network is unlikely to have noticed significant growth in traffic flow since 2010.

2.6 Existing Pedestrian/Cycling Networks

Footpaths are available on Lymburner Drive, Oliver Street and Meharry Road, which provide pedestrian access to the Site.

The Site is not directly serviced by cycling facilities. However, shared paths and “Good Road Riding Environments” stretch along Flinders Avenue, Marmion Avenue and Hepburn Avenue as shown in **Figure 2-5**. The Perth Bicycle Network runs along Murray Drive and Waterford Drive.

Figure 2-5 Pedestrian and Cycling Network

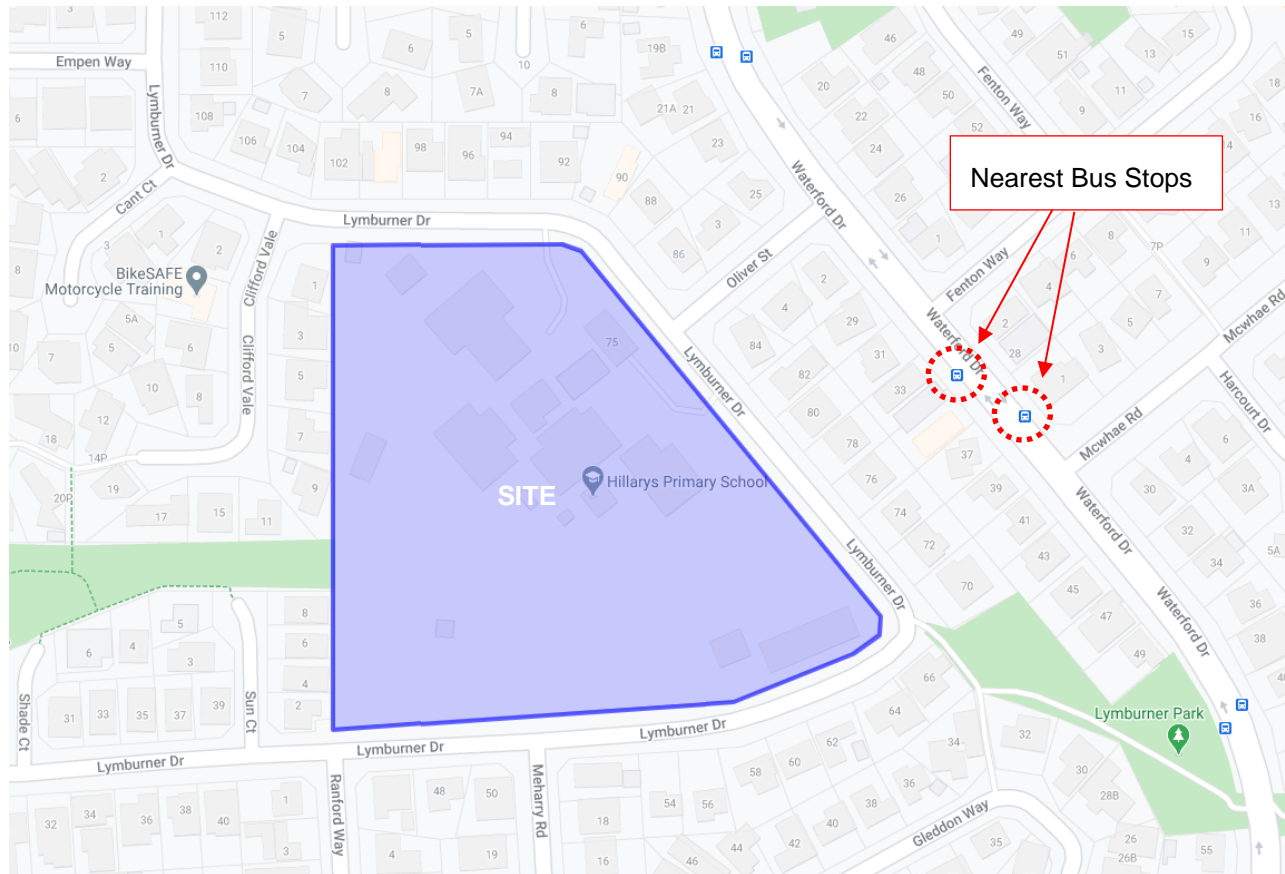


Source: Department of Transport Bicycle Network Maps

2.7 Existing Public Transport Facilities

The nearest bus stops to the Site are located approximately 250m away along Waterford Drive, as shown in **Figure 2-6**. Bus route 442 operates from these stops, as shown in **Figure 2-7** and travels to Whitfords Train Station.

Figure 2-6 Nearest Bus Stops



Source: Nearmap (2021)

Figure 2-7 Existing Bus Routes



Source: Transperth Network Maps

2.8 Crash Assessment

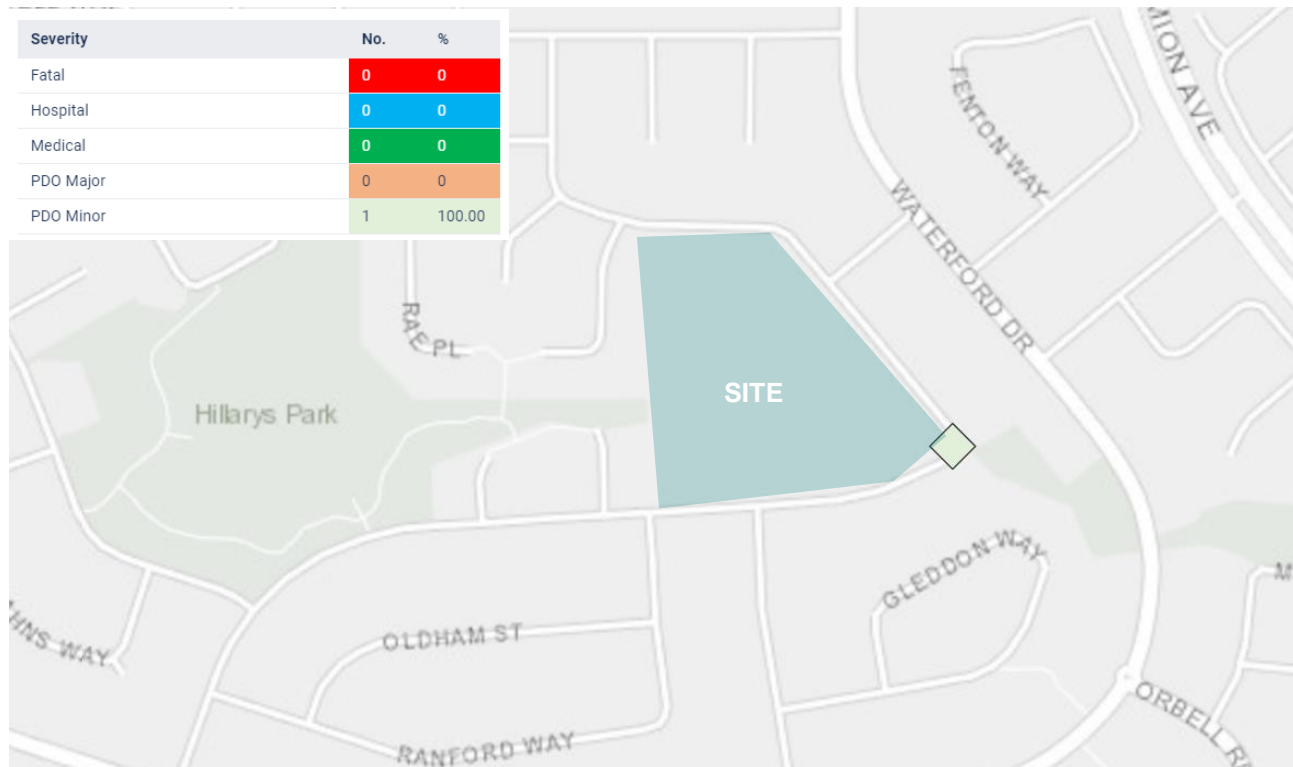
A crash assessment for the surrounding road network of the Site has been completed using the Main Roads WA Reporting Centre, as shown in **Table 2-3**. The assessment covers all the recorded accidents for the 5-year period between 1 January 2016 to 31 December 2020.

Table 2-3 Total Crashes

TOTAL CRASHES						
Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Hit Object	-	-	-	-	1	1
Total	-	-	-	-	1	1

Figure 2-8 shows the crash locations and their intensity along Lymburner Drive. Only one crash was recorded in the previous 5 years period, resulting minor property damage.

Figure 2-8 Crash Location



3 Development Proposal

3.1 Proposed Development

The proposed development involves redevelopment of the existing Hillary's Primary School. The school currently caters for up to 586 students, and is expected to cater up to a maximum of 592 students once redeveloped.

New facilities for the Primary School redevelopment include:

- > Classrooms (TB 1, TB 2, TB 3, TB 4, TB 5 (two-storey));
- > Library;
- > Administration Building;
- > 4x Courtyards;
- > 3x Playgrounds; and
- > Additional car bays.

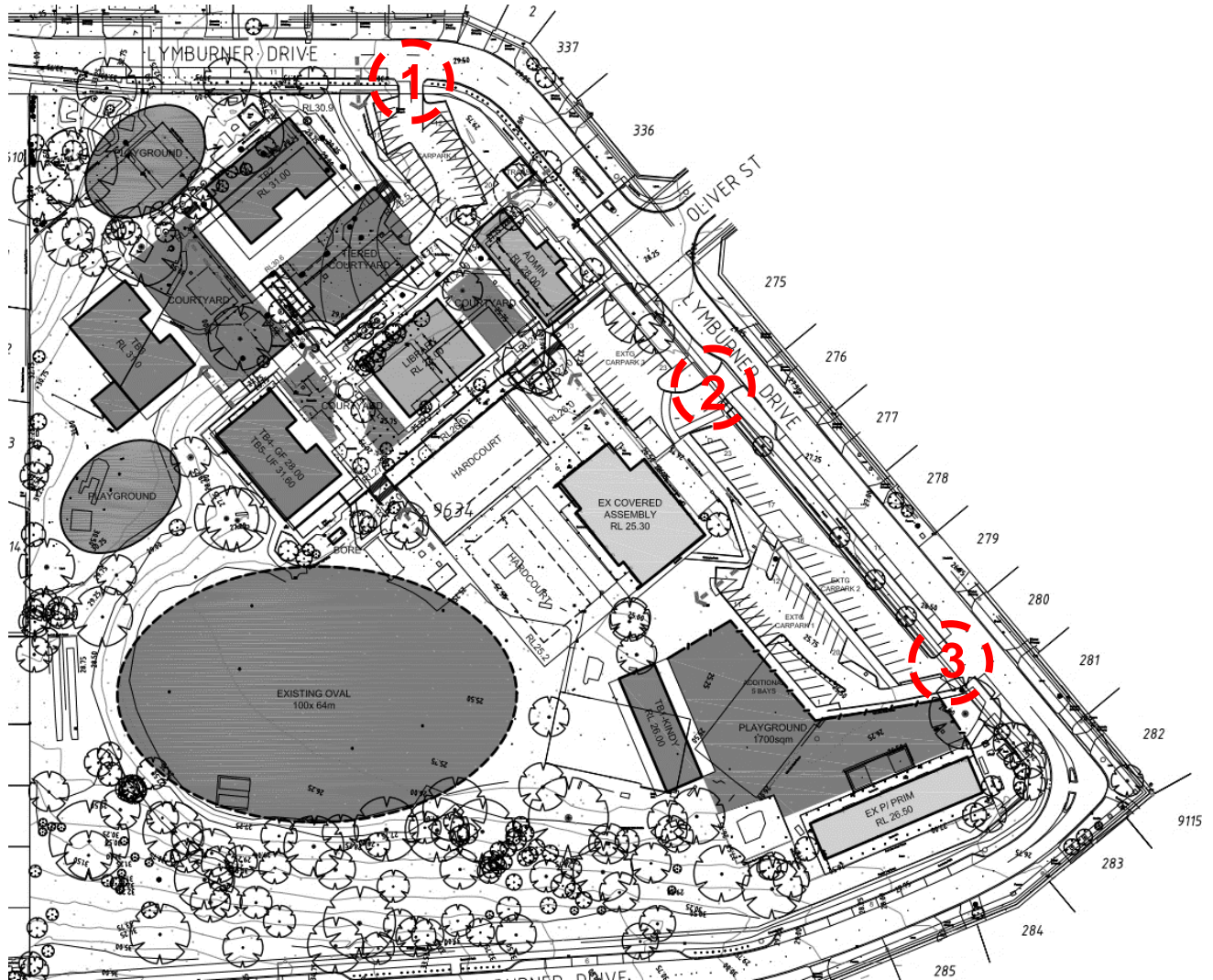
Importantly, a number of existing buildings on the Site will be retained such as the Assembly Area, Pre-primary Classroom as well as the Oval and two of the car parks.

3.2 Access Arrangements

Site access will be proposed via three existing accesses as shown in **Figure 3-1**. A summary of the access arrangements are as follows:

- > Access 1 – Full movement access;
- > Access 2 – Full movement access; and
- > Access 3 – In only.

Figure 3-1 Access Arrangements



Source: EIW Architects

3.3 Car Parking Provision

Car parking requirements are set out in the *Primary School Brief* and also compared to the City of Joondalup (CoJ) requirements. A total of **18 classrooms** are proposed within the proposed redevelopment.

Table 3-1 provides a summary of the parking requirements including the Site provision.

Table 3-1 Parking Requirements and Provision

Parking Type	CoJ Parking Requirements	PSB Parking Requirements	Parking Provision
Visitor parking	2 per classroom but not less than 10 (36) *	84 bays	44 visitor bays
Staff parking		40 staff bays	40 staff bays
Canteen	-	4 bays	Included in above
ACROD parking	-	1 bay in every 30 on-site bays (2 bays)	2 bays
Bus bay	-	1 bus bay (1 bay)	0 bays

*Assuming this includes provision for staff parking

Based on the original PSB requirements, a total of 130 parking bays (Visitor + Staff + ACROD + Canteen) was to be provided. The proposed parking layout proposes a total of 91 parking bays (Visitor + Staff + Kiss and Drive + ACROD) which excludes the 37 on-street embayment bays provided on Lymburner Drive.

It should be noted, with on-street parking provided along Lymburner Drive and the proposed number of on-site car parking, a total of 123 bays are provided. This suggests a minor shortfall of 7 car parking bays.

It is noted that the proposed number of car parking bays are similar to what is currently available on site. The proposed redevelopment is expected to have a small increase in number of students which would still be accommodated with the current car parking provision.

A bus bay has not been provided as no school bus services are expected and buses will only be used on rare occasions. In the event this arises, it is suggested that buses use the on-street embayment bays or kiss and drive bays outside of school pick up and drop off peaks and that the school to be responsible for implementing the necessary temporary traffic management measures. Kiss and drive allows for high turnaround of drop off and pickup, without the need for parents to park within a parking bay, hence decreasing the need for additional parking bays.

In summary, the parking bays proposed on-site are fit for purpose, given the on-site visitor bays and surrounding on-street bays will only be used for short periods during peak pick-up and drop-off times and therefore, are considered appropriate.

3.4 Bicycle Parking Provision

In accordance with the *Primary School Brief*, the bicycle parking requirements are as follows:

- > 1 rack or bay for every 25 to 35 staff (3%-5%); and
- > 1 rack or bay for every 10 students.

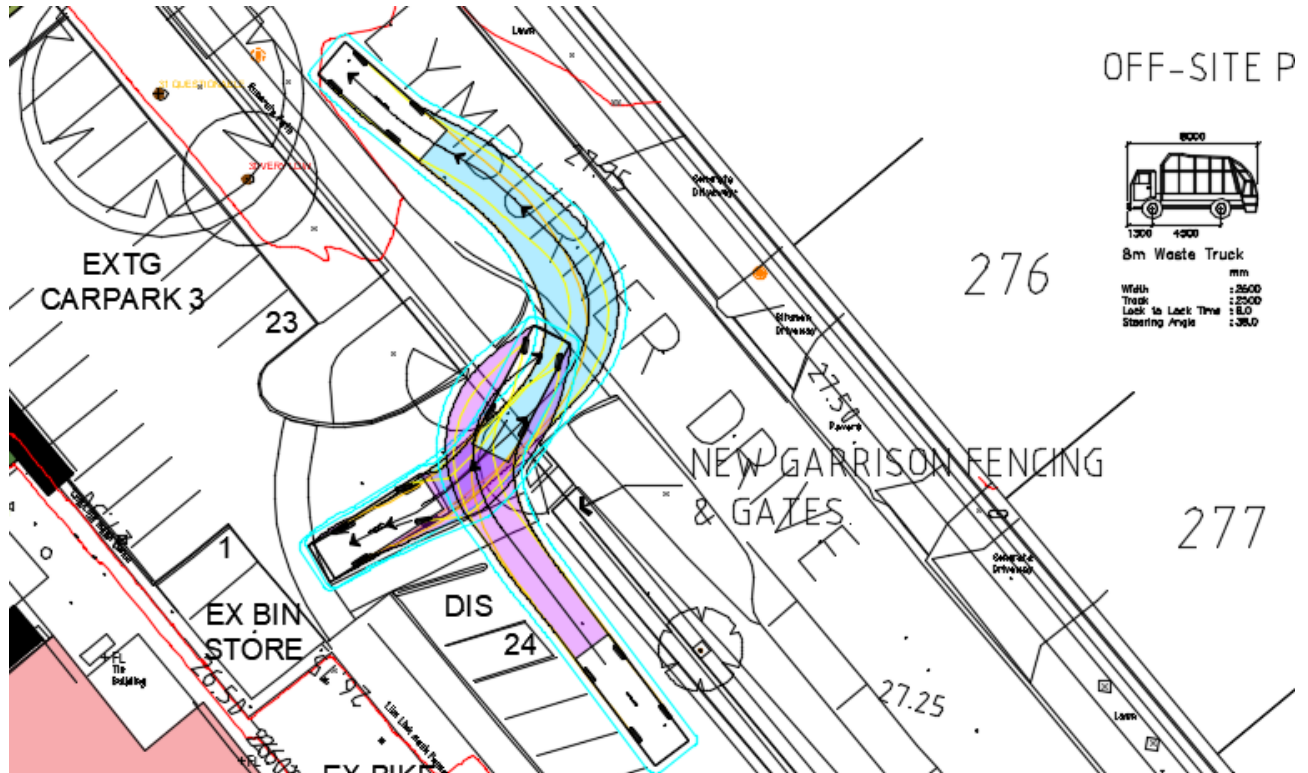
Assuming 10 staff for every 100 children (as per Section 5.7.4.7 of the Primary School Brief), 3 bicycle bays for staff and 56 bicycle bays for students are required for the proposed primary school.

As part of this proposed development, no additional bicycle stores are proposed. The existing enclosed bicycle parking is expected to be sufficient to cater for the need. There is opportunity to install additional bicycle parking should it be required.

3.5 Service/Delivery Vehicles

The waste collection is expected to occur near the existing bin store. Waste truck will enter the Site via the southeast access, reverse into the loading area, empty the bins and egress the Site in forward gear. Swept path for the waste truck is shown in **Figure 3-3**.

Figure 3-3 Service Area



4 Changes to Surrounding Transport Network

4.1 Road Network

No new road projects are anticipated within the surrounding locality of the Site.

4.2 Pedestrian/Cycle Facilities

Cardno contacted the City of Joondalup and understand there are no proposed changes to the network in this area.

4.3 Public Transport Facilities

Cardno contacted the Public Transport Authority and understand there are no proposed changes to the network in this area.

5 Integration with Surrounding Area

5.1 Surrounding Attractors/Generators

The major attractors/generators of the proposed development are expected to be the residential dwellings in the vicinity of the Site, similar to the existing situation.

5.2 Proposed Changes to Surrounding Road Network

No proposed changes to the surrounding road network are planned within close proximity to the Site within the short term.

6 Analysis of Transport Network

6.1 Development Traffic Generation

Approximate trip generation rates for the primary school are set out by the *Western Australian Planning Commission (WAPC) Transport Assessment Guidelines – Volume 5 – Technical Guidance*.

The projected enrolment for the primary school is expected to be a maximum of 592 students. Cardno was advised that the primary school is currently accommodating up to 586 students. The net increase in number of students is relatively low and is not expected to result in any significant impact.

The adopted trip generation rates and net trip generation of the proposed redevelopment is shown in **Table 6-1** and **Table 6-2** respectively.

Table 6-1 Adopted Trip Generation Rates

Land Use	Source	AM Peak		PM Peak	
		Arrivals	Departures	Arrivals	Departures
Primary School	WAPC	0.5 trips per student	0.5 trips per student	0.5 trips per student	0.5 trips per student

Table 6-2 Total Trip Generation

Land Use	AM Peak		PM Peak	
	In	Out	In	Out
Redeveloped Primary School (592 students)	296	296	296	296
Existing Primary School (586 students)	293	293	293	293
Net trip generation	3	3	3	3

Based on the robust trip generation rates provided in *WAPC Guidelines*, the proposed primary school redevelopment is expected to result in a net increase of 6 trips (two-way) in both AM and PM peak periods.

The small increase in trip generation is not expected to result in any significant traffic impact to the existing road network. *WAPC Transport Impact Assessment Guidelines – Volume 4: Individual Developments* states that an increase in traffic of less than 100 vehicles per hour, per lane, is unlikely to have any material impact on the surrounding road network. Hence, no material impact is anticipated on the surrounding road network as a result of the proposed modifications and no more detailed analysis is warranted under the *Guidelines*.

7 Conclusions and Summary

The Transport Impact Assessment outlines the transport aspects of the proposed redevelopment focusing on traffic operations, access and car parking. Discussion regarding pedestrian, cycle parking and public transport considerations are also provided.

This assessment has been prepared in accordance with the *WAPC Transport Impact Assessment Guidelines Volume 4: Individual Developments (2016)* for lodgement with the development application.

The following conclusions have been made in regards to the proposed development:

- > The proposed redevelopment represents a two-way trip generation of approximately 566 vehicles in the AM and PM peak periods, a net increase of 6 trips in the peak periods over the existing trip generation;
- > Bus service 442 operates within the surrounding area, approximately 250m away from the Site along Waterford Drive;
- > Footpaths are available on Lymburner Drive, Oliver Street and Meharry Road, which provide pedestrian access to the Site. However, the Site is not directly serviced by cycling facilities;
- > 86 car parking bays are proposed on-site;
- > Regarding safety, the crash data shows that there is a very low frequency of crashes for surrounding roads and intersections located near the proposed primary school and the school upgrades are unlikely to negatively impact local road safety.

2 June 2021

City of Joondalup
PO Box 21
Joondalup WA 6027

**RE: PROPOSED REBUILD OF HILLARYS PRIMARY SCHOOL
DEVELOPMENT APPROVAL APPLICATION**

ATT: Ms Renae Mather

Dear Renae

On behalf of the Department of Education, we hereby submit Development Application for the rebuild of existing Hillarys Primary School located at 75 Lymburner Drive Hillarys. This application shall be assessed under the Joint Development Panel (JDAP) process.

The proposed rebuild is to replace existing original buildings (circa 1973), with new facilities that are in line with current Department of Finance (DoF) and Department of Education (DoE) educational requirements. The new buildings are based on the current DoF Standard Pattern School Brief. The existing Pre-Primary and Covered Assembly buildings constructed under the 2009 BER stimulus programme are to be retained. The existing oval and carparks are also to be retained, with slight modifications.

The school currently caters for 48 staff and 586 students from Kindergarten through to Year 6. The completed works will have capacity to accommodate 592 students.

The proposed redevelopment comprises of the following new facilities:

- Administration Block
- Library / Staff Room Block
- Teaching Block 1 containing 2 classrooms
- Teaching Block 2 containing 4 classrooms
- Teaching Block 3 containing 4 classrooms plus Inclusive Education
- Teaching Block 4 containing 8 classrooms over two storeys
- Hardcourts

This application includes provision for 4 No. transportables to cater for any future increase in school population. The transportables will be accommodated within the two designated 'transportable zones' as noted on the site plan.

The existing oval is currently 100m x 64m and is to be retained with no new works.

To enable the school is to remain operational during the rebuild, the new works will be constructed over three stages commencing November 2021 with the entire works scheduled for completion by April 2024.

All the buildings are single storey, apart for Teaching Block 4 which is two storeys, and shall be constructed from the following palette of external materials:

- Walls
 - Select face brick, main body with feature band and stack bond panels. Feature brickwork to match face brick of the existing BER buildings
 - Flat pan (Kliplok) metal sheet wall cladding, and Panelrib lining to ducts to extent noted on drawings, all colorbond finish
- Roof
 - Flat pan (Kliplok) metal sheeting colorbond finish

Parking shall be provided as outlined below:

- On-site (carparks to be retained, with minor modifications as noted:
 - Existing Carpark 1 23 bays (includes additional 6 bays)
 - Existing Carpark 2 25 bays (includes one ACROD bay)
 - Existing Carpark 3 23 bays
 - Existing Carpark 4 (realigned) 20 bays (includes one ACROD bay)
 - Total on-site car bays 91 bays (includes two ACROD bays)

Note Carpark 1 is to be retained as current 'Kiss n Drive'.

- Off-site
 - Existing verge parking 38 + 7 drop off/ pick bays
 - Total verge parking 45 bays

Refer to Traffic Impact Assessment Report for further details – copy enclosed.

Due to low scheme water pressure, fire and potable pumps and tanks are required. The pumps will be enclosed within a brick wall and metal roof structure, whilst the tanks will be concealed by powdercoat aluminium blade enclosure, located in the north west corner of the site as noted on the site plan.

The school site will be secured with a 2.1m high garrison fence, with gates to majority of the site boundaries. The Administration frontage and Carpark 4 will not be enclosed by fencing.

An arborist assessment has been carried out to ascertain condition of existing trees. Copy of report enclosed. The proposed site layout has been designed to utilise existing clear areas of the site for new buildings enabling maximum retention of existing trees. Refer to site and landscape plans for extent.

The site is not within DFES Bushfire Prone Zone, therefore bushfire management plan is not required.

Accompanying this application are the following:

- Completed and signed:
 - DAP Form 1 and MRS Form 1
 - City of Joondalup DA Checklists
 - City of Joondalup Sustainable Design Checklist
- Drawings:

○ Site Plan / Sections / Elevations	DD1.01, DD1.06
○ Perspectives	DD1.07
○ Administration Plan / Elevations	DD2.01
○ Library Block Plan / Elevations	DD3.01
○ Teaching Block 1 Plan / Elevations	DD4.01
○ Teaching Block 2 Plan / Elevations	DD5.01
○ Teaching Block 3 Plan / Elevations	DD6.01 & DD 6.02
○ Teaching Block 4 Plan / Elevations	DD7.01, DD7.02 & DD7.03 01
○ Landscape Concept Plans	L00 to L10 inclusive
○ Civil drawings	C0.01 to C0.10 inclusive
- Certificate of Title
 - Lot 9634 - Vol LR3154 Folio 657
- Transport Impact Assessment – Cardno Traffic Engineers -Version A - dated 9 April 2021
- Arborist Assessment – Arbor Logic dated February 2021
- Payment of JDAP fee of \$9,680 (based on development cost estimate of \$14 million) has been paid at time of submission

To achieve the planned completion by April 2024, the contract is scheduled to be awarded by October 2021. Your timely attention to this development application would be greatly appreciated.

For any further information or clarification, please contact Antonio D'Andrea of EIW Architects on 9484 4700.

Yours sincerely



ANTONIO D'ANDREA
EIW ARCHITECTS

Encl.

CC: DoE – Wendy Matthew – Letter only
DoF – Stephanie Seddon – Letter only

STATE PLANNING POLICY 7.0 DESIGN OF THE BUILT ENVIRONMENT

1. Context & Character:

The proposed rebuild is to replace the existing original school buildings (circa 1973), with new facilities that are in line with current Department of Education (DoE) educational requirements. The new buildings are based on the current Department of Finance (DoF) Standard Pattern School Brief. The existing Pre-Primary and Covered Assembly buildings constructed under the 2009 BER stimulus programme are to be retained.

The school is located at No. 75 Lymburner Drive, Hillarys WA and has a site area of 4.01 hectares

2. Landscape Quality:

The site topography varies significantly over the 8m level change across the site, and has clusters of significant vegetation. The aim of the landscape design is to enhance and build upon this existing natural environment by:

- Retaining majority of existing significant trees (which have been assessed by an arborist) and supplement with new trees
- Relocating existing Permaculture Centre
- Retaining existing Nature Playground
- Positioning new buildings, where practical, over existing building or hardcourt footprints to minimise number of trees to be removed.
- Waterwise plants to be utilised throughout
- Existing bore to be reused with a waterwise irrigation system to compliment the existing system

3. Built Form & Scale:

The new facilities will incorporate the requirements of the DoF Standard Pattern Primary School Brief.

To cater for the 8m fall across the site, from the northern edge to the southern edge of the existing oval, three main building terraces have been created, with central courtyards that transition between the levels via stairs and walkways / ramps for universal access.

- Terrace 1 (northern) - Teaching Blocks 2 & and Teaching Block 3
- Terrace 2 (central) – Administration, Library and Teaching Block 4
- Terrace 3 (southern) – Terraced seating and two new hardcourts and Teaching Block 1

Teaching Block 1 location defines edge of enlarged ECC playground with existing shaded play areas to be retained. All buildings along street frontage are single storey.

Teaching Block 4 is two storey, located at western edge of the site, with ground floor connecting to central courtyard and upper floor linking across to Teaching Block 3.

Sports facilities comprise of existing oval and play areas to the north and east of the site

Provision has been made for future four transportable zones located adjacent TB1 and TB2 to cater for future growth in student population.

4. Functionality & Build Quality

The proposed design creates clear visual connections across the site and that assist in way finding and identifying buildings. Tiered courtyards and interconnecting clearly defined walkways ensures that all parts of the site are accessible by all.

Outdoor education spaces have been created with visual links from teaching areas and utilising shade of existing trees. Casual seating and congregation zones are throughout the site, including a seating terrace to the south of the new Library provides a landscaped gathering place and viewing area over the new hardcourts. All providing numerous opportunities for external learning.

Two single hardcourts east of Covered Assembly which can be utilized as additional gathering area for larger school functions. Soft landscaping with trees east of Covered Assembly to provide shaded gathering areas. The palette of materials selected are durable, cost effective, locally available and low maintenance to ensure their colour, form and condition are sustained over the life of the school. They also are sympathetic to the material palette of the existing Covered Assembly and Pre Primary buildings that are to be retained.

5. Sustainability:

The principles of passive design have been incorporated into the design of the new school buildings. They include:

- Maximise use of natural day lighting via appropriately sized windows
- Sun shading to glazing to reduce heat loads from summer sun via verandahs and roof overhangs
- Enhance use of natural ventilation by means of openable windows and ceiling fans
- Insulation to wall, ceiling and roof cavities
- Light fittings selected on low power consumption and configured for optimal performance
- Solar panels to be installed to reduce reliance on mains power
- Reestablishment of existing Permaculture Centre

6. Amenity:

The school is located within an existing built up residential area, with three street frontages and western boundary backing onto existing residences. Scale of new buildings along street frontage are single storey, in keeping with street amenity.

The site is located 1.8 km from the coast. Locating majority of the buildings at the higher end of the site enables cooling summer winds to filter between buildings, whilst extensive vegetation along the south west corner of site and acts as buffer to minimise impact of strong winter winds.

7. Legibility

Buildings have been positioned to enhance legibility by:

- Retaining Administration in similar location, and by raising floor level to match verge level provides stronger street presence
- Tier courtyard to the north is visible to the street which enhances connectivity with the community
- Clearly identified access spines between buildings and universal access via walkways will provide universal access to all buildings
- Colour specific external doors to each block will also assist in wayfinding

8. Safety:

A 2.1m high garrison fence with access gates will be provided around majority of site street boundaries, providing security to the internals of the school site.

The Administration frontage and Carpark 4 will not be enclosed by the garrison fence and be fully accessible at all times.

Use of garrison fencing maintains visibility through the fence, providing another level of security after hours.

Carparks are to be retained in current location, with Carpark 4 reorientated, with adjoining pathways which provide pedestrians safe segregated access into the site.

9. Community:

This project will provide new facilities to deliver education programs to primary school aged students in the area, within contemporary learning environments. The completed works will cater for the existing 48 staff and 586 students from Kindy through to Year 6, with capacity to accommodate 592 students to meet local community needs.

Proposed layout and openness of the new school provides opportunity to strengthen connections with the existing community.

10. Aesthetics:

Proposed scale and materiality of new buildings provides an aesthetic that compliments retained buildings, and is sympathetic to adjoining residences. Walls shall be predominantly facebrick, with Colorbond metal sheeting used for roofs and high level wall cladding.

Retention of significant trees will also enhance the aesthetics by providing scale and natural forms to the external spaces.

Date: 28 July 2021

Your Ref:

Enquiries: Ciara Slim
9400 4217Our Ref: DA21/0612
09713

GHD Primary Schools Planning
L7 999 Hay Street
PERTH WA 6000

Dear Sir/Madam,

**RECOMMENDATION: EDUCATIONAL ESTABLISHMENT (ADDITIONS AND ALTERATIONS)
AT LOT 9634 (75) LYMBURNER DRIVE, HILLARYS (HILLARYS PRIMARY SCHOOL)**

I refer to the correspondence from the Department of Finance and ElW Architects to the City, dated 4 June 2021, for the refurbishment of Hillarys Primary School.

Based on the information that was provided and amended site plan received by the City on 22 July 2021, the City can advise that it **supports** the proposal, as detailed in the attached application documents, subject to the following conditions:

1. **This approval relates to the additions and alterations to the existing primary school and associated works only and development shall be in accordance with the approved plan(s), any other supporting information and conditions of approval. It does not relate to any other development on the lot.**
2. **All stormwater shall be collected on-site and disposed of in a manner acceptable to the City.**
3. **All development shall be contained within the property boundaries.**
4. **All external walls of the proposed building shall be of a clean finish and shall at all times be free of vandalism, to the satisfaction of the City.**
5. **Modifications to any car parking bays, driveways and access points shown on the approved plans are to be designed, constructed, drained and marked in accordance with the Australian Standards (AS2890), prior to the occupation of the development. These bays are to be thereafter maintained to the satisfaction of the City.**
6. **A Construction Management Plan shall be submitted to and approved by the City prior to the commencement of development. The management plan shall include details regarding mitigation measures to address impacts associated with construction works and shall be prepared to the specification and satisfaction of the City. The construction works shall be undertaken in accordance with the approved Construction Management Plan**
7. **A full schedule of colours and materials for all exterior parts to the building is to be submitted to and approved by the City prior to the commencement of**

development. Development shall be in accordance with the approved schedule to the satisfaction of the City.

8. Any proposed building plant and equipment, including air conditioning units, piping, ducting and water tanks shall be located so as to minimise any visual and noise impact on surrounding landowners, and screened from view from the street, and where practicable from adjoining buildings. Details shall be submitted to and approved by the City prior to the commencement of development. Development shall be in accordance with these approved details.
9. All bicycle parking facilities provided should be designed in accordance with the Australian Standard for Off-street Car parking – Bicycles (AS2890.3-1993). Bicycle spaces are to be installed prior to the occupation of the development and thereafter maintained to the satisfaction of the City.
10. A detailed landscaping plan shall be submitted to, and approved by, the City prior to the commencement of development. The plan is to, indicate the proposed landscaping treatment(s) of the subject site and the adjoining road verge (if applicable), and shall:
 - Be drawn at an appropriate scale of either 1:100, 1:200 or 1:500;
 - Provide all details relating to paving, treatment of verges and tree planting in the car park;
 - Show spot levels and/or contours of the site;
 - Indicate any natural vegetation to be retained and the proposed manner in which this will be managed;
 - Be based on water sensitive urban design principles to the satisfaction of the City;
 - Be based on Designing out Crime principles to the satisfaction of the City; and
 - Show all irrigation design details.
11. Landscaping and reticulation shall be established in accordance with the approved landscaping plan, Australian Standards and best trade practice prior to the development first being occupied and thereafter maintained to the satisfaction of the City.
12. The fencing infill panels and pedestrian gates as shown on the approved plans shall be visually permeable.
13. No walls, fences or other structures with a solid height greater than 0.75 metres shall be constructed within 1.5 metres of where the driveways meets the front boundary.

Advice notes:

1. Any existing infrastructure/assets within the road reserve (e.g. footpath, kerbing and street trees) are to be retained and protected during construction of the development and are not to be removed or altered. Should any infrastructure or assets be damaged during the construction of the development, it is required to be reinstated to the satisfaction of the City.

2. The applicant/owner is advised that verge treatments are required to comply with the City's Street Verge Guidelines. A copy of the Guidelines can be obtained at <https://www.joondalup.wa.gov.au/verge-treatments/>
3. The City encourages the applicant/owner to incorporate materials and colours to the external surface of the buildings, including roofing, that have low reflective characteristics to minimise potential glare from the development impacting the amenity of the adjoining or nearby neighbours.
4. The *Environmental Protection Act 1986* and the *Environmental Protection (Noise) Regulations 1997* bind the Crown and are therefore applicable to the Primary School. As such:
 - a. The school siren is to be made inoperable while the school is not in use.
 - b. The use of any plant and air conditioning installed at the Primary School is to comply with the prescribed standards as set by the *Environmental Protection (Noise) Regulations 1997*.
 - c. Due to proximity to nearby residences, the Outdoor Hard Courts are to be fenced and locked preventing use outside of school hours.
 - d. Due to proximity to nearby residences, service and delivery vehicles coming to the school are not to come onsite prior to 7:00am or after 7:00pm Monday to Saturday or prior to 9:00am or after 7:00pm on a Sunday or public holiday.
 - e. It is recommended that any basketball backboards installed for the Outdoor Hard Courts are to be acoustic treated using rubber mounts.
 - f. All water drainage or storage systems are to be designed and maintained to ensure mosquito breeding cannot occur.
 - g. Bin Storage Area shall be provided with a concrete floor graded to a 100mm industrial floor waste gully connected to sewer. Provide hose cock to bin store area.
 - h. Floors shall grade evenly to an approved floor waste outlet in all wet areas.
 - i. Premises used for the sale of food to comply with the requirements of the Food Act 2008 and the Australia New Zealand Food Standards Code.

Please forward a copy of the determination to the City at your earliest convenience. If you have any further enquiries regarding this matter please do not hesitate to contact the above enquires officer.

Yours faithfully



CHRIS LEIGH
Manager Planning Services
City of Joondalup

21 July 2021

City of Joondalup
PO Box 21
Joondalup WA 6027

Sent via email

**RE: PROPOSED REBUILD OF HILLARYS PRIMARY SCHOOL
JOONDALUP DESIGN REFERENCE PANEL REVIEW**

ATT: Ms Ciara Slim

Dear Ciara

We submit the following responses in relation to concerns raised by adjoining residences and JDRP as outlined in your email correspondence dated 15 July 2021:

RESIDENT CONCERNS	EIW RESPONSE
Traffic	<ul style="list-style-type: none"> The rebuild is to cater for total of 18 classrooms, to match existing school capacity According to traffic engineer assessment, and based on the DoF Primary School Brief, a total of 130 parking bays are to be provided Proposal provides: <ul style="list-style-type: none"> 87 onsite (inc. 2 ACROD bays) 39 on-street bays plus 126 total bays The above figures exclude designated drop off / pick up on-street bays (7 total) According to the traffic engineer, the parking bays proposed on-site are fit for purpose given the on-site visitor bays and surrounding on-street bays will only be used for short periods during peak dropoff and pick up
Lot Boundary Setbacks	<p>Lot boundary setbacks:</p> <p>Fire pumps & tank enclosure has been positioned so as to have minimal impact on existing vegetation. Moving the enclosure further south will require additional existing trees to be removed. Also current location is the preferred location for infrastructure requirements (DFES and mains water connection). The pump enclosure will be acoustic insulated internally, and external access is via south (school) side instead of street frontage to attenuate noise emission in accordance with our acoustic engineer requirements.</p>
Noise	A/C plant enclosures are located on ground within screened enclosures to rear or side of buildings. The A/C enclosure to TB3 is the closest to the western boundary (residences) at 10m, and approximately 2.5m below existing boundary ground level, therefore minimising impact to adjacent residences.
Design	Roof sheeting will be colorbond off white finish (eg. Surfmist) not zinalume, therefore minimising reflective roof glare and heat.

Landscaping	The proposal retains significant quantity of mature trees, and these will be supplemented by new trees as noted on landscape plan.
Construction	Management of construction is the responsibility of the contractor, however they will require to submit a dilapidation survey of adjacent properties, traffic management plan and safety management plan prior to commencement of works in accordance with OHS requirements.

JDRP COMMENTS			EW RESPONSES
Requirement		Proposed	
PLANNING ASSESSMENT			
Primary street setback	6.0 metres	2.3 metres to fire pump room	Fire pumps & tank enclosure has been positioned so as to have minimal impact on existing vegetation (moving further south will require additional trees to be removed), and is preferred location for infrastructure requirements (DFES and mains water connection).
Side/rear setbacks	3.0 metres	2.1 metres to fire pump room	Refer to response above
Building height: Top of external wall Top of concealed roof	6.0 metres 7.0 metres	6.48 metres 7.25 metres	Noted
Bicycle parking	5 per classroom (105 bicycle bays required based on 21 classrooms)	No details provided in relation to the number of bicycle bays on site (existing and proposed).	There is an existing bike park of approximately 17m x 6m which currently accommodates 20 bikes. This could be reconfigured to facilitate approximately 30 bikes. Should more bikes need to be accommodated an additional bike park would need to be considered.
Shade trees	1 per 4 car parking bays	23 new shade trees provided to south-western side of car parks, however no shade trees internal or to the north-eastern side of south carpark.	The current landscape plans show trees adjacent the car bays to Carpark 3 with trees to the North. The majority of the South Carpark is all existing so there isn't scope to put trees in this location. The central spine is all paved to enable access from the carpark up to the Administration. There are existing trees adjacent that we believe comply with the requirement for this portion of the car park. For the reworked portion of the carpark in this location we have provided 7 new shade trees adjacent the TB1 play space. These trees relate to 13 new car bays so we are closer to providing 1 tree for every 2 carparking bays than the 1:4 ratio required.
Servicing	Servicing details and bin storage is to be		Existing bin store comprises of unenclosed slab on ground off carpark adjacent

	shown on plans. This is to be screened from the residential lots and the street.	existing Covered Assembly, with no new works proposed. Slatted powdercoat aluminium screen and gates could be installed to provide screening from street frontage.
INTERNAL REFERRALS		
Engineering		
	<ul style="list-style-type: none"> The modifications to the existing parking modules look to be ok. The footprint is not being changed drastically and therefore there is not much scope to improve each parking module. The only other item that will need to be highlighted is the requirements surrounding the fire pump station within the North western portion of the site. It is unclear whether they require direct access to the building or whether this can be accessed from the street. 	Only access from the street is via a person access gate for water meter reading located within tank enclosure. Access to pumps are via doors located to south (school) side of building
Landscaping:		
	<ul style="list-style-type: none"> A full landscape plan will be required as part of any approval showing irrigation and species detail, as well as any proposed and existing deep soil area. 	BoQ / Tender set of drawing will be suitable for this review. The entire landscape area is deep soil zones as we are not proposing any landscape on structure.
Building:		
	<ul style="list-style-type: none"> Distribution and location of exists and exit travel distances to comply with Part D of the NCC BCA. Details of car parking bays and accessible bays need to be provided in accordance with Part D3.5 of the NCC BCA. Car bay and shared area to comply with AS2890.6. A Class 9b early childhood centre must be provided with: A kitchen or food preparation area with a kitchen sink, separate hand washing facilities, space for a refrigerator and space for cooking facilities with: <ul style="list-style-type: none"> A. The facilities be protected by a door or gate with a child proof latch to prevent unsupervised access to the facilities by children younger than 5 years old; and B. The ability to facilitate supervision of children from the facilities if the early childhood centre accommodates children younger than 2 years old; and C. One bath, shower or shower bath. Doors to swing outwards; Additional exit doors are required where they are separated by more than 20 metres; 	<p>Confirming that TBI comprises of two kindergarten classrooms to supplement existing pre primary building to the south east. There is no 'early childhood centre' proposed under this development application.</p> <p>Buildings may have been referenced erroneously as 'ECE' in original submission.</p>
JOONDALUP DESIGN REFERENCE PANEL		
Architecture and Design		
	<ul style="list-style-type: none"> Impressed with layout. Like the curved and circular ramp systems. More attractive than what exists. Appreciate that the layout of classrooms is per template Concern with two storey building – lift location adjacent to stair – flat roof and skillion doesn't seem to work together, although noted that overrun can be difficult. 	Noted

<ul style="list-style-type: none"> • What is the material for stair. • The way buildings have been handled on site is very clever. • Fire pump building – not consistent with the setbacks – would be great if this could be set back further from the street. 	Refer to responses above
Landscaping	
<ul style="list-style-type: none"> • Love that trees are retained. • How does the proposed landscaping relate to the street and presentation. • Modest buildings with no strong landscaping theme – is there the opportunity to integrate with context. What does it give back to the community. Design in context. 	<p>The street frontage of the school remains largely unchanged. The proposed administration building is located in the same position as the existing but at a revised level enabling universal access and therefore more equitable access from the road. The Administration building is bordered by turf, new and existing trees. The existing carpark remains to the South Eastern portion of the site with no works planned in this area. To the North of the site the landscape character of the existing site remains largely unchanged with large specimen trees within turf. The outlook from the street is that of a park like setting all be it contained by the schools fence network.</p> <p>The buildings are a direct response to the Standard Pattern Primary School Brief. The landscape design incorporates a tree and plant palette that references the coastal environment in which the school is located. The hard landscape palette has also been selected to tie in with the coastal environment via the use of natural limestone retaining walls and terraces along with muted light grey unit paving.</p>

Please refer to attached site plan with mark ups of the above responses where applicable.

For any further information or clarification, please contact Antonio D'Andrea of EIW Architects on 9484 4700.

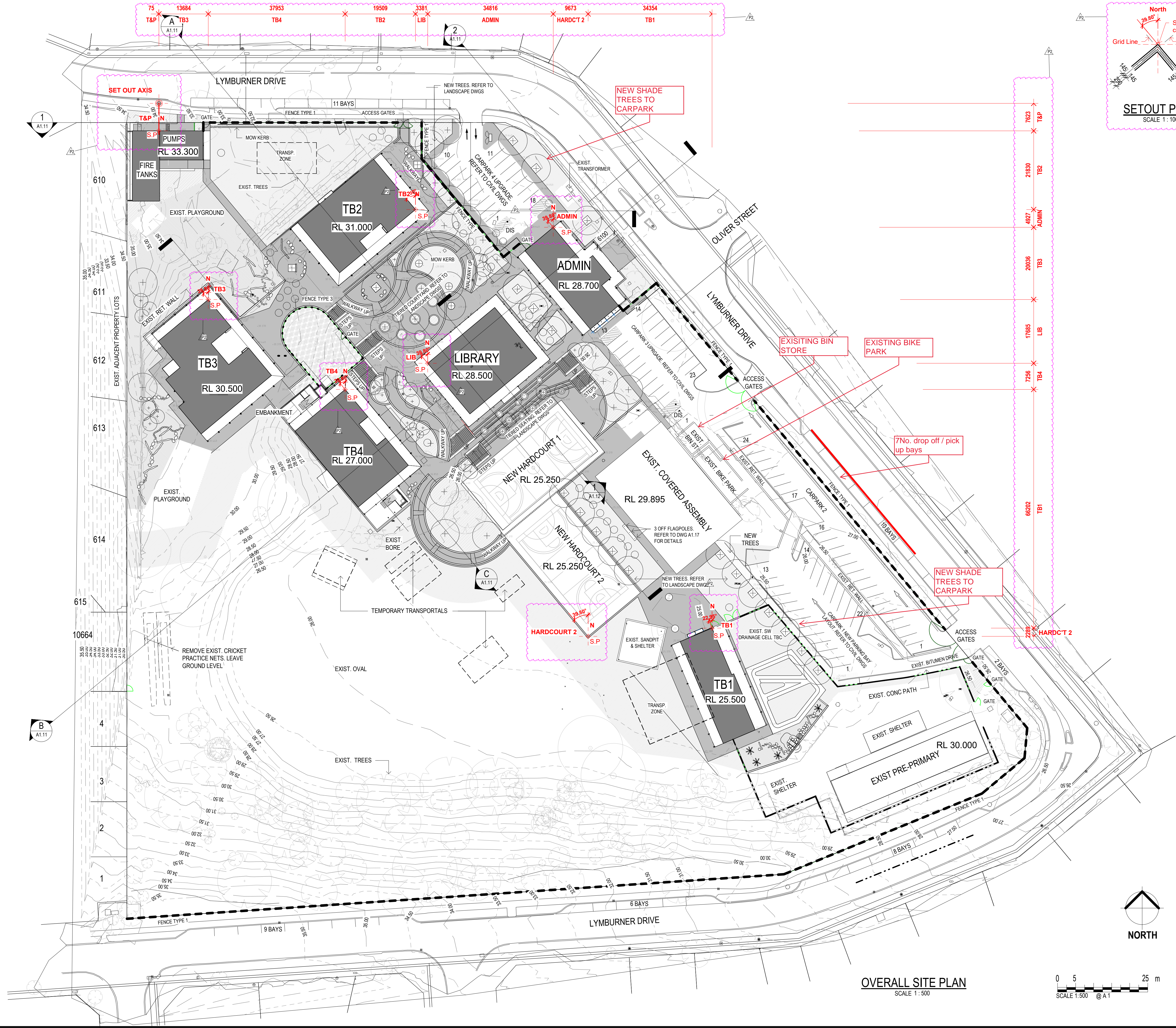
Yours sincerely



ANTONIO D'ANDREA
EIW ARCHITECTS

Encl.

CC: DoF – Stephanie Seddon
DoF – Scot Jeffrey



SITE LEGEND	
TRANSP. ZONE	TRANSPORTABLE BUILDING ZONE
FENCE TYPE 1	FENCE TYPE 2
FENCE TYPE 3	SET OUT POINT
SW1	SITE WALL - LIMESTONE. REF. TO LANDSCAPE DWGS
B/S	BURIED SOAKWELL - REFER CIVIL DWGS.
G/S	GRATED SOAKWELL - REFER CIVIL DWGS.
CIVIL GRATE - REFER CIVIL DWGS.	TRENCH GRATE - REFER CIVIL DWGS.
EXIST. LAMP POLE - REFER CIVIL DWGS.	EXIST. POWER POLE - REFER CIVIL DWGS.
EXIST. CO-WANNEROO STORM WATER PIT - REFER CIVIL DWGS.	EXIST. COMMS. PIT - REFER CIVIL DWGS.
FIRE HYDRANT - REFER HYDRAULIC DWGS.	BORE COMPLETE WITH PUMP INSTALLATION AND DISCHARGE PIPEWORK - LOCATION TBC
DEMOLISHED EXISTING TREE	EXISTING TREE
NEW TREE	

14/07/2021	P2	SETOUT DIMS ADDED. SETOUT AXIS & SETOUT POINTS SHOWN.
09/06/2021	P1	ISSUED TO CONSULTANTS
DATE	ISSUE	DESCRIPTION
CONTRACT DOCUMENTATION		P2

building ideas
Level 12, 109 St Georges Tce Perth Western Australia 6000
T +61 8 9484 4700 W www.eiwarth.com.au
eiw architects

Government of Western Australia
Department of Finance
Building Management and Works

PROJECT:
HILLARYS PRIMARY SCHOOL
75 LYMBURNER DRIVE, HILLARYS

OVERALL SITE PLAN	
DRAWN: LH	DESIGNED: EIW
CHECKED: TD	PRINCIPAL:
APPROVED:	DATE: JUNE 2021
SCALE: As indicated	FIN PROJECT No: 15026
FIN FILE No: 2021/00431	EW PROJECT No: 2013
	EW FILE No: HPS A1.01 A7
A1.01	

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LOT 9501 (No.7) SAM ROSA PLACE, DAYTON - PROPOSED CHILD CARE PREMISES

Form 1 –Responsible Authority Report (Regulation 12)

DAP Name:	Metro Outer Joint Development Assessment Panel	
Local Government Area:	City of Swan	
Applicant:	Apex Planning (Alessandro Stagno)	
Owner:	Beverley & Michael Ainsworth and Michelle Matthews	
Value of Development:	\$2.2 million <input type="checkbox"/> Mandatory (Regulation 5) <input checked="" type="checkbox"/> Opt In (Regulation 6)	
Responsible Authority:	City of Swan	
Authorising Officer:	Philip Russell	
LG Reference:	DA-437/2021	
DAP File No:	DAP/21/02005	
Application Received Date:	01 June 2021	
Report Due Date:	19 August 2021	
Application Statutory Process Timeframe:	90 Days	
Attachment(s):	1. Locality Plan 2. Planning Report (Application) 3. Development Plans <ul style="list-style-type: none"> • Cover Sheet - DA00/1 • Site Plan - DA01/1 • Floor Plan - DA02/1 • Elevations - DA03/1 4. Landscape Plan 5. Transport Impact Statement 6. Environmental Noise Assessment 7. Schedule of Submissions 8. Architectural Peer Review Assessment	
Is the Responsible Authority Recommendation the same as the Officer Recommendation?	<input checked="" type="checkbox"/> Yes	Complete Responsible Authority Recommendation section
	<input type="checkbox"/> No	Complete Responsible Authority and Officer Recommendation sections

Responsible Authority Recommendation

Endorse the staff recommendation on the application to the Metro Outer Joint Development Assessment Panel.

Officer (Staff) Recommendation

That the Metro Outer JDAP resolves to:

1. **Approve** DAP Application reference DAP/21/02005 and accompanying plans (DA00/1, DA01/1, DA02/1, DA03/1 & Landscaping Plan) in accordance with Clause 26 of the Metropolitan Region Scheme, Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of Clause 4.3 of the City of Swan Local Planning Scheme No.17, subject to the following conditions:

Conditions:

1. Pursuant to clause 26 of the Metropolitan Region Scheme, this approval is deemed to be an approval under clause 24(1) of the Metropolitan Region Scheme.
2. This decision constitutes planning approval only and is valid for a period of two (2) years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
3. The landowner/applicant contributing towards development infrastructure provisions pursuant to the City of Swan Local Planning Scheme No.17.
4. All septic sewer systems including all tanks and pipes and associated drainage systems (soak wells or leach drains) and any stormwater disposal systems are to be decommissioned, in accordance with the *Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974*, removed, filled with clean sand and compacted. Proof of decommissioning is to be provided in the form of either certification from a licensed plumber or a statutory declaration from the landowner/applicant, confirming that the site has been inspected and all septic tanks, soak wells, leach drains and any associated pipework have been removed.
5. Prior to a building permit being issued, the landowner must contribute a sum of 1% of the total development construction value toward Public Art in accordance with the City of Swan Local Planning Policy POL-LP-1.10 Provision of Public Art, by either:
 - a. Payment to the local government of a cash-in-lieu amount equal to the sum of the 1% contribution amount (\$22,000). This must be paid to the local government prior to the date specified in an invoice issued by the local government, or prior to the issuance of a building permit for the approved development, whichever occurs first; or
 - b. Provision of Public Art on-site to a minimum value of the 1% contribution amount (\$22,000). The following is required for the provision of Public Art on-site:

- i. The landowner or applicant on behalf of the landowner must seek approval from the City for a specific Public Art work including the artist proposed to undertake the work to the satisfaction of the City in accordance with POL-LP-1.10 and the Developers' Handbook for Public Art (as amended). The City may apply further conditions in regard to the proposed Public Art;
 - ii. No part of the approved development may be occupied or used until the Public Art has been installed in accordance with the approval granted by the City; and
 - iii. The approved Public Art must be maintained in compliance with the approval granted by the City and any conditions thereof, to the satisfaction of the City.
6. The Child Care Premises hours of operation is limited to 6.30am to 6.30pm Monday to Friday.
7. The collection of waste shall not take place between 6.30am and 6.30pm Monday to Friday (Hours of operation).
8. The outdoor child play areas shall not be utilised until after 7.00am during the approved hours of operation of the facility.
9. The development is to comply with the *Environmental Protection (Noise) Regulations 1997* at all times.
10. The development shall operate in accordance with the Environmental Noise Assessment by Lloyd George Acoustics (Ref: 21046305-01) dated 17 May 2021 prepared for LWP Group and associated recommendation therein.
11. Refuse bin areas adequate to service the development shall be provided to the satisfaction of the City's Manager Health and Building Services before the development is occupied or used.
12. The development must be connected to the Water Corporation's sewer network.
13. Prior to a building permit being issued, a detailed landscaping plan for the subject site and/or the road verge(s) must be submitted to and approved by the City of Swan, and must include the following:
 - a. the location, number, size and species type of existing ground covers, shrubs and trees;
 - b. any existing landscape areas to be retained;
 - c. those areas to be updated, reticulated or irrigated;
 - d. verge treatments; and
 - e. Include shed tree planting to visitor car parking bays.
14. Prior to the occupation of the development, a parking management plan is to be submitted and approved by the local government, the plan needs to include signage to clearly delineate staff and visitor parking and the functionality of seven (7) tandem bays.

15. Prior to the occupation or use of the development, the bicycle bays are to be relocated from the pedestrian path and shown on a plan approved in writing by the local government.

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme - Zone/Reserve	Urban
Local Planning Scheme	LPS.No.17 – 'Residential Development'
Local Planning Scheme - Zone/Reserve	Special Use Zone No.11
Structure Plan/Precinct Plan	West Swan (East) District Structure Plan,
Structure Plan/Precinct Plan - Land Use Designation	Residential R20
Use Class and permissibility:	'D'
Lot Size:	26,024m ² (Current parent lot area) Proposed Total site area: 2312m ²
Existing Land Use:	'Vacant Land'
State Heritage Register	No
Local Heritage	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Heritage List <input type="checkbox"/> Heritage Area
Design Review	<input type="checkbox"/> N/A <input type="checkbox"/> Local Design Review Panel <input type="checkbox"/> State Design Review Panel <input checked="" type="checkbox"/> Other – Independent Consultant Reviewer
Bushfire Prone Area	No
Swan River Trust Area	No

Proposal:

The construction of a 698m² Child Care Premises inclusive of outdoor play areas, landscaping, signage and car parking area. The building is designed to accommodate up to 92 children and 14 employees.

Context

The subject land is located centrally within the suburb of Dayton, on the adjacent corner is a site earmarked for a new public school. Access to the subject site is via a single entry from Cranleigh Street which consists predominately of low to medium density residential developments with similar to the north and west whilst to the immediate south (currently part of the same landholding) of the subject land is currently under an amendment consideration for residential subdivision with the Western Australian Planning Commission (WAPC).

Proposed Land Use	Child Care Premises
Proposed Net Lettable Area	698m ²
Proposed No. Storeys	One (1)

Proposed No. Dwellings	N/A
------------------------	-----

Background:

The parent lot is conditionally approved for a 44 lot residential subdivision (WAPC Ref: 159900, City's Ref: SB-77/2020) issued 22 December 2020, to date clearance of this subdivision has not been issued or sought.

The WAPC is currently reviewing an amendment to the aforementioned conditionally approved subdivision as a result of this development proposal. The revised subdivision would reduce the overall lot yield to 38 lots as opposed to 44 lots and to sever the subject land portion accordingly. It is noted that the proposed amended plan shows Lot 138 (subject land portion) as 2312m² in area thus replicating the land area applicable to this development proposal.

Legislation and Policy:

Legislation

Planning and Development Act 2005 (as amended).

Planning and Development (Local Planning Schemes) Regulations 2015 (as amended).

Planning and Development (Development Assessment Panels) Regulations 2011.

Environmental Protection (Noise) Regulations 1997.

City of Swan Local Planning Scheme No.17

State Government Policies

State Planning Policy 7.0 (SPP.7.0) – Design of the Built Environment

State Planning Policy 7.3 (SPP.7.3) – Residential Design Codes.

Structure Plans/Activity Centre Plans

West Swan (East) District Structure Plan (17/05/2019- as amended)

Local Planning Policies

Local Planning Policy POL-LP-1.10 Provision of Public Art.

Local Planning Policy POL-LP-1.13 Design Review.

Local Planning Policy POL-LP-129 Vehicle Parking Standards.

Consultation:

Public Consultation

The proposed development was advertised to all surrounding landowners (28) and a sign was installed on-site for a 14 day period, commencing 3 June 2021 to 17 June 2021.

At the close of advertising the local government was in receipt of three (3) submissions which comprised three (3) objections with two (2) of these residing at the same address.

Issue Raised	Officer comments
1. Submission Comment Ref: 6639910 – <i>I was advised there would be no school near my house</i>	– It is noted that the <i>West Swan (East) District Structure Plan (17/05/2019- as amended)</i> shows a land area to the west (Corner of Blundell and Cranleigh Street) as 'Proposed Public Primary School'.
2. Submission Comment Ref: 6639911 – <i>I work shift work and don't want the noise opposite my house"; and</i> – <i>Don't want the noise</i>	– The Environmental Noise Assessment report by Lloyd George Acoustics, dated 17 May 2021 demonstrates that the proposed development would be within the requirements of the <i>Environmental Protection (Noise) Regulations 1997</i> . – It is noted that a 'Child Care Premises' land use is a 'D' discretionary use within a 'Residential' zone which is a use that can be considered and approved if there are no significant issues pertaining to noise and traffic. The Traffic Impact Statement demonstrates that the roads can accommodate the traffic increase, there are the required number of on-site car bays as required by the Local Planning Scheme.
3. Submission Comment Ref: 6644171 – <i>Will cause traffic congestion.</i>	

Referrals/consultation with Government/Service Agencies

There were no referrals required to statutory agencies.

Design Review Panel Advice

There was no pre-lodgement review undertaken, however an independent design review was undertaken by a consultant, refer to the Planning Assessment section.

Planning Assessment:

Zoning and Land Use Permissibility

Pursuant to the Metropolitan Region Scheme the subject land is zoned Urban with the City of Swan Local Planning Scheme No.17 zoning being 'Special Use Zone 11' which requires a Structure Plan. There is an endorsed Structure Plan, the West Swan (East) District Structure Plan (20/05/2019- as amended) which provides for Residential at an R20 density.

A land use of 'Child Care Premises' is a 'D' discretionary use within a Residential zone and is subject to cl.10.2 of Local Planning Scheme No.17 - Matters to be Considered by the Local Government.

Car Parking and Access – Waste vehicle/s

Car Parking has been provided in accordance with Table 1 – Land use Parking Requirements of Local Planning Policy POL-TP-129 with one (1) access point being provided from Cranleigh Street to the north side of the subject land.

The manoeuvring of a commercial waste collection vehicle to service waste collection requires the use of both visitor car bays and staff bays to perform a manoeuvring, a condition is recommended to advise that waste collection takes place outside of the hours of operation of the Child Care Premises use.

All the staff car parking comprises tandem car bays which would require such parking to have and adhere to a car parking management plan. Liaison with the proponent resulted in the agreement for a car parking management plan and signage, an appropriate condition has been recommended accordingly.

A Traffic Impact Statement was prepared by Transcore Pty Ltd, dated May 2021. City staff have no objections with the findings of the report in that the traffic increase would be less than 10% capacity of the road/s and produce less than 100 vehicles per hour for any lane in accordance with WAPC's Transport Impact Assessment Guidelines (2016). As such, the development is considered not to present any significant adverse impacts to the road capacity and capabilities.

Design of the Built Environment

Built Form

Setback Requirements

The setbacks have been assessed pursuant to the Residential Design Codes (**SPP.7.3**) and found to be in accordance with the deemed-to-comply provisions.

Landscaping

Landscaping has been provided in accordance with the requirements of cl.2.9 of Local Planning Policy POL-TP-129 Vehicle Parking Standards which incorporates landscaping requirements for off-street parking, additionally the proposed landscaping is also compliant with cl.5.3.2 of the Residential Design Codes accordingly.

Noise implications

An Environmental Noise Assessment prepared by Lloyd George Acoustics (Ref: 21046305-01) dated 17 May 2021 was lodged with the development application. The three (3) primary areas of noise sources considered are:

1. Plant equipment

There are two (2) condenser units, inset into the southern building recess, 2.6m setback from the southern boundary, the southern boundary, in the near future, will be a residential subdivision, to this boundary is shown a proposed 2m high solid timber acoustic fence (min 15kg/m² density) which is advised will mitigate and address the noise issues. One of the recommendations is that detailed design may further reduce noise risk via the condensers having a 'quiet mode' (reduced capacity) programming prior to 7am. Noise impacts to neighbours is addressed through specific fencing.

2. Outdoor Play Areas

There are 1.8m high solid walls/fencing to the north, west, east and south boundaries effectively enclosing the outdoor play areas to assist in mitigating noise exposure. The report demonstrates compliance with the Noise Regulations during operating hours and makes further recommendations of best practice to be implemented, a condition is recommended for the development to operate in accordance with this acoustic report and recommendations therein.

3. Car parking areas

Noise from these areas is mitigated by the construction of the acoustic fencing as shown on the plans and incorporating the recommended best practices.

Provision of Public Art

Local Planning Policy POL-LP-1.10 Provision of Public Art requires, pursuant to cl.2 & cl.5, a contribution in that the development is in excess of \$2 million (**\$2.2 million**) and as such requires that 1% of the cost of development is contributed accordingly (\$22,000). An appropriate condition has been recommended.

Development Contribution Area

The subject site is located within an area designated as Development Contribution Area No.2 – Dayton (West Swan East) as noted in Schedule 13 – Development Contribution Areas of Local Planning Scheme No.17. An appropriate condition has been recommended accordingly to capture this requirement.

It is noted that there is a similar condition on the WAPC conditionally approved subdivision, so whichever happens first, development or subdivision, there is an appropriate condition to capture accordingly.

Signage

Pursuant to Schedule 5A – Exempted Advertisement of Local Planning Scheme No.17, the subject signage exceeds 0.2m² and as such is not exempt within a Residential zone area.

There is no local planning policy or assessment framework for signage in residential zones pertaining to the City of Swan currently, however the following matters have been considered:

- The monolith sign and façade signs are not illuminated and as such are considered not to present a hazard to traffic or pollution to nearby existing residential properties;
- The monolith sign pertains to the use within the site, and presents as a focal point for vehicles and pedestrians;
- Planning Bulletin 72/2009 – Child Care Centres outlines the need for a signage strategy which forms part of this proposal;
- The 4.11m² monolith signage near the vehicle entrance is considered minimal;
- The 6.9m² entry sign is located over the entrance door area and setback approximately 23m from the primary street;
- The 2.25m² wall sign, located on the east façade, is setback approximately 25m from the eastern lot boundary, is non-illuminated and considered relatively insignificant in comparison with the scale of development; and
- The total signage equates to 13.26m² with the largest sign (entry sign 6.9m²) being setback 23m from the primary street. The signage is considered

reasonable and not considered to create unnecessary signage proliferation within the residential locality.

Design Review

A design review is required pursuant to cl.3.1 (e) of Local Planning Policy POL-LP-1.13 Design Review, the local government requested an independent review of the proposed development with key considerations noted below and a summary of the review provided below in Table 1.

Key Considerations:

Landscaping

The proponent has provided the minimum landscaping as required by the current Scheme and Policy. A condition has been recommended for a more detailed landscaping plan with a view to also addressing verge treatments, shading trees within play areas and car parking is encouraged.

Waste management and servicing access

A condition is recommended requiring an internal car park management plan which is to address, amongst other things, that waste servicing takes place outside of business operating hours.

Bicycle Parking

It is noted that there are no current Scheme or Policy requirements of the local government relating to bicycle parking. However, bicycle parking is encouraged for this facility and it is noted that the location of the bays would indeed restrict pedestrian access whereby with a maximum 1.1m width would not allow two-way pedestrian movement, a minimum 1.5m wide pedestrian access is to be sought and a condition included to relocate these bays to a more appropriate location.

Table 1 – Design Review summary

Peer Review comment	Proponent comment (Summary)
<p>Principle 1 - Context and character</p> <p>1. Context and character not been explicitly addressed.</p> <p>2. The carpark has not been integrated into the design response to the context.</p>	<p>1. Landscaping adjacent to Cranleigh Street, minimum 3m in width provided.</p> <p>2. Includes planting of three (3) Evergreen Ash (<i>Fraxinus Griffithii</i>) trees along the street boundary, with various under planting.</p> <p>3. Additionally, in the car park are four (4) shade trees with associated landscaping strips containing groundcover and shrub planting.</p>

<p>Principle 2 - Landscape quality</p> <ol style="list-style-type: none"> 1. The focus of the landscape design has been on the nature playground and the opportunity to integrate the landscaping more broadly has been missed. 2. It is not clear if the existing trees on the site have been retained. These are mature and should be retained if possible. 3. In particular the opportunity for the carpark to have more trees to mitigate the urban heat island effect, provide shade for cars, create a welcoming environment and set the scene for the aspirations of a nature play environment should be considered in the final designs. 4. Only small trees have been proposed for the outdoor play spaces. This is considered a missed opportunity to provide natural shading for these north facing areas. 5. Water management not evident in submitted package. 	<ol style="list-style-type: none"> 1. The outdoor playscape and car park area are two (2) separate areas of the development. Selection of species is likely to be consistent between the two (2) areas, however logically, the way in which these areas are treated from a landscaping point of view will be different. 2. It is unfortunately not possible to retain existing trees due to the playscape design and built form requirements. A number of trees will be planted with this development. It is noted that the wider subject lot is undergoing subdivision and it is unlikely that the trees would have been retained if the development site were subdivided for residential purposes. 3. The playscape design is conceptual only and subject to change at detailed design stage. The playscape design is rarely settled at DA stage. 4. Water management will be addressed at detailed design stage in accordance with a stormwater/drainage plan.
<p>Principle 3 - Built form and scale</p> <ol style="list-style-type: none"> 1. The site offers good opportunity for the building to be well oriented and it is appropriate to have a single story form in this location. 2. The design response is too small in scale and should be increased to differentiate it from its residential neighbours. This could be achieved through an increase in the floor to ceiling height and a slight increase in the roof pitch. 	<ol style="list-style-type: none"> 1. The building height is compliant with the applicable standards under the planning framework.
<p>Principle 4 - Functionality and build quality</p> <ol style="list-style-type: none"> 1. A more extensive use of face brickwork, compared to render, may help to reduce maintenance 	<ol style="list-style-type: none"> 1. Noted. 2. The fencing has been informed through input from the project acoustic consultant

<p>in the future.</p> <p>2. Several strategies have been employed in the fencing to mitigate the acoustic issues that may affect neighbours.</p> <p>3. Waste management functionality as described in the Traffic Impact Statement will only work out of hours as staff car bays would be fully utilised even in off peak periods.</p>	<p>to comply with legislative requirements.</p> <p>3. Noted.</p>
<p>Principle 5 –Sustainability</p> <p>1. The opportunity to integrate sustainability initiatives into the design has not been made explicit in the drawings. The orientation of the building with north facing outdoor play spaces is considered positive and more work should be done to better manage the impact of solar access and the need for shading, natural and cross ventilation as well as other active sustainability measures such as PV cells.</p> <p>2. The rooms have not been designed with openable windows, rather sliding doors. This will mean natural ventilation of the spaces is not possible without allowing movement of children between interior and exterior – presumably a supervision issue. This is considered a significant shortfall in the design outcome.</p> <p>3. The bike parking location and size is considered inadequate. No provision has been made for bike parking for those with trailers. The location will obstruct pedestrian entry</p>	<p>1. Noted.</p> <p>2. Noted. Openings for childcare centres must be carefully and thoughtfully selected, to ensure the spaces are kept secure (preventing unintended accidents).</p> <p>3. Some highlight windows to back of house areas and non-active spaces are openable, which will provide a level of ventilation.</p> <p>4. Two (2) bike racks are considered to sufficiently cater for the needs of the facility. Bikes would be secured parallel to the racks, which would maintain at least 1.1m of space along the pathway (sufficient for pedestrian movement).</p>
<p>Principle 6 – Amenity</p> <p>1. The location of AC condensers has been nominated out of site and with consideration to the</p>	<p>1. Noted.</p> <p>2. Noted. The playscape design is conceptual and will be finalized at detailed design</p>

<p>acoustic impact to neighbours.</p> <ol style="list-style-type: none"> 2. More information required in relation to the impacts of necessary shading to play equipment. 3. The design has poor natural ventilation due to the absence of openable windows. 4. Noise impacts to neighbours has been addressed through specific fencing strategies 5. Universal access has been addressed 	<p>stage.</p> <ol style="list-style-type: none"> 3. Refer earlier comments regarding openings. 4. Noted. 5. Noted.
<p>Principle 7 – Legibility</p> <ol style="list-style-type: none"> 1. The building has relatively poor legibility in terms of being understood as a childcare centre from Cranleigh Street. This could be addressed through a slight increase in scale. (height) 2. The street facing fence could be designed to signify the pedestrian entrance to the childcare centre. 	<ol style="list-style-type: none"> 1. The car park entry will include a sign directing patrons to the centre. 2. Additional ‘Nido’ signage could be integrated into the front fence to enhance legibility.
<p>Principle 8 – Safety</p> <ol style="list-style-type: none"> 1. Pedestrians necessarily move across the carpark to the entry to the childcare centre. There is an opportunity for the design of the hardscape in the carpark to reflect this as a shared zone. This should be integrated with more trees. 2. Consideration of reverse only carparks to ensure safety of children and adults in this shared zone. 	<ol style="list-style-type: none"> 1. Noted. Movements across car parks is a common and unavoidable feature for most developments. 2. The car park is small in size. It is anticipated parents in vehicles would exercise common sense and manoeuvre at low speed and in a careful manner through the car park. The centre manager and centre staff would observe car park use and ensure this is the case.
<p>Principle 9 – Community</p> <ol style="list-style-type: none"> 1. The provision of childcare services in this area is a positive community contribution. 2. Little has been provided to the community as a shared public asset. Opportunity to increase the planting in the carpark to contribute to the vegetation of the area. 	<ol style="list-style-type: none"> 1. Noted and agreed. 2. The car park configuration and lack of space is not conducive to the planting of additional trees. Seven (7) trees are proposed within the car park.

<p>Principle 10 – Aesthetics</p> <ol style="list-style-type: none"> 1. While the aesthetics have referenced the residential nature of the surroundings it is important to differentiate this development as non-residential. One approach to this would be to increase the scale of the development through an increased floor to ceiling height and slight increase to the pitch of the roof. 2. Roof design has been used to good effect, in particular where the light court has been incorporated and the scale of the raked underside can be appreciated. 3. Use of face brickwork in combination with render is positive. 	<ol style="list-style-type: none"> 1. Refer to earlier comments regarding building height and scale. 2. Noted. 3. Noted.
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14 June 2021

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CITY OF SWAN

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20 May 2021

Proposed Early Learning Centre

Application for Planning Approval

Attachment 2



Lot 9501 (7) Sam Rosa Place, Dayton

May 2021

Development Application

Lot 9501 (7) Sam Rosa Place, Dayton

Prepared for LWP Group

DOCUMENT CONTROL

DESCRIPTION	DATE
210518 21-019 DA report - Dayton (rev0).docx	18 May 2021

Apex Planning

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APPENDIX 6:	ADVICE FROM GAS AUTHORITIES (ATCO AND AGIG)

1 INTRODUCTION

Apex Planning has produced this application for planning approval on behalf of LWP Group, with regard to a proposed childcare development located within a 2,312m² portion of Lot 9501 (7) Sam Rosa Place, Dayton (hereafter referred to as the **development site**).

The proposal involves the use and development of an early learning centre accommodating up to 92 children and 14 permanent 'room ratio' staff.

The proposal will establish a quality childcare facility within an emerging urban growth area of the City of Swan, opposite land planned to contain a local primary school.

The proposed facility features a site-responsive design informed by expert traffic and acoustic input. The building is designed in a residential style which allows it to integrate with its suburban context, with an engaging outdoor play area.

The proposed facility will be readily accessible to the local community by virtue of its corner location and frontage to Cranleigh Street.

It is requested the Metro Outer JDAP grant approval to the proposed development.

1.1 PRE-LODGEMENT ENGAGEMENT

On 22nd April 2021, representative of the proponent and Apex Planning attended a pre-lodgement engagement meeting with the City of Swan.

A number of key elements of the site and local planning framework were discussed, and the DA lodgement requirements were confirmed.

The City's feedback was used to inform finalisation of the proposed development.

2 LAND DESCRIPTION

2.1 LOT DETAILS

The land subject of this application for planning approval is described in **Table 1** below.

Table 1: Lot details					
Lot	Deposited Plan	Volume	Folio	Lot area (ha)	Ownership
9501	417686	2985	343	2.6024	Beverley Joyce Ainsworth Michelle Frances Matthews Michael John Ainsworth

The Certificates of Title (**CT**) and Deposited Plan are provided at **Appendix 1**.

The development is proposed within a 2,312m² portion of Lot 9501, hereafter referred to as the **development site**.

2.2 LOT ENCUMBRANCES

There are no encumbrances listed on the CT which relate to the proposed development.

3 CONTEXTUAL CONSIDERATIONS

The following sub-sections describe the contextual characteristics of the site.

Refer to **Figure 1: Aerial Photo** on the subsequent page, which illustrates the development site and surrounds.

3.1 REGIONAL CONTEXT

The development site is located in the municipality of the City of Swan and is approximately:

- 15.5km north-east of the Perth CBD
- 8km east of the Malaga industrial estate
- 8km south of the Ellenbrook Secondary Centre
- 1km west of the Swan Valley

The site is in the locality of Dayton, an emerging community north of Reid Highway and east of Drumpellier Drive.

The development site fronts Cranleigh Street, an unfinished east-west road linking to Arthur Street which connects to Dayton Boulevard. Dayton Boulevard intersects with Drumpellier Drive, which provides a connection to Reid Highway. Both Drumpellier Drive and Reid Highway link Dayton to the wider metropolitan area.

3.2 LOCAL CONTEXT

The development site is located within the central portion of Dayton, an emerging community undergoing subdivision and development. The local road network is unfinished and is expected to be constructed as subdivision and development occurs.

More specifically, the site is at the south-eastern corner of the Cranleigh Street / Sam Rosa Place / Blundell Street intersection. In terms of local contextual characteristics:

- The northern side of Cranleigh Street (opposite the development site) contains five established residences, and a number of vacant residential lots (recently subdivided) at R30 density.
- The southern side of Cranleigh Street (east of Sam Rosa Place) contains the development site and wider subject site which are currently undeveloped. Lot 1 adjoins the development site to the east, containing a rural lifestyle dwelling.
- The southern side of Cranleigh Street (west of Sam Rosa Place) contains a drainage corridor which runs to Arthur Street. Embayed onstreet parking is provided along the length of the drainage corridor.
- The western side of Sam Rosa Place is largely established, containing residential development at R20 density.
- The western side of Blundell Street is undeveloped land planned to contain a future primary school. The land is held by the Minister for Education.



Figure 1: Aerial Photo

Lot 9501 (7) Sam Rosa Place, Dayton



Drawn: Alessandro Stagno

Rev: 0

Source: MNG Access

Date: 12 May 2021

apex
planning

The following complementary activities are located within relatively close proximity of the development site:

- Dayton Community Centre, approximately 650m south-west.
- Riverlands Montessori School, approximately 600m north-west.
- Featherflower Park, approximately 300m south-west.

3.3 EXISTING SITE CONDITIONS AND TOPOGRAPHY

The development site forms part of a larger 2.6024ha lot which fronts Cranleigh Street and Sam Rosa Place. The shape of the development site is irregular, due to the angled alignment of Cranleigh Street.

The Cranleigh Street verge adjoining the development site is approximately 10m wide and largely contains mulch. The Sam Rosa Place verge adjoining the development site is vegetated with trees and shrubs.

In terms of local topography, land slopes downward in a south-eastern direction. Based on Landgate topographical data, the Cranleigh / Sam Rosa roundabout sits at 20m AHD, falling to 19m AHD at the centre of the development site and 18m AHD at the eastern boundary of the development site.

A contour map is provided within **Image 1** below for reference.



Image 1: aerial map displaying local contours (source: MNG Access and Landgate).

4 DESCRIPTION OF PROPOSAL

The proposal involves the development of a new childcare facility within a 2,312m² of the subject site. The development plans depicting the proposed development are provided at **Appendix 2** for reference. A conceptual landscape plan is provided at **Appendix 3**.

The facility will provide early learning and care services for up to 92 children with up to 14 permanent 'room ratio' staff. Additional staff may also attend the site during off-peak periods for the purpose of lunch cover, admin duties, or training purposes.

The early learning centre is proposed to operate from 6:30am-6:30pm Monday to Friday and will cater for the following age demographics:

- 0-2 years: 12 places
- 2-3 years: 30 places
- 3+ years: 50 places

The proposed development will increase the provision of early learning places for the local Dayton community, which is undergoing significant residential subdivision and development in accordance with the local planning framework.

The site is strategically located opposite land planned to contain a future primary school, offering locational advantages and encouraging multi-use trips for local families. Additionally, the development site is located in relatively close proximity to a number of local parks, a community centre, and an existing primary school.

The development features a responsive design which addresses its corner location and frontage to the Cranleigh Street / Sam Rosa Place intersection. The building is single storey in scale, maintaining congruity with the predominant scale of the local area.

The outdoor playscape runs along both street frontages of the development site, containing various landscape treatments, trees and recreational play equipment. The playscape will be framed with semi-permeable residential style boundary fencing which will facilitate a level of passive surveillance and engagement with the street, whilst maintaining suitable privacy for the centre.

The car park will occupy minimal site frontage, accessed by a 5.5m wide crossover to Cranleigh Street. A minimum 3m wide landscape buffer is provided between the street and the car park with Evergreen Ash trees at either side of the crossover for an attractive and welcoming entry statement for patrons.

Specifically, the proposal comprises the following key elements:

- A centrally positioned single-storey pitch roof building with stepped sections to address the angled northern boundary of the development site. Soft colour tones and natural-look materials are incorporated into the building.
- Three outdoor playscapes which are separated by internal 1.2m high gates.

- Typical residential style fencing along the street boundaries, incorporating solid piers and permeable infill sections which are acoustically attenuated.
- A paved pathway linking the facility's entrance to the footpath network along Cranleigh Street.
- The following street setbacks:
 - Cranleigh Street (primary street):
 - 6.75m to Group Room 1, 4.8m to adjacent verandah.
 - 6m to Group Room 5, 3.45m, to adjacent verandah.
 - The western section of the verandah is set back 2.55m from Cranleigh Street.
 - Sam Rosa Place (secondary street):
 - Building and verandah setbacks exceeding 14.5m.
- The following lot boundary setbacks:
 - Eastern boundary – 24.2m.
 - Southern boundary – 1.5m.
- An internal floor layout which includes:
 - A foyer and reception desk.
 - Office, staff room and staff amenities.
 - Light court / outdoor dining area and piazza.
 - Atelier.
 - Kitchen with storage areas and dining area for children.
 - Six group activity rooms with associated toilets and changerooms.
 - Sleep rooms.
 - Laundry and storage areas.
- A full movement crossover to Cranleigh Street measuring 5.5m wide at the property boundary, linking providing access to the site's car park which contains:
 - 11 visitor bays, including one ACROD bay with shared space
 - 15 staff bays in tandem configuration
 - A reversing bay and 1m nib at the southern end of the car park for uninterrupted turnaround movements
 - A fully enclosed bin store set back 4m from Cranleigh Street and 2.15m from the eastern boundary.
- Perimeter landscaping along the northern, eastern and western car park boundaries, which will contain various types of native planting.
- The outdoor play area and car park will be framed with acoustic compliant fencing, of heights ranging from 1.8m-2m.

4.1 TRAFFIC ASSESSMENT

The proposed development is supported by a Transport Impact Statement (TIS) produced by Transcore. The TIS is provided at **Appendix 4**.

With regard to traffic generation, the TIS concludes that the AM and PM peak trip generation is estimated at 69 and 45 respectively, resulting in an insignificant impact to the surrounding road network.

The traffic assessment also undertakes a parking demand analysis based on trip generation of the centre, estimating that 6 bays would be required for visitor pick-up and drop-off activities.

Noting the proposal provides 26 bays for both visitors and staff and the site is located in walking proximity to a number of embayed parking spaces along Cranleigh Street, the provision of 26 bays exceeds the estimated actual parking demand of the facility.

The assessment demonstrates that the proposal does not generate unacceptable traffic, and that the surrounding road network is entirely capable of accommodating movements associated with the facility.

4.2 ACOUSTIC

The subject site is in close proximity to a number of existing and future sensitive receivers.

An environmental noise assessment has been produced by Lloyd George Acoustics in accordance with statutory requirements. The acoustic report is provided at **Appendix 5**.

The assessment concludes that the facility will comply with the *Environmental Protection (Noise) Regulations 1997* at all times for all current and future sensitive receivers. This is based on the proposal incorporating the following elements:

- Minimum 1.8m high fence of minimum 8kg/m² surface mass along the outdoor play area's Sam Rosa Place and Cranleigh Street boundaries. The fence's permeable infill panels will be constructed of plexiglass meeting this standard.
- Minimum 2m high fence of minimum 8kg/m² surface mass with a 1.5m long angled cantilever section along the southern boundary of the outdoor play area. The cantilever section can be constructed of plexiglass or acoustically rated material.
- Minimum 1.8m high fence of minimum 15kg/m² surface mass along the southern and eastern car park boundaries.
- Acoustically treated screening for mechanical planted, located within the service yard.

4.3 WASTE AND SERVICING

The proposed development provides an enclosed bin storage area at the north-eastern corner of the car park. The bin store is compliantly set back 4m from Cranleigh Street and 2.15m from the eastern boundary.

Waste collection will be undertaken by private contractor. Waste collection activities will be carried out during off-peak periods or when the facility is closed.

Swept path plans are included with the TIS (**Appendix 4**) which demonstrate a 10m waste collection vehicle can enter and exit the car park in a forward gear.

4.4 LANDSCAPING

The proposed development is intended to feature a high-quality landscaping approach which is comprised of:

- Vegetated landscaping strips along the car park's Cranleigh Street boundary and eastern boundary. This includes the planting of seven trees and various understorey planting.
- An attractive playscape framing the street boundaries of the outdoor play area, comprising a mixture of trees, play equipment, and recreational areas.
- Planting arrangements will include native waterwise species suitable for the locality.

A conceptual landscape plan depicting the above arrangements is provided at **Appendix 3**. A detailed landscape plan can be provided at detailed design stage.

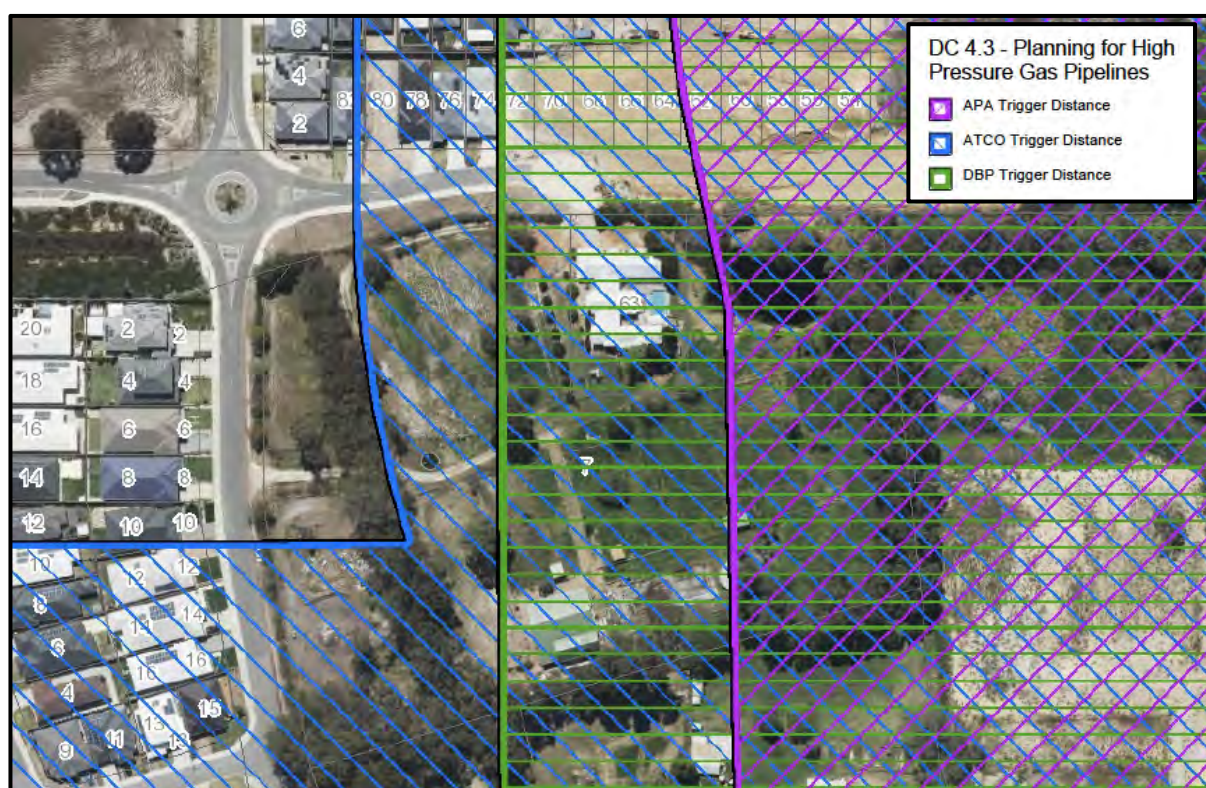
5 STATUTORY PLANNING ASSESSMENT

5.1 METROPOLITAN REGION SCHEME (MRS)

The subject site and adjoining roads are zoned Urban under the Metropolitan Region Scheme (**MRS**). The proposed development is consistent with the MRS and warrants approval.

5.2 DRAFT DCP 4.3: PLANNING FOR HIGH PRESSURE GAS PIPELINES

Current PlanWA mapping for draft DCP4.3 depicts the development site being partially affected by the trigger distances for the Dampier Bunbury Pipeline (**DBP**) and a high pressure ATCO pipeline. An extract of the mapping is provided below for reference:



Prior to lodging this application, ATCO and Australian Gas Infrastructure Group were consulted. Responses from the authorities is at **Appendix 6**, summarised as:

- **ATCO** – the trigger distance shown on PlanWA was recently reviewed and reduced to 332m from the pipe centreline. The childcare building will be located outside of the trigger distance. No protection is required and the proposal is acceptable from the perspective of ATCO.
- **DBP** – no issues with the proposed childcare centre, as it is located outside the measurement length for sensitive land uses for this location of the DBP.

Having regard for the above, both authorities have reviewed the proposal and provided their unequivocal support in writing. No referral is required for DA assessment.

5.3 STATE PLANNING POLICY 7.0: DESIGN OF THE BUILT ENVIRONMENT

An assessment against the ten principles of SPP7.0 is provided in **Table 2** below.

Table 2: Ten design principles of SPP7.0	
1. Context and character	
<u>Design response:</u>	<ul style="list-style-type: none"> The development is consistent with the objectives of the Residential zone, and will provide an essential community service which will meet the current and future needs of the area. The proposed development is comprised of a residential style building interconnected by an internal walkway. The building comprises primary orientation to Cranleigh Street, which will also contain a future primary school immediately opposite the site. Landscape integration has been reflected in this proposal through its incorporation into the playscape. The design features of the development are reflective of key residential/suburban elements, but with distinctive finishes through carefully selected materials and soft colour tones.
2. Landscape quality	
<u>Design response:</u>	<ul style="list-style-type: none"> The development seeks to incorporate a sensitive landscape response, achieved through a number of measures which include: <ul style="list-style-type: none"> The use of waterwise native plants throughout the playscape areas and landscaping strips The planting of new native trees and vegetation, particularly within street setback areas and along lot boundaries to establish a soft interface with adjoining sites The placement of outdoor play spaces within street setback areas to allow a level of engagement and surveillance of the street
3. Built form and scale	
<u>Design response:</u>	<ul style="list-style-type: none"> Buildings are single storey with pitches to create a distinct identity for the development, whilst maintaining congruity with the pattern of development throughout the area.
4. Functionality and build quality	
<u>Design response:</u>	<ul style="list-style-type: none"> The development provides large open indoor and outdoor areas which are well connected and generally north facing. The facility meets all relevant regulatory requirements, ensuring the spaces are functional and fit for purpose. The arrangement of the building and outdoor areas prevents 'dead spaces' and ensures a clear line of sight is maintained throughout the outdoor play spaces which enhances child supervision. Materials and finishes are carefully selected to ensure durability and weather resistance.
5. Sustainability	
<u>Design response:</u>	<ul style="list-style-type: none"> The northern façade of the building provides glazed surfaces which will facilitate access to natural sunlight. The eastern and western sides of the building provide glazed openings which will allow daylight permeability and facilitate natural ventilation and airflow. The playscapes are north facing and positioned to receive sunlight, whilst containing vegetation which will increase shade and provide a natural cooling effect. The facility will enhance social and economic outcomes through the increase of childcare places for the local community and the creation of full time employment for local residents.

6. Amenity
<p><u>Design response:</u></p> <ul style="list-style-type: none"> The facility provides generous internal and external spaces designed to a high standard with an engaging playscape connected to the internal activity spaces, which will result in optimised amenity for children. The car park is enclosed with solid fencing at all sides, which reduces acoustic impact to neighbouring properties and minimises disturbance from car park activity. The car park is also framed with various landscape planting to soften its visual effect. The development is attractively and responsively designed, which contributes positively to streetscape amenity. This includes architecturally treated buildings which are framed by engaging outdoor play spaces which form part of street setback areas.
7. Legibility
<p><u>Design response:</u></p> <ul style="list-style-type: none"> The site is at a key corner location which will form a community focal point, noting it is opposite a future primary school site. The facility's car park is accessed by an identifiable crossover extending to Cranleigh Street. A pedestrian pathway will link the entry of the facility to Cranleigh Street.
8. Safety
<p><u>Design response:</u></p> <ul style="list-style-type: none"> The facility is designed in accordance with relevant regulatory standards which ensures safety and security for the users of the centre.
9. Community
<p><u>Design response:</u></p> <ul style="list-style-type: none"> The facility is intended to be a community focal point which would offer services to local families.
10. Aesthetics
<p><u>Design response:</u></p> <ul style="list-style-type: none"> The development is designed in response to site-specific constraints which facilitate the prominence of its attractive buildings and external spaces, as well as the substantial screening of its car park. The buildings themselves are of a high design quality, utilising a number of built form treatments and soft, unimposing colour tones.

5.4 CITY OF SWAN LOCAL PLANNING SCHEME NO. 17 (LPS17)

5.4.1 SPECIAL USE ZONE

The development site is zoned Special Use 11 (**SU11**) under the City's LPS17. Refer to **Figure 2 – Zoning Map**.

Having regard to Schedule 4 – Special Use Zones of LPS17, development of land within SU11 should be in accordance with a district structure plan and local structure plan.

The West Swan East District Structure Plan was endorsed in 2013, which facilitated the preparation of the Dayton Local Structure Plan 2B (**LSP 2B**). LSP 2B is addressed in the subsequent section of this report.



Figure 2: Zoning Map

Lot 9501 (7) Sam Rosa Place, Dayton



NORTH

Drawn: Alessandro Stagno

Rev: 0

Source: Department of Planning, Lands and Heritage

Date: 23 April 2021

apex
planning

5.4.2 DAYTON LOCAL STRUCTURE PLAN 2B (LSP 2B)

In accordance with LSP 2B, the development site is designated a zoning of Residential R30. Refer to **Figure 3 – Structure Plan**.

As per the statutory provisions in section 6 of LSP 2B, the zones designated under the LSP are to correspond with the relevant zone of LPS17.

Accordingly, an assessment against the objectives and land use permissibility of the Residential zone of LPS17 is provided below.

5.4.3 RESIDENTIAL ZONE OBJECTIVES

Under Clause 4.2.7 of LPS17, the objectives of the Residential zone are to:

- a) provide for a range of forms and densities of residential development to meet the needs of the wide variety of households which make up the community;*
- b) promote a residential environment in each locality consistent with the form and density of residential development permissible in the locality, so as to enhance a sense of place and community identity;*
- c) preserve and enhance those characteristics which contribute towards residential amenity, and to avoid those forms of development which have the potential to prejudice the development of a safe and attractive residential environment;*
- d) provide for a limited range of ancillary development compatible with the form and density of residential development, and complementary to the needs of local communities, but which will not compromise residential amenity;*
- e) avoid development of land for any purpose or in any manner that would detract from the viability or integrity of development in either the Strategic Regional Centre or the Commercial zones.*

The proposal is consistent with the applicable Residential zone objectives for the following reasons:

- The facility will provide a suitable design response to its corner location which incorporates residential design features and an engaging outdoor area.
- The site is appropriately located opposite land planned to contain a future primary school, building on the provision of essential community services for the local area (which is undergoing significant subdivision and development).
- Child Care Premises is a non-residential use which is commonly established in residential areas. The service offered is one which provides for the care of young children within a purpose designed building.
- A range of expert reporting and the justification provided in this report demonstrates that the amenity of surrounding properties will not be unacceptably affected.
- The development is single storey in scale and is consistent with the scale and form of development in the immediate area.



5.4.4 LAND USE PERMISSIBILITY

The proposal will provide a childcare facility on the development site which will cater for up to 92 children. The proposed use is properly classified as Child Care Premises in accordance with the land use definitions of LPS17.

Child Care Premises is a 'D' discretionary use in the Residential zone, meaning the use is capable of approval at the discretion of the decision-maker. The proposed child care premises is entirely suitable for establishment on the development site for the following reasons:

1. The proposed development will deliver an essential community service which will increase the provision of childcare places for the residents and workers of the local community. In this regard, the facility will be directly opposite land planned to contain a future primary school.
2. The Dayton area is undergoing significant subdivision and development for residential purposes, which will deliver more dwellings and increase the number of families. The demand for childcare services is therefore likely to increase.
3. The development is within walking distance of a number of local parks and a community centre.
4. The proposal will contribute positively to local visual amenity and streetscape quality, providing a suitable response to the site's corner location.
5. The proposal is supported by expert traffic and acoustic input, which demonstrate there will be no unacceptable impacts to surrounding properties.

The proposed use is appropriate and warrants approval accordingly.

5.4.5 BUILT FORM

As the development site is designated a zoning of Residential R30 under LSP 2B, an assessment against the key development standards of the R-Codes is provided in **Table 3** below.

Table 3: key development standards	
Development standard	Proposal
<u>Street setbacks</u> <ul style="list-style-type: none"> - Primary street: 4m - Secondary street: 1.5m - Verandahs may project not more than 1m into street setback area 	<u>Cranleigh Street:</u> <ul style="list-style-type: none"> - 6.75m to Group Room 1, 4.8m to adjacent verandah (compliant). - 6m to Group Room 5, 3.45m, to adjacent verandah (compliant). - The western section of the verandah is set back 2.55m from Cranleigh Street (minor 0.45m variation). <p>A small section of verandah protrudes an additional 0.45m into the Cranleigh Street setback area. The variation is minor and warrants approval, as the portion of verandah creating the variation is minimal. It is also noted that the Cranleigh Street verge is approximately 10m in width (much wider than typical street verges), which reduces perceived bulk.</p>

	<u>Sam Rosa Place:</u> <ul style="list-style-type: none"> - Building and verandah setbacks exceeding 14.5m (compliant)
<u>Lot boundary setbacks</u> <ul style="list-style-type: none"> - Southern boundary – 1.5m required based on 25m wall length, less than 3.5m wall height and no major openings. 	1.5m provided (compliant)
<u>Open space</u> <ul style="list-style-type: none"> - Minimum 45% of site 	Proposed site cover is 36.8%, equating to an open space area of 63.2% (compliant).
<u>Street walls and fences</u> <ul style="list-style-type: none"> - Front fences visually permeable above 1.2m of NGL 	<p>The front fence along Cranleigh Street and Sam Rosa Place is designed in a typical residential style with the following features:</p> <ul style="list-style-type: none"> • 1.8m high, with a solid 0.6m bottom section and permeable 1.2m upper section. The permeable section will contain plexiglass to achieve acoustic requirements whilst maintaining passive surveillance of the street. • Some areas of the fence are solid up to 1.8m, but are treated with render and brickwork finish. <p>The fence is acceptable, noting it achieves regulatory requirements from an acoustic and childcare point of view whilst maintaining a residential character and facilitating passive surveillance.</p>

5.4.6 MATTERS TO BE GIVEN DUE REGARD

Clause 67(2) of the Deemed Provisions provides a list of matters which require due regard when considering a development application. **Table 4** below provides an assessment against the relevant matters.

Table 4: matters to be given due regard	
Matter to be given due regard	Comment
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area	The content of this report addresses LPS17, and demonstrates the proposal is consistent with its aims and intent.
(c) any approved State planning policy	Section 5.3 of this report addresses SPP7.0.
(g) any local planning policy for the Scheme area	The subsequent sections of this report address the City's local planning policy framework.
(m) the compatibility of the development with its setting, including — <ul style="list-style-type: none"> (i) the compatibility of the development with the desired future character of its setting; and (ii) the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development; 	<u>Desired future character</u> <ul style="list-style-type: none"> • The development site and surrounding land is designated Residential R20 and R30 under the local and features a suburban character. • Relevantly, land immediately opposite the development site is planned to contain a future primary school and there are a number of local parks and a community centre within close proximity of the development site. • The proposal is designed in a manner broadly consistent with low density residential development, noting the use of domestic style materials, a pitch roof and a

	<p>built form scale not dissimilar to what would be constructed at R20-R30 density.</p> <ul style="list-style-type: none"> • Additionally, the nature of the proposed land use is heavily community-focused and will complement the future primary school. <p><u>Relationship to development in locality</u></p> <p>The proposed development features a site responsive configuration and design approach, which addresses its corner location through single storey built form scale and residential design features. These elements are consistent with the nature of development in the immediate area.</p> <p>The development is oriented toward Cranleigh Street, providing an attractive and engaging playscape which will have a level of interactivity with the public realm. This is consistent with other buildings which have primary frontage to Cranleigh Street.</p> <p>It is essential to note the site is directly opposite a future primary school, which will likely be designed in a similar and compatible format, and will contribute significantly to local character.</p> <p>The scale, height, orientation and appearance of the development is consistent with the current and future character of the locality.</p>
<p>(n) the amenity of the locality including the following</p> <ul style="list-style-type: none"> (i) environmental impacts of the development; (ii) the character of the locality; (iii) social impacts of the development; 	<p>The local area is currently characterised by development of a residential/suburban nature, and will also contain a future primary school which will significantly influence local character.</p> <p>The development is consistent with this established local character by virtue of its residential design response. Additionally, the community-focused nature of the use will complement the future primary school and build on the availability of essential services for the current and future residents of the local area.</p> <p>An environmental noise assessment was prepared in support of the proposal which demonstrates it will comply at all times with the <i>Environmental Protection (Noise) Regulations 1997</i>.</p> <p>The establishment of a childcare facility on the site will not result in any detrimental social impacts. The proposal will result in direct full time employment for childcare staff, and will provide childcare services to local families. This is a positive social outcome.</p>

(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved	The development provides significant landscaped areas which are located within street setback areas. This includes trees and vegetation, which have been integrated into the playscape.
(s) the adequacy of (i) the proposed means of access to and egress from the site; and (ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;	A TIS has been produced in support of the proposal which demonstrates the appropriateness and adequacy of proposed access arrangements. The TIS also includes swept path plans demonstrating the acceptable movements of waste collection vehicles, which can enter and exit the car park in forward gear.
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety	A TIS has been produced in support of the proposal which demonstrates the facility will create an insignificant amount of traffic, particularly during peak traffic periods.
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals	The proposed facility will provide 92 additional childcare places of varying age groups for the local community and create direct full time employment for staff. These are considered to be positive outcomes for the community.

5.5 POL-TP-129 VEHICLE PARKING STANDARDS

An assessment against the relevant provisions of the City's Vehicle Parking Standards Policy is provided below.

PARKING SUPPLY

Under Table 1 – Land Use Parking Requirements of the policy, a Child Care Premises requires:

1 space per employee, plus 1 space per every 8 children allowed under maximum occupancy

The proposed childcare facility will cater for up to 92 children and will provide up to 14 permanent 'room ratio' staff, which are required based on the ratios set out under the *Education and Care Services National Regulations 2012*.

Under this arrangement, 11.5 bays would be required for visitors and 14 bays would be required for staff (totalling 25.5 bays). The car park provides 26 bays, which meets this requirement.

There are instances where non-permanent 'float' staff may attend the facility for the purpose of lunch cover, administration duties, or training. This is usually outside of peak periods and not for extended periods of time.

A parking demand analysis was undertaken by Transcore as part of the TIS (**Appendix 4**) which determined that total actual parking demand for the facility is 20 bays. Therefore, from a practical point of view, the parking provision of 26 bays is expected to adequately cater for any 'float' staff attending the premises.

Additionally, it is noted that embayed parking is available within walking distance of the site which is expected to be available during the day when pick-up / drop-off activities for the school do not occur.

LANDSCAPING

The City's Vehicle Parking Standards Policy requires landscaping to be provided for parking areas as follows:

- a) All areas between parking facilities and adjoining streets shall have a minimum of 3m wide permanent landscape area. In addition, the Council may also require permanent landscaping between the parking facilities and all other side and rear property lines.*
- b) For open parking facilities, with 21 or more parking spaces, there shall be provided a minimum of 1 sq. metre of permanent landscaping for every 10 sq. metres of parking stall area. Such landscaping shall not be in addition to any other landscaping required by any other policy.*

The facility provides a compliant 3m wide landscaping strip between Cranleigh Street and the car park which will contain trees and understorey planting, screening the car park from view of the street.

Additionally, the car park contains approximately 360m² of parking stall area, which requires 36m² of permanent landscaping area. The car park contains approximately 106m² of permanent landscaping area with seven shade trees, which significantly exceeds this requirement.

6 CONCLUSION

This application for planning approval involves the establishment of a new Early Learning Centre on a 2,312m² portion of Lot 9501 (7) Sam Rosa Place which would cater for up to 92 children.

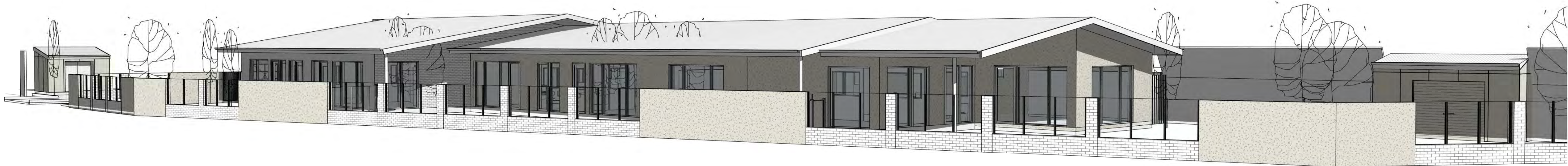
The proposed development warrants the City's support for the following reasons:

- The facility is appropriately located adjacent to land planned to contain a future primary school, and will build on the provision of essential community services for the local area.
- The proposal is consistent with the requirements of the local planning framework and will cater for the needs of the growing Dayton community, which is undergoing significant residential subdivision and development.
- The proposed building is designed to an acceptable architectural standard, incorporating residential design elements, and will enhance the streetscape quality of the local area.
- The proposal is supported by expert traffic and acoustic assessments, demonstrating its suitability.

It is respectfully requested that the Metro Outer JDAP grant approval to the proposed development.

PROPOSED CHILDCARE CENTRE
LOT 9501 (7) SAM ROSA PLACE, DAYTON, WA
(FUTURE LOT 138 SAM ROSA PLACE, DAYTON, WA)

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RECEIVED
20 May 2021



DRAWING REGISTER PLANNING

SHEET NUMBER	SHEET NAME	ISSUE	DESCRIPTION	DATE
DA01	SITE PLAN	1	PRELIMINARY DA SET ISSUE	18/05/2021
DA02	FLOOR PLAN	1	PRELIMINARY DA SET ISSUE	18/05/2021
DA03	ELEVATIONS	1	PRELIMINARY DA SET ISSUE	18/05/2021

GENERAL NOTES

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT. PREPARATION OF SHOP DRAWINGS OR MANUFACTURING: FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING. VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA. BUILDING ACT 1975 AS AMENDED. STANDARD BUILDING BY-LAWS AND RELEVANT AUSTRALIAN STANDARDS.

1	PRELIMINARY DA SET ISSUE	18/05/2021
0	PRELIMINARY DA ISSUE	10/05/2021
ISSUE	DESCRIPTION	DATE

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www.insitearchitects.com.au



CLIENT:
OTB DEVELOPMENTS

PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

FILE: T:_PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St\05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491 Cranleigh St, Dayton DA.rvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

DRAWING TITLE:
COVER SHEET

SCALE:	DATE:	APRIL 2021
DRAWN: CW	PRINTED:	18/05/2021 3:03:00 PM
CHECKED: AH	JOB No.:	J0000491

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PRELIMINARY ISSUE
NOT FOR SUBMISSION

OPERATION HOURS 6:30am to 6:30pm Monday - Friday
with up to four days open on the weekend for open days

GROUP ROOM 1	0-24months	8 PLACES	2 STAFF
GROUP ROOM 2	0-24months	4 PLACES	1 STAFF
	24-36months	10 PLACES	2 STAFF
GROUP ROOM 3	24-36months	15 PLACES	3 STAFF
GROUP ROOM 4	24-36months	5 PLACES	1 STAFF
	36+ months	10 PLACES	1 STAFF
GROUP ROOM 5	36+ months	20 PLACES	2 STAFF
GROUP ROOM 6	36+ months	<u>20 PLACES</u>	<u>2 STAFF</u>
		92 PLACES	14 STAFF

TOTAL SITE AREA 2312m²
SITE COVERAGE 852m² (36.8%)
BUILDING AREA
GROUND FLOOR 698m² gross
PARKING REQUIREMENTS -
25.5 bays required (1bay/staff + 1ba
26 bays provided + 2 bicycle parks

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20 May 2021



2 KEY PLAN
1 : 2000



1 SITE PLAN
1 : 200

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT, PREPARATION OF SHOP DRAWINGS OR MANUFACTURING, FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING

VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT.

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PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

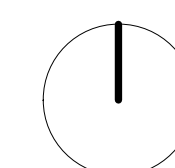
FILE: T:\ PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St\05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491_Cranleigh St, Dayton DA.rvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

DRAWING TITLE:
SITE PLAN

CHECKED: AH **JOB No.:** J0000491

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DA01_{/1}

PRELIMINARY ISSUE
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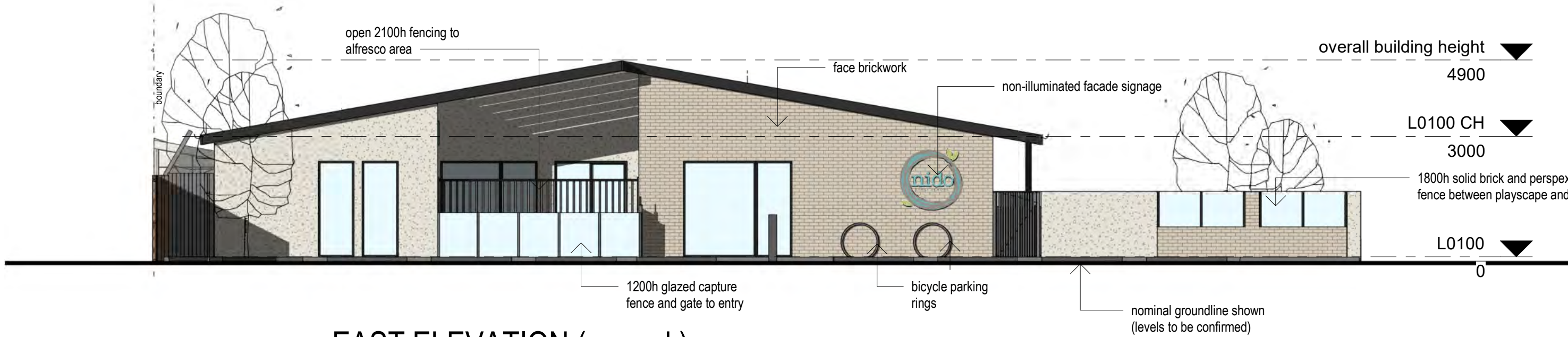
CRANLEIGH STREET



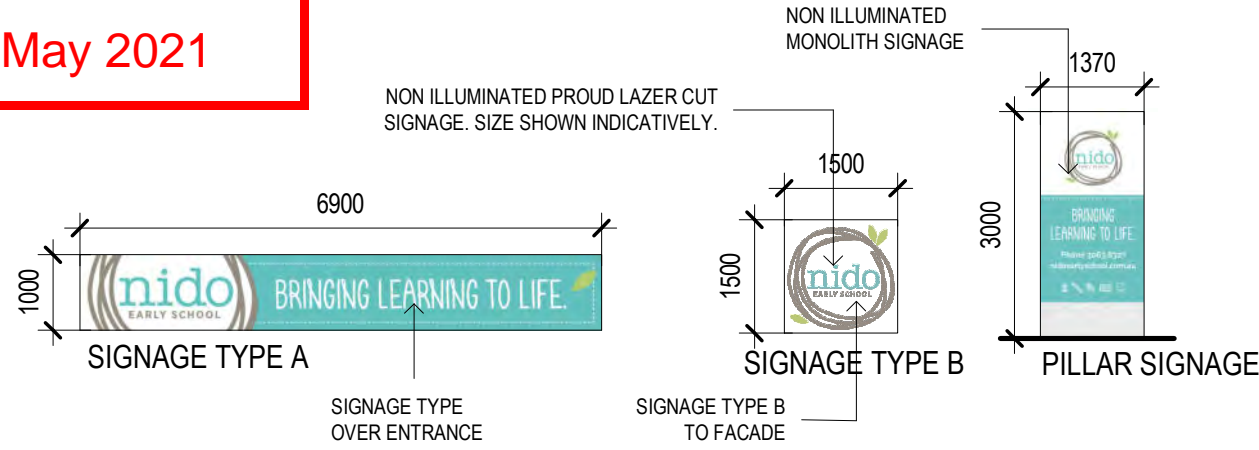
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20 May 2021

MATERIAL/COLOUR SCHEDULE

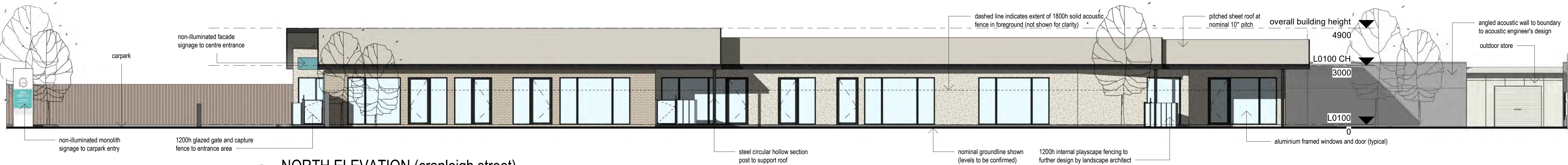
texture paint		dulux 'white duck quarter'
lightweight walls		dulux 'white duck quarter'
express joint sheeting (o/door & bin store)		colorbond 'surf mist'
roofing, gutter & rainwater accessories		colorbond 'monument'
window & door frames		pgh Pure Linens 'Flannel Grey' or similar
feature face brickwork		translucent glass (unless noted otherwise)
glazing		



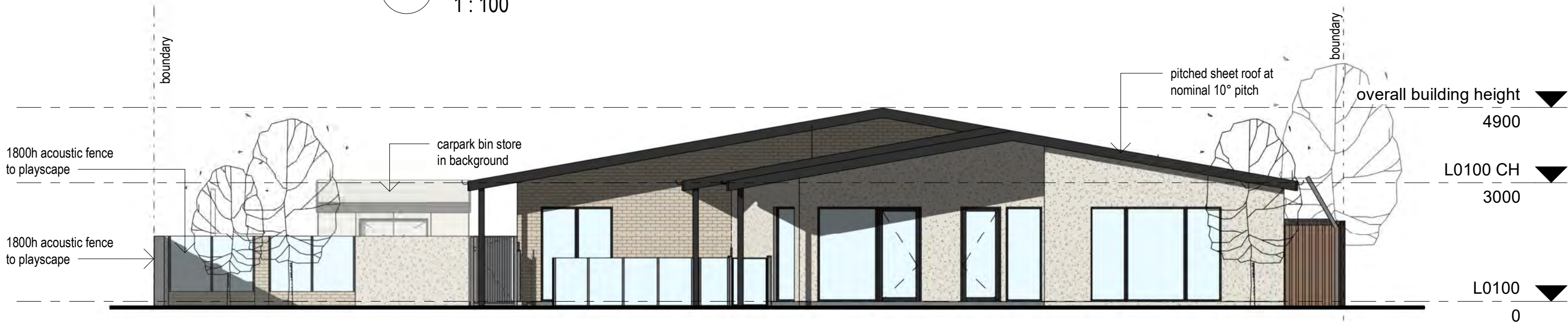
1 EAST ELEVATION (carpark)
1 : 100



6 Signage Details
1 : 100



2 NORTH ELEVATION (cranleigh street)
1 : 100



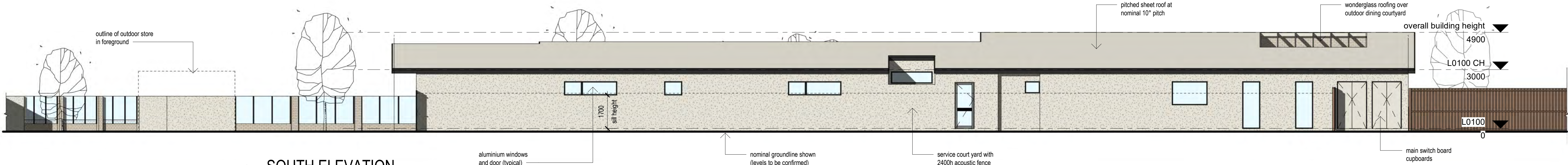
3 WEST ELEVATION
1 : 100



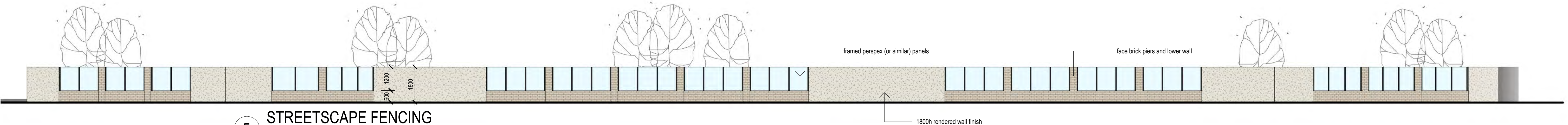
7 Bin Store North Elevation
1 : 100



8 Bin Store West Elevation
1 : 100



4 SOUTH ELEVATION
1 : 100



5 STREETSCAPE FENCING
1 : 100

GENERAL NOTES

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT. PREPARATION OF SHOP DRAWINGS OR MANUFACTURING FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING. VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA BUILDING ACT 1975 AS AMENDED. STANDARD BUILDING BY LAWS AND RELEVANT AUSTRALIAN STANDARDS.

ISSUE	DESCRIPTION	DATE
1	PRELIMINARY DA SET ISSUE	18/05/2021
0	PRELIMINARY DA ISSUE	10/05/2021

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CLIENT:
OTB DEVELOPMENTS

PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

FILE: T:\PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St\05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491_Cranleigh St, Dayton DA.rvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

DRAWING TITLE:
ELEVATIONS

SCALE: 1 : 100@A1 DATE: APRIL 2021

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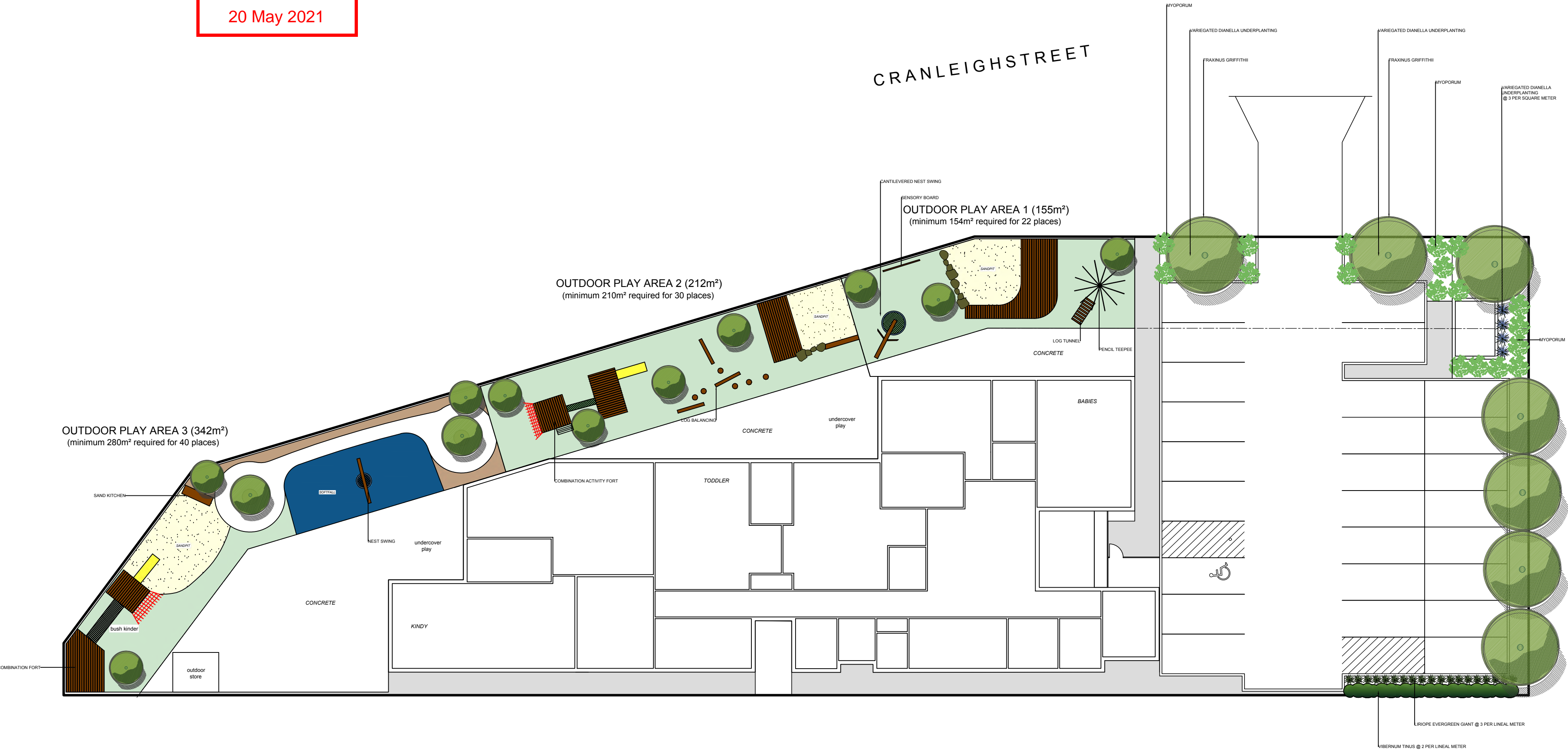
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CRANLEIGH STREET



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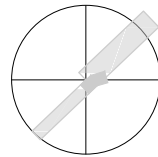
Concept plan only, subject to change at building permit stage

DRAWN BY: Alastair Cameron

PROJECT:
Sam Rosa Place
Dayton
For DA Approval

DESIGN CHECK:

12/05/2021
Revision 000
SCALE: 1:200 @ A2





transport planning
traffic engineering
modelling

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20 May 2021

Proposed Child Care Centre

Lot 9501 (7) Sam Rosa Place, Dayton

Transport Impact Statement

PREPARED FOR:
LWP Group
May 2021

Document history and status

Author	Revision	Approved by	Date approved	Revision type
Shaju Maharjan	r01	R White	05/05/2021	Draft
Shaju Maharjan	r01a	R White	13/05/2021	Final
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File name: t21.085.sm.r01b

Author: Shaju Maharjan

Project manager: Behnam Bordbar

Client: LWP Group

Project: Lot 9501 (7) Sam Rosa Place, Dayton

Document revision: r01b

Project number: t21.085

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1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of LWP Group with regard to a proposed child care centre (CCC) to be located at Lot 9501 (No.7) Sam Rosa Place, Dayton, in the City of Swan.

The subject site is the north west corner of Lot 9501, located at the south east corner of the intersection of Blundell Street, Cranleigh Street and Sam Rosa Place as illustrated in **Figure 1**. The proposed development site is currently vacant and has road frontages at two sides: Cranleigh Street to the north and Sam Rosa Place to the west.

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: *“A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic¹ and therefore would have a moderate overall impact on the surrounding land uses and transport networks”*.

Section 6.1 of Transcore’s report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns and parking demand and supply.

¹ Between 10 and 100 vehicular trips per hour



Figure 1: Location of the subject site

2 Proposed Development

The development proposal is for a childcare centre (CCC) to be located at Lot 9501 (No.7) Sam Rosa Place, Dayton in the City of Swan.

The proposed CCC has been design to accommodate up to 92 children and 14 staff members.

Vehicular access and egress to the proposed CCC would be via a proposed full movement crossover on Cranleigh Street that leads directly to the car parking area.

Based on the proposed development plan prepared by Insight Architects, the proposed CCC would provide a total of 26 on-site parking bays plus one turning bay. The on-site car parking area comprises 11 single and 16 tandem bays. One of the tandem bays is marked as a turning bay which is located at the end of the parking area.

Pedestrian access to the proposed CCC is available from the existing footpath network on Cranleigh Street.

A bin store is provided to the north-eastern corner of the car parking area. Deliveries and waste collection will be accommodated within the site. A private contractor will be assigned to undertake waste collection which will take place outside peak operating hours of the CCC or when the facility is closed.

The proposed development plan is provided in **Appendix A**.

3.1 Access

[illegible]

3.2 Parking Supply and Demand

- ✚ 1 per employee; plus,
- ✚ 1 space per every 8 children allowed under maximum occupancy.

The proposed development provides a total of 26 parking bays on site. Therefore, the proposed parking supply meets the requirement of the City's policy and is sufficient to cater for the needs of the proposed CCC.

Transcore has undertaken a parking analysis based on the anticipated peak hour traffic generation of the proposed child care centre, to estimate the actual peak parking demand of the centre.

Section 6.1 of this report details the anticipated peak hour traffic generation of the proposed CCC. It was established that the calculated morning peak hour trip generation of the proposed CCC is 36 vehicles in and 33 vehicles out of the car park (afternoon peak hour is expected to generate less trips).

This represents a potential 36 vehicles using the child care centre car park during the peak hour.

The NSW *“Guide to Traffic Generating Developments”* section on childcare centres provides commentary on childcare centre mode share, parking utilisation and parking length of stay. It should be noted that the commentary provided in the NSW guide is based on surveys of actual parking activity undertaken in New South Wales. The NSW guide indicates highest parking demand of 0.23 cars per child and the average recorded length of stay for all surveyed child care centres of 6.8 minutes.

Conservatively assuming that the length of stay for pick-up/drop-off parking for the proposed child care centre is 10 minutes, it is calculated that each parking bay can accommodate a turnover of up to 6 vehicles per hour.

It is therefore established that 6 bays ($36/6 = 6$) should be reserved for pick-up and drop-off activities during peak hour periods which result in actual parking demand of 20 bays (6 bays for drop off/pick up + 14 bays for staff).

The proposed development provides a total of 26 bays which satisfies and exceeds the estimated actual parking demand of the proposed child care centre.

It should also be noted that:

- ✚ Many patrons of the child care centre are anticipated to come from the local residential catchment and may walk their children to and from the CCC;
- ✚ Some of the CCC staff could potentially walk or use public transport to arrive to the site;
- ✚ There are five sets of three indented parking bays on the southern verge of Cranleigh Street between Arthur Street and Blundell Street in the immediate vicinity of the site to accommodate the child care centre patrons during the peak pick-up and drop-off activities if required; and,
- ✚ The operator of the child care centre will also encourage staff car-pooling as an additional means of transport to and from the site which will further reduce the parking demand at the site.

For the reasons outlined above, it is considered that sufficient parking has been provided to meet the anticipated needs of the proposed CCC.

4 Provision for Service Vehicles

A bin store is located at the north-eastern corner of the car parking area as shown in the proposed development plan in **Appendix A**.

Waste collection and delivery activity will be accommodated within the site. A private contractor will be assigned to undertake waste collection.

The waste collection truck will be able to enter the site via the Cranleigh Street crossover in forward gear, turn around within the site and reverse to the bin area for the waste collection and then exit via the same crossover in forward gear. Turn path analysis carried out for 10m waste collection truck in **Appendix B** confirms satisfactory movements within the site.

It is expected that the child care centre will generate a small volume of service vehicle traffic primarily associated with the deliveries for the child care centre. It is recommended that smaller vehicles such as vans should be used for deliveries.

The onsite service and waste collection activities will take place when the facility is closed or outside peak operating periods to ensure the car parking area is available for vehicle's manoeuvring, loading and unloading activities with no disturbance to the operation of the centre.

5 Hours of Operation

The proposed child care centre is proposed to operate during weekdays between 6:30AM to 6:30PM Monday to Friday.

6 Daily Traffic Volumes and Vehicle Types

6.1 Proposed Development Trip Generation

In order to establish an accurate traffic generation rate for the proposed child care centre, traffic count surveys undertaken by Transcore at similar centres in the Perth metropolitan area were sourced.

Discussions with the respective centre managers revealed that the peak drop-offs and pick-ups for each of these centres occur between the hours of 7:00AM– 10:00AM and 3:00PM– 6:00PM.

From the total number of children at each of the centres on the surveyed days, the following average generation rates were established for the morning and afternoon surveyed periods:

- ✚ 7:00AM–10:00AM: 1.58 trips per child (52% in / 48% out); and,
- ✚ 3:00PM–6:00PM: 1.67 trips per child (47% in / 53% out).

From this information, the traffic generation rate for the combined period of 7:00AM– 10:00AM and 3:00PM–6:00PM was calculated as 3.25 trips per child. To convert this figure to a daily generation rate, this figure was increased to 3.5 trips per child to account for any trips outside of the surveyed times. It was assumed that the daily in and out split for vehicle trips was 50/50.

Furthermore, the following peak hour generation rates were established from the surveys for the Child Care Centres:

- ✚ AM peak hour: 8:00AM – 9:00AM: 0.75 trips per child (52% in / 48% out); and,
- ✚ PM peak hour: 4:30PM – 5:30PM: 0.49 trips per child (43% in/ 57% out);

Comparison of the six-hour generation rates and the peak hour generation rates confirms that the distribution of traffic from these centres is spread over the peak periods and that full concentration of traffic does not occur in the peak hour. The AM peak hour represents 47% of the 3-hour AM peak period traffic generation and the typical school PM and road network PM peak hours represent 36% and 29% of the 3-hour PM peak period traffic generation, respectively. As such, childcare centres operate quite differently to schools as their peak period is spread out.

Accordingly, the following number of trips was estimated for the proposed child care centre, assuming a maximum scenario of 92 children being present (i.e., centre at full capacity):

- ✚ AM peak hour: 69 trips generated (36 in / 33 out);
- ✚ PM peak hour: 45 trips generated (20 in / 25 out); and,
- ✚ Daily traffic generation: 322 trips generated (161 in / 161 out).

6.2 Traffic Flow

Driveway access to the CCC is provided on Cranleigh Street, so all of the development generated traffic would arrive/depart to and from the site via Cranleigh Street and then dissipate throughout the surrounding road network.

As with similar centres, an overwhelming majority of patrons would originate from within the local area with only a marginal number of patrons arriving from afar.

Hence, based on the general spatial distribution of existing and future residential developments in the immediate area, permeability of the local road network and the assumption that all traffic attracted to the proposed child care centre would arrive/depart via Cranleigh Street, the child care centre's traffic distribution adopted for this analysis is as follows:

- ✚ 50% to/from the west of Cranleigh Street;
- ✚ 20% to/from the north of Blundell St;
- ✚ 20% to/from the south of Sam Rosa Place; and,
- ✚ 10% to/from the east of Cranleigh Street.

Figure 3 illustrates trip generation and traffic distribution over the local road network for the proposed Centre.

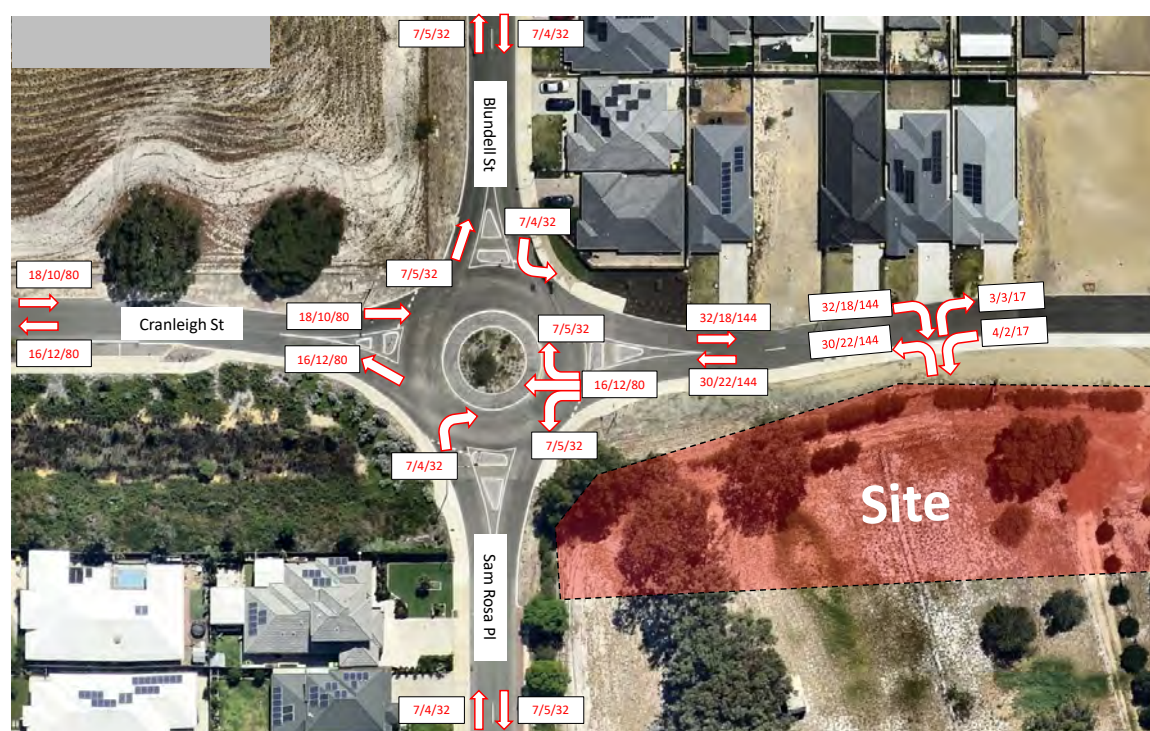


Figure 3: Estimated traffic movements for the subject site
AM Peak/PM Peak/Total daily trips

6.3 Impact on Surrounding Roads

The WAPC Transport Impact Assessment Guidelines (2016) provides guidance on the assessment of traffic impacts:

“As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

It is clear that the traffic increase from the proposed child care centre development would be significantly less than the critical threshold (100vph per lane). As detailed in **Section 6.1**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph, therefore the impact of the development traffic on the surrounding road network will not be significant and does not require further assessment.

7 Traffic Management on the Frontage Streets

Sam Rosa Place, north of the subject site is constructed as a single carriageway, two lane road with kerbed on both sides of the road as shown in **Figure 4**. It features pedestrian path on the western side of the road.

Sam Rosa Place is classified as an Access Road in the Main Roads Functional Road Hierarchy which operates under the default built up area speed limit of 50km/h.



Figure 4: Southbound view along Sam Rosa Place

Cranleigh Street, north of the subject site is constructed as a single carriageway two lane road with approximately 6.0m sealed width and kerbed on both sides of the road as shown in **Figure 5**. It provides pedestrian path on the southern verge.

Cranleigh Street is classified as an Access Road in the Main Roads WA Functional Road Hierarchy with the posted speed limit of 60km/h. The section of Cranleigh Street between Arthur Street and Blundell Street has five sets of three indented parking bays in the southern verge. Cranleigh Street is still under construction to the east of the intersection with Blundell Street and Sam Rosa Place.



Figure 5: Westbound view along Cranleigh Street

8 Public Transport Access

The nearest public transport service is Transperth Bus route 353 that runs on Arthur Road to the east of the subject site as illustrated in **Figure 6**. This bus route runs between Henley Brook Station to Bassendean Station. It generally provides an hourly service during the day on all days, and up to three per hour during 7-9AM and 3.30-5PM peak periods on weekdays.

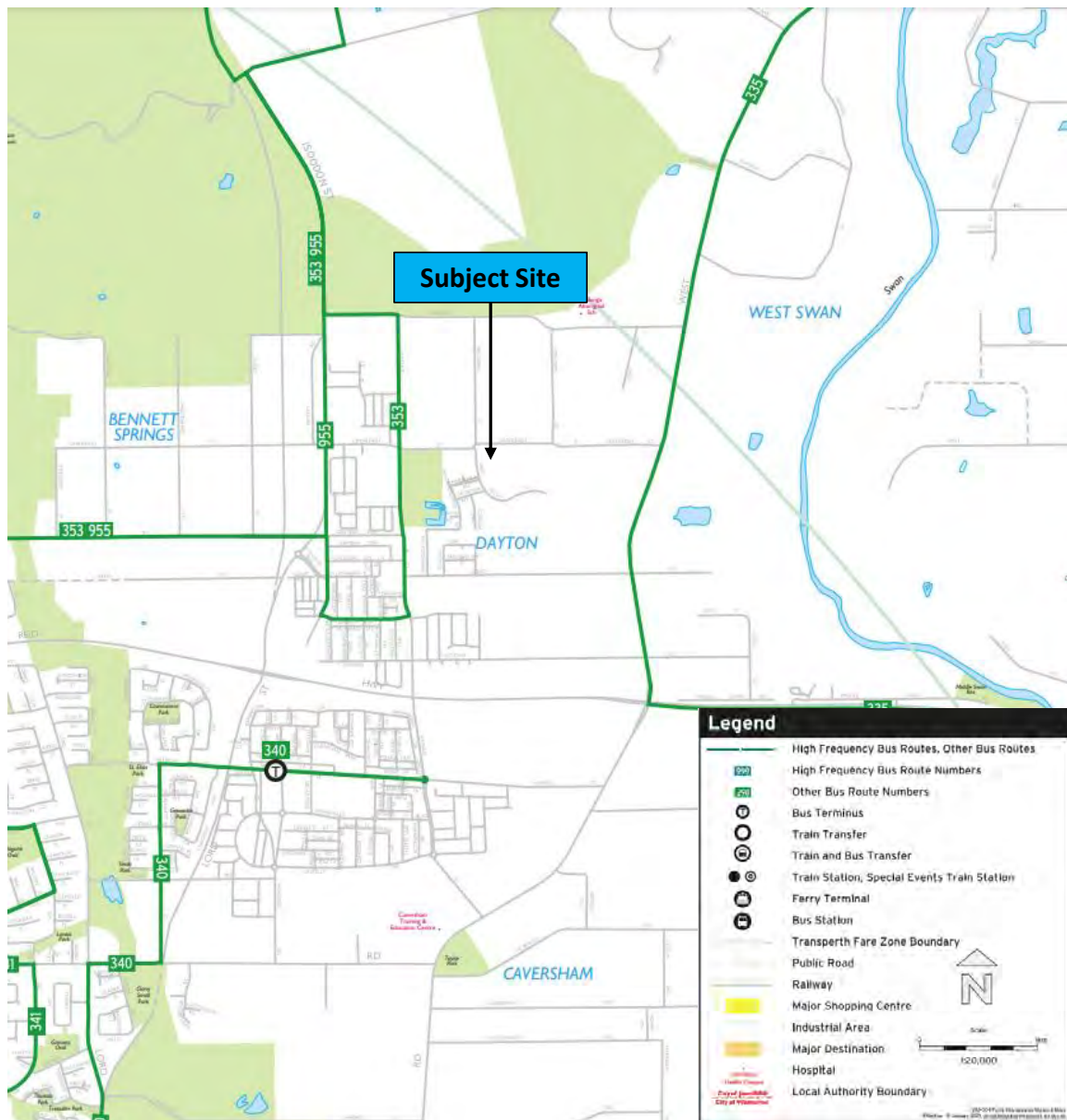


Figure 6: Public transport services (Transperth Maps)

9 Pedestrian Access

Pedestrian access to the proposed development is available directly from the existing footpath network on Cranleigh Street fronting the subject site.

10 Cycle Access

The Perth Bicycle Network Map illustrated in **Figure 7** shows the existing cycling facilities in the vicinity of the subject site. This map was prepared in 2016 and since then substantial residential subdivision has been progressed in the surrounding area.

Currently, 1.8 to 2.5m paths are in place along southern side of Cranleigh Street to the north of the subject site. Arthur Street to the west of the subject site is ranked as a good road riding environment. Also, 2.5m wide path is provided on the western side of Sam Rose Place adjacent to the subject site.

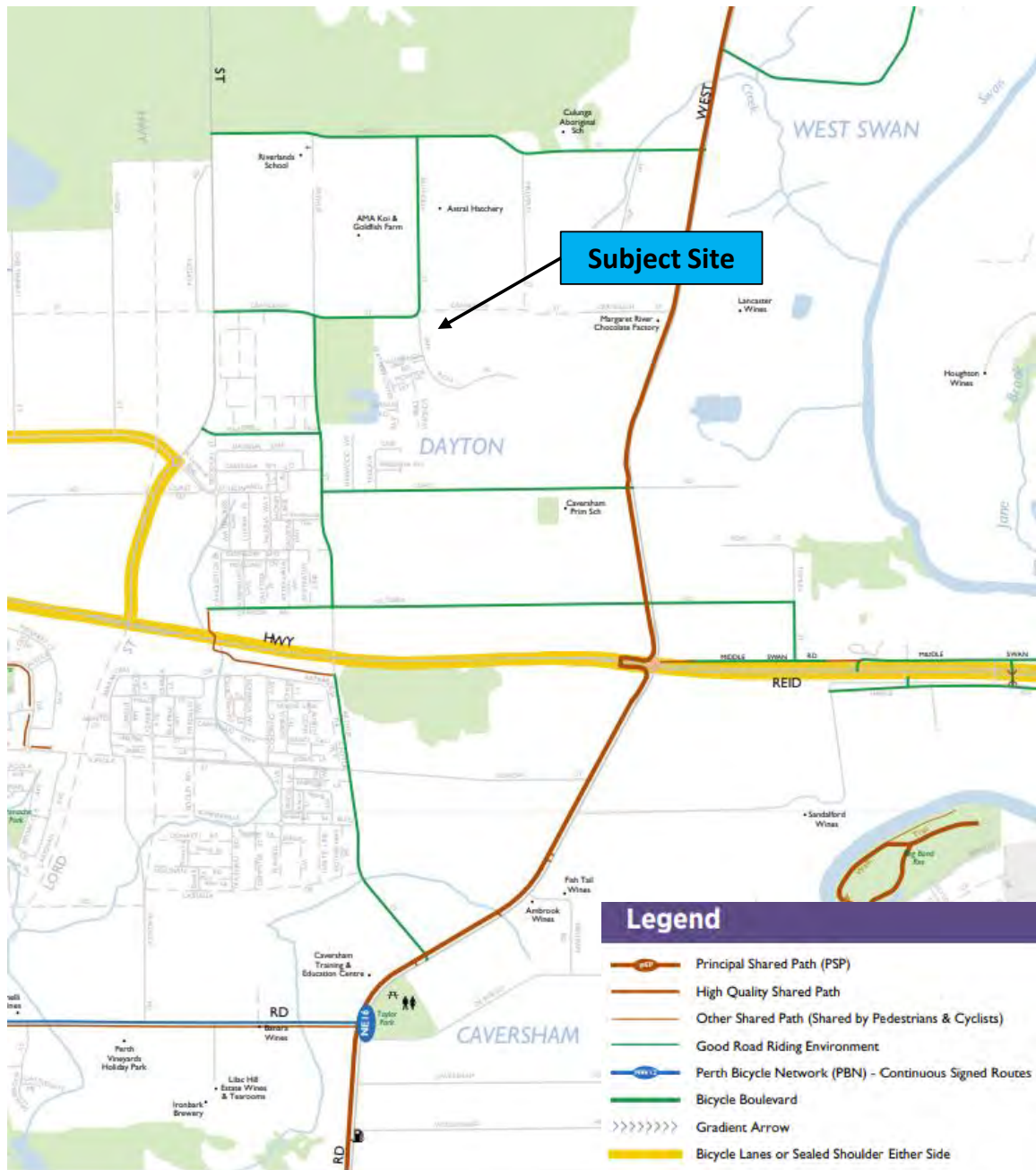


Figure 7: Extract from Perth Bicycle Network (Department of Transport)

11 Site Specific Issues

No site-specific issues have been identified for the proposed child care centre.

12 Safety Issues

No particular safety issues have been identified for the proposed child care centre.

13 Conclusions

This Transport Impact Statement (TIS) provides information on proposed CCC development proposed at Lot 9501 (No.7) Sam Rosa Place, Dayton in the City of Swan.

The proposed CCC has been design to cater for 92 children and 14 staff members.

The proposed child care centre will be accessed via a proposed full movement crossover on Cranleigh Street.

Waste collection and delivery activity will be accommodated within the site. A private contractor will be assigned to undertake waste collection. The waste collection truck will enter the site via the Cranleigh Street crossover in forward gear, turn around within the site and reverse to the bin area for waste collection and then exit via the same crossover in forward gear. Turn path analysis carried out in **Appendix B** confirms satisfactory movements of 10m waste collection truck within the site.

Based on the assessment undertaken in this report, the proposed parking supply of 26 bays inclusive of one ACROD bay is considered to be sufficient to cater for the needs of the proposed child care centre and is compliant with the City's parking requirement.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is relatively low and would not have any significant impact on the surrounding road network.

The site features good connectivity via the existing road network, path network and has convenient access to existing public transport services.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed child care centre.

Appendix A

PROPOSED DEVELOPMENT PLAN

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CHILD CARE CENTRE ANALYSIS

OPERATION HOURS: 6:30am to 6:30pm
with up to four days open on the weekend for open days

GROUP ROOM 1	6-24 months	8 PLACES	2 STAFF
GROUP ROOM 2	6-24 months	4 PLACES	1 STAFF
GROUP ROOM 3	2-5 years	10 PLACES	2 STAFF
GROUP ROOM 4	2-5 years	15 PLACES	3 STAFF
GROUP ROOM 5	2-5 years	10 PLACES	2 STAFF
GROUP ROOM 6	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 7	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 8	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 9	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 10	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 11	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 12	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 13	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 14	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 15	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 16	3-5 years	10 PLACES	2 STAFF
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GROUP ROOM 18	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 19	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 20	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 21	3-5 years	10 PLACES	2 STAFF
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GROUP ROOM 95	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 96	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 97	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 98	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 99	3-5 years	10 PLACES	2 STAFF
GROUP ROOM 100	3-5 years	10 PLACES	2 STAFF

AREA ANALYSIS

TOTAL SITE AREA: 7700m²

SITE COORDINATE: 8530' (N 10)

BUILDING AREA: 6000m²

GROUND FLOOR: 6000m²

PARKING REQUIREMENTS:

25.5 days required (1 staff + 1 car)

25 days provided + 0.5 days per car



2 KEY PLAN
1:2000



1 SITE PLAN
1:200

right through area in no way obstructs
over 100m high within area

min 20m landscape buffer between the
proposed carpark and the street

enclosed bin store

over 100m landscaping to be provided
surrounding carpark

GENERAL NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. THE SITE PLAN IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION.
3. THE SITE PLAN IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION.
4. THE SITE PLAN IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION.
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insite
ARCHITECTS



CLIENT:
OTB DEVELOPMENTS

PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

LOCATION:
Cranleigh Street, Dayton, WA

DRAWING TITLE:
SITE PLAN

SCALE: 1:200 (SITE PLAN)

DATE: 10/11/2021

DRAWN: CTV

PRINTED: 10/11/2021

CHECKED: A-

JOB NO.: 000000

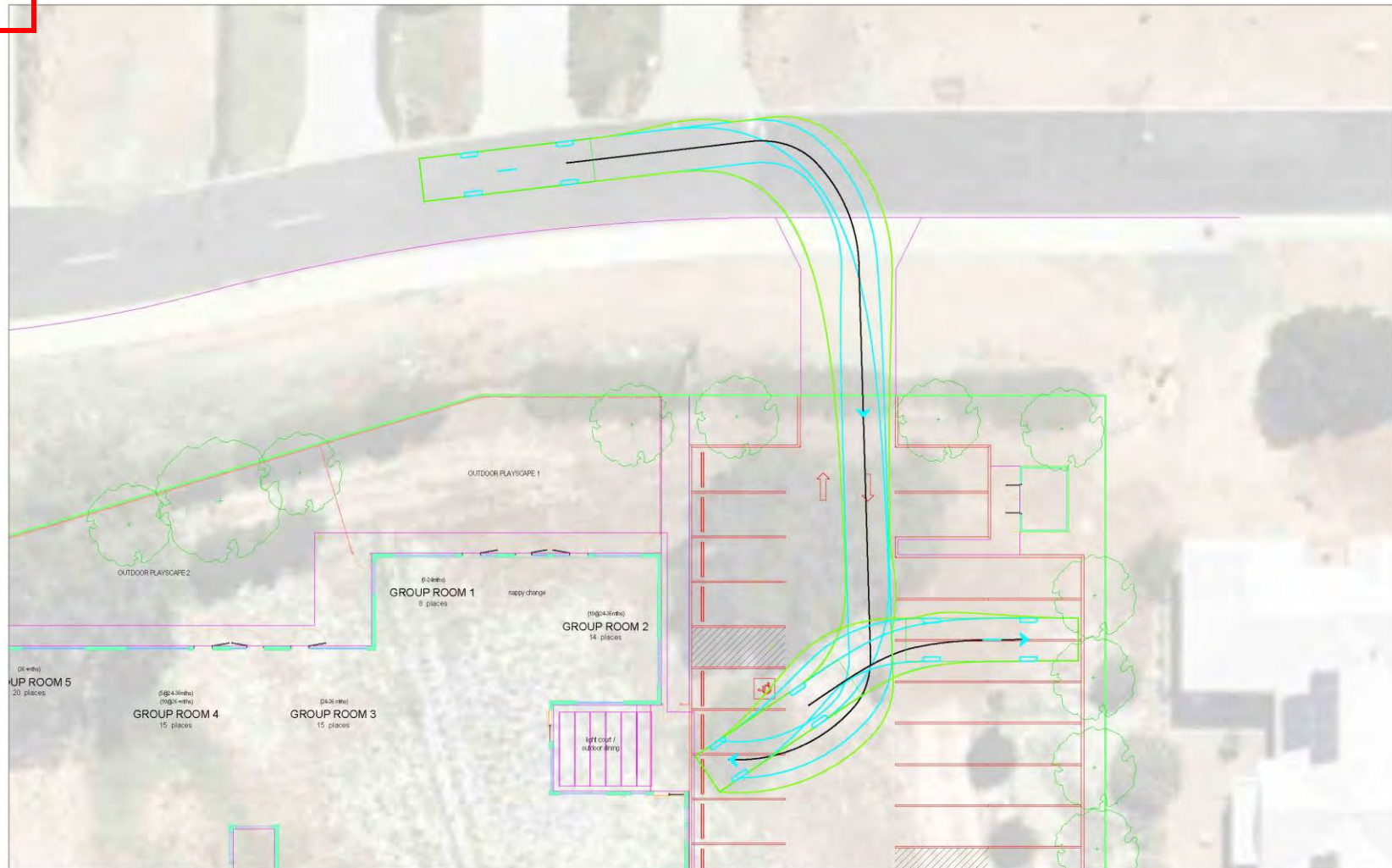
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Appendix B

TURN PATH ANALYSIS

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Lot 9501 (7) Sam Rosa Place, Dayton
10.0m Waste Collection Truck
Waste Truck Entry

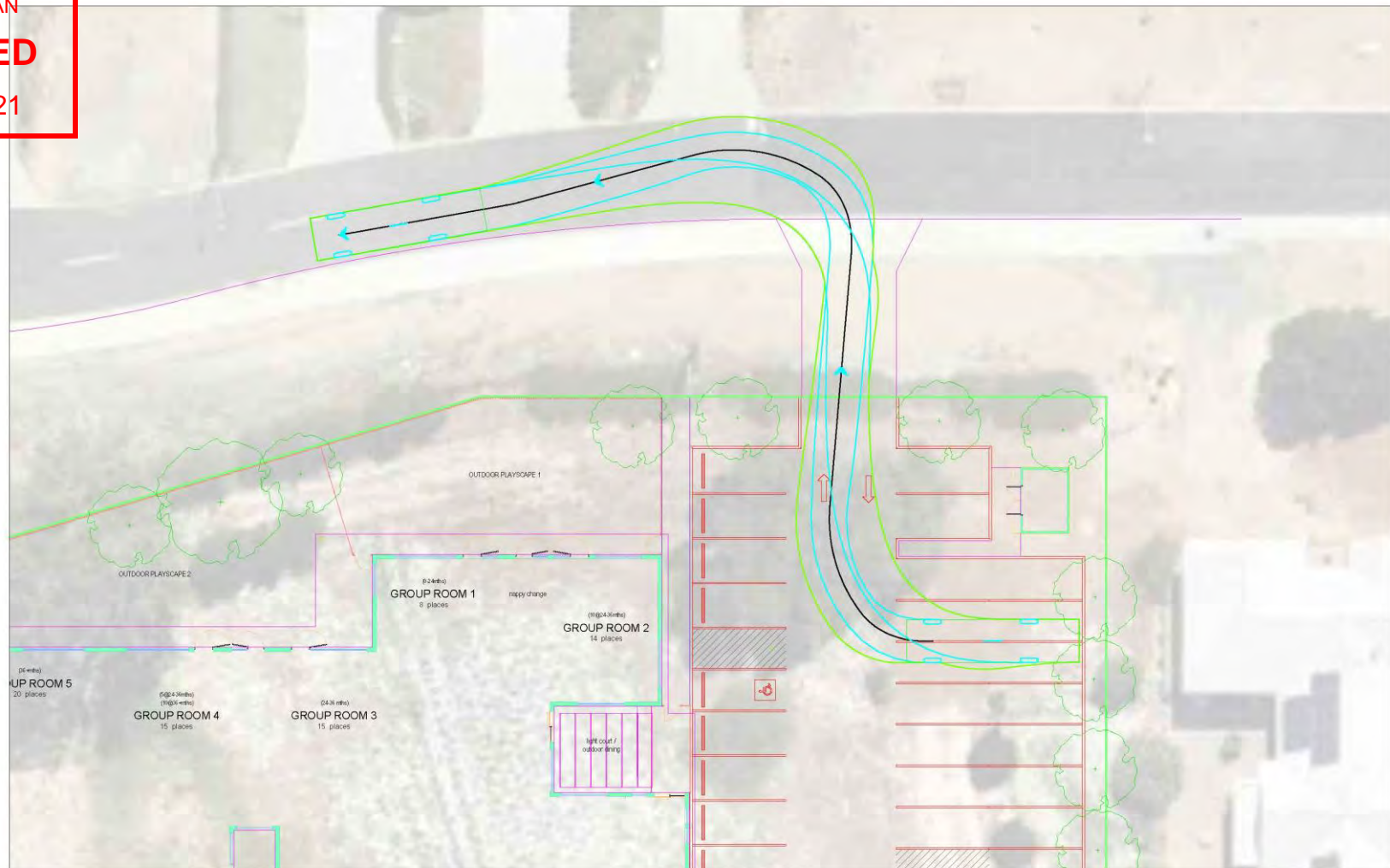
LEGEND
Vehicle Body
Wheel Path



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Lot 9501 (7) Sam Rosa Place, Dayton
10.0m Waste Collection Truck
Waste Truck Exit

LEGEND

Vehicle Body
Wheel Path

t21.085.sk02a

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Scale: 1:200 @ A3



Attachment 6

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20 May 2021

Environmental Noise Assessment

Lot 9501 (#7) Sam Rosa Place, Dayton
Proposed Childcare Centre

Reference: 21046305-01

Prepared for:
LWP Group

Report: 21046305-01

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Date:	Rev	Description	Prepared By	Verified
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Appendices

- A Development Plans
- B Terminology

1 INTRODUCTION

It is proposed to develop Lot 9501 (#7) Sam Rosa Place in Dayton (refer *Figure 1-1*) as a childcare centre (CCC). The proposed childcare centre development will consist of the following:

- Four internal play spaces capable of accommodating up to 92 children, grouped as follows:
 - Group Room 1 – 8 places for 0-24 months
 - Group Room 2 – 4 places for 0-24 months, 10 for 2-3 years, 14 children in total,
 - Group Room 3 – 15 places for 2-3 years,
 - Group Room 4 – 5 places for 2-3 years, 10 for 3+ years, 15 children in total,
 - Group Room 5 – 20 places for 3+ years,
 - Group Room 6 – 20 places for 3+ years,
- Outdoor play areas located to the north and west of the building.
- Amenities and associated mechanical plant such as:
 - One kitchen with rangehood and exhaust fan assumed to be located on the roof above,
 - Various exhaust fans (toilets, laundry, nappy room) assumed to be located on the roof above, and
 - AC plant assumed to be located on ground level in designated service yard near the staff room.
- Car parking on the east end of the lot.

It is noted that existing and future residential premises are in the vicinity of the subject site. As such an assessment of noise to existing boundaries, existing residences and any future noise sensitive areas is required.

This report presents the assessment of the noise emissions from child play, car doors closing in the car park and mechanical plant associated with the childcare centre against the prescribed standards of the *Environmental Protection (Noise) Regulations 1997* (the Regulations) based on the development drawings shown in *Appendix A*.

The proposed hours of operation are 6.30am to 6.30pm Monday to Friday. Therefore, staff and parents can arrive and park before 7.00am, which is during the night-time period of the Regulations. It is assumed outdoor child play would not occur until after 7.00am.

Appendix B contains a description of some of the terminology used throughout this report.



Figure 1-1 Project Locality (DPLH Maps)

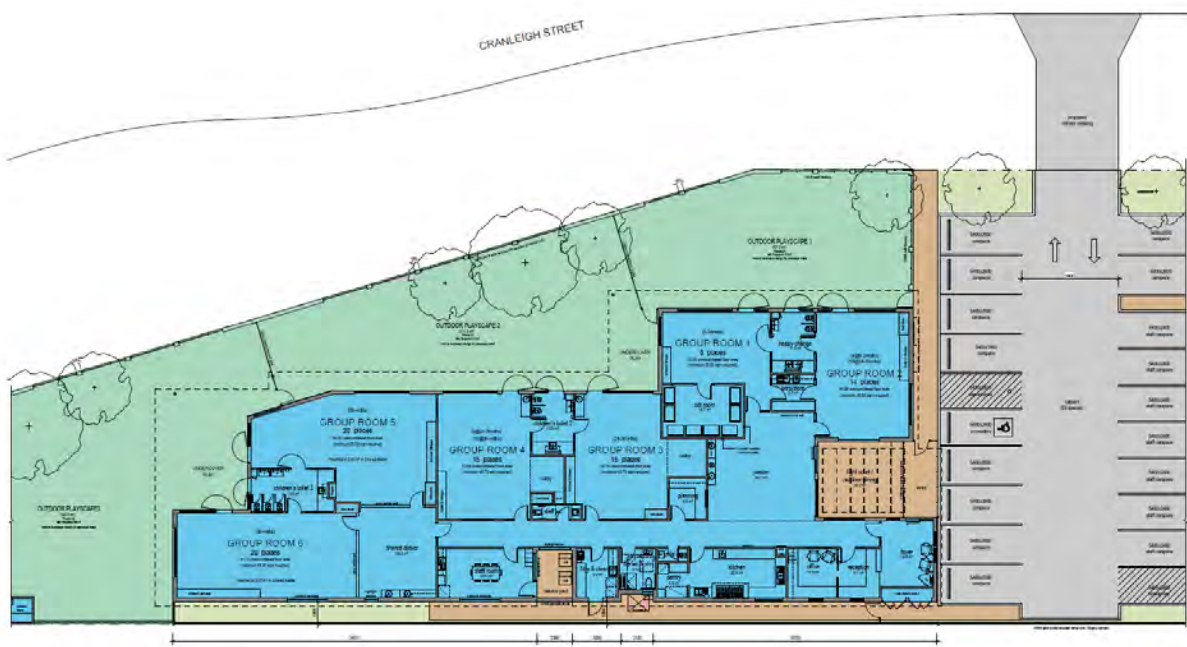


Figure 1-2 Project Site Plan

2 CRITERIA

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

Regulation 7 defines the prescribed standard for noise emissions as follows:

“7. (1) Noise emitted from any premises or public place when received at other premises –

- (a) Must not cause or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and
- (b) Must be free of –
 - i. tonality;
 - ii. impulsiveness; and
 - iii. modulation,
 when assessed under regulation 9”

A “...noise emission is taken to significantly contribute to a level of noise if the noise emission ... exceeds a value which is 5 dB below the assigned level...”

Tonality, impulsiveness and modulation are defined in Regulation 9. Noise is to be taken to be free of these characteristics if:

- (a) The characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and
- (b) The noise emission complies with the standard prescribed under regulation 7 after the adjustments of *Table 2-1* are made to the noise emission as measured at the point of reception.

Table 2-1 Adjustments Where Characteristics Cannot Be Removed

Where Noise Emission is Not Music			Where Noise Emission is Music	
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

Note: The above are cumulative to a maximum of 15dB.

The baseline assigned levels (prescribed standards) are specified in Regulation 8 and are shown in *Table 2-2*.

Table 2-2 Baseline Assigned Noise Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises: highly sensitive area ¹	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80

1. **highly sensitive area** means that area (if any) of noise sensitive premises comprising —

- (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
- (b) any other part of the premises within 15 metres of that building or that part of the building.

The total influencing factor, applicable at surrounding noise sensitive premises has been calculated as 0 dB as there are no significant commercial, industrial premises nor secondary roads within 450 metres of the receivers.

Table 2-3 shows the assigned noise levels factor at the receiving locations.

Table 2-3 Assigned Noise Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
All nearest highly sensitive areas ¹	0700 to 1900 hours Monday to Saturday (Day)	45	55	65
	0900 to 1900 hours Sunday and public holidays (Sunday)	40	50	65
	1900 to 2200 hours all days (Evening)	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35	45	55
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80

1. **highly sensitive area** means that area (if any) of noise sensitive premises comprising —
- (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
 - (b) any other part of the premises within 15 metres of that building or that part of the building.

It must be noted the assigned noise levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces. Where this was not possible to be achieved due to the close proximity of existing buildings and/or fences, the noise emissions were assessed at a point within 1 metre from building facades and a -2 dB adjustment was made to the predicted noise levels to account for reflected noise.

It is noted the assigned noise levels are statistical levels and therefore the period over which they are determined is important. The Regulations define the Representative Assessment Period (RAP) as *a period of time of not less than 15 minutes, and not exceeding 4 hours*, which is determined by an *inspector or authorised person* to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission. An *inspector or authorised person* is a person appointed under Sections 87 & 88 of the *Environmental Protection Act 1986* and include Local Government Environmental Health Officers and Officers from the Department of Environment Regulation. Acoustic consultants or other environmental consultants are not appointed as an *inspector or authorised person*. Therefore, whilst this assessment is based on a 4 hour RAP, which is assumed to be appropriate given the nature of the operations, this is to be used for guidance only.

3 METHODOLOGY

Computer modelling has been used to predict the noise emissions from the development at all nearby receivers. The software used was *SoundPLAN 8.2* with the ISO 9613 algorithms (ISO 171534-3 improved method) selected, as they include the influence of wind and are considered appropriate given the relatively short source to receiver distances.

Input data required in the model are:

- Meteorological Information;
- Topographical data;
- Ground Absorption; and
- Source sound power levels.

3.1 Meteorological Information

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

Table 3-1 Modelling Meteorological Conditions

Parameter	Day (0700-1900)	Night (1900-0700)
Temperature (°C)	20	15
Humidity (%)	50	50
Wind Speed (m/s)	Up to 5	Up to 5
Wind Direction*	All	All

* Note that the modelling package used allows for all wind directions to be modelled simultaneously.

It is generally considered that compliance with the assigned noise levels needs to be demonstrated for 98% of the time, during the day and night periods, for the month of the year in which the worst-case weather conditions prevail. In most cases, the above conditions occur for more than 2% of the time and therefore must be satisfied.

3.2 Topographical Data

Topographical information was based on data publicly available (e.g. *Google*) in the form of spot heights and combined with finished floor levels provided on the development drawings. It is noted that the area is reasonably flat, with a slight decline from Cranleigh street north to south.

3.3 Buildings and Receivers

Surrounding existing buildings were included in the noise model, as these can provide noise shielding as well as reflection paths.

Adjacent houses are either single or double storey and were modelled as 3.5 metre and 6.0 metre high buildings, with receivers located 1.4 metres and 4.4 metres above ground level, respectively. The childcare centre building incorporates a car park and play areas as shown in the design drawings of *Appendix A* and this was reproduced within the noise model.

Figure 3-1 shows a 2D overview of the noise model with the location of all relevant receivers identified.

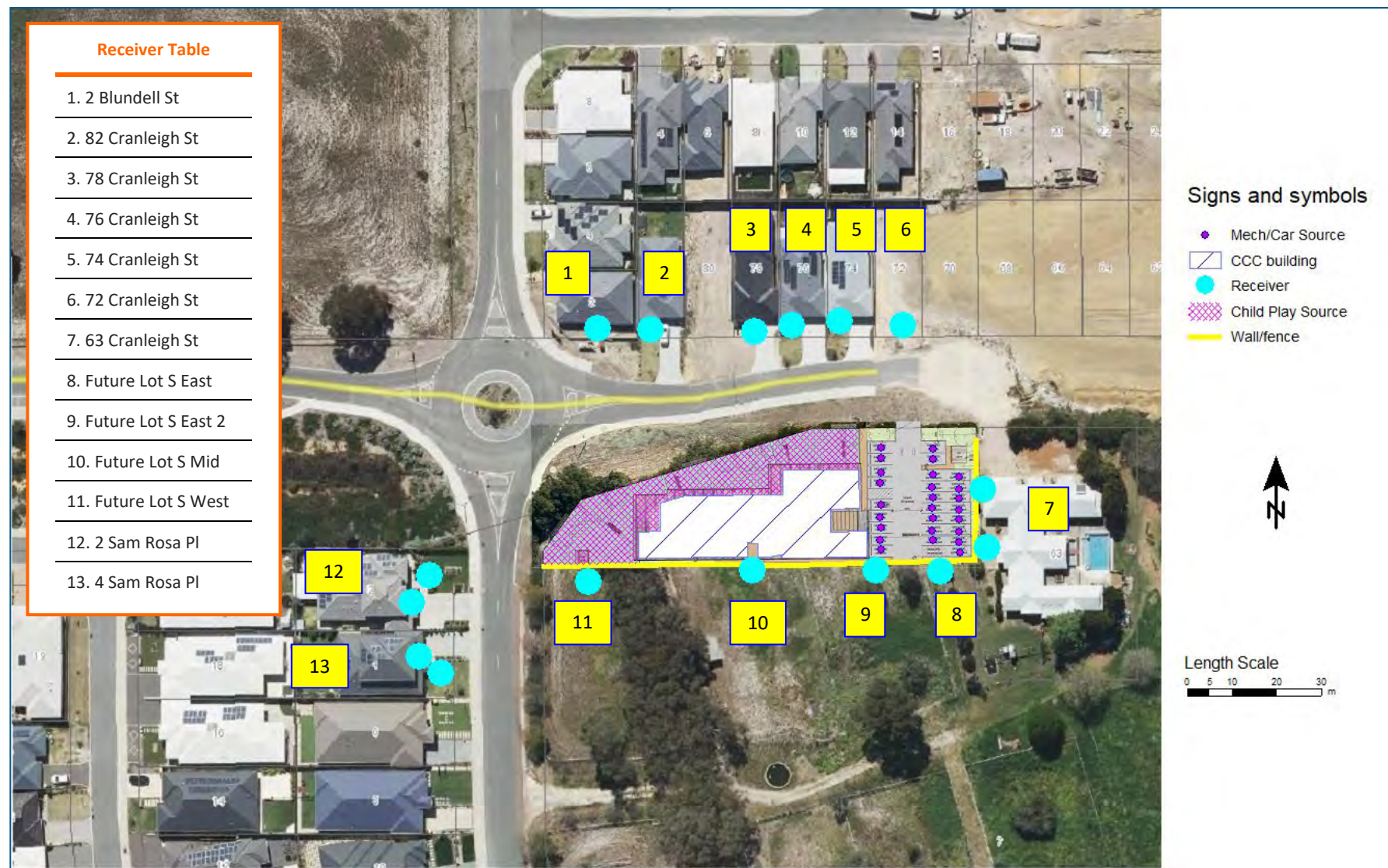


Figure 3-1 2D Overview of Noise Model

3.4 Source Sound Levels

The sound power levels used in the modelling are provided in *Table 3-2*.

Table 3-2 Source Sound Power Levels, dB

Description	Octave Band Centre Frequency (Hz)								Overall dB(A)
	63	125	250	500	1k	2k	4k	8k	
Babies Play Aged 0-2 Years (10 kids), L_{10}	78	54	60	66	72	74	71	67	78
Toddler Play Aged 2-3 Years (10 kids), L_{10}	61	67	73	79	81	78	74	70	85
Kindy Play Aged 3+ Years (10 kids), L_{10}	64	70	75	81	83	80	76	72	87
AC plant, double fan unit (2 off), each, L_{10}	72	74	68	69	63	61	53	47	70
Toilet/Laundry Exhausts, each, L_{10}	60	65	62	63	60	61	56	53	67
Kitchen Exhaust, L_{10}	50	64	61	70	69	66	62	50	73
Closing Car Door, L_{max}	71	74	77	81	80	78	72	61	84

The following is noted in relation to the source levels above:

- Child play source levels are based on Guideline 3.0 provided by the Association of Australasian Acoustical Consultants (AAAC) published September 2020. Where the number of children for individual play areas is specified in the plans, these have been adjusted from the reference source levels using appropriate acoustical calculations. Outdoor child play was modelled as area sources at 1-metre heights above ground level. The sound power levels used in the model were scaled as follows:
 - 22 Babies = 81 dB(A)
 - 30 Toddlers = 89 dB(A)
 - 40 Kindy = 93 dB(A)
- Based on the AAAC Guideline 3.0, source sound power levels for AC condensing units were assumed. Medium sized (double fan) outdoor units were deemed appropriate. Each was modelled as a point source located 1.2 metres above ground level positioned as indicated on plans.
- Based on similar projects, three AC condensing units were assumed for the various spaces. Each was modelled as a point source located in the service yard area. A 2.4m wall/door enclosing this yard has been modelled, with preliminary results showing requiring this.
- Other mechanical plant includes three exhaust fans (toilets and laundry) and one kitchen exhaust fan/rangehood fan. All were modelled as point sources approximately 0.5 metres above roof level and above the area serviced.
- Car doors closing were modelled as a point source 1.0 metre above ground level. Since noise from a car door closing is a short term event, only the L_{Amax} level is applicable.

3.5 Walls and Fences

The area is mostly suburban residential with typical boundary fencing (*Hardie Fence* and *Colorbond* types) between residences. It is assumed that a 1.8m high solid fence will be installed encompassing the play areas on all sides- refer DA drawings for more detail. A 2.0m wall with 1.5m angled cantilever section is also proposed (and modelled) along the southern wall of the westernmost play area. The carpark also includes a 1.8m high solid fence to the south and east sides. The modelling has assumed that no gaps are present in these barriers, and this will need to be ensured in the final build.

The material selected for all barriers must have a minimum 8kg/m^2 surface mass to be effective acoustically. With regard to any entry gates within a barrier, these must also be solid and any air gaps appropriately sealed or overlapped.

Figure 3-2 shows a view of the 3D model based on the information above in relation to topography and building and fence heights. Also shown are the outdoor play areas (pink polygon) and point sources (e.g. mechanical plant, car doors) as purple dots.



Figure 3-2 South East Elevation View of 3D Noise Model

3.6 Ground Absorption

Ground absorption varies from a value of 0 to 1, with 0 being for an acoustically reflective ground (e.g. asphalt, concrete) and 1 for acoustically absorbent ground (e.g. grass/sand). In this instance, a value of 0 has been used for the outdoor play areas and the car park and road areas, and 0.6 for all other areas.

4 RESULTS

4.1 Outdoor Child Play

The childcare development will host up to 92 children. It is noted play time is generally staggered and therefore not all children would be playing outside at once for extended periods of time. However, noise levels were conservatively predicted for this, as a worst-case scenario, as follows:

- All groups, totalling 92 children (all ages) are playing outside simultaneously for extended periods of time.

Table 4-1 presents the predicted noise levels at each receiver, noting the predicted noise levels are from child play only i.e. mechanical plant noise is not included. Figure 4-1 also shows the predicted noise levels as noise contour maps at ground level (1.5 metres AGL).

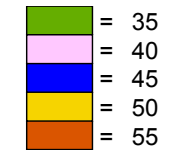
Table 4-1 Predicted Noise Levels of Child Play, dB LA10

Receiver	92 Children Outside
1. 2 Blundell St	43
2. 82 Cranleigh St	44
3. 78 Cranleigh St	43
4. 76 Cranleigh St	42
5. 74 Cranleigh St	41
6. 72 Cranleigh St (Vacant)	41
7. 63 Cranleigh St	33
7. 63 Cranleigh St - middle yard	32
8. Future Lot S East	35
9. Future Lot S East 2	34
10. Future Lot S Mid	39
11. Future Lot S West	45
12. 2 Sam Rosa 1F	44
12. 2 Sam Rosa GF	44
13. 4 Sam Rosa 1F	41
13. 4 Sam Rosa GF	39

Figure 4-1 Outdoor Child Play Noise, All Children Outside, dB L_{A10}



Predicted Noise level



Legend

- █ Childcare Centre
- Receiver
- ▬ Fence
- ▨ Outdoor Childplay

Scale 1:1000



Project No: 21046305
 Consultant: MM
 Date: 14/05/2021
 Algorithm: ISO 9613
 SoundPLAN Version: 8.2



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4.2 Mechanical Plant

Mechanical plant consists of AC plant and extraction fans for the kitchen, toilets and laundry. The exhaust fans were assumed to be located on the roof and above the room being serviced. The AC plant was modelled as per the designated area on the southern side of the building.

Since the childcare centre opens from 6.30am, it was considered that all plant could be operating simultaneously at night-time (i.e. before 7.00am). The predicted mechanical plant noise levels are presented in *Table 4-2*. The overall plant noise levels are also shown on *Figure 4-2*.

Table 4-2 Predicted Noise Levels of Mechanical Plant, dB LA10

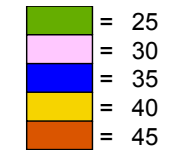
Receiver	Rooftop Exhaust Fans	AC Condensers (Service Yard)	Combined
1. 2 Blundell St	22	<10	22
2. 82 Cranleigh St	23	<10	23
3. 78 Cranleigh St	23	<10	24
4. 76 Cranleigh St	23	<10	23
5. 74 Cranleigh St	23	<10	23
6. 72 Cranleigh St (Vacant)	24	<10	24
7. 63 Cranleigh St	26	<10	26
7. 63 Cranleigh St - middle yard	26	<10	26
8. Future Lot S East	30	13	30
9. Future Lot S East 2	33	16	33
10. Future Lot S Mid	31	33	35
11. Future Lot S West	26	15	26
12. 2 Sam Rosa 1F	22	11	22
12. 2 Sam Rosa GF	21	<10	21
13. 4 Sam Rosa 1F	22	<10	22
13. 4 Sam Rosa GF	23	<10	23

It can be seen that at most receivers, the predicted mechanical plant noise is lower than the child play noise levels (*Table 4-1*). Therefore, child play noise would dominate the noise levels during the day at most receivers, except prior to 7.00am, when child play noise is not present. The above results should be recalculated once mechanical plant specifications are known closer to building permit application.

Figure 4-2 Mechanical Plant Noise, dB L_{A10}



Predicted Noise level



Legend

- Childcare Centre
- Receiver
- Fence
- * Mech Plant

Scale 1:1000



Project No: 21046305
 Consultant: MM
 Date: 14/05/2021
 Algorithm: ISO 9613
 SoundPLAN Version: 8.2



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4.3 Car Park

The model includes noise from car doors closing in all parking bays and *Table 4-3* presents the highest predicted noise levels applicable to each receiver. *Figure 4-3* also presents the maximum noise levels at ground level (1.5 m AGL) for car doors as a contour map. Note that this contour is not a cumulative level, but a composite contour of each maximum noise event.

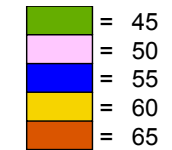
Table 4-3 Predicted Car Doors Closing Noise Levels, dB L_{Amax}

Receiver	Car doors
1. 2 Blundell St	32
2. 82 Cranleigh St	33
3. 78 Cranleigh St	39
4. 76 Cranleigh St	40
5. 74 Cranleigh St	42
6. 72 Cranleigh St (Vacant)	44
7. 63 Cranleigh St	45
7. 63 Cranleigh St - middle yard	45
8. Future Lot S East	45
9. Future Lot S East 2	45
10. Future Lot S Mid	36
11. Future Lot S West	31
12. 2 Sam Rosa 1F	26
12. 2 Sam Rosa GF	24
13. 4 Sam Rosa 1F	26
13. 4 Sam Rosa GF	27

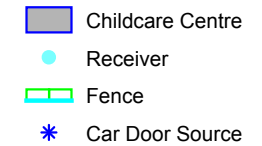
Figure 4-3 Car Park Noise, $\text{dB } L_{A\text{max}}$



Predicted Noise level



Legend



Scale 1:1000



Project No: 21046305
 Consultant: MM
 Date: 14/05/2021
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 SoundPLAN Version: 8.2



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5 ASSESSMENT

5.1 Outdoor Child Play

Although the childcare centre opens from 6.30am, outdoor child play will only occur after 7.00am, when the assigned noise levels increase by 10 dB compared to prior to 7.00am. Noise from child play is not considered to contain annoying characteristics within the definition of the Regulations and therefore, no adjustments are made to the predicted noise levels.

Table 5-1 presents the assessment of the highest predicted noise levels from all 92 children playing outside against the L_{A10} assigned noise level at each receiver.

Table 5-1 Assessment of Outdoor Child Play Noise Levels, dB L_{A10}

Receiver	Assigned Noise Level*	Predicted Level	Exceedance*
1. 2 Blundell St	45	43	Complies
2. 82 Cranleigh St	45	44	Complies
3. 78 Cranleigh St	45	43	Complies
4. 76 Cranleigh St	45	42	Complies
5. 74 Cranleigh St	45	41	Complies
6. 72 Cranleigh St (Vacant)*	60 (45)	41	Complies
7. 63 Cranleigh St	45	33	Complies
7. 63 Cranleigh St - middle yard	45	32	Complies
8. Future Lot S East	60 (45)	35	Complies
9. Future Lot S East 2	60 (45)	34	Complies
10. Future Lot S Mid	60 (45)	39	Complies
11. Future Lot S West	60 (45)	45	Complies
12. 2 Sam Rosa 1F	45	44	Complies
12. 2 Sam Rosa GF	45	44	Complies
13. 4 Sam Rosa 1F	45	41	Complies
13. 4 Sam Rosa GF	45	39	Complies

* Where a boundary receiver has the potential to be highly noise sensitive in the event of future development, the assigned level (and exceedance) would be as shown in brackets.

From Table 5-1 it can be seen that noise levels comply with the most critical receivers. The assessment demonstrates compliance based on a conservative scenario of all 92 children playing simultaneously. The proposed barriers are effective and no further mitigation measures are required. It is recommended, however, that compliance be confirmed once detailed retaining walls, lot levels and top of wall (fence heights) can be verified at detailed design.

5.2 Mechanical Plant

Given the proposed opening hours of the childcare centre, the night-time period (i.e. before 7.00am) is most critical. The overall noise levels are generally dominated by the kitchen exhaust plant and A/C condenser noise, which may be considered tonal, and a +5 dB adjustment (refer *Table 5-2*) applies to predictions.

Table 5-2 Assessment of Mechanical Plant Noise Levels, dB LA10

Receiver	Night Assigned Noise Level*	Predicted Level	Adjusted Level	Exceedance*
1. 2 Blundell St	35	22	27	Complies
2. 82 Cranleigh St	35	23	28	Complies
3. 78 Cranleigh St	35	24	29	Complies
4. 76 Cranleigh St	35	23	28	Complies
5. 74 Cranleigh St	35	23	28	Complies
6. 72 Cranleigh St (Vacant)	60 (35)	24	29	Complies
7. 63 Cranleigh St	35	26	31	Complies
7. 63 Cranleigh St - middle yard	35	26	31	Complies
8. Future Lot S East	60 (35)	30	35	Complies
9. Future Lot S East 2	60 (35)	33	38	Complies(+3)
10. Future Lot S Mid	60 (35)	35	40	Complies (+5)
11. Future Lot S West	60 (35)	26	31	Complies
12. 2 Sam Rosa 1F	35	22	27	Complies
12. 2 Sam Rosa GF	35	21	26	Complies
13. 4 Sam Rosa 1F	35	22	27	Complies
13. 4 Sam Rosa GF	35	23	28	Complies

* Where a boundary receiver has the potential to be highly noise sensitive in the event of future development, the assigned level (and exceedance) would be as shown in brackets.

Based on the predicted noise levels in *Table 5-2*, the most critical mechanical plant noise levels are to the south, though exceedances are only in the event of future residential development, with the current situation compliant. The primary contributors are the AC condensers, though the kitchen exhaust also contributes and therefore should be designed with noise as a consideration.

Compliance is demonstrated for the day time period, where the assigned level is 10 dB higher than at night. Note that this assessment is based on assumptions in relation to the number, size and type of AC plant and exhaust fans. Therefore, mechanical plant noise is to be reviewed by a qualified acoustical consultant during detailed design, when plant selections and locations become known.

5.3 Car Doors

Car doors closing noise are short duration events and were therefore assessed against the L_{Amax} assigned noise level. Given the proposed hours of operation, staff and visitors may arrive before 7.00am when the night-time assigned noise level of 55 dB L_{Amax} is applicable. Car door noise was considered impulsive within the definition of the Regulations. Therefore, an adjustment of +10 dB (refer Table 5-3) is to be applied to the predicted noise levels.

Table 5-3 Assessment of Car Doors Closing Noise Levels, dB L_{Amax}

Receiver	Night Assigned Noise Level*	Predicted Level	Adjusted Level	Exceedance*
1. 2 Blundell St	55	32	42	Complies
2. 82 Cranleigh St	55	33	43	Complies
3. 78 Cranleigh St	55	39	49	Complies
4. 76 Cranleigh St	55	40	50	Complies
5. 74 Cranleigh St	55	42	52	Complies
6. 72 Cranleigh St (Vacant)	80 (55)	44	54	Complies
7. 63 Cranleigh St	55	45	55	Complies
7. 63 Cranleigh St - middle yard	55	45	55	Complies
8. Future Lot S East	80 (55)	45	55	Complies
9. Future Lot S East 2	80 (55)	45	55	Complies
10. Future Lot S Mid	80 (55)	36	46	Complies
11. Future Lot S West	80 (55)	31	41	Complies
12. 2 Sam Rosa 1F	55	26	36	Complies
12. 2 Sam Rosa GF	55	24	34	Complies
13. 4 Sam Rosa 1F	55	26	36	Complies
13. 4 Sam Rosa GF	55	27	37	Complies

* Where a boundary receiver has the potential to be highly noise sensitive in the event of future development, the assigned level (and exceedance) would be as shown in brackets.

The noise from car doors is demonstrated to comply at all locations. Further restricting staff bays may further mitigate noise during the early morning period (prior to 7.00am). During the day compliance is readily achieved. It is recommended that compliance be confirmed once detailed retaining walls and top of wall (fence heights) can be verified at detailed design.

5.4 Indoor Child Play

An assessment of noise levels from indoor child play was carried out and the resulting noise levels at all locations were predicted to be well below that of outdoor child play considered in *Section 4.1*. This assessment was carried out based on the following considerations:

- External doors and windows will be closed during indoor activity / play;
- Internal noise levels within activity rooms would not exceed those from outdoor play for each age group; and,
- Any music played within the internal activity areas would be 'light' music with no significant bass content and played at a relatively low level.

6 RECOMMENDATIONS

To mitigate noise from kitchen exhaust fans, it is recommended that these be designed as inline type fans, which could be installed with attenuators or diverted ducting, rather than externally mounted plant.

The AC condensing units, while potentially compliant at all times, may be mitigated further with quiet mode (reduced capacity) programming prior to 7.00am. These options should be explored during detailed design and verified by the mechanical services engineer and a qualified acoustical consultant, when plant selections and locations become known.

Noise from child play is demonstrated to comply during the day, with the proposed walls ensuring the walls and gates are free of gaps and a material with minimum surface mass of 8 kg/m².

Noise from car park use to properties to the east and south should be anticipated, however by constructing the acoustic fencing in the areas noted on the DA plans, this will be mitigated as demonstrated by way of noise modelling. The barrier should be a minimum 15kg/m² surface mass.

Finally, the following best practices should be implemented where practicable:

- The behaviour and 'style of play' of children should be monitored to prevent particularly loud activity e.g. loud banging/crashing of objects, 'group' shouts/yelling,
- Favour soft finishes in the outdoor play area to minimise impact noise (e.g. soft grass, sand pit(s), rubber mats) over timber or plastic,
- Favour soft balls and rubber wheeled toys,
- Crying children should be taken inside to be comforted,
- No amplified music to be played outside,
- External doors and windows to be closed during indoor activity / play, and
- Any music played within the internal activity areas to be 'light' music with no significant bass content and played at a relatively low level.
- Car park drainage grates to be plastic or metal with rubber gasket and secured to avoid excess banging.

7 CONCLUSIONS

The noise impacts from the proposed childcare centre to be located at Lot 9501 (7) Sam Rosa Place in Dayton have been assessed against the relevant criteria of the *Environmental Protection (Noise) Regulations 1997*.

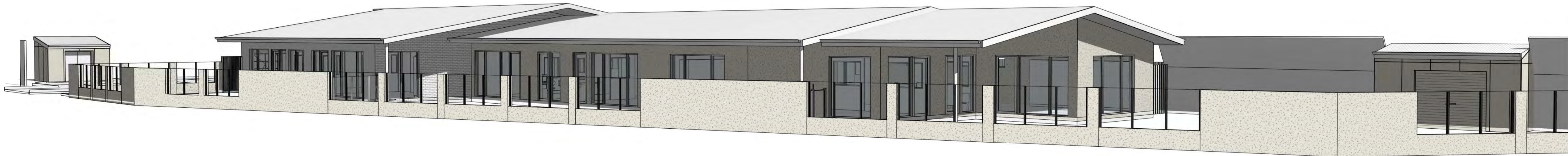
Based on the modelling and assessments in relation to the noise emissions from child play, mechanical plant and car doors closing, it is concluded that compliance can be achieved for all existing and future noise sensitive premises provided that the recommendations in *Section 6* are implemented.

Appendix A

Development Plans

PROPOSED CHILDCARE CENTRE
LOT 9501 (7) SAM ROSA PLACE, DAYTON, WA
(FUTURE LOT 138 SAM ROSA PLACE, DAYTON, WA)

CITY OF SWAN
RECEIVED
20 May 2021



DRAWING REGISTER PLANNING

SHEET NUMBER	SHEET NAME	ISSUE	DESCRIPTION	DATE
DA01	SITE PLAN	1	PRELIMINARY DA SET ISSUE	18/05/2021
DA02	FLOOR PLAN	1	PRELIMINARY DA SET ISSUE	18/05/2021
DA03	ELEVATIONS	1	PRELIMINARY DA SET ISSUE	18/05/2021

GENERAL NOTES

DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT. PREPARATION OF SHOP DRAWINGS OR MANUFACTURING: FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALING. VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA. BUILDING ACT 1975 AS AMENDED. STANDARD BUILDING BY-LAWS AND RELEVANT AUSTRALIAN STANDARDS.

1	PRELIMINARY DA SET ISSUE	18/05/2021	
0	PRELIMINARY DA ISSUE	10/05/2021	
ISSUE	DESCRIPTION	DATE	

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CLIENT:
OTB DEVELOPMENTS

PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

FILE: T:_PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St\05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491 Cranleigh St, Dayton DA.rvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

DRAWING TITLE:
COVER SHEET

SCALE:	DATE:	APRIL 2021
DRAWN: CW	PRINTED:	18/05/2021 9:04:27 AM
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DA00₁

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CHILDCARE CENTRE ANALYSIS

OPERATION HOURS 6:30am to 6:30pm Monday - Friday
with up to four days open on the weekend for open days

GROUP ROOM 1	0-24months	8 PLACES	2 STAFF
GROUP ROOM 2	0-24months	4 PLACES	1 STAFF
	24-36months	10 PLACES	2 STAFF
GROUP ROOM 3	24-36months	15 PLACES	3 STAFF
GROUP ROOM 4	24-36months	5 PLACES	1 STAFF
	36+ months	10 PLACES	1 STAFF
GROUP ROOM 5	36+ months	20 PLACES	2 STAFF
GROUP ROOM 6	36+ months	20 PLACES	2 STAFF
		92 PLACES	14 STAFF

AREA ANALYSIS

TOTAL SITE AREA 2312m²

SITE COVERAGE 852m² (36.8%)

BUILDING AREA
GROUND FLOOR 698m² gross

PARKING REQUIREMENTS -
25.5 bays required (1bay/staff + 1bay/8places)
26 bays provided + 2 bicycle parks



2 KEY PLAN
1 : 2000



1 SITE PLAN
1 : 200

GENERAL NOTES

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LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

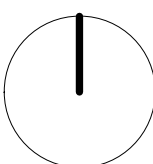
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SCALE: As indicated@A1 DATE: APRIL 2021

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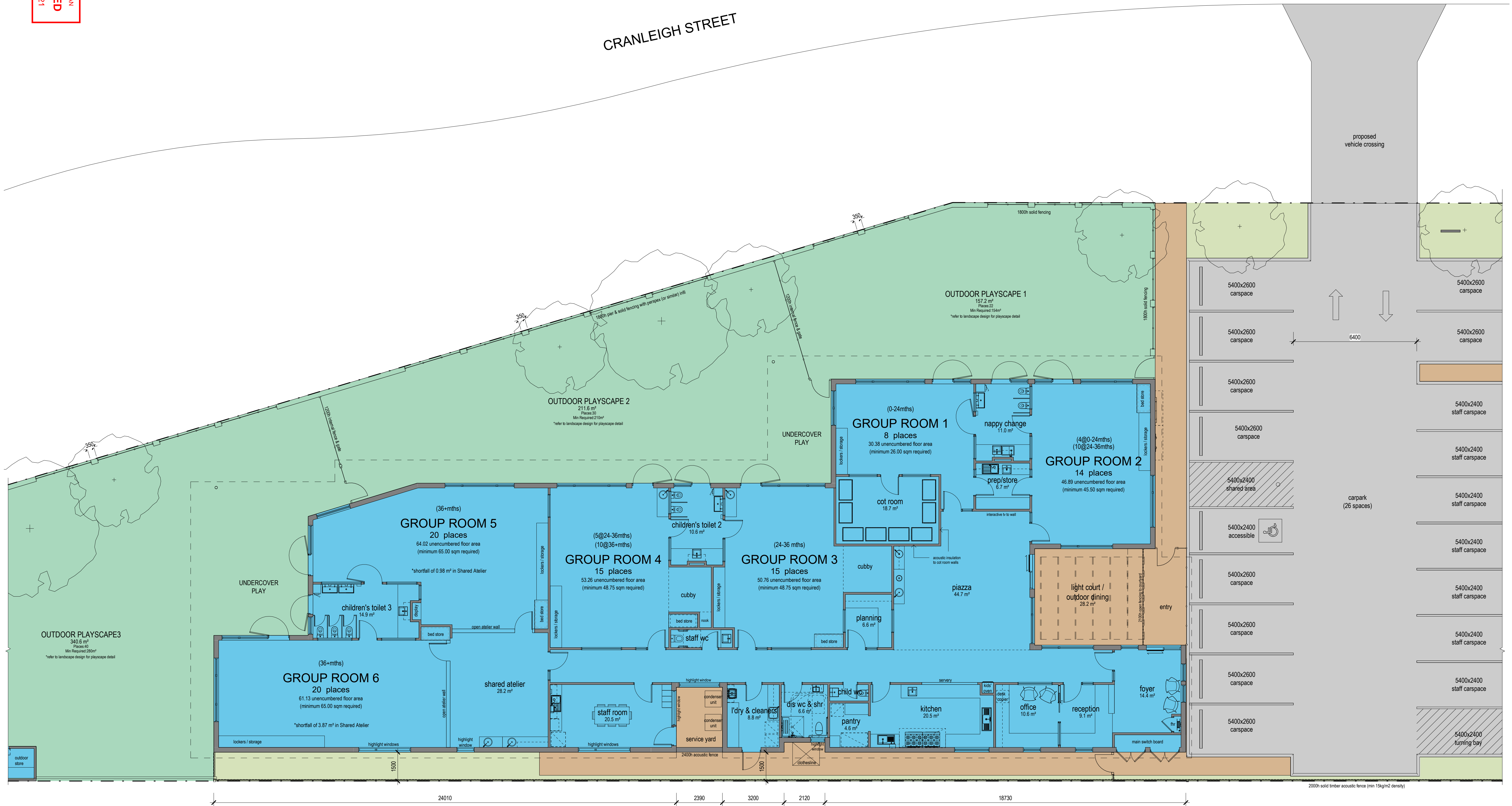
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DA01₁

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CRANLEIGH STREET



1 GROUND FLOOR PLAN
1:100

GENERAL NOTES			
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VERIFY LOCATION OF EXISTING SERVICES BEFORE COMMENCEMENT.			
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0	PRELIMINARY DA ISSUE	10/05/2021	
ISSUE	DESCRIPTION	DATE	

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PROJECT:
PROPOSED CHILDCARE CENTRE (92 places)

FILE: T1_PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491 Cranleigh St, Dayton DA.nvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

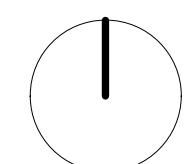
DRAWING TITLE:
FLOOR PLAN

SCALE: 1:100@A1 DATE: APRIL 2021

DRAWN: AH / CW PRINTED: 18/05/2021 9:04:31 AM

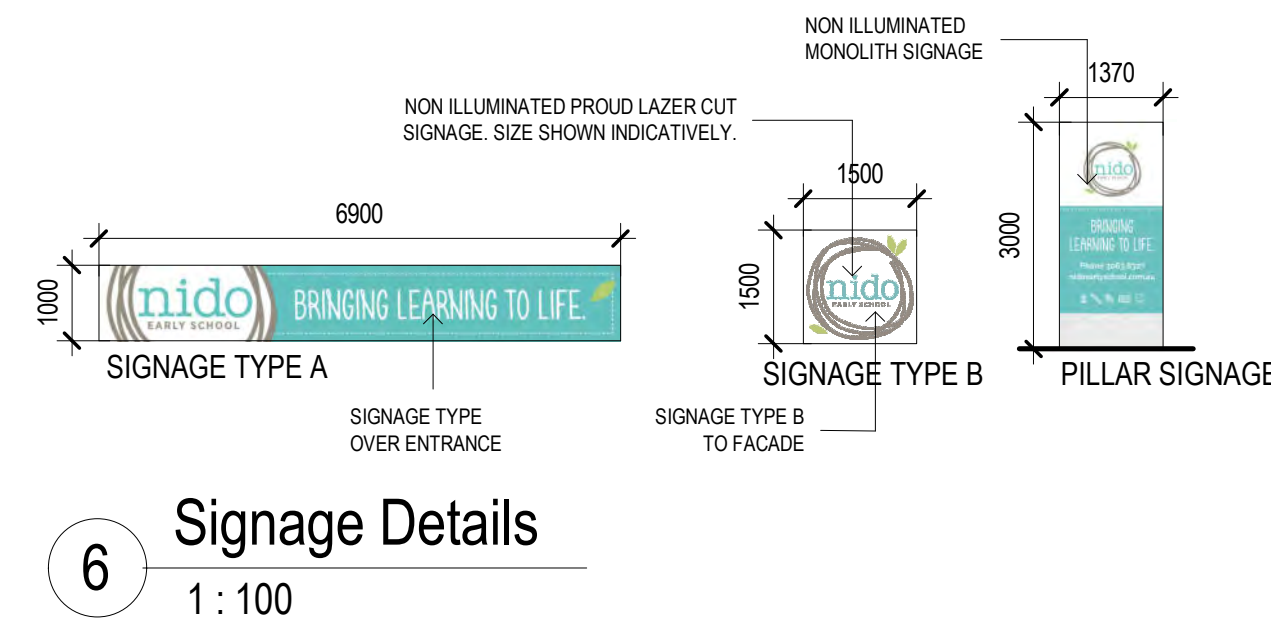
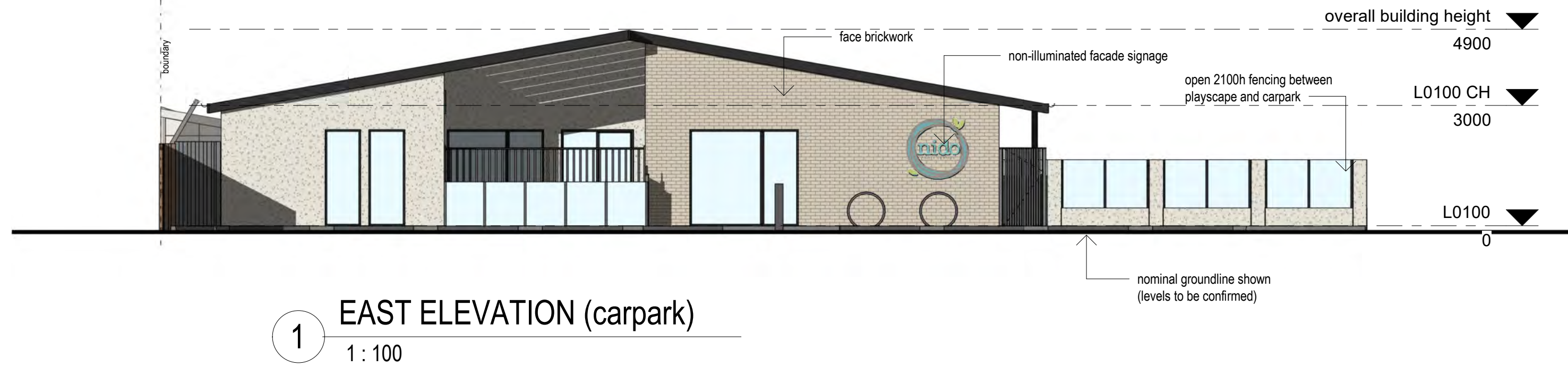
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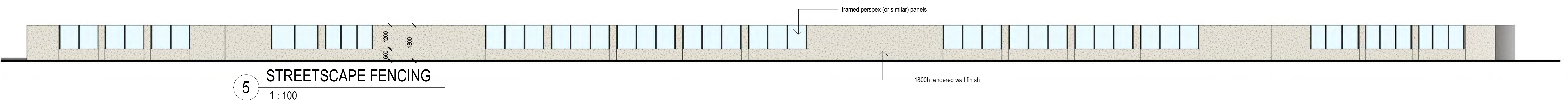
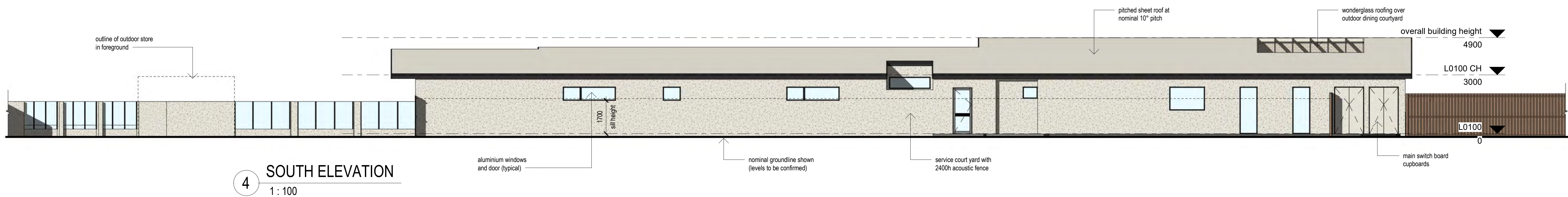
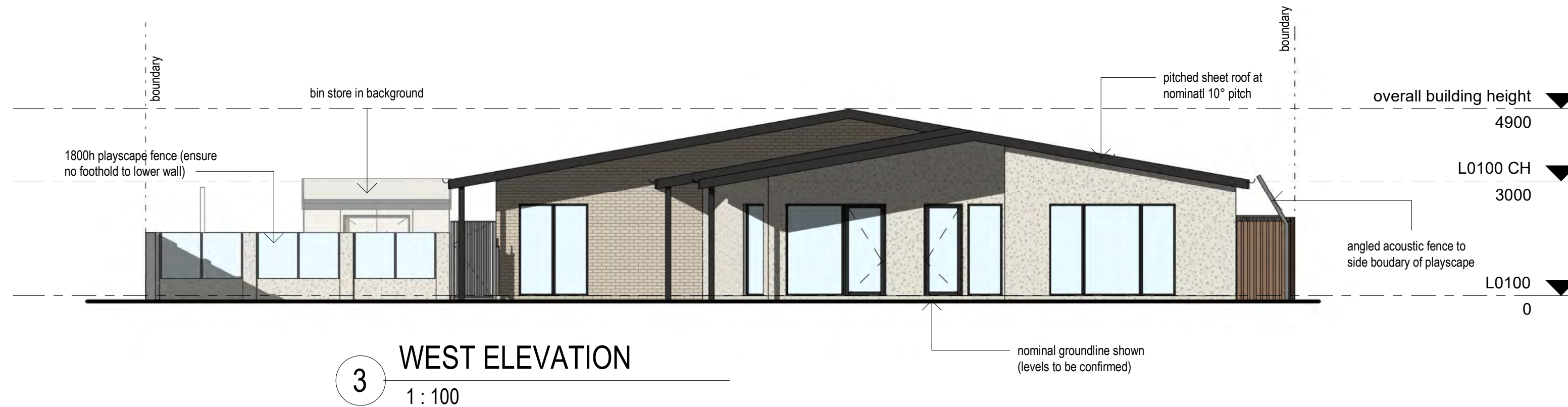
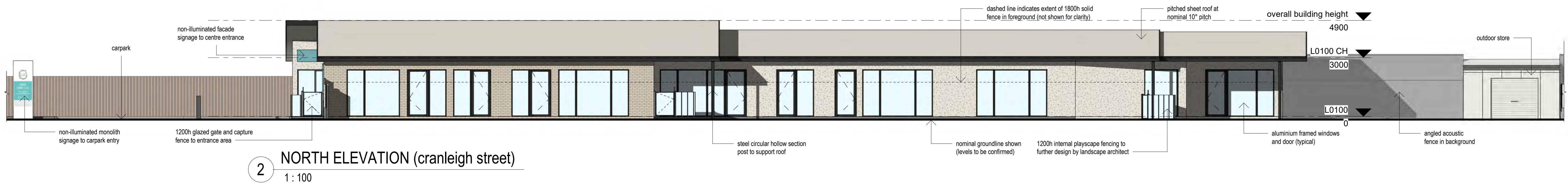
DA02₁

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MATERIAL/COLOUR SCHEDULE

texture paint		dulux 'white duck quarter'
lightweight walls		dulux 'white duck quarter'
express joint sheeting (o/door & bin store)		colorbond 'surf mist'
roofing, gutter & rainwater accessories		colorbond 'monument'
window & door frames		pgh Pure Linens 'Flannel Grey' or similar
feature face brickwork		translucent glass (unless noted otherwise)
glazing		



GENERAL NOTES		
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PROJECT:
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FILE: T1_PROJECTS\Child Care Centres\OTB Developments\Dayton, Cranleigh St\05_Architectural Drawings\03_Planning Drawings\REVIT\J0000491_Cranleigh St, Dayton DA.rvt

LOCATION:
Lot 9501 (7) Sam Rosa Place, Dayton, WA
(future lot 138)

DRAWING TITLE:
ELEVATIONS

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Appendix B

Terminology

The following is an explanation of the terminology used throughout this report.

Decibel (dB)

The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

A-Weighting

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A dB.

Sound Power Level (L_w)

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

Sound Pressure Level (L_p)

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

L_{ASlow}

This is the noise level in decibels, obtained using the A frequency weighting and the S (Slow) time weighting as specified in IEC 61672-1:2002. Unless assessing modulation, all measurements use the slow time weighting characteristic.

L_{AFast}

This is the noise level in decibels, obtained using the A frequency weighting and the F (Fast) time weighting as specified in IEC 61672-1:2002. This is used when assessing the presence of modulation only.

L_{APeak}

This is the greatest absolute instantaneous sound pressure in decibels using the A frequency weighting as specified in IEC 61672-1:2002.

L_{Amax}

An L_{Amax} level is the maximum A-weighted noise level during a particular measurement.

L_{A1}

An L_{A1} level is the A-weighted noise level which is exceeded for one percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

L_{A10}

An L_{A10} level is the A-weighted noise level which is exceeded for 10 percent of the measurement period and is considered to represent the “intrusive” noise level.

L_{Aeq}

The equivalent steady state A-weighted sound level ("equal energy") in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the "average" noise level.

L_{A90}

An L_{A90} level is the A-weighted noise level which is exceeded for 90 percent of the measurement period and is considered to represent the "background" noise level.

One-Third-Octave Band

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20 000 Hz inclusive.

L_{Amax} assigned level

Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded at any time.

L_{A1} assigned level

Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 1% of the representative assessment period.

L_{A10} assigned level

Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 10% of the representative assessment period.

Tonal Noise

A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

the presence in the noise emission of tonal characteristics where the difference between -

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

This is relatively common in most noise sources.

Modulating Noise

A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

a variation in the emission of noise that —

- (a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band;
- (b) is present for at least 10% of the representative.

Impulsive Noise

An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness is:

a variation in the emission of a noise where the difference between $L_{A \text{ peak}}$ and $L_{A \text{ Max slow}}$ is more than 15 dB when determined for a single representative event;

Major Road

Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

Secondary / Minor Road

Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

Influencing Factor (IF)

$$= \frac{1}{10} (\% \text{ Type A}_{100} + \% \text{ Type A}_{450}) + \frac{1}{20} (\% \text{ Type B}_{100} + \% \text{ Type B}_{450})$$

where :

% Type A₁₀₀ = the percentage of industrial land within
a 100m radius of the premises receiving the noise

% Type A₄₅₀ = the percentage of industrial land within
a 450m radius of the premises receiving the noise

% Type B₁₀₀ = the percentage of commercial land within
a 100m radius of the premises receiving the noise

% Type B₄₅₀ = the percentage of commercial land within
a 450m radius of the premises receiving the noise

+ Traffic Factor (maximum of 6 dB)

= 2 for each secondary road within 100m

= 2 for each major road within 450m

= 6 for each major road within 100m

Representative Assessment Period

Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

Background Noise

Background noise or residual noise is the noise level from sources other than the source of concern. When measuring environmental noise, residual sound is often a problem. One reason is that regulations often require that the noise from different types of sources be dealt with separately. This separation, e.g. of traffic noise from industrial noise, is often difficult to accomplish in practice. Another reason is that the measurements are normally carried out outdoors. Wind-induced noise, directly on the microphone and indirectly on trees, buildings, etc., may also affect the result. The character of these noise sources can make it difficult or even impossible to carry out any corrections.

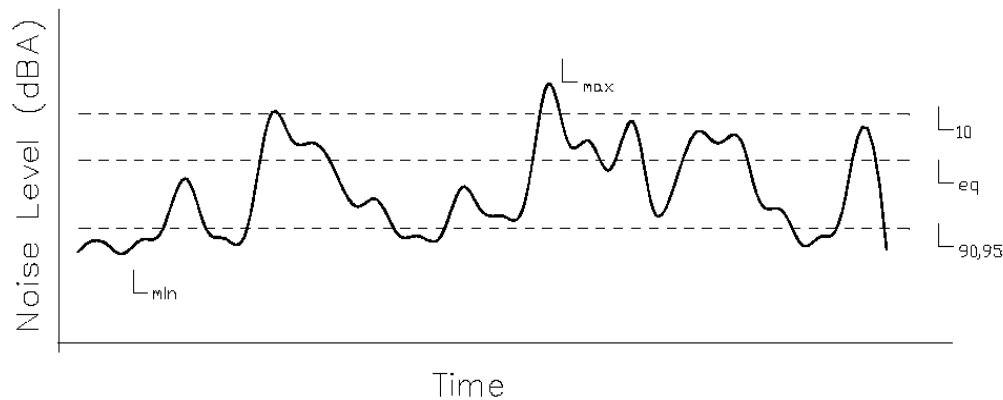
Ambient Noise

Means the level of noise from all sources, including background noise from near and far and the source of interest.

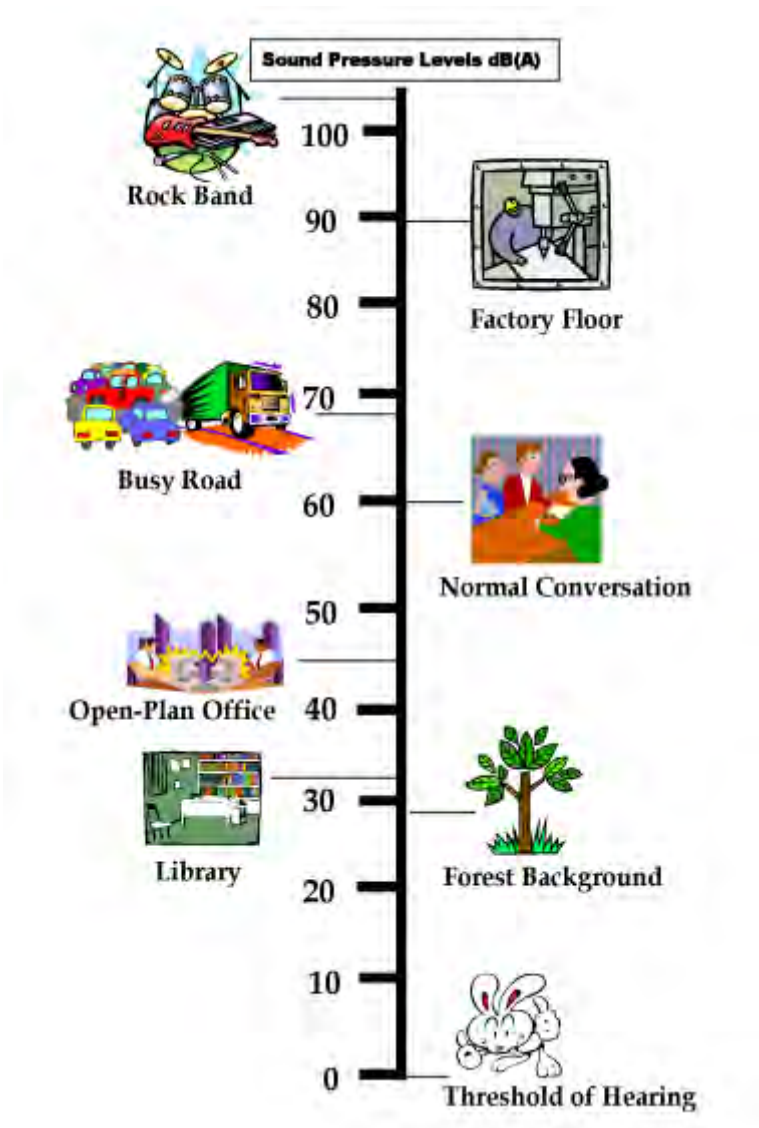
Specific Noise

Relates to the component of the ambient noise that is of interest. This can be referred to as the noise of concern or the noise of interest.

Chart of Noise Level Descriptors



Typical Noise Levels



APPENDIX 6

ADVICE FROM GAS AUTHORITIES (ATCO AND AGIG)

Subject: FW: [EXTERNAL] Re: Gas - Dayton
Date: Monday, 17 May 2021 at 8:59:33 pm Australian Western Standard Time
From: Alessandro Stagno
Attachments: image001.jpg, image002.png, image003.jpg, image004.png, image005.png, image006.jpg, image007.jpg, image008.png, image009.png

From: Snellin, Fiona <Fiona.Snellin@atco.com>
Sent: Wednesday, April 21, 2021 4:21:25 PM
To: Stefan Piruk <stefan@otbdevelopments.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>
Subject: RE: [EXTERNAL] Re: Gas - Dayton

Good afternoon Stefan

Thank you for your patience to receive confirmation from ATCO Gas on our possible requirements for the High Pressure Pipeline, that is known to ATCO as PL028.

Technical Compliance have assessed the information that you provided for the proposed Child Care Centre at Sam Rosa Place in Dayton. Our IBIS system doesn't show the cadastral boundaries as per the subdivision of the greater Lot however from the PlanWA and Landgate it can be identified that the proposed carpark will be considered acceptable in its proposed location and the proposed child care actual building will be located outside of the ATCO Gas Trigger Distance (Measurement Length) for PL028.

The Trigger Distance that is shown on PlanWA (blue hachured are below) has recently been reviewed and the calculations indicate that the Trigger Distance should be 332m from the pipe centreline. A new ATCO data set has recently been sent to the WAPC IT section to be uploaded to ensure this is now available. Should your proposed Child Care Centre building fall within the 332metre Trigger Distance, ATCO would require additional protection to be installed to address the Sensitive land use classification.

Based on the building being located outside of this Trigger Distance of 332m and the area of the carpark being installed just within the Trigger distance of 332m (yellow line), ATCO Gas is pleased to inform you that no additional protection is required to be installed on PL028 due to your proposal and the proposed location of the carpark and the Child Care Centre building.

If there is anything else that you require assistance with regarding the ATCO Gas infrastructure, please contact us and I am happy to be able to assist or direct you to the best person able to assist you.

Thank you Stefan and I really appreciate your early consultation with ATCO.

Kind regards

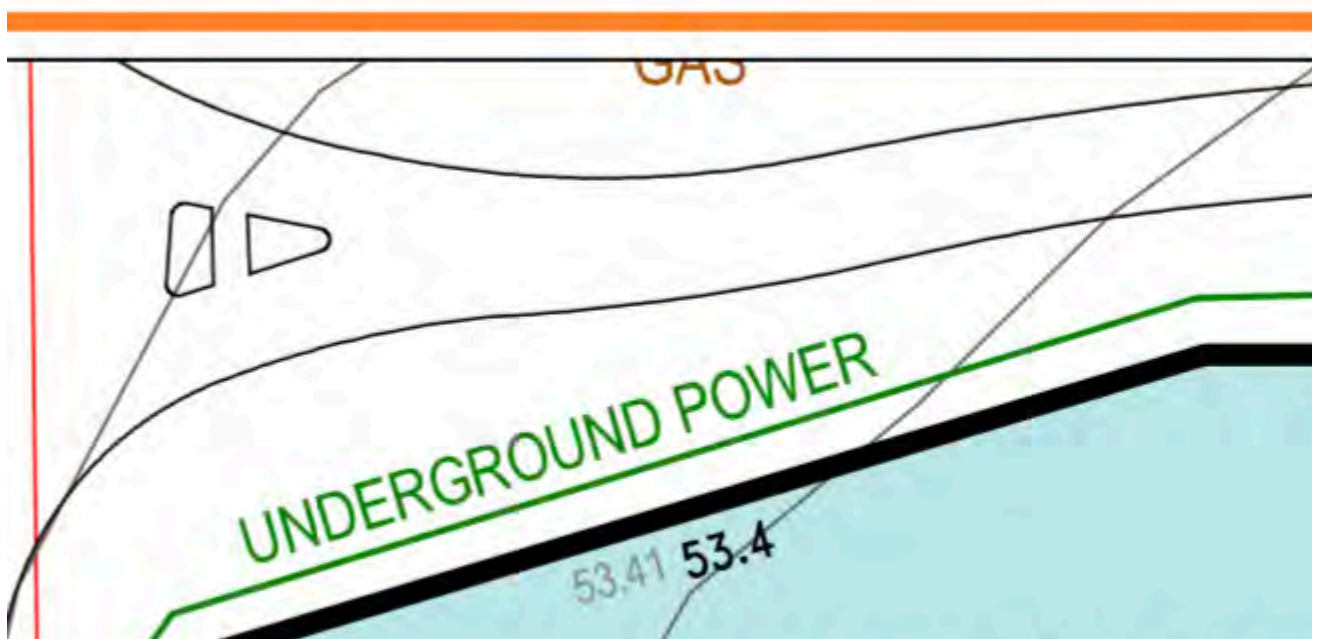
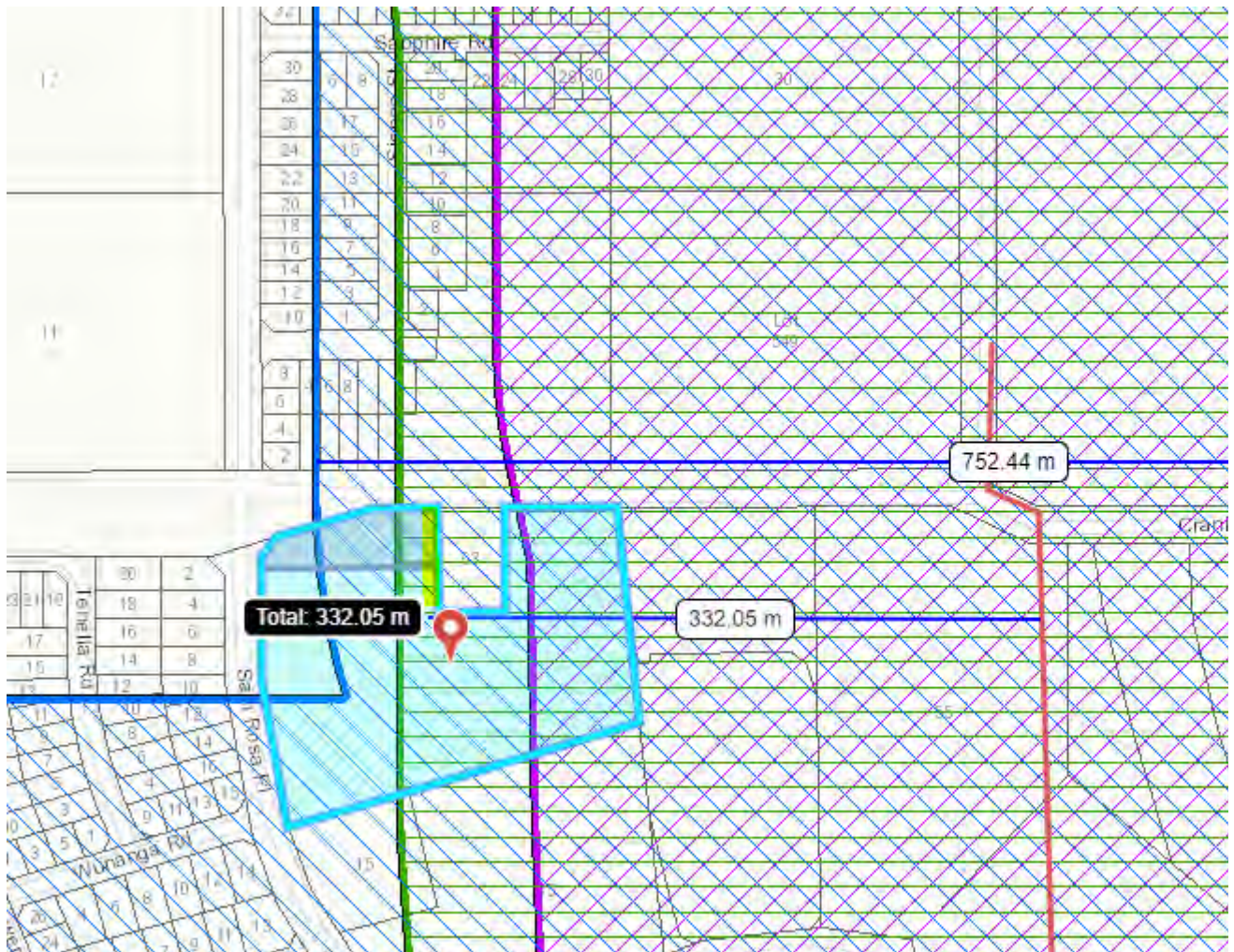
Fiona Snellin
Land Management and Project Coordinator
ATCO, Gas Division, Australia

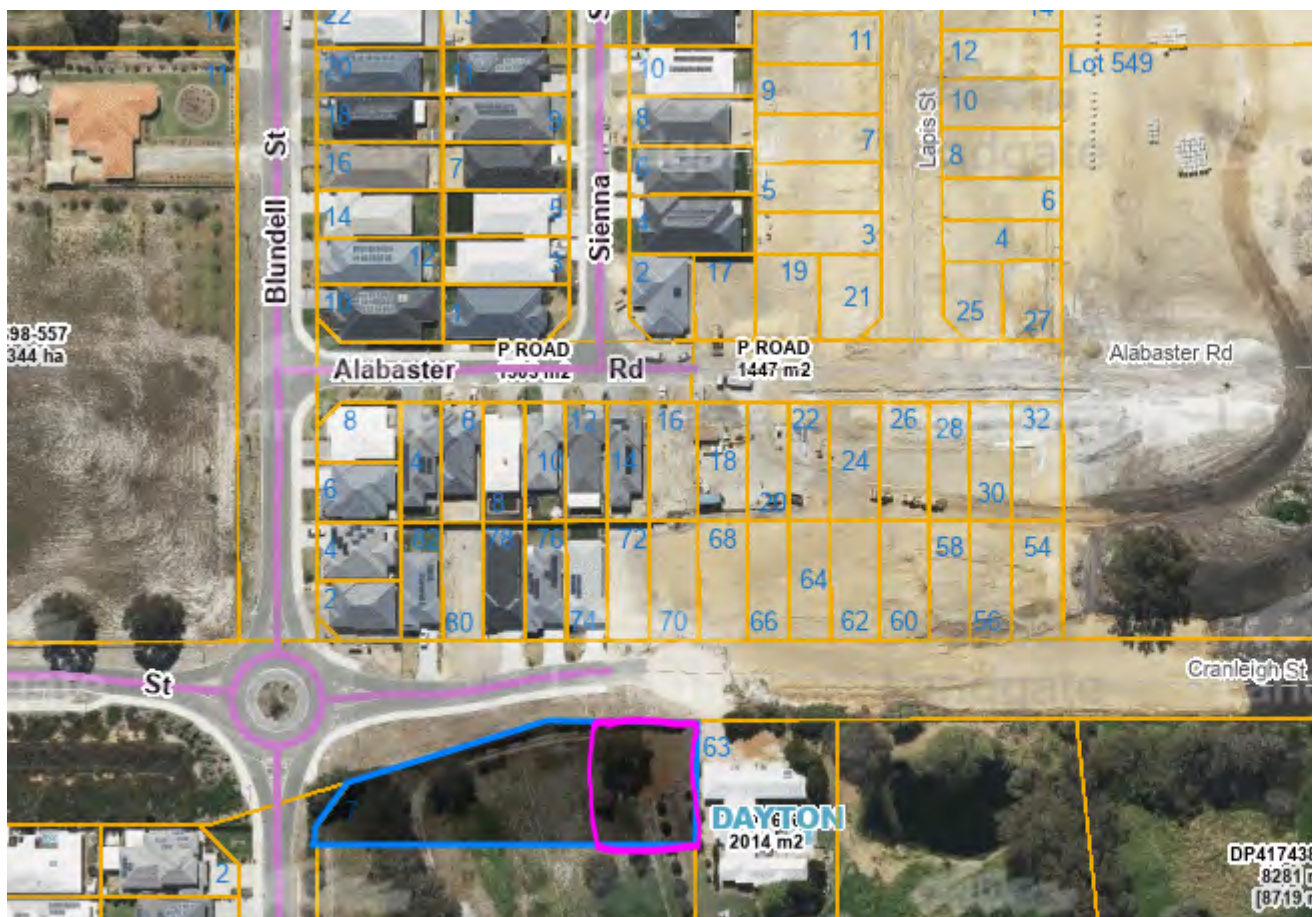
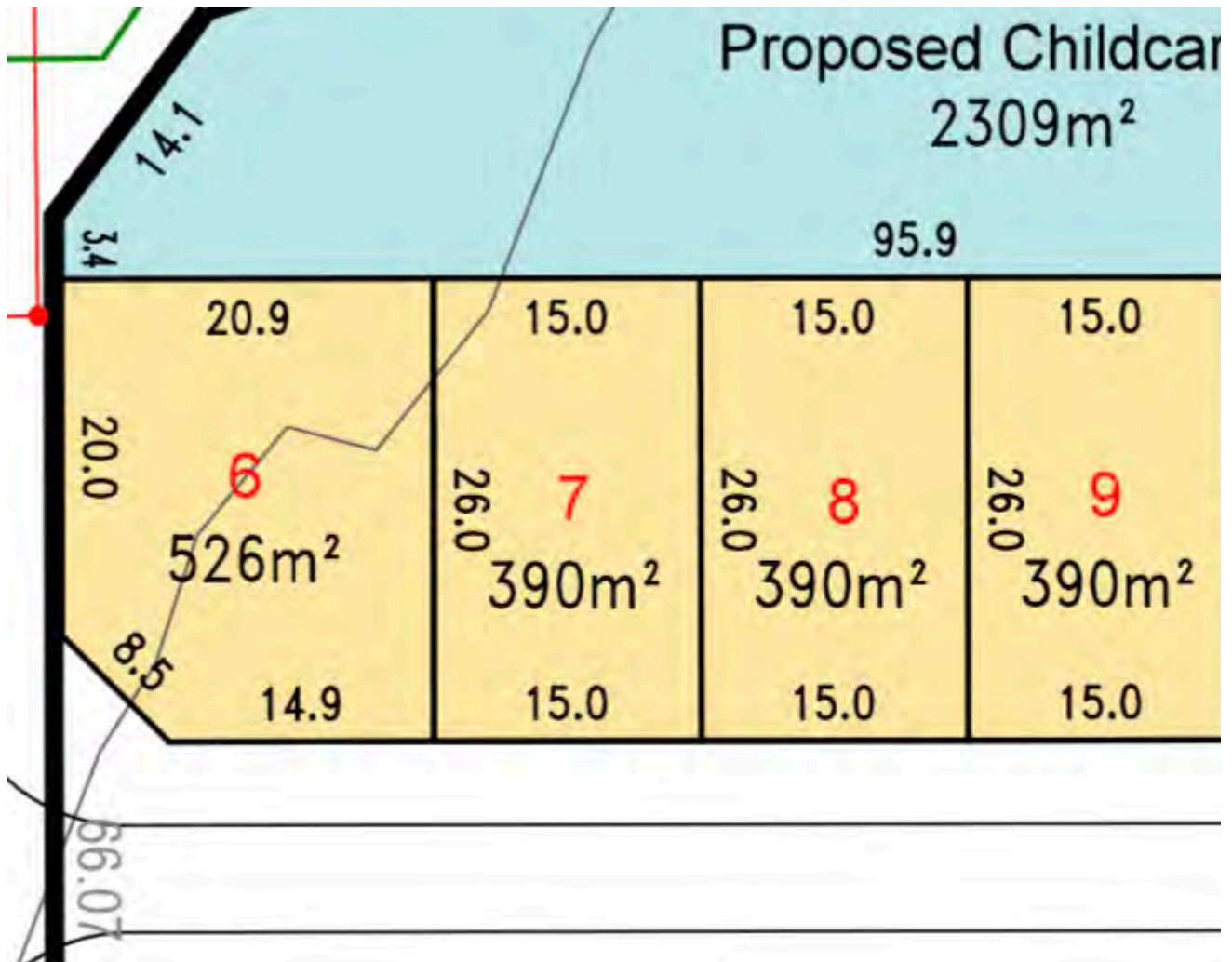
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ATCO acknowledges Aboriginal people as the Traditional Custodians of country throughout Australia including Torres Strait Islander peoples. We pay respect to their cultures, Elders past and present, and in the spirit of reconciliation, we commit to working together for our shared future.







From: Stefan Piruk <stefan@otbdevelopments.com>
Sent: Thursday, 1 April 2021 2:54 PM
To: Snellin, Fiona <Fiona.Snellin@atco.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>
Subject: Re: [EXTERNAL] Re: Gas - Dayton

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Hi Fiona,

No problems, I knew you were onto it. Really appreciate all the help you have given us over the last few weeks.

Enjoy the long weekend!

Stefan

From: "Snellin, Fiona" <Fiona.Snellin@atco.com>
Date: Thursday, 1 April 2021 at 2:52 pm
To: Stefan Piruk <stefan@otbdevelopments.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>
Subject: RE: [EXTERNAL] Re: Gas - Dayton

Hi Stefan

I've reached almost the same response however I have sought Tech Compliance verification on my assessment, before sending a positive email through to you. As I'm based in Malaga I can't just walk over to the other side of the office and have a chat but I have asked for this to be considered urgently Stefan.

Thanks for your patience and it's nearly end of the week.

Talk soon and I'll be back in touch as soon as I have confirmation for you.

Happy Easter

Fiona

From: Stefan Piruk <stefan@otbdevelopments.com>
Sent: Thursday, 1 April 2021 2:46 PM
To: Kathryn Chick <kathryn.chick@agig.com.au>; Snellin, Fiona <Fiona.Snellin@atco.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>; Neil Parry <neil.parry@agig.com.au>
Subject: Re: [EXTERNAL] Re: Gas - Dayton

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Thanks Kathryn,

Appreciate the quick response.

From: Kathryn Chick <kathryn.chick@agig.com.au>
Date: Thursday, 1 April 2021 at 1:39 pm
To: Stefan Piruk <stefan@otbdevelopments.com>, "Snellin, Fiona" <Fiona.Snellin@atco.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>, Neil Parry <neil.parry@agig.com.au>
Subject: RE: [EXTERNAL] Re: Gas - Dayton

Hi Stefan

As discussed, we have no concerns with the proposed child care as it is outside our measurement length for sensitive land use within this location.

Kind regards

Kathryn Chick
Land Management Officer
M [+61 409 339 584](tel:+61409339584) T [+61 8 9223 4928](tel:+61892234928)
E kathryn.chick@agig.com.au



Australian Gas Infrastructure Group

Levels 22/23, 140 St Georges Terrace, Perth, WA 6000
PO Box Z5267, St Georges Terrace. PERTH WA 6831

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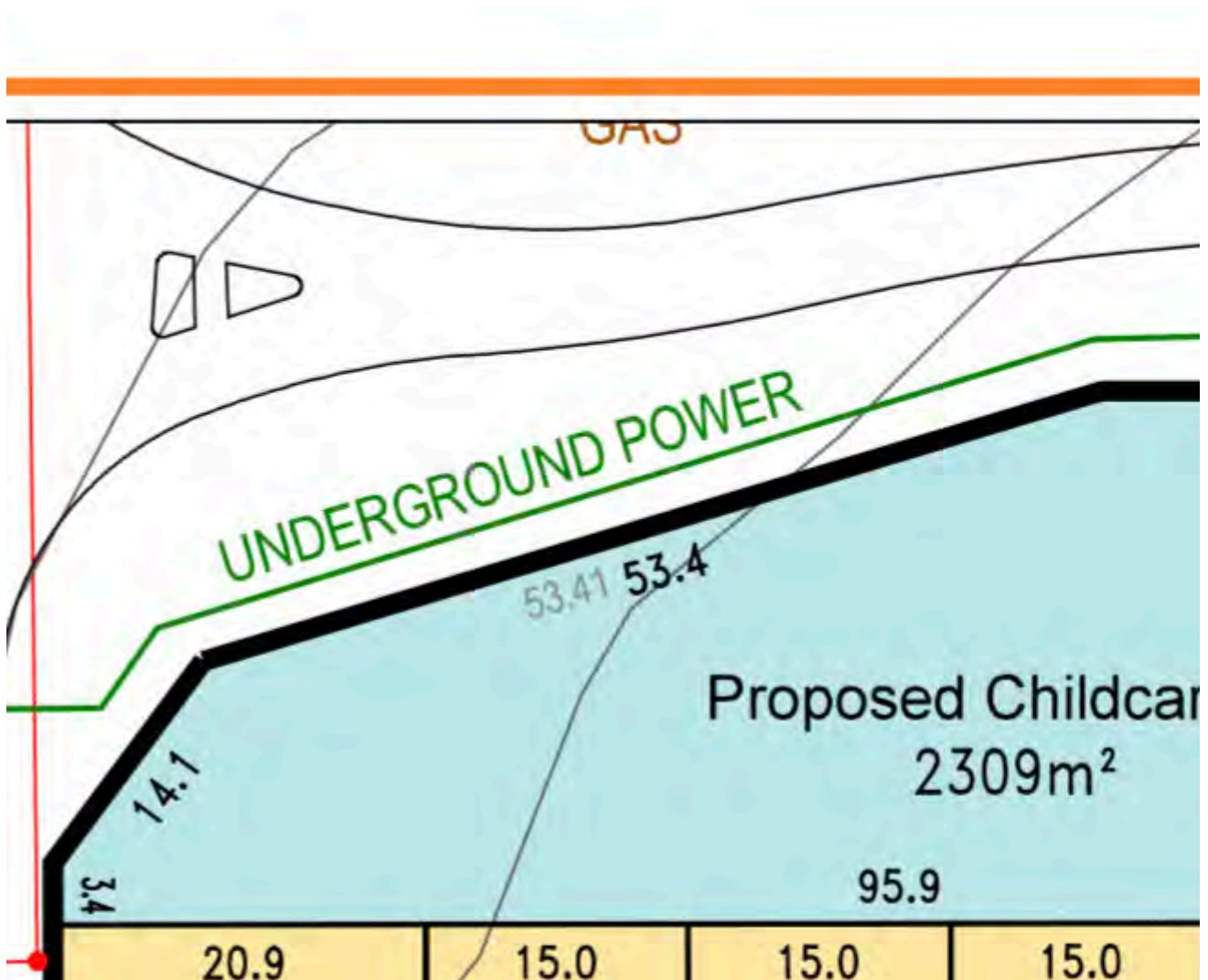
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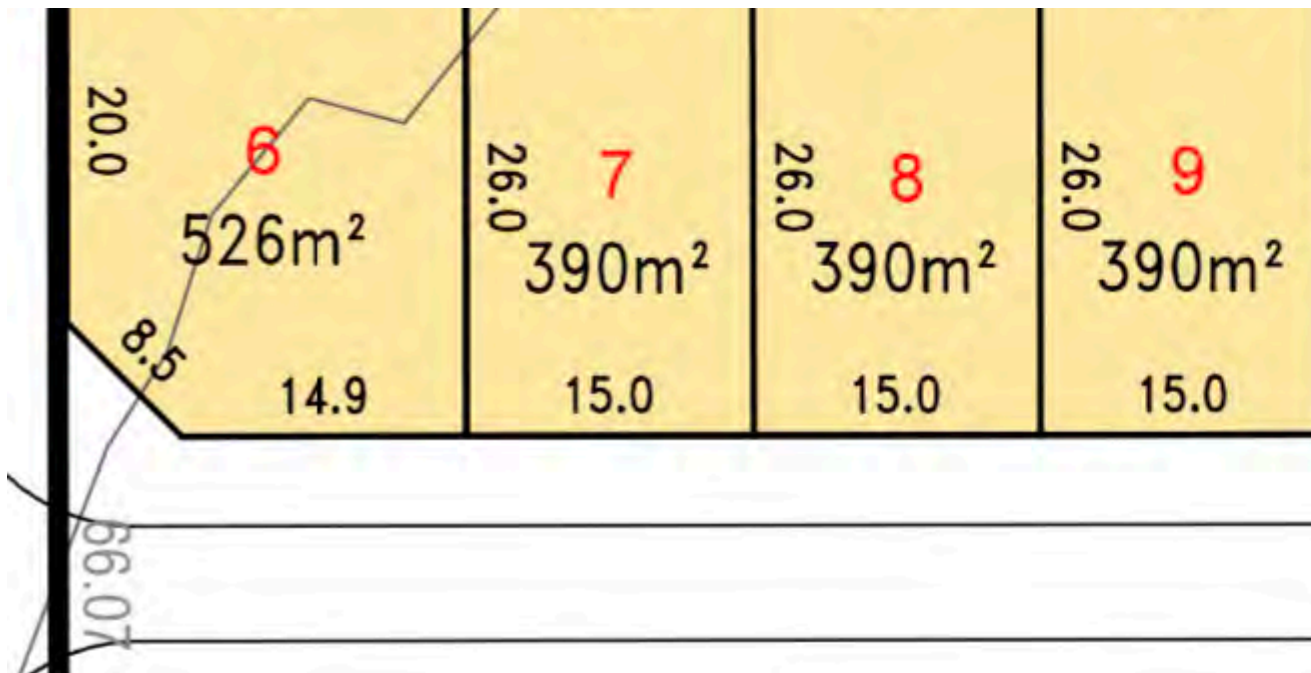
From: Stefan Piruk <stefan@otbdevelopments.com>
Sent: Monday, 29 March 2021 9:30 AM
To: Snellin, Fiona <Fiona.Snellin@atco.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>; Kathryn Chick <kathryn.chick@agig.com.au>
Subject: [EXTERNAL] Re: Gas - Dayton

WARNING: This is an email from an external source. Think before you click.

Hi Fiona,

Appreciate the help. Please see my quick sketch showing proposed position of carpark(very rough), in terms of the exact depth it would be around 25m depth from the eastern boundary with the existing house.





Thanks

Stefan
0409659695

From: Snellin, Fiona <Fiona.Snellin@atco.com>
Sent: Monday, March 29, 2021 7:57:12 AM
To: Stefan Piruk <stefan@otbdevelopments.com>
Cc: Scott Ferguson <scott@otbdevelopments.com>; Kathryn Chick <kathryn.chick@agig.com.au>
Subject: RE: Gas - Dayton

Good morning Stefan,

Thank you for sending this through on Friday afternoon. I had meetings with Western Power Friday afternoon so my time was limited.

If possible would you be able to send through a site drawing with the carpark shown?

I did speak with Kathryn Chick at AGIG (DBP) on Friday afternoon and mentioned our discussion regarding the property for the proposed child care centre in Dayton and she was happy for me to provide you with her details.

Please see below the details for Kathryn.

Kathryn Chick
 Land Management Officer
 M +61 409 339 584 T +61 8 9223 4928
 E kathryn.chick@agig.com.au



Australian Gas Infrastructure Group

Levels 22/23, 140 St Georges Terrace, Perth, WA 6000
PO Box Z5267, St Georges Terrace. PERTH WA 6831

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Thank you Stefan

Kind regards

Fiona Snellin

Land Management and Project Coordinator
ATCO, Gas Division, Australia

M. +61 476 831 540

A. 81 Prinsep Road, Jandakot, Western Australia, 6164

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ATCO acknowledges Aboriginal people as the Traditional Custodians of country throughout Australia including Torres Strait Islander peoples.
We pay respect to their cultures, Elders past and present, and in the spirit of reconciliation, we commit to working together for our shared future.

From: Stefan Piruk <stefan@otbdevelopments.com>

Sent: Friday, 26 March 2021 3:53 PM

To: Snellin, Fiona <Fiona.Snellin@atco.com>

Cc: Scott Ferguson <scott@otbdevelopments.com>

Subject: Re: Gas - Dayton

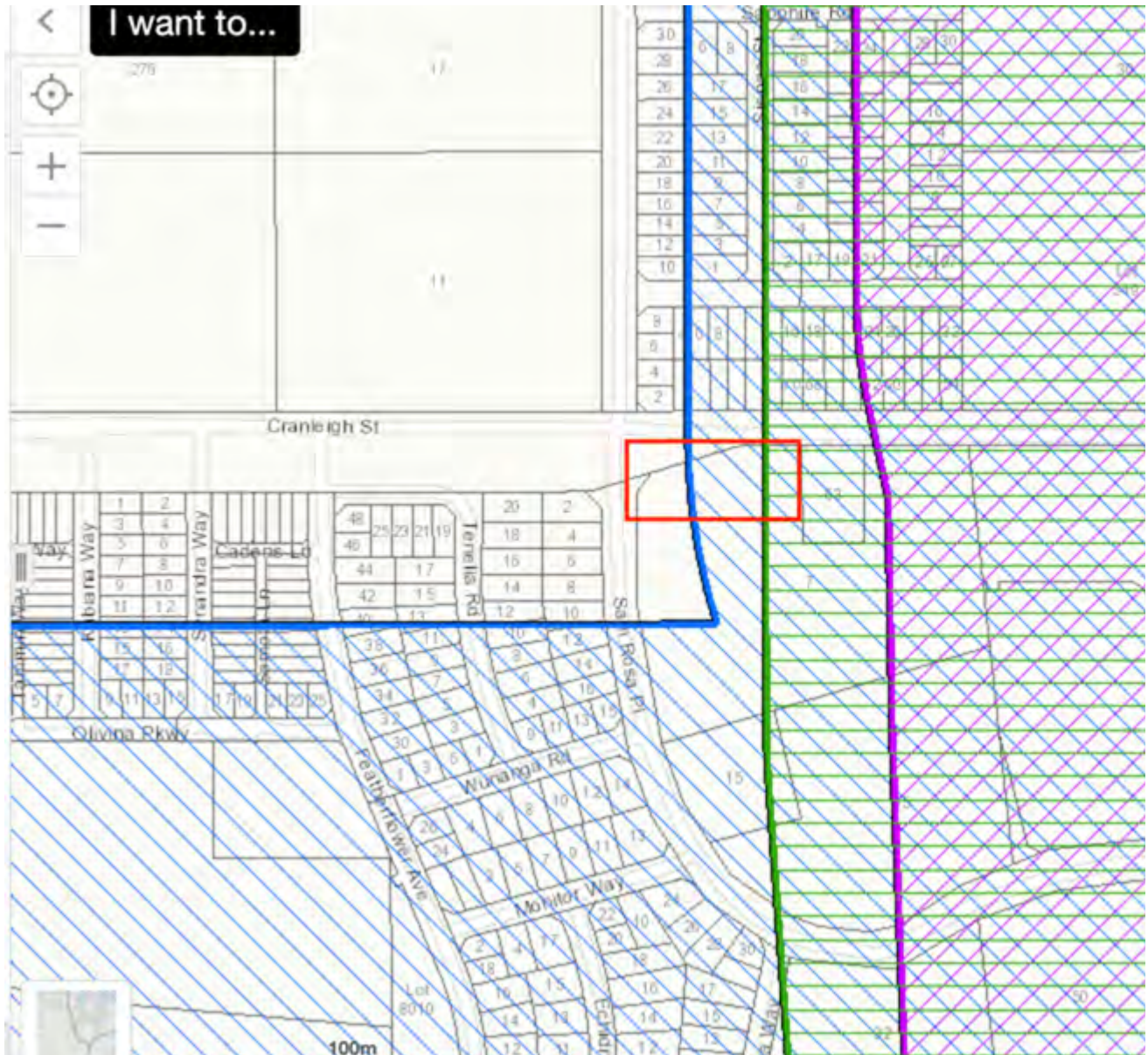
****Caution – This email is from an external source. If you are concerned about this message, please forward it to spam@atco.com for analysis.****

Hi Fiona,

Not sure if that PlanWA screenshot worked. Please see approximate site position shown below on 4.3 PlanWA map.

Thanks

Stefan



From: Stefan Piruk <stefan@otbdevelopments.com>

Date: Friday, 26 March 2021 at 12:58 pm

To: "Snellin, Fiona" <Fiona.Snellin@atco.com>

Cc: Scott Ferguson <scott@otbdevelopments.com>

Subject: Gas - Dayton

Hi Fiona,

As discussed, please see attached PlanWA mapping showing the ATCO trigger distance intersecting our proposed childcare lot. Could you please provide us some feedback on whether this will be an issue for a childcare development.

The DBP would encroach on the area we are proposing to be car parking, if you could provide contact details for someone at DBP that would be greatly appreciated.

Please see proposed lot position below.



Thanks

Stefan
0409659695

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Attachment 7

Schedule of Submissions

Submission Comment
<p>1. 6639910</p> <p>I live opposite and was advised there would be no school near my house. I don't have children and I'm sick of the shire considering its residents only have children. I work shift work and don't want the noise opposite my house.</p>
<p>2. 6639911</p> <p>I live on Cranleigh Street, and was advised when buying the property there will be no day-care or schools right near my house. Myself and my partner work shift work, and don't want the noise.</p>
<p>3. 6644171</p> <p>There is already a child care centre less than 1.6km away from this location. This will also increase traffic on Cranleigh St which in turn will cause congestion.</p>

Architectural Peer Review Assessment
(State Planning Policy 7.0 Design of the Built Environment; Schedule 1 - Design Principles)

Design quality evaluation

Principle 1 - Context and character	<p><i>Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.2, 3.3, 3.4, 3.6, 3.9, 4.10, 4.11, 4.12 as relevant.</i></p>
	<ul style="list-style-type: none"> Context and character have not been explicitly addressed in the submission. The building form is generally in keeping with the context. The carpark has not been integrated into the design response to the context.
Principle 2 - Landscape quality	<p><i>Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.2, 3.3, 3.4, 3.6, 4.12 and 4.16 as relevant.</i></p>
	<ul style="list-style-type: none"> The focus of the landscape design has been on the nature playground and the opportunity to integrate the landscaping more broadly has been missed. It is not clear if the existing trees on the site have been retained. These are mature and should be retained if possible. In particular the opportunity for the carpark to have more trees to mitigate the urban heat island effect, provide shade for cars, create a welcoming environment and set the scene for the aspirations of a nature play environment should be considered in the final designs. Only small trees have been proposed for the outdoor play spaces. This is considered a missed opportunity to provide natural shading for these north facing areas. Water management not evident in submitted package.
Principle 3 - Built form and scale	<p><i>Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.2, 3.3, 4.10 and 4.11 as relevant.</i></p>
	<ul style="list-style-type: none"> The site offers good opportunity for the building to be well oriented and it is appropriate to have a single storey form in this location. The design response is too small in scale and should be increased to differentiate it from its residential neighbours. This could be achieved through a n increase in the floor to ceiling height and a slight increase in the roof pitch.
Principle 4 - Functionality and build quality	<p><i>Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.</i></p> <p><i>As informed by SPP7.3 Element Objectives 4.3, 4.4, 4.6, 4.7, 4.12, 4.15, 4.17, 4.18 as relevant.</i></p>
	<ul style="list-style-type: none"> A more extensive use of face brickwork, compared to render, may help to reduce maintenance in the future.

		<ul style="list-style-type: none"> Several strategies have been employed in the fencing to mitigate the acoustic issues that may affect neighbours. Waste management functionality as described in the TIS will only work out of hours as staff car bays would be fully utilised even in off peak periods.
Principle 5 - Sustainability		<p><i>Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.2, 3.3, 3.9, 4.1, 4.2, 4.3, 4.11, 4.12, 4.15, 4.16, 4.17 as relevant.</i></p>
		<ul style="list-style-type: none"> The opportunity to integrate sustainability initiatives into the design has not been made explicit in the drawings. The orientation of the building with north facing outdoor play spaces is considered positive and more work should be done to better manage the impact of solar access and the need for shading, natural and cross ventilation as well as other active sustainability measures such as PV cells. The rooms have not been designed with openable windows, rather sliding doors. This will mean natural ventilation of the spaces is not possible without allowing movement of children between interior and exterior – presumably a supervision issue. This is considered a significant shortfall in the design outcome. The bike parking location and size is considered inadequate. No provision has been made for bike parking for those with trailers. The location will obstruct pedestrian entry to the facility.
Principle 6 - Amenity		<p><i>Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3,4.4, 4.5, ,4.7, 4.9, 4.11, 4.12, 4.15, 4.16, 4.17,4.18 as relevant.</i></p>
		<ul style="list-style-type: none"> The location of AC condensers has been nominated out of site and with consideration to the acoustic impact to neighbours. More information required in relation to the impacts of necessary shading to play equipment. The design has poor natural ventilation due to the absence of openable windows. Noise impacts to neighbours has been addressed through specific fencing strategies Universal access has been addressed
Principle 7 - Legibility		<p><i>Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.</i></p> <p><i>As informed bySPP7.3 Element Objectives 3.1, 3.4,3.6, 3.7, 3.8, 3.9, 4.5 as relevant.</i></p>
		<ul style="list-style-type: none"> The building has relatively poor legibility in terms of being understood as a childcare centre from Cranleigh Street. This could be addressed through a slight increase in scale. (height) The street facing fence could be designed to signify the pedestrian entrance to the childcare centre.
Principle 8 - Safety		<p><i>Good design optimises safety and security, minimising the risk of personal harm and</i></p>

		<p><i>supporting safe behaviour and use.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.1,3.4, 3.6, 3.7, 3.8,3.9, 4.5 as relevant.</i></p>
		<ul style="list-style-type: none"> • Pedestrians necessarily move across the carpark to the entry to the childcare centre. There is an opportunity for the design of the hardscape in the carpark to reflect this as a shared zone. This should be integrated with more trees. • Consideration of reverse only carparks to ensure safety of children and adults in this shared zone.
Principle 9 - Community		<p><i>Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.5, 4.9,4.18 as relevant.</i></p>
		<ul style="list-style-type: none"> • The provision of childcare services in this area is a positive community contribution. • Little has been provided to the community as a shared public asset. Opportunity to increase the planting in the carpark to contribute to the vegetation of the area.
Principle 10 Aesthetics		<p><i>Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.</i></p> <p><i>As informed by SPP7.3 Element Objectives 3.1, 3.4, 4.8 as relevant.</i></p>
		<ul style="list-style-type: none"> • While the aesthetics have referenced the residential nature of the surroundings it is important to differentiate this development as non-residential. One approach to this would be to increase the scale of the development through an increased floor to ceiling height and slight increase to the pitch of the roof. • Roof design has been used to good effect, in particular where the light court has been incorporated and the scale of the raked underside can be appreciated. • Use of face brickwork in combination with render is positive.

BROOKTON HIGHWAY, NO.770 (LOT 60), ROLEYSTONE – SERVICE STATION (MINOR AMENDMENTS)

Form 2 – Responsible Authority Report (Regulation 17)

DAP Name:	Metro Outer Joint Development Assessment Panel	
Local Government Area:	City of Armadale	
Proposed Amendments:	1. Two (2) vehicle vacuum bays (located near Hawkstone Road crossover); 2. Minor internal modification of the Control Building and primary street setback variation; 3. Changes to front elevation treatment of Control Building; 4. Additional Pylon Sign abutting Brookton Highway; 5. Modified boundary fence height to 2.1m height;	
Applicant:	Peter Webb & Associates	
Owner:	OTR282 Pty Ltd	
Value of Amendment:	\$ N/A	
Responsible Authority:	City of Armadale	
Authorising Officer:	Manager Statutory Planning	
LG Reference:	10.2021.118.1	
DAP File No:	DAP/19/01701	
Date of Original DAP decision:	09/11/2020	
Application Received Date:	20/04/2021	
Application Statutory Process Timeframe:	90 Days An additional 28 days was agreed to in accordance with cl.75(c), Schedule 2 of the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> to enable submission and assessment of revised plans.	
Attachment(s):	1a. Location Plan 1b. Site Aerial Plan 2a. Contour and Feature Survey 2b. Amended Site Plan 2c. Amended Elevation Plan 2d. Amended Elevation and Signage Plan 3a. Amended Acoustic Assessment Report (Apr 2021) 3b. Amended Bushfire Management Plan (Mar 2021) 3c. Traffic Impact Assessment (Mar 2021) 4. Previous Determination Notice 5. Consultant Planning Assessment report	
Is the Responsible Authority Recommendation the same as the Officer Recommendation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A	Complete Responsible Authority Recommendation section
	<input type="checkbox"/> No	Complete Responsible Authority and Officer Recommendation sections

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

1. **Accept** that the DAP Application reference DAP/19/01701 as detailed on the DAP Form 2 dated 14/04/2021 is appropriate for consideration in accordance with regulation 17 of the *Planning and Development (Development Assessment Panels) Regulations 2011*;
2. **Approve** DAP Application reference DAP/19/01701 and accompanying plans at Attachment 2 in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions the City of Armadale Town Planning Scheme No. 4, and pursuant to clause 24(1) and 26 of the Metropolitan Region Scheme for the proposed minor amendment to the approved Service Station at Lot 60 – 770 Brookton Highway, Roleystone, subject to the following conditions:

Amended Conditions

1. Amended Condition 7 to read as follows: Prior to occupation, the acoustic assessment report (submitted by Reverberate Consulting, dated 21/08/2020, attached) is to be revised to account for noise emissions from the proposed vacuum bays. Any subsequent changes to the recommended noise mitigation measures are to be consistent with maximum fence/wall heights permitted by the City of Armadale Local Law fencing. Noise mitigation measures recommended within the revised noise management plan, shall be completed and implemented to the satisfaction of the City.

New Conditions

N/A

Amended Advice Notes

N/A

New Advice Notes

N/A

All other conditions and requirements detailed on the previous approval dated 12/11/2020 shall remain unless altered by this application.

Reasons for Responsible Authority Recommendation

N/A

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme Zone/Reserve	Urban
Local Planning Scheme	City of Armadale Town Planning Scheme No.4

Local Planning Scheme Zone/Reserve	Residential (R5) Additional Use No.7
Structure Plan/Precinct Plan	N/A
Structure Plan/Precinct Plan Land Use Designation	N/A
Use Class (proposed) and permissibility:	Service Station Class P use (as per Additional Use No.7.
Lot Size:	2,782m ²
Net Lettable Area (NLA):	Approx. 246m ²
Number of Dwellings:	0
Existing Land Use:	Service Station
State Heritage Register	No
Local Heritage	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Heritage List <input type="checkbox"/> Heritage Area
Design Review	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Local Design Review Panel <input type="checkbox"/> State Design Review Panel <input type="checkbox"/> Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

Proposal:

The applicant submitted revised plans for assessment on 30/06/2021. The revised proposal includes the following amendments to the approved plans:

6. Proposed vacuum bays, located near the Hawkstone Road crossover;
7. Proposed minor internal modification of the convenience store control building and minor relocation of the building closer to Brookton Highway (with a street setback of 4.3m);
8. Proposed minor external design changes to the approved convenience store building;
9. Proposed addition of a 3.3m high price board (displaying fuel prices) along the Brookton Highway frontage, to co-exist with a 6.00m high (previously approved) Pylon Sign which will be for OTR and displaying its products and services (for example what can be found in the convenience store, and signage for the vehicle service/tyre change bay, etc.);
10. Proposed 2.1m high barrier fence along the southern and eastern boundaries as shown on the Site Plan (reduced from the previously proposed 2.4m);

Item 1 may have implications for the noise mitigation measures recommended in the previously submitted Environmental Noise Impact report and Condition 7 of the approval. The submitted Environmental Noise Impact report and the Bushfire Management Plan were not amended to reflect the revised proposal.

Background:

The site is located on the corner of Brookton Highway and Hawkstone Road in Roleystone. The terrain rises up from Brookton Highway towards the south eastern corner of the site (218.30m AHD to 223.60m AHD). Mature trees are located on the western, southern and eastern edges of the site.

Adjacent lots are zoned under the City's Town Planning Scheme No.4 (TPS4) as Residential R5 (MRS Urban zone) whilst properties adjoining Hawkstone Road to the east are zoned Special Rural 2 (MRS Rural zone). Properties to the north (zoned Residential R5/Urban) are separated from the site by Brookton Highway road reserve, Local Parks and Recreation reserve and local road reserve (a minimum distance of approximately 78m).

A Service Station has been operated from this site for many years (circa 1977). In 2001, Council approved an extension to the existing service station which included an extension of the shop plus two additional motor vehicle workshops. The existing structures are now proposed to be demolished and a new Service Station constructed.

In November 2020, the Metro Outer Joint Development Assessment Panel conditionally approved an application for the new Service Station on the site (DAP/19/01701 dated 12/11/2020 and attached).

A Form 2 application to amend the approved plans in accordance with r.17 of the *Planning and Development (Development Assessment Panels) Regulations 2011* was received by the City on 14/04/2021.

The application proposed the following amendments to the approved plans (DAP/19/01701 dated 12/11/2020):

1. Proposed auto wash (Motor Vehicle Wash) located on the eastern side of the site;
2. Proposed vacuum bays, located near the Hawkstone Road crossover;
3. Proposed retaining wall within landscaping areas along the southern and eastern areas;
4. Proposed minor internal modification of the convenience store control building and minor relocation of the building closer to Brookton Highway (with a street setback of 4.315m);
5. Proposed minor external design changes to the approved convenience store building (and in our view, improved street presence); and
6. Proposed 2.4m high barrier fence along the southern boundary (instead of 1.8m as approved). The 2.4m high barrier fence will comprise 1.8m Colorbond fence with option of either Colorbond or Perspex for the remaining 600mm height.

The applicant submitted the following supporting documents:

- Environmental Noise Impact report (v.6 dated 12/04/2021, prepared by Reverberate Consulting);
- Bushfire Management Plan (v.1.3 dated 08/03/2021, prepared by Bushfire Prone Planning);
- Planning consultant's assessment report prepared by Peter Webb and Associates (dated 14/04/2021).

Following discussions with the City regarding land use permissibility for the Motor Vehicle Wash and waste water disposal requirements, the applicant withdrew the Motor Vehicle Wash component of the proposal. Further details of those discussions are provided below.

"Motor Vehicle Wash" means premises where the primary use is the washing of motor vehicles. Motor Vehicle Wash is a class X use in the Residential zone under TPS4 and not included as a permitted or discretionary land use in Additional Use No.7. The City considers that a Motor Vehicle Wash could operate independently on the site regardless of whether the Service Station is operating and is therefore a separate land use rather than incidental to the approved Service Station. This use would generally operate in the industrial or centre zones of the City.

The supporting Environmental Noise Assessment report recommended 2.4m high noise barriers on the southern and eastern boundary lines. The City advised the applicant that this exceeds the maximum of 2.1m permitted by the City's Local Law Fencing (and conflicts with approval Condition 5).

In addition to the land use permissibility issue, the site is not serviced by a reticulated sewerage service therefore onsite effluent disposal is necessary. No additional information was provided by the applicant in relation to disposal of wastewater from the proposed Motor Vehicle Wash. The applicant requested advice on whether treated wastewater from the Motor Vehicle Wash could be accepted into the City's stormwater drainage system. The City advised that discharge from the proposed Motor Vehicle Wash must be appropriately treated in accordance with Department of Water and Environmental Regulation guidelines and that discharge to the public stormwater network is not permitted.

With regard to effluent disposal, Clause 4D.11 of TPS4 sets out requirements for development in industrial zones as follows:

"4D.11 Effluent disposal

4D11.1 Where a proposed industry involves the discharge of effluent, other than that associated with staff toilet facilities, then either:

- (a) the premises must be connected to a reticulated sewerage system, or*
- (b) where a connection to reticulated sewerage is not available, the premises are to be serviced by an on-site disposal and/or collection system of such capacity and design as to prevent pollution of (including nutrient discharge to) any ground or surface water systems in the vicinity of the site.*

4D.11.2 Where, either because of the nature or quantity of effluent to be discharged, or the characteristics of the site and its environment, the requirements for effluent disposal referred to in clause 4D11.1 cannot be met to the satisfaction of the local government, the application may be refused notwithstanding that the use of the site may be designated 'P' in the Zoning Table".

The above approach is considered to be relevant to the proposed Motor Vehicle Wash notwithstanding the proposal is on Residential zoned land.

The applicant advised the City on 21/06/2021 that revised plans and withdrawal of the Motor Vehicle Wash component was being considered by their client (OTR 282 Pty Ltd). Revised plans were subsequently received by the City on 30/06/2021.

Legislation and Policy:

Legislation

Planning and Development Act 2005
Planning and Development (Development Assessment Panels) Regulations 2011
Planning and Development (Local Planning Scheme) Regulations 2015
Metropolitan Region Scheme
City of Armadale Local Planning Strategy 2016
City of Armadale Town Planning Scheme No. 4

State Government Policies

SPP7.3 Residential Design Codes Volume 1

SPP3.7 Planning in Bushfire Prone Areas
Government Sewerage Policy (2019)
DCP 5.1 Regional Road (Vehicular Access)

Structure Plans/Activity Centre Plans

Not applicable.

Local Policies

PLN 2.9 Landscaping
PLN 3.12 Percent for Public Art
PLN 4.2 Advertisements (Signage)
PLN 5.1 Highway Development

Consultation:

Public Consultation

The proposed variation to Scheme provisions (i.e. front setback variation) was not advertised in accordance with cl.64(1)(iii) as the variation was considered minor in accordance with cl.64(2), Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Referrals/consultation with Government/Service Agencies

Main Roads WA

The proposal abuts land that is reserved in the MRS for the purpose of a regional road (Category 2 Primary Regional Road) and is therefore required to be submitted to MRWA for comment in accordance with Delegation 2017/02 Powers of Local Governments and Department of Transport – MRS (section 16 of the *Planning and Development Act 2005*) as amended in 2017 and 2018.

The amended application was referred to Main Roads WA for comment in relation to the proposed second pylon sign. The Main Roads response was not in hand when this report was finalised however it is anticipated that the advice will be available by 16th August 2021 when the Metro Outer Joint Development Assessment Panel considers this application. In any event, Main Roads WA has previously provided conditions relating to signs abutting Brookton Highway. Conditions 20-22 and 24 have been imposed to manage signs.

Design Review Panel Advice

N/A

Planning Assessment:

The amended proposal has been assessed against all the relevant legislative requirements of the Scheme, State and Local Planning Policies outlined in the Legislation and Policy section of this report. The following matters have been identified as key considerations for the determination of this application.

Land Use

The two (2) proposed vacuum bays have been considered as development that is incidental to the Service Station use rather than Motor Vehicle Wash as they are not

used for the 'washing' of vehicles and are of a relatively small scale. Potential noise issues associated with the vacuum bays is discussed below.

Noise

The vacuum bays have the potential to create noise emissions that exceed the standards in the *Environmental Protection (Noise) Regulations 1997*. The Environmental Noise Assessment (ENA) provided in support of the initial Motor Vehicle Wash proposal did not consider the vacuum bays in the noise assessment. It is therefore recommended that the ENA is revised to include any emissions from the vacuum bays and any relevant noise management measures implemented. Any recommended noise management measures should be consistent with the maximum fence height of 2.1m specified in the City's Local Law Fencing and Condition 5 of the approval. Condition 7 of the approval should be amended to require revision of the ENA to include the proposed vacuum bays.

Streetscape

Provision	Requirement	Proposal	Assessment
State Planning Policy 7.3 Residential Design Codes Volume 1 (R-Codes)	Clause 5.1.2 Street Setback C2.1 Buildings to be setback in accordance with Table 1. Average 12m front setback, 6m minimum setback required.	Control building proposed with minimum front setback of 4.3m.	Variation for 3.6m long wall. Improved palette for colours and materials is recommended. The variation is therefore considered to be minor and not expected to negatively impact the existing streetscape. Proposal is considered to meet the Design Principles 5.1.2 P2.1 and P2.2 in this instance.

The Primary Street setback for lots coded R5 in the Residential zone is 12 metres. Averaging of Primary Street setbacks is permissible (clause 5.1.2, C2.1(iii) of the R-Codes Volume 1). In order to meet the Deemed to Comply requirement, a minimum setback of 6m is required. The proposed minimum setback in this proposal is 4.3m for a small portion of the front wall of the Control building (approx. 3.6m long). The current approval already includes a minor variation to the required minimum setback, the approved setback is 5.7m. The additional variation is considered to be minor due to the short length of the wall (3.6m) in relation to the 60m wide frontage of the lot.

The proposed 3.6m wide projection of the building into the front setback area presents a blank wall to Brookton Highway and should be improved with a palette of colours and materials that are consistent with the adjacent front elevations shown on the revised plans. Subject to the use of similar colours and materials on the front elevations, the proposed variation is considered unlikely to have a negative impact on the Brookton Highway streetscape and is consistent with the Design Principles for this element. It is recommended that the variation is supported subject to the use of same colours and materials as the adjacent front elevation walls as shown on the revised plans.

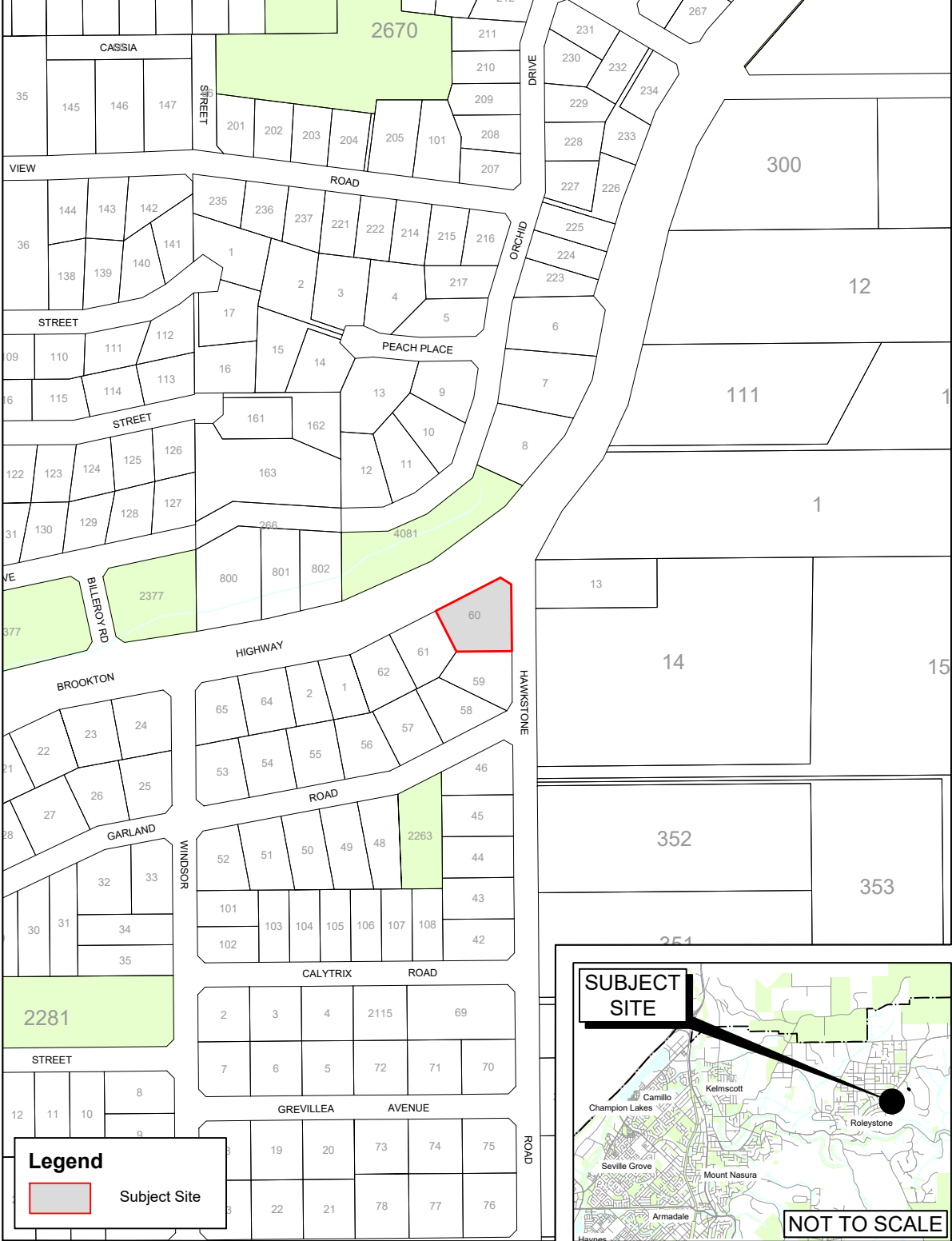
The proposed second pylon sign complies with the requirements of Local Planning Policy PLN4.2 Advertisements (Signage) and is therefore not expected to have a negative impact on the streetscape of Brookton Highway.

Conclusion:

Overall, the amended plans are consistent with the planning framework and can be approved with a modified Condition 7 to ensure that any impacts from the development (such as noise) are managed within an acceptable range. Redevelopment of the site will update and improve the existing Service Station and this will ultimately enhance the amenity of the area. It is therefore recommended that the amended proposal be approved subject to a modified Condition 7 and the remaining existing conditions.

Alternatives

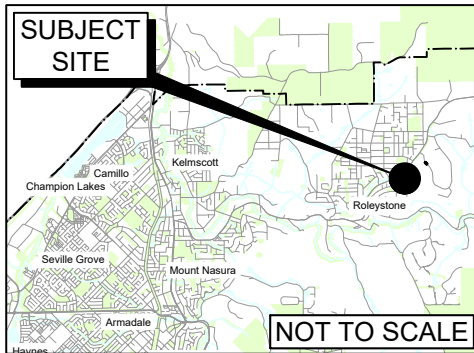
The proposal for vacuum bays could be considered to be incidental to a Motor Vehicle Wash which is a class X use on the site. In the event that the DAP should consider this to be the case, this aspect of the proposal should be refused and Condition 7 left unamended.



LOCATION PLAN
Lot 60 Brookton Highway, Roleystone



SCALE 1 : 5000





AERIAL PLAN
 Lot 60 Brookton Highway, Roleystone



SCALE 1 : 3000



Existing Conditions - Survey Plan
SCALE 1:200



Existing Conditions - Aerial Image
NOT TO SCALE



REVISION

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PROJECT
PROPOSED COMMERCIAL DEVELOPMENT
770 BROOKTON HIGHWAY
ROLEYSTONE

CLIENT

DATE JUNE '19

SCALE 1:200

DRAWN ML

SHEET 1 OF 7

DRG No 5994/19

AI **ISSUE**

NOTE STP. DENOTES STEEL POST/COLUMN

NOTE This Plan is issued at the date of Survey (15/06/19). The site plan is based on the latest available survey data. It is the responsibility of the client to ensure that the site plan is up to date and that it is used in accordance with the relevant legislation. The client is advised that the site plan is not to be used for any other purpose without the prior written permission of Stephen D'Andrea Pty. Ltd.

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LICENSED SURVEYORS
P.O. BOX 100, HILLSIDE, VIC 3042
TEL: 03 9479 2201
www.scanlan.com.au

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DATE: 15/06/19

DESIGNED BY: [Signature]
DATE: 15/06/19

CHECKED BY: [Signature]
DATE: 15/06/19

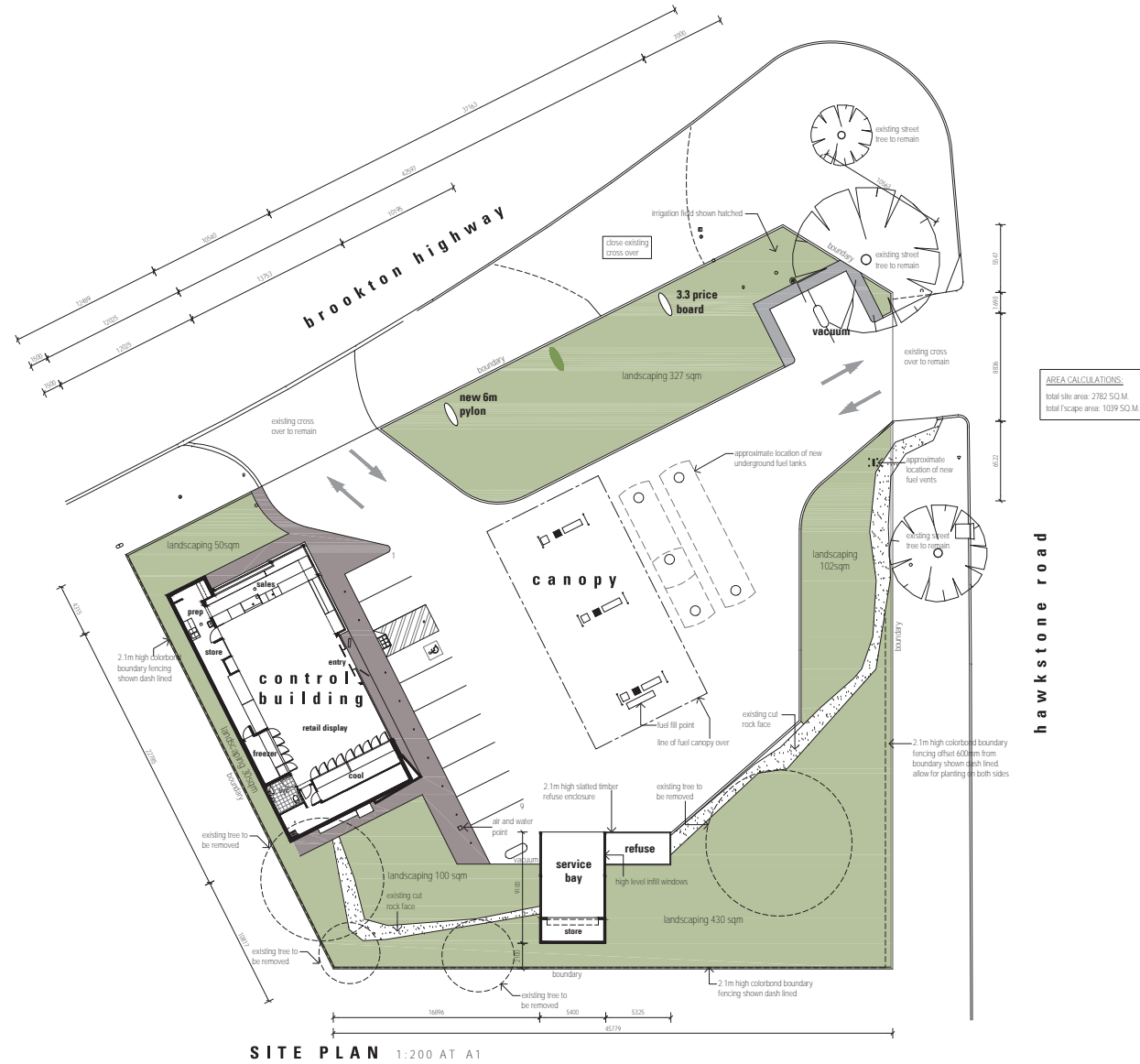
ISSUED TO CLIENT: [Signature]
DATE: 15/06/19

VERTICAL DATUM: AHD (BSM RL 234.76, 235.81, 236.86)

LOCAL PLANE: 8177/19/1

CONTOUR AND FEATURE SURVEY

PROJECT: LOT 80 ON P. 8881
770 BROOKTON HIGHWAY,
ROLEYSTONE
CLIENT: BETTER CHOICE FUELS
DATE: 15/06/19
SCALE: 1:200



OTR ROLEYSTONE

770 BROOKTON HIGHWAY, ROLEYSTONE, WA

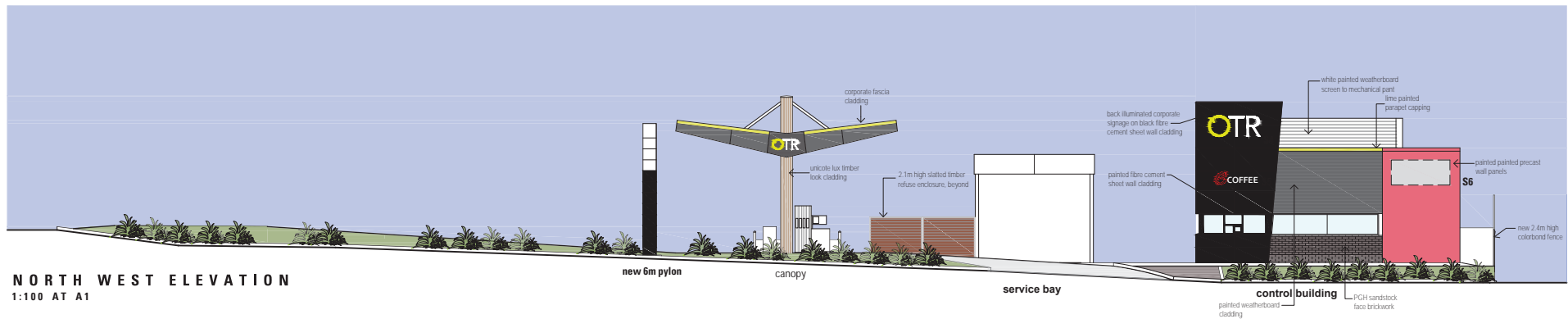
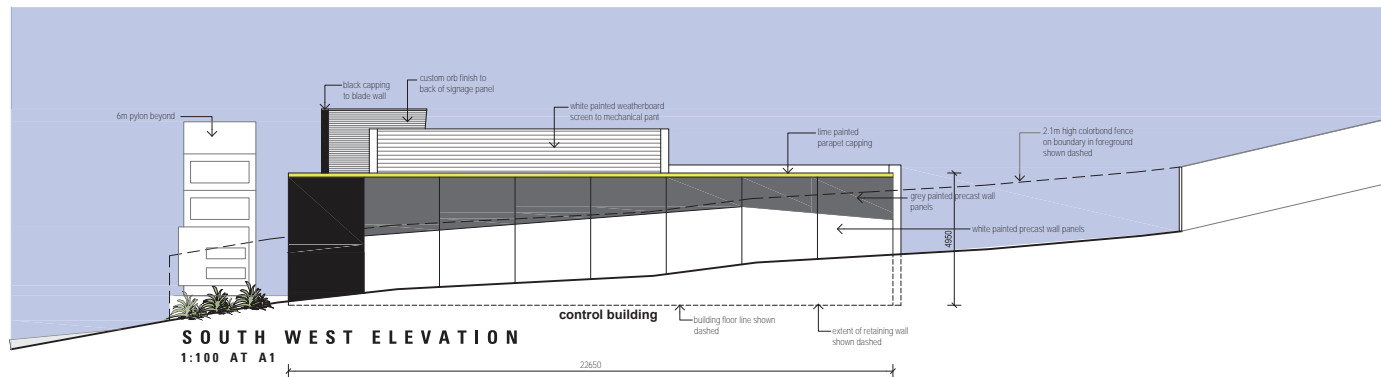
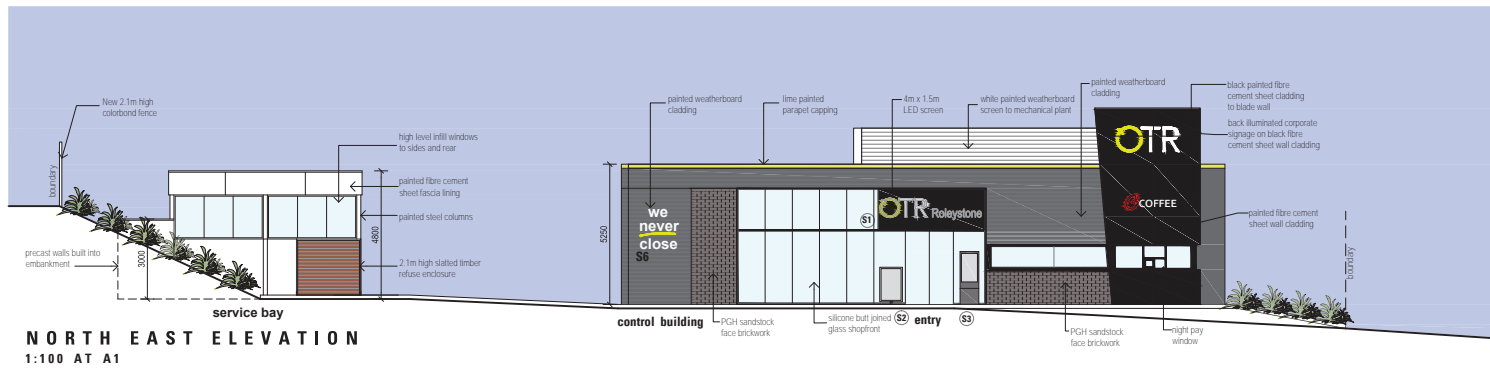
PLANNING APPLICATION

30.06.2021
20JN1390SK01m

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Scale 1:200 at A1

ADS Architects

93 Gilles Street Adelaide 5000 T:82232244



OTR ROLEYSTONE

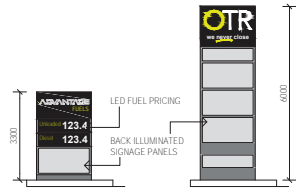
770 BROOKTON HIGHWAY, ROLEYSTONE, WA

PLANNING APPLICATION

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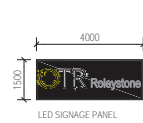
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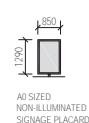


PRICE BOARD
1:100 AT A1

PYLON SIGN
1:100 AT A1



S1



S2



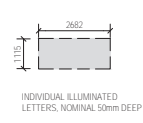
S3



S4

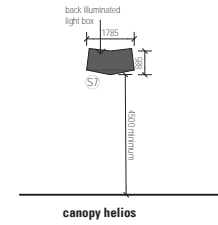


S5



S6

SIGNAGE ELEVATIONS
1:100 AT A1



canopy helios

OTR ROLEYSTONE

770 BROOKTON HIGHWAY, ROLEYSTONE, WA

PLANNING APPLICATION



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REVERBERATE


C O N S U L T I N G



Proposed Service Station
770 Brookton Highway, Roleystone
Environmental Noise Impact

Reference: P190940RP1

Document Information

Project	Proposed Service Station – 770 Brookton Hwy	
Client	OTR	
Report title	Environmental Noise Impact	
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Revision Table

Report revision	Date	Comments
0	25 June, 2019	Draft for client review
1	14 August, 2020	Updated with new layout
2	19 August, 2020	Updated with feedback
3	21 August 2020	Final
4	21 December 2020	Carwash included
5	23 March 2021	Carwash hours finalised
6	12 April 2021	Updated compressor location

Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of the loudness of that sound.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
L ₁₀	Noise level exceeded for 10 % of the measurement time. The L ₁₀ level represents the typical upper noise level and is often used to represent traffic or industrial noise emission.
L _{A10}	A-weighted L ₁₀
L _{A10,adj}	Adjusted L _{A10} . Adjustment based on obvious tonality, impulsive or Modulation characteristics in the audible noise at a receiver point. Based on the adjustment methodology in Environmental Protection (Noise) Regulations 1997 Regulation 9
L _{A1,adj}	Adjusted, A-weighted noise level exceeded for 1 % of the measurement time. The L _{A1, adj} level represents mostly short duration, high level sound events.
L _{Amax,adj}	Adjusted, A-weighted maximum instantaneous noise level.

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1. Introduction

Reverberate Consulting has been engaged by PCI Infrastructure Pty Ltd to prepare an updated planning stage environmental noise impact assessment for the proposed Service Station development at 770 Brookton Highway, Roleystone.

This report covers the main types of environmental noise emission from the site as part of the study:

- car park and customer vehicle activity
- delivery and supply trucks
- mechanical plant and equipment at the site
- vehicle workshop

The purpose of this report is to present the findings of potential noise emissions from the site.

2. Site and Surrounds

The proposed Service Station is located on a parcel of land at 770 Brookton Highway, Roleystone, at the Hawkstone Road intersection, refer to the Site Plan Figure 1. The existing service station is to be replaced by a convenience store building on the Western end of the site, the associated fuel/bowser operations under a central fuel canopy, and a vehicle workshop at the Southern end of the site and a tyre shop on the South Western section of the site.

The activities at the site are proposed to operate during the hours shown in Table 1 below:

Table 1 – Proposed Operating Hours of Activities

Operation	Time of Day		
	Mon to Fri	Saturday	Sunday & public Holiday
Convenience Store	24h	24h	24h
Workshop	6 am – 6 pm	7 am – 5 pm	11 am – 5pm*
Fuel Deliveries	7 am – 7 pm	7 am – 7 pm	9 am – 7 pm
Automated Carwash	7 am – 10 pm	7 am – 10 pm	9 am – 10 pm
Other Deliveries	24h	24h	24h

Note * Isolated instances may be required

The dominant noisy activity for the Service Station is caused by truck and car movements. The principal sources generally are patron vehicles as well as the following truck movements:

- Fuel tanker deliveries. Maximum of 1 tanker per 24 hours, typically 2 to 3 tankers per week.
- Other truck deliveries of up to 3 deliveries per 24 hours. May include refrigerated truck delivery
- Garbage collection – a maximum of 1 per day, between 7am and 6pm

Other noise sources include building services plant.

The dominant noisy activity for the Workshop operations include noisy handheld power tools such as air 'rattle' guns and mechanical plant. The dominant noise source for the carwash is the blower/dryer toward the end of the cycle

Brookton Highway is designated as a *Primary Freight Road* under the State Planning Policy 5. It however was measured by the DMR (2017/2018) to have a total of 4382 vehicles per day (Average Mon – Sun). On this basis it has been classified as a minor road for this assessment.

The nearest noise-sensitive sites are the immediate neighbours, Residences A & B. There are also Residences to the North and the East, represented by D & C respectively in the Site Plan in Figure 1

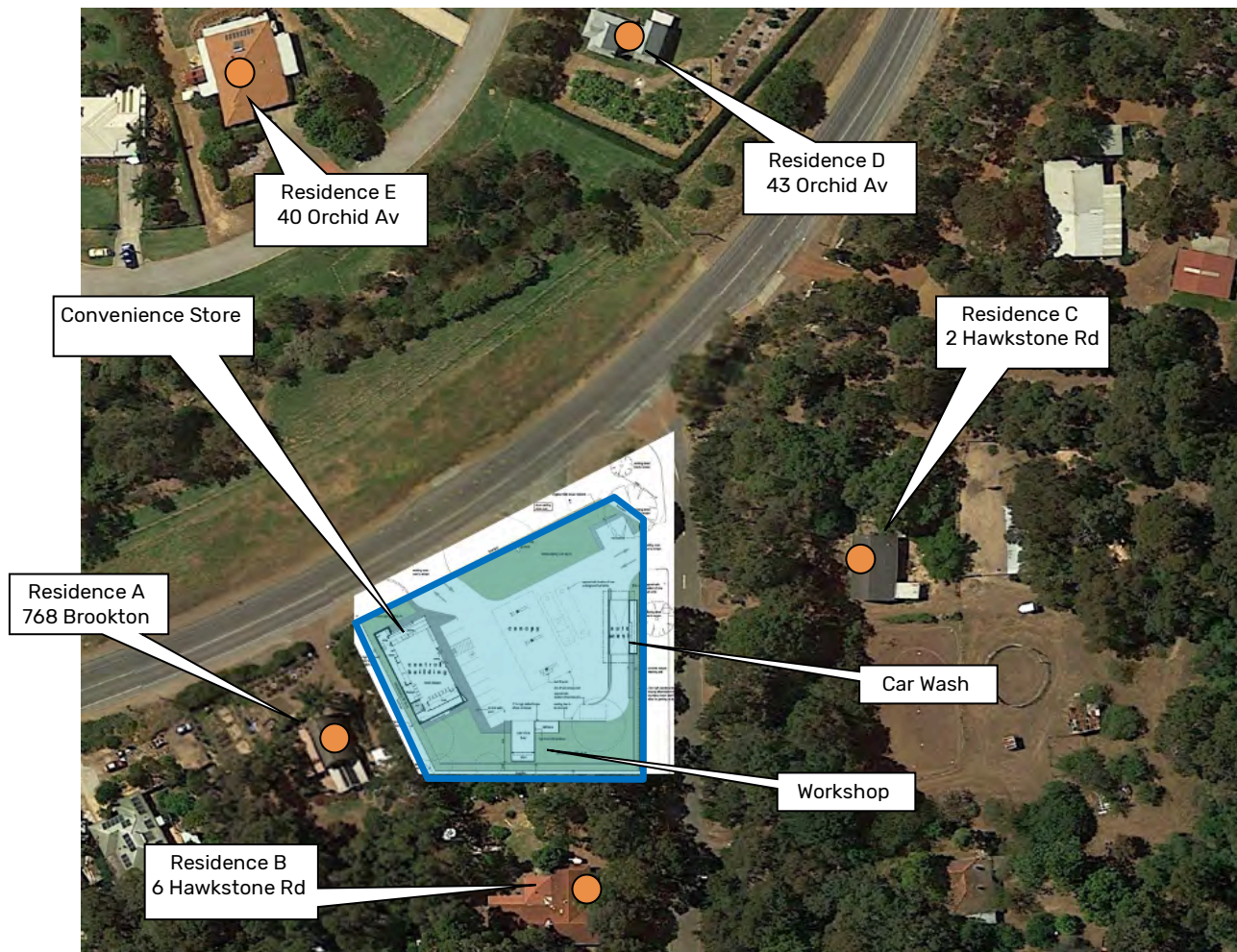


Figure 1 - Site Plan

3. Noise Assessment Criteria

3.1 Environmental Protection Act

The Environmental Protection Act (1986) provides for the prevention, control and abatement of pollution and environmental harm. This Act limits environmental noise in Section 3 (3) as follows:

For the purposes of this Act, noise is taken to be unreasonable if –

- (a) it is emitted, or the equipment emitting it is used, in contravention of –*
 - (i) this Act; or*
 - (ii) any subsidiary legislation made under this Act; or*
 - (iii) any requirement or permission (by whatever name called) made or given by or under this Act;*

or

- (b) having regard to the nature and duration of the noise emissions, the frequency of similar noise emissions from the same source (or a source under the control of the same person or persons) and the time of day at which the noise is emitted, the noise unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person; or*

- (c) it is prescribed to be unreasonable for the purposes of this Act.*

Reverberate has used the above legislation to assess the noise impact from the site. More particularly, noises which have a distinct character, and are different to the ambient noise environment are assessed under the subsidiary legislation; the Environmental Protection (Noise) Regulations 1997. Such an assessment has been undertaken for noise sources such as vehicle starting, tanker exhaust brakes, vehicle door closing, mechanical plant / air conditioning, reversing beepers, as well as workshop activities and plant.

Other types of noises from the site, such as that generated by cars driving, or manoeuvring in the carpark and driveway have not been assessed under the Regulation. Reference is drawn to Section 3 (3) (b) of the Act which requires the assessment to have regard to the nature, duration and time of day of such noise emissions and the frequency of similar noise emissions from the same source.

3.2 Environmental Protection (Noise) Regulations 1997

The Environmental Protection (Noise) Regulations 1997 (EPR) provide limits for acceptable noise from operations associated with industrial or commercial premises.

The Regulations specify the maximum permissible noise levels (termed assigned levels) at noise sensitive premises, caused by industrial noise, during various times of the day.

Time of day affects the assigned levels for noise-sensitive premises, as follows –

- Lowest levels at night (10 pm to 7 am any day or to 9 am Sundays and Public Holidays);
- Higher levels during the evenings (7 pm to 10 pm) and on Sundays and Public Holidays (9 am to 7 pm); and
- Highest levels during the day (7 am to 7 pm Monday to Saturday).

These assigned levels may be modified (i.e. increased) in the event that there are significant influencing land uses within 100 m and 450 m radii of the sensitive receptor, including:

- industrial land use zonings;
- commercial zonings; and
- the presence of major roads.

The influencing factor, combined with the assigned levels result in the criteria given in Table 2 for Residences A, B, & C.

Due to the proposed hours of operation, the night-time period, (i.e. 6am-7am Mon to Sat and 7am – 9am Sunday and Public Holiday) is the critical assessment period with the most stringent noise criteria. The daytime activities have additional noise sources, so they have also been assessed.

Table 2 – Environmental Noise Emission Criteria for Residences A, B & C

Receiving Premises	Time of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise Sensitive Premises – Highly Sensitive	0700 to 1900 hours Monday to Saturday	46	56	66
	0900 to 1900 hours Sunday and public holidays	41	51	66
	1900 to 2200 hours all days	41	51	56
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	36	46	56

The assigned levels at Residences D & E are 1 dB lower than those presented in Table 2 above due to the increased separation from the service station and surrounds.

These above criteria are applicable to the sources mentioned in Section 3.1 above, viz vehicle starting, tanker exhaust brakes, vehicle door closing, mechanical plant/ air conditioning, reversing beeper, tyre refill beeper and workshop activities.

Note that penalties are applied to the noise sources for a variety of characteristics. Where tonality, impulsiveness or modulation is present at the nearest neighbours then these are additionally penalized where they cannot be removed from the noise signature.

4.Noise Assessment

4.1 Noise Sources

Noise emission sources, buildings and ground contours were used to develop a 3-D SoundPLAN noise model as shown below in Figure 2. This figure has general site details including the locations of modelled noise sources, noise barriers, and site & surrounding buildings.

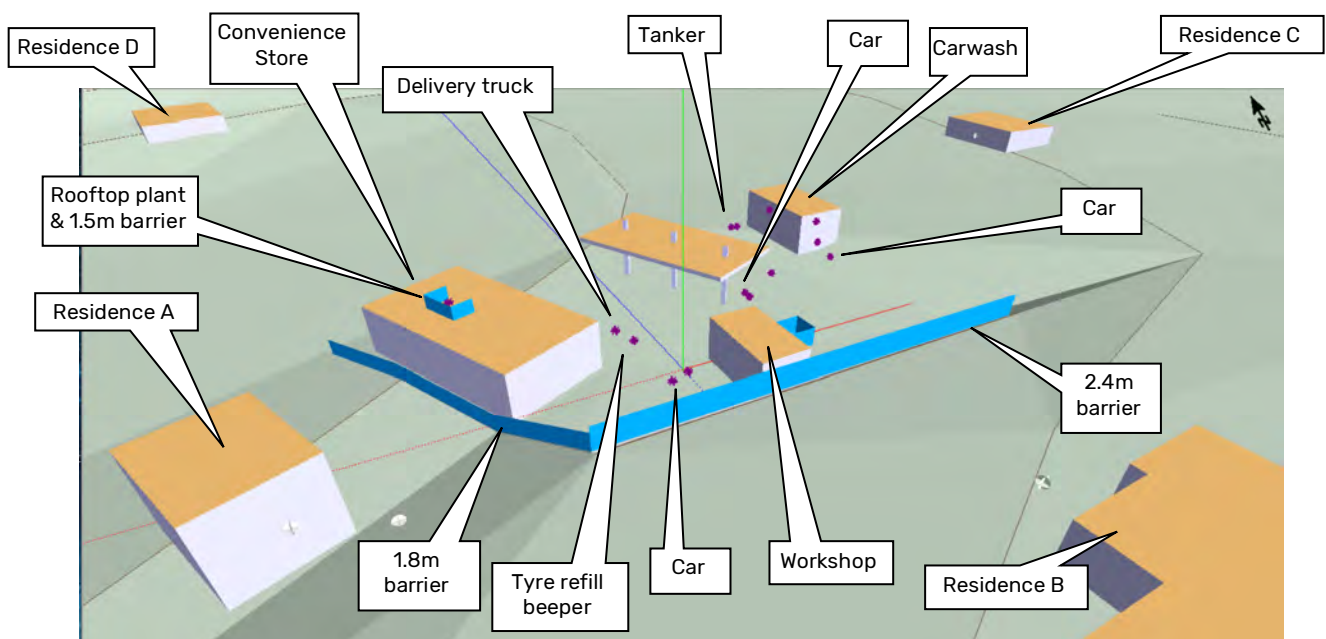


Figure 2 - 3-D SoundPLAN model of Services Station Site with Noise Sources

The noise emission levels for the project noise sources are summarised below in Table 3.

Table 3 Summary of Sound Power Levels

Summary of Sound Power Levels (dB)			
Noise Source	L _{A10}	L _{A1}	L _{Amax}
Fuel Tanker: park brake	-	-	101
Fuel Tanker: idle	-	96	97
Fuel Tanker: engine start	-	-	100
Fuel Tanker: door close	-	-	90
Delivery Truck: refrigeration plant	-	-	96
Delivery Truck: park brake	-	-	74
Delivery Truck: engine start	-	-	91
Delivery Truck: door close	-	-	93
Delivery Truck: reversing beeper	-	-	95
Passenger Car: engine start	-	85	85
Passenger car: door close	-	-	84
AC/refrigeration combined	80	82	82
Tyre Refill Beeper	-	-	88
Air compressor	-	81	82
3 Exhaust fans (total)	71	72	73
Auto Carwash - Blower	94	97	97
Car Idling waiting for carwash	83	85	86

4.2 Noise Forecast and Impact

Computer noise modelling was used to forecast the noise impacts to locations around the site. The software used was SoundPLAN Version 8.2, with the ISO9613 algorithms selected. These algorithms have been used as they allow for the influence of wind, atmospheric stability, barriers, building shielding and ground absorption. It is appropriate for the current configuration of noise sources and for the nearest receiver locations.

The Input data used in modelling includes

- Meteorological Information;
- Topographical data;
- Buildings, barriers, fences, and other features which may shield noise
- Ground Absorption; and
- Source sound levels.

The following parameters were used in modelling for night-time operations i.e., between 6am and 7am.

- Pasquil Stability Factor F
- Temperature 15 °C
- Wind Speed 3 m/s
- Wind Direction Worst case – i.e., all directions
- Relative Humidity 50%
- Ground Absorption 0.65 in grassed areas
- 0.10 for paved areas such as roads and carparks

Adjustments were applied for the forecast noise reaching receptor locations. Where evident at the receiving locations, the following adjustments were applied:

- +10 dB where the received noise was determined to have impulsive characteristics
- +5 dB where the received noise was determined to have tonal characteristics

The forecast noise levels at sensitive receivers are summarised in Table 4 to Table 7 below. These forecasts are based on the maximum Sound Power Levels in Table 3 and the successful implementation of the Noise Management Plan in Appendix A.

The forecast noise levels 1.5m above ground level at sensitive receivers are also shown in the noise contour plots in Figure 3 to Figure 5

The Tables show that the following noise sources collectively emit the highest noise levels compared to their respective criteria:

- Combined night-time L_{A10} carwash and mechanical plant noise emissions
forecast 36 dB at 2 & 8 Hawkstone Rd and 768 Brookton Hwy, Assigned Level 36 dB (Table 4)
- Daytime L_{A1} compressed air rattle gun noise emission
forecast 55 dB at 2 Hawkstone Rd, Assigned Level 56 dB (Table 5)
- Night-time L_{Amax} non-tanker Delivery truck noise emission,
forecast 55/56 dB at 2 Hawkstone Rd, Assigned Level 56 dB (Table 6)

In any case all these levels comply with the Assigned Levels and are therefore considered acceptable.

Table 4 Forecast Night-time L_{A10} noise emission (dB)

Receiver & Façade							
	2 Hawkstone Rd	6 Hawkstone Rd	40 Orchid Dv	43 Orchid Dv	768 Brookton	768 Brookton	768 Brookton
	Grnd Fl - West	Grnd Fl - North	Grnd Fl - South	Grnd Fl - South	Grnd fl - South	1st fl North	1st fl South
Noise Source							
Carwash*	34	31	26	26	27	23	33
Car Idling at Carwash	29	33	19	9	32	25	36
rooftop AC/Refrig*	27	33	23	22	31	33	22
rooftop fans*	17	20	12	13	19	21	13
air compressor	29	27	22	21	16	14	16
Tyre Compressor	22	22	17	15	11	9	11
Overall	36	36	27	26	33	30	36
Assigned Level	36	36	35	35	36	36	36
Compliance	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved
Note * Tonality adjustment applied							

Table 5 Forecast Night-time L_{A1} noise emission (dB)

Noise Source	Receiver & Façade						
	2 Hawkstone Rd Gnd Fl - West	6 Hawkstone Rd Gnd Fl - North	40 Orchid Dr Gnd Fl - South	43 Orchid Dr Gnd Fl - South	768 Brookton Gnd Fl - South	768 Brookton 1st Fl North	768 Brookton 1st Fl South
Tyre Refill Beeper*	44	36	41	38	40	29	43
Assigned Level - Night	46	46	45	45	46	46	46
Compliance	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved
Noise Source							
Air Rattle gun**	55	37	50	51	35	44	37
Assigned Level - Day	56	56	55	55	56	56	56
Compliance	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

Note * Tonality adjustment applied

Note ** Impulsive adjustment applied

Table 6 Forecast Night-time L_{Amax} noise emission (dB)

		Receiver & Façade						
Noise Source		2 Hawkstone Rd Gnd Fl – West	6 Hawkstone Rd Gnd Fl – North	40 Orchid Dr Gnd Fl – South	43 Orchid Dr Gnd Fl – South	768 Brookton Gnd Fl – South	768 Brookton 1st Fl North	768 Brookton 1st Fl South
rooftop	mech*	31	32	22	23	30	32	20
rooftop	fans*	19	20	13	12	20	21	11
air	compressor*	35	34	19	26	19	18	17
tyre	refill compressor *	30	29	14	21	14	12	12
tyre	beeper**	50	41	44	42	45	35	48
Air	Rattle gun**	56	37	48	50	10	44	37
delivery	truck*	56	54	48	48	45	43	43
car (E)	start	35	33	30	31	29	26	35
car (E)	door**	40	39	35	36	34	31	39
car (W)	door**	41	38	34	35	38	35	41
car (W)	start	37	31	31	30	32	29	35
reversing	beeper*	55	44	44	48	40	38	34
Assigned Level		56	56	55	55	56	56	56
Compliance		Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

Note * Tonality adjustment applied

** Impulsive adjustment applied

Table 7 Forecast Daytime L_{Amax} Tanker noise emission (dB)

		Receiver & Façade					
		2 Hawkstone Rd	6 Hawkstone Rd	40 Orchid Dr	43 Orchid Dr	768 Brookton	768 Brookton
		Gnd Fl - West	Gnd Fl - North	Gnd Fl - South	Gnd Fl - South	Gnd Fl - South	1st Fl North
Noise Source							1st Fl South
tanker	idle	53	47	45	45	34	37
tanker	park brake**	61	61	57	56	55	52
tanker	start	57	51	49	49	36	37
Assigned Level		66	66	65	65	66	66
Compliance		Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

Note ** Impulsive adjustment applied



Figure 3 - Forecast L_{A10} night-time noise contours
(Assigned Level 35/36)

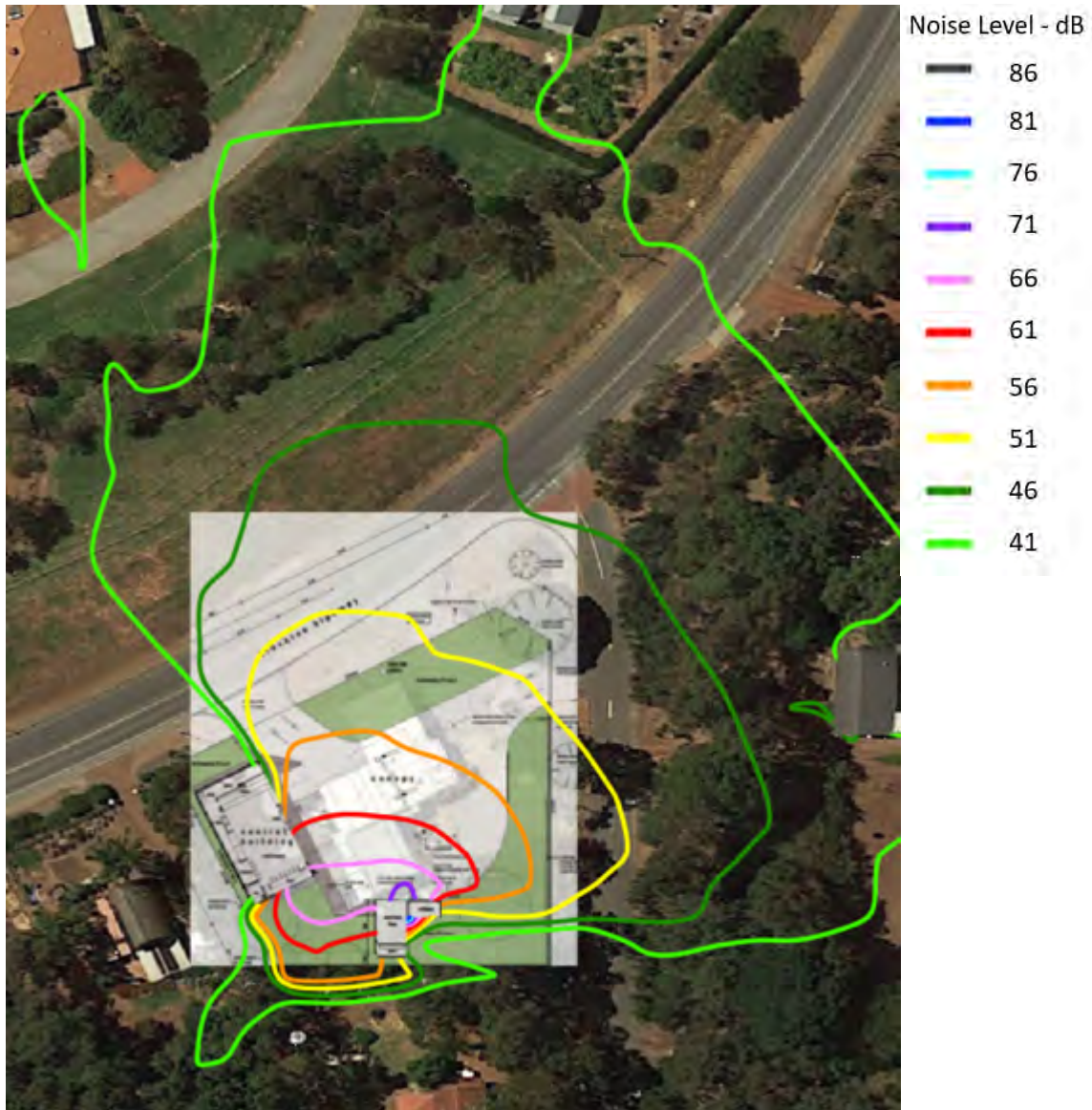


Figure 4 - Forecast L_{A1} night-time noise contours
(Assigned Level 45/46)

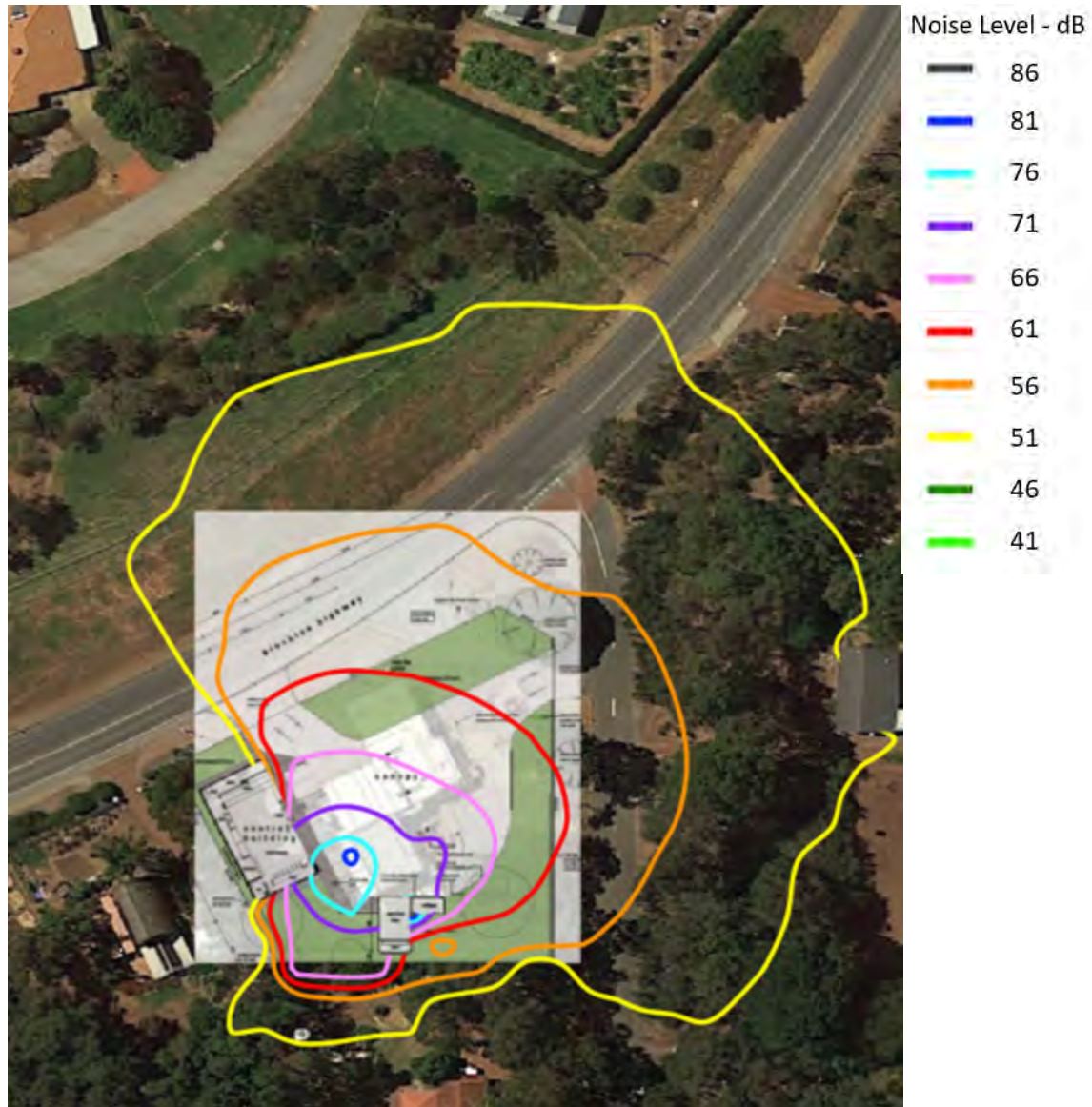


Figure 5 - Forecast L_{Amax} night-time noise contours
(Assigned Level 55/56)

5. Conclusions

An assessment of environmental noise emission from the proposed Convenience & Fuel Store, carwash and Workshop has been undertaken.

The forecast noise emission levels have been presented. The recommended treatments to control noise emissions are outlined in the Noise Management Plan (Appendix A) and these treatments have been shown to control environmental noise emission from the site so that compliance is achieved with the Environmental Protection Act (1986) and Environmental Protection (Noise) Regulations 1997.

On this basis the noise emissions from the site are considered acceptable and Unreasonable Noise, as defined in the Act is not expected from site.

Appendix A: Noise Management Plan

The elements outlined below are recommended as part of a comprehensive Noise Management Plan. They are recommended for compliance with the Environmental Protection Act 1986 and its subsidiary legislation; the Environmental Protection (Noise) Regulations 1997.

Noise Source or Activity	Requirement
General Deliveries	<ul style="list-style-type: none"> General Deliveries to convenience store permitted during the operational hours shown in Table 1 Reversing of trucks to be minimised to avoid the unnecessary activation of the reversing beeper. "Broad band", or "white-noise" reversing beepers are recommended for all Delivery trucks at the site
Refuse Collection	<ul style="list-style-type: none"> Refuse collection is to be carried out in the quietest reasonable and practicable manner; Equipment used for refuse collection is the quietest reasonably available Collection to occur between 7 am and 7 pm Mon-Saturday, unless the contractor has a Noise Management Plan approved by Council.
Fuel Tanker Deliveries	<ul style="list-style-type: none"> Deliveries to convenience store permitted between 7am and 7pm Monday to Saturday. Vehicle manoeuvring on site to be at a maximum of 5-8 km/h, and with low engine revs. "Broad band", or "white-noise" reversing beepers are preferred for all tanker trucks Reversing of trucks to be discouraged to avoid the unnecessary activation of the reversing beeper.
Barriers	<ul style="list-style-type: none"> Minimum 1.8m high Colorbond on the Western boundary Minimum 2.4m high Colorbond on the Southern boundary Minimum 1.5 high Colorbond on three sides around rooftop plant Minimum 1.8m high colourbond required on the Eastern boundary, between the carwash and Southern boundary All barriers to be gap-free across their entire area. Barriers can be from 0.42mm BMT Colorbond steel, 8mm Perspex/acrylic sheeting, 7 mm polycarbonate or 6mm safety glazing, or an acoustically equivalent material with a minimum mass of 8.5 kg/m². Refer also detail in Figure 2
Grilles, Storm water grates & other metal covers	<ul style="list-style-type: none"> To be installed so as to be tight fitting. Where this cannot be achieved, hard rubber or other durable materials are to be used for cushioning such grates/covers
Signage	<ul style="list-style-type: none"> To be installed in the carpark to remind patrons to keep noise to a minimum due to the proximity of neighbouring areas
Outdoor Speakers	<ul style="list-style-type: none"> No music to be played through any speaker on site. The use of the speaker is to be limited to emergency messaging and patron management only

Noise Source or Activity	Requirement
Outdoor Building Services plant	<ul style="list-style-type: none"> Air compressors to be co-located in the Carwash plantroom Rooftop exhaust fans to be installed within the ceiling cavity to reduce their environmental noise emission. The corresponding fan noise intrusion into the building to be controlled by the mechanical contractor to meet Australian Standard requirements
Other Noisy Plant	<ul style="list-style-type: none"> Beepers (for tyre air refill) and other alert devices on site shall be selected so as to minimise their noise emission and to orient away from the nearest neighbours. Noise emissions not to exceed the values outlined in Table 3
Workshop	<ul style="list-style-type: none"> NRC 0.9 acoustic insulation¹ to be installed on underside of metal deck roof, where it faces inside the workshop building Rear wall to be minimum 140 mm masonry Roof to be 0.48mm BMT corrugated metal with all perimeter gaps sealed. No translucent Polycarbonate, PVC or other plastic material permitted Eastern and Western walls of workshop to have 10.38mm laminated sealed glazing where transparent panelling is proposed. Alternative transparent panelling with acoustic performance not less than 10.38 mm glazing can also be used. Remaining walls to have a minimum Rw 45 rating Noisy equipment and activity e.g. use of rattle gun only permitted between 7am - 7pm Mon-Sat, 11am - 7pm on Sunday
Carwash	<ul style="list-style-type: none"> A water resistant NRC 0.95 Acoustic Lining², is required on the ceiling and walls of the carwash bay, exposed to the carwash environment, minimum area 78m². Maximum car entry openings to be <ul style="list-style-type: none"> North side - 3.0m H x 2.7m W South side - 2.4m H x 2.7m W Openings to be sealed during carwash with a minimum 6.38mm sliding glass door. Door to seal gap-free when closed using brush seals in contact around the full perimeter of the sliding doors Any fixed glazing on the carwash to have the acoustic performance of 6.38mm laminated glass All walls to be a minimum Rw45 acoustic performance, consisting of a 92mm stud drywall with 9m FC on both sides and NRC 0.9 insulation in cavity. Roof/ceiling construction: <ul style="list-style-type: none"> 0.42mm Colorbond roof, Either 6mm FC or 10mm moisture resistant plaster ceiling NRC0.9 Insulation in ceiling cavity

¹ NRC0.9 - 75 mm thick glasswool, density 11 kg/m³, or acoustic equivalent

² NRC0.95 - 50mm thick glasswool, density 32kg/m³ with 15 micron Mylar facing. Water & corrosion resistant perf metal facing, minimum 0.42mm thick, and with a minimum 11% open area. Perf metal facing to sit a minimum 50mm clear gap to insulation



Bushfire Management Plan

Development Application

770 Brookton Highway, Roleystone

City of Armadale

Job Number: 190357

Assessment Date: 3 July 2019

Report Date: 8 March 2021

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Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures (and any associated response/evacuation plan if applicable) will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.


All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time.


All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents - arising out of the services provided by their consultants.

Document Control

Version	Version Details	Date Submitted
1.0	First Issue	4-Sep-19
1.1	Response to DFES comments: 1. Alteration to separation distances as shown for Area 1 in Table 3.4 2. Requirement for landowner to maintain road verges on Brookton Highway and Hawkstone Road in Low Threat state, in perpetuity.	21-Jan-20
1.2	Update of site plan	22-Sep-20
1.3	Inclusion of carwash within site design	8-Mar-21

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Document Content Compliance Statement

This Bushfire Management Plan (the Plan) provides the required information to address State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7), the associated Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines), and any additional information as directed by the WA Planning Commission (WA Department of Planning, Lands and Heritage). It is fit for accompanying a planning application.

BAL Contour & BPC Template v1.0

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Executive Summary

This Bushfire Management Plan is to accompany a Development Application for the existing petrol station and automotive workshop at 770 (Lot 60) Brookton Highway, Roleystone. The proposed development is to upgrade and modernise the existing petrol station facilities, including new buildings and petrol bowzers. There is no change of land use or intensification of bushfire threat as a part of this proposal. In fact the bushfire risk will be lowered through the removal of on-site classifiable vegetation, and the modernisation of existing facilities. This BMP assumes that any existing on-site vegetation, including road verges, will be cleared, and maintained in a low threat state in perpetuity, as part of this proposal. There are no environmental impediments against this happening.

As a petrol station and automotive workshop this site meets the definition of a High Risk land use. As such Bushfire Risk Management measures will need to be included in the site's Emergency/Operational Management Plan, prior to the completion of the development. As a High Risk land use the development will also trigger a referral to DFES for comment.

All off-site vegetation within 150m of the development site was classified or excluded from classification using Method 1 of AS3959-2018. Eight areas of vegetation were classified adjacent to the site. The bushfire threat to the site from these areas of classified vegetation are presented as a contour map, which demonstrates that BAL-29 (or lower) is able to be achieved on the subject lot.

The Bushfire Protection Criteria were considered for the development and the Acceptable Solutions can be met in all cases, including, Location, Siting and Design, Access, and Firefighting Water Requirements. There are no requirements for Performance Based solutions as part of this development.

1 The Proposal and Purpose of the Plan

1.1 Details

Landowner / Proponent:	Better Choice Fuel
---------------------------	--------------------

Site Address:	Lot No. 60 (770) Brookton Highway, Roleystone
---------------	---

Local Government:	City of Armadale
-------------------	------------------

Lot Area:	2782 m ²
-----------	---------------------

Planning Stage:	Development application
-----------------	-------------------------

Development Type:	Construction of a Class 4 - Class 9 building
-------------------	--

Overview of the Proposal:

The site is an existing operational fuel station and automotive repair shop that has been in use for decades. The proposal is to upgrade the infrastructure and facilities of the fuel station. This will involve the demolition of existing buildings and replacement with new ones, as well as the replacement of petrol bowsers. There will be no change to land use as part of this proposal. This BMP is designed to accompany the Development Application submitted to support this site upgrade.

Bushfire Prone Planning Commissioned to Produce the Plan by:	Peter Webb and Associates
--	---------------------------

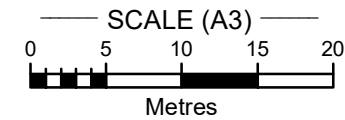
Purpose of the Plan:	To Accompany a development application
----------------------	--

For Submission to:	City of Armadale
--------------------	------------------

Figure 1.1
Proposed Development

Lot 60 on Plan 8181
Street No.770 Brookton Highway
ROLEYSTONE

- LEGEND**
- Subject Area: Lot 60
 - Other Lots
 - Hydrant
 - Proposed Building**
 - Retail & Control Building
 - Store Room
 - Canopy
 - Car Wash
 - Existing Building**
 - Service Station
 - Canopy



LOCALITY



Aerial Imagery : Landgate/SLIP
Image Date : Aug 2020

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre






Map compiled by: Ian Ross 19/02/2021
Map updated by: Ian Ross 19/02/2021



Figure 1.2
Location Plan
(SPATIAL CONTEXT)

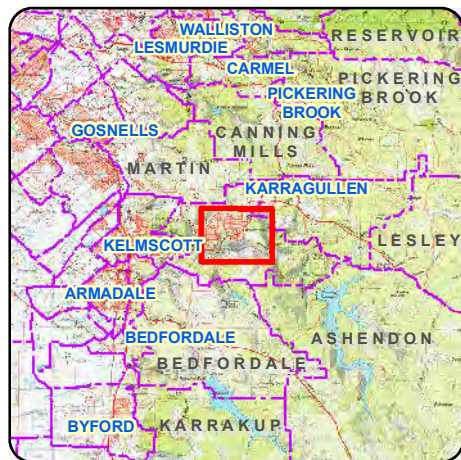
Lot 60 on Plan 8181
Street No.770 Brookton Highway
ROLEYSTONE

– LEGEND

-  Subject Area: Lot 60
-  Local Government Authority
-  Locality / Suburb
-  Bush Fire Brigade
-  Volunteer Fire & Rescue Service

0 200 400 600 800
Metres

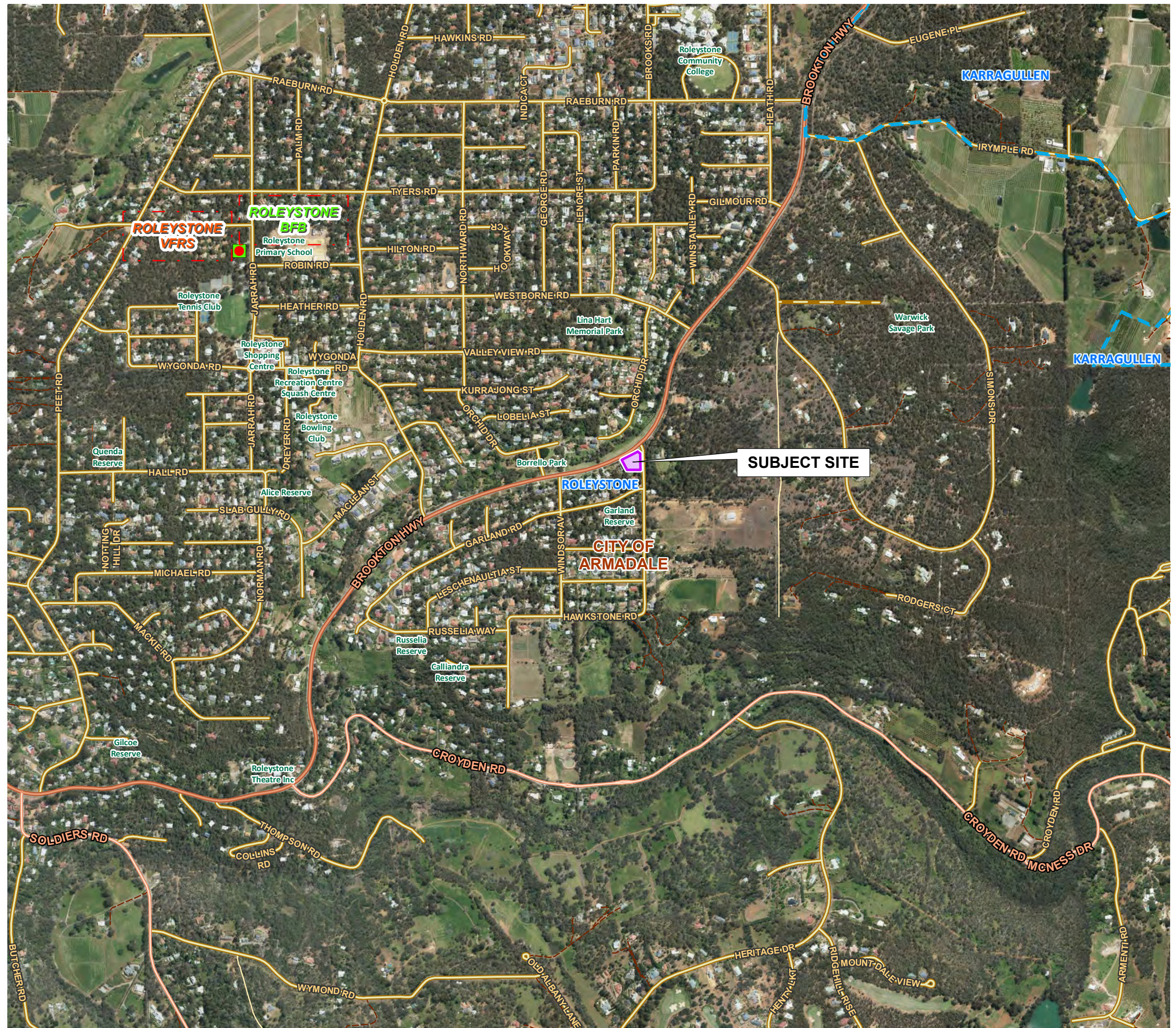
LOCALITY



Aerial Imagery : Landgate/SLIP
Image Date : Aug 2020

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre




Map compiled by: Ian Ross 19/02/2021
Map updated by: Ian Ross 19/02/2021

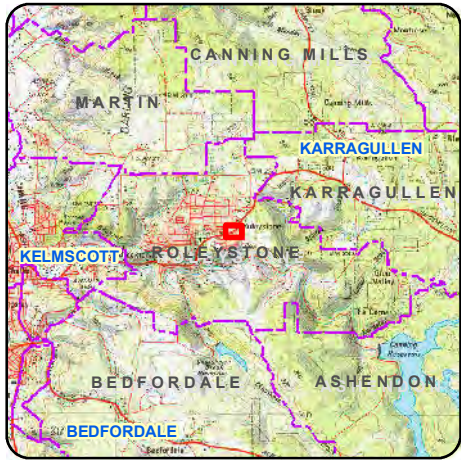
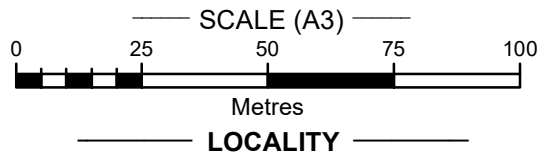



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.
Map Document Path / Name: K:\Projects\Jobs 2019\190357 - 770 Brookton Highway Roleystone (Contour Mapping)\190357 - BMP update - Sep 2020\Mapping\MXD\190357_LOC_BMP_Lot 60 770 Brookton Hwy_Roleystone_A3L.mxd

Figure 1.3
Bushfire Prone Area

Lot 60 on Plan 8181
Street No.770 Brookton Highway
ROLEYSTONE

- **LEGEND** —
-  Subject Area: Lot 60
 -  Other Lots
 -  Bushfire Prone Areas (2019)





BUSHFIRE PRONE PLANNING

Aerial Imagery : Landgate/SLIP
Image Date : Apr 2019

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Ian Ross 19/02/2021
Map updated by: Ian Ross 19/02/2021



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Map Document Path / Name: K:\Projects\Jobs 2019\190357 - 770 Brookton Highway Roleystone (Contour Mapping)\190357 - BMP update - Sep 2020\Mapping\IMXD\190357_BPA_BMP_Lot 60 770 Brookton Hwy Roleystone_A3L.mxd

1.2 Existing Documentation Relevant to the Construction of this Plan

This section acknowledges any known reports or plans that have been prepared for previous planning stages, that refer to the subject area and that may or will impact upon the assessment of bushfire risk and/or the implementation of bushfire protection measures and will be referenced in this Bushfire Management Plan.

Relevant Documents		
Existing Document	Copy Provided by Client	Title
Structure Plan	N/A	
Environmental Report	N/A	
Landscaping (Revegetation) Plan	N/A	
Bushfire Risk Assessments	N/A	

As an existing developed site on a small land parcel, there are limited existing reports for the site. The only vegetation on site is a small area of remnant regrowth scrub. This BMP includes a full assessment of bushfire risk for the site.

1.3 High Risk Land Use

Definition and Application

A 'high risk land use' is defined as "a land use which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Such uses may also expose the community, firefighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event". The Guidelines provide examples of what constitutes a high-risk land use.

Required Additional Information – Flammable On-site Hazards

Development applications for a high-risk land use are to include a risk management plan that addresses the required bushfire risk management measures for any flammable onsite-hazards.

Required Additional Information - Inability to Comply with SPP 3.7

Proposed high risk land uses that cannot meet full compliance with SPP 3.7 and cannot fully comply with the bushfire protection criteria contained in the Guidelines, including if the proposed site is subject to BAL-40 or BAL-FZ, will generally not be supported unless:

1. Sufficient justification can be provided for support as 'unavoidable development' because the "development represents exceptional circumstances where full compliance with SPP 3.7 would be unreasonable as no alternative location exists and it can be proven that it is not contrary to the public interest", as determined by the decision maker.

(Source: State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7) s7 and pm6.6 and Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines) s5.6.

Determination of High-Risk Land Use

It has been determined that the proposed development is a 'high-risk land use'. The proposed development has been assessed as high risk as it is a fuel station that includes the storage of large volumes of flammable hydrocarbons. These will be stored underground in compliant tanks, and there will be no increase in the volume of fuels stored on site, beyond the current usage.

Required Additional Information and its Location within this BMP

<p>A risk management plan that addresses bushfire risk management measures for any flammable onsite-hazards to support the 'high-risk' land use.</p>	<p>Provided as bushfire specific content added to the proponents existing Emergency/Operational Management Plan.</p>
<p>Create a responsibility for the landowner/occupier to inform persons on site of the existence and application of a Risk Management Plan containing bushfire risk management measures for any flammable onsite-hazards. Also to create a responsibility update the plan and continue to comply with the requirements</p>	<p>Within Section 6</p>

A Bushfire Specific Response plan will be included to the existing Emergency/Operational Management plan for the site. This will be developed once the design for the site has been finalised.

2 Environmental Considerations

2.1 Native Vegetation – Modification and Clearing

'Guidelines' s2.3: "Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values."

Existing conservation areas that are potentially affected by the development proposal are required to be identified. This may result in vegetation removal/modification prohibition or limitations. These areas include National Parks, Nature Reserves, Wetlands and Bush Forever sites.

Environmental Protection Act 1986: "Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Act unless clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Act or are prescribed in the Environmental Protection Regulations" ('Guidelines' s2.3).

The Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act): This Act administered by the Australian Government Department of the Environment and Energy, provides a national scheme of environment and heritage protection and biodiversity conservation. Nationally threatened species and ecological communities are a specific matter of significance. Areas of vegetation can be classified as a Threatened Ecological Community (TEC) under the EPBC Act and consequently may have removal restrictions imposed.

Vegetation Modification and Clearing Assessment

Will on-site clearing of native vegetation be required?	Yes
Does this have the potential to trigger environmental impact/referral requirements under State and Federal environmental legislation?	No
Identified environmental legislation applicable to the Proposal site - No.1:	N/A
Identified environmental legislation applicable to the Proposal site - No.2:	N/A
For the proposed development site, have any areas of native vegetation been identified as species that might result in the classification of the area as a Threatened Ecological Community (TEC)?	No
Potential TEC species identified:	N/A

The Lot is currently almost completely cleared as it is already developed. The remaining vegetation (approximately 450 m²) of regrowth remnant vegetation on the south side of the lot will be cleared as part of this proposal.

The bushfire assessment and management strategies contained in the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

Development Design Options

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation Lots and/or Asset Protection Zones. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available design options to minimise the removal of native vegetation.

Minimising the Removal of Native Vegetation		
Design Option	Identified	Adopted
Cluster development	N/A	N/A
Construct building to a standard corresponding to a higher BAL rating as per BCA (AS 3959-2018 and/or NASH Standard)	N/A	N/A
Modify the development location	N/A	N/A

All buildings to be constructed on-site have been positioned inside the BAL-29 contour (or lower), so as to reduce the bushfire risk to manageable levels. There will be no flammable vegetation retained on-site (including road verges) after the completion of the development.

Impact on Adjoining Land

Is this planning proposal able to implement the required bushfire measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes
---	-----

The proposed development can achieve an asset protection zone which will ensure the bushfire risk will be reduced to the immediate surrounding properties. No flammable vegetation will be retained on-site.

3 Potential Bushfire Impact Assessment

3.1 Assessment Input

3.1.1 Fire Danger Index (FDI) Applied

AS 3959-2018 specifies the fire danger index values to apply for different regions as per Table 2.1. The values used in the model calculations are for the Forest Fire Danger Index (FFDI) and for which equivalent representative values of the Grassland Fire Danger Index (GFDI) are applied as per Appendix B. The values can be refined if appropriately justified.

Table 3.1: Applied FDI Value

FDI Value			
Vegetation Area	As per AS 3959 - 2018 Table 2.1	As per DFES for the Location	Value Applied
All vegetation areas	80	N/A	80

3.1.2 Existing Vegetation Identification, Classification and Effective Slope

Vegetation identification and classification has been conducted in accordance with AS 3959-2018 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016).

When more than one vegetation type is present, each type is identified separately with the worst-case scenario being applied as the classification. The predominant vegetation is not necessarily the worst-case scenario.

The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959-2018 s2.2.3.2-f and asset protection zone standards). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

Effective Slope: Is the ground slope under the classified vegetation and is determined for each area of classified vegetation. It is the measured or determined slope which will most significantly influence the bushfire behaviour in that vegetation as it approaches a building or site. Where there is a significant change in effective ground slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified, based on the change in effective slope, to enable the correct assessment.

Table 3.2: Vegetation identification and classification.

All Vegetation Within 150 metres of the Proposed Development				
Vegetation Area	Identified Classification Types ¹ or Description if 'Excluded'	Applied Classification ²	Effective Slope Under Classified Vegetation	
			degrees	description
1	Closed Scrub D13	Class D Scrub	0	Flat
2	Open Forest A03	Class A Forest	0	Flat
3	Tussock Grassland G22	Class G Grassland	4	Downslope
4	Low Open Forest A04	Class A Forest	0	Upslope
5	Low Open Forest A04	Class A Forest	0	Flat
6	Low Open Forest A04	Class A Forest	0	Flat
7	Sown Pasture G26	Class G Grassland	0	Flat
8	Closed Scrub D14	Class D Scrub	4	Downslope
9	Managed Gardens	Excluded AS 3959-2018 2.2.3.2 (f)	N/A	N/A

Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined, and the photo locations identified on the topography and classified vegetation map, Figure 3.1.




Note¹: As per AS 3959-2018 Table 2.3 and Figures 2.3 and 2.4 a-h

Note²: As per AS 3959-2018 Table 2.3.

The majority of vegetation areas within 150m of the subject site comprise small areas of remnant vegetation. Only Area 5 (Class A Forest) comprises a large area of connected vegetation.

Area 9 comprises interconnected managed gardens on a number of individual lots, that meet the definition of *Low Threat* under C. 2.2.3.2(f) of AS3959-2018. Many of these lots have mature trees over low threat lawn or manicured gardens. Where an individual garden is not considered to meet the definition of *Low Threat*, such as Area 4, it has been classified.

Vegetation Area 1	Classification Applied or Exclusion Clause: Class D Scrub
Vegetation Type Present: Closed scrub D-13	
Description / Classification Justification: Tea-tree and melaleuca scrub fringing a small body of water at the bottom of a shallow swale. Average vegetation height 3.5m. Occasional eucalypts tree included but no more than 10%.	
 	
<div>Photo ID: 1a</div> <div>Photo ID: 1b</div>	
Vegetation Area 2	Classification Applied or Exclusion Clause: Class A Forest
Vegetation Type Present: Open forest A-03	
Description / Classification Justification: Revegetation area containing immature eucalypts (primarily Tasmanian Blue Gums) with tea-tree and melaleuca middle and understory. Has a clear tiered vegetation structure.	
 	
<div>Photo ID: 2a</div> <div>Photo ID: 2b</div>	

Vegetation Area 3	Classification Applied or Exclusion Clause: Class G Grassland
Vegetation Type Present: Tussock grassland G-22	
Description / Classification Justification: Tussock grassland along the edge of Brookton Highway. Evidence that it is mowed but will cure in summer to form a fire threat.	
<div>   </div> <div> <div>Photo ID: 3a</div> <div>Photo ID: 3b</div> </div>	
Vegetation Area 4	Classification Applied or Exclusion Clause: Class A Forest
Vegetation Type Present: Low open forest A-04	
Description / Classification Justification: Small area of remnant jarrah/marri forest in front garden area of occupied property. <i>Xanthorrhoea</i> middle story with a clear tiered vegetation structure.	
<div>  </div> <div> <div>Photo ID: 4a</div> </div>	

Vegetation Area 5	Classification Applied or Exclusion Clause: Class A Forest
Vegetation Type Present: Low open forest A-04	
Description / Classification Justification: Large area of jarrah/marri regrowth forest, with <i>xanthorrhoea</i> , <i>banksia</i> and other middle story ladder fuels, over near-surface scrubs and leaf litter, clear tiered vegetation structure.	



Photo ID: 5a



Photo ID: 5b




Vegetation Area 6	Classification Applied or Exclusion Clause: Class A Forest
Vegetation Type Present: Low open forest A-04	
Description / Classification Justification: Reserve comprising jarrah/marri regrowth forest, with <i>xanthorrhoea</i> , <i>banksia</i> and other middle story ladder fuels, over near-surface scrubs and leaf litter, clear tiered vegetation structure.	



Photo ID: 6a



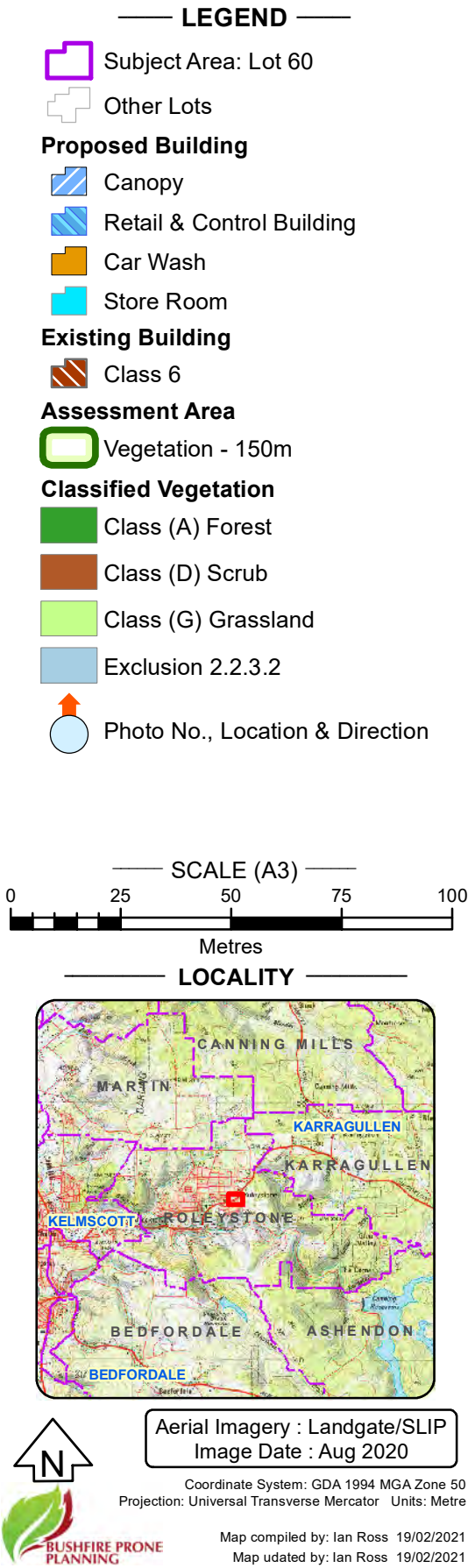
Photo ID: 6b

Vegetation Area 7	Classification Applied or Exclusion Clause: Class G Grassland
Vegetation Type Present: Sown pasture G-26	
Description / Classification Justification: Large, sparsely vegetated paddock for stock. Windbreak eucalypt blue gums around margins but less than 10% canopy cover.	
<div>   </div> <div> <div>Photo ID: 7a</div> <div>Photo ID: 7b</div> </div>	
Vegetation Area 8	Classification Applied or Exclusion Clause: Class D Scrub
Vegetation Type Present: Closed scrub D-13	
Description / Classification Justification: Dense tea-tree scrub along road-side, approximate height 4m.	
<div>  </div> <div> <div>Photo ID: 8a</div> </div>	

Vegetation Area 9	Classification Applied or Exclusion Clause: Excluded AS3959-2018 2.2.3.2 (f) Low Threat Vegetation
Vegetation Type Present: Managed gardens and road verges	
Description / Classification Justification: Gardens and road verges for occupied lots that are maintained in a low threat state for the purposes of bushfire classification.	
	
Photo ID: 9a	Photo ID: 9b
	
Photo ID: 9c	Photo ID: 9d

Figure 3.1
Topography &
Classified Vegetation

Lot 60 on Plan 8181
Street No.770 Brookton Highway
ROLEYSTONE



3.1.3 Vegetation Separation Distance

The vegetation separation distance is the horizontal distance from an existing building or planned building footprint to the start of an area of classified vegetation.

The separation distance can be:

- The actual distance – which will correspond to a single determined BAL rating. It can only be measured when the location of a building or building footprint is known; or
- A required distance or range of distances that correspond to a single BAL rating or varying BAL ratings. These calculated distances are used to indicate what BAL rating/s are achievable.

Required distances can be presented in this Plan in the following formats, dependant on the specific development proposal and the type of information most applicable:

- A distance that must be achieved to result in a stated BAL rating. This is presented as the Conditional BAL rating (conditional upon achieving the required separation distance);
- A table stating the separation distance range that, if achieved, would correspond to each BAL rating; or
- A map visually showing the separation distance range - from areas of classified vegetation that would remain post-development - that correspond to each BAL rating i.e. a BAL Contour Map.

Note:

Required (calculated) separation distances are presented in the 'Assessment Output' section as the BAL Contour Map and relevant tables to assist with its interpretation.

Actual measured vegetation separation distances are applied in this assessment and are presented in the tables below.	
Required vegetation separation distances (calculated) to achieve stated BAL's are determined in this assessment and are presented in Section 3.2.	✓

3.1.4 Assessment Summary

The assessment of bushfire risk for the site was conducted using Method 1, based on Section 2 of AS3959-2018. All areas of classifiable off-site vegetation were assessed and classified. Remnant on-site vegetation (including that on the road verge of Hawkstone Road) was not considered as part of this assessment as the whole lot will be cleared as part of the development and maintained in a low threat state in perpetuity. The *Indicative* BAL results are presented in Table 3.3 for the three habitable buildings and the one non-habitable building proposed as part of the current development. The BAL ratings are presented as *Indicative* at this stage due to the preliminary nature of the development and the fact that more than one BAL contour crosses the lot. Given the current layout of the development all habitable buildings currently achieve a maximum of BAL-29 and it is possible to achieve BAL-29 (or less) for the development within the bounds of the lot.

The required minimum separation distances to maintain those BAL ratings are provided in Table 3.4, and the results presented spatially as a contour map in Figure 3.2.

Table 3.3: Summary BAL results.

BAL Results – Summary of Assessment (detail of assessment and determination is presented in the following sections of this report)		
Proposed Building	BAL Status	Bushfire Attack Level
Fuel Canopy	Indicative Only	BAL-19
Retail and Control Building	Indicative Only	BAL-29
Storeroom	Indicative Only	BAL-19
Automated Carwash (non-habitable building as per c.78B(1b.ii) of part 10a of the LPS Regulations)	Indicative Only	BAL-40

3.1.5 Indicative BAL Results Presented as a BAL Contour Map

Interpretation of the Bushfire Attack Level (BAL) Contour Map

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels that exist at varying distances away from the classified vegetation.

Each BAL represents a set range of radiant heat flux (as defined by AS 3959-2018) that can be generated by the bushfire in that vegetation at that location.

The width of each shaded contour (i.e. the distance interval) will vary and is determined by consideration of variables including vegetation type, fuel structure, ground slope, climatic conditions. They are unique to a site and can vary across a site. The width of each contour is a diagrammatic expression of the separation distances from the classified vegetation that apply for each BAL rating, for that site.

A building (or 'area') located within any given BAL contour will be subject to that BAL rating and potentially multiple BAL ratings of which the highest rating will be applied.

Deriving a BAL Rating for a Future Construction Site (Building) from the BAL Contour Map Data

(Capacity to Issue a BAL Certificate)

Key Assumptions: The actual location of a building within a lot or envelope (an 'area') has not been determined at this stage of planning; and the BAL ratings represent the BAL of an 'area' not a building.

The BAL Rating is Assessed as Indicative

If the assessed BAL for the 'area' is stated as being 'indicative', it is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the lot, or on

adjacent lots, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified).

In this report the indicative BAL is presented as either the highest BAL impacting the site or as a range of achievable BAL's within the site – whichever is the most appropriate.

The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent lots; and/or
3. the actual location of the future building within that 'area'.

A BAL Certificate cannot be provided for future buildings, within a lot or envelope with an indicative BAL, until the building location and in some instances building design (elevation), have been established and any required and approved vegetation modification/removal has been confirmed. Once this has occurred a report confirming the building location and BAL rating will be required to submit with the BAL certificate.

The required confirmation of the BAL rating must be done by a bushfire practitioner with the same level of accreditation as has been required to compile this Bushfire Management Plan. This is dependent on the type of calculations utilised (e.g. if performance based solutions have been used in the Plan BPAD Level 3 accreditation is required)

The BAL Rating is Assessed as Determined

If the assessed BAL for the lot or envelope is stated as being 'determined' it is because that lot or envelope is impacted by a single BAL contour interval. This BAL has been determined by the existence (or non-existence) of classified vegetation outside the lot or envelope, and no classifiable vegetation currently exists on the lot or envelope (i.e. it has been cleared to a minimal fuel, low bushfire threat state). In the situation where the BAL Contour Map has been constructed around multiple lots, there also needs to be no classifiable vegetation on an adjacent lot if this vegetation has not already been incorporated into the creation of the BAL Contour Map.

As a result, a determined BAL can be provided in this limited situation because:

1. No classified vegetation is required to be removed or modified to achieve the determined BAL, either within the lot/envelope or on adjacent lots (or if vegetation is excluded from classification, it is reasonable to assume it will be maintained in this state into the future); and
2. A future building can be located anywhere within the 'site' and be subject to the determined BAL rating; and
3. The degree of certainty is more than sufficient to allow for any small discrepancy that might occur in the mapping of the BAL contours.

For a determined BAL rating for a lot/envelope, A BAL Certificate (referring to this BMP) can be provided for a future building, if the BMP remains current.

Separation Distances Calculated to Construct the BAL Contours

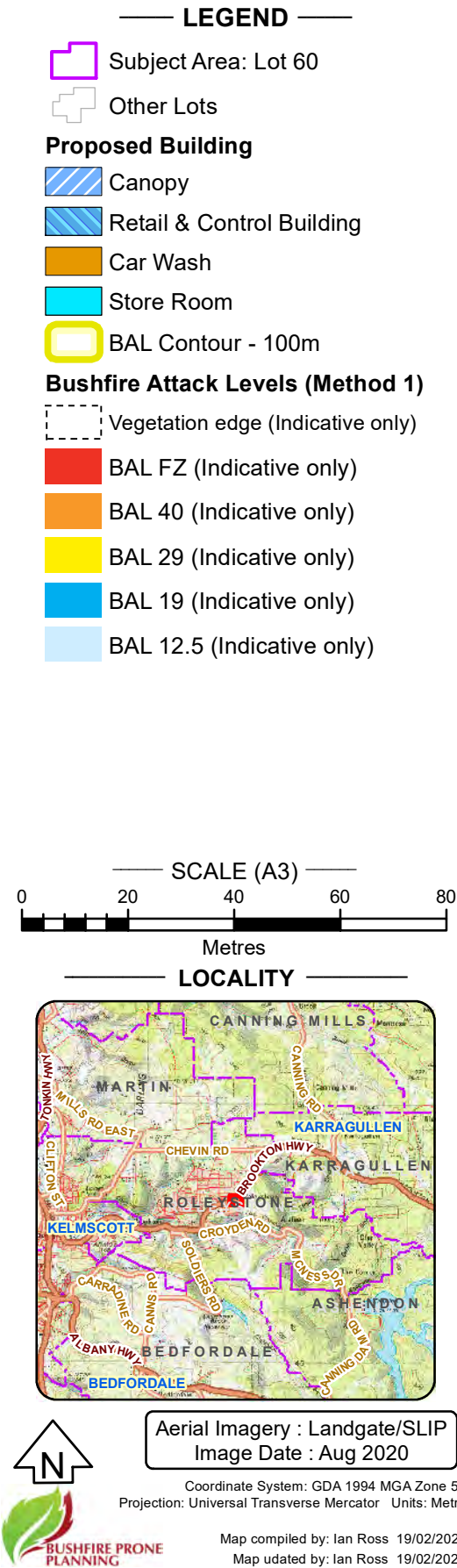
Table 3.4: Vegetation separation distances applied to construct the BAL contours.

Calculated Vegetation Separation Distances									
Vegetation Area	Vegetation Classification	Effective Slope	Site Slope	BAL Assessment Method Applied ¹	BAL Rating and Corresponding Separation Distance ² (metres)				
		Degrees	BAL-FZ		BAL-40	BAL-29	BAL-19	BAL12.5	
1	Class D Scrub	0	0	Method 1	<10	10-<13	13-<19	19-<27	27-<100
2	Class A Forest	0	0	Method 1	<16	16-<21	21-<31	31-<42	42-<100
3	Class G Grassland	4	4	Method 1	<7	7-<9	9-<14	14-<20	20-<50
4	Class A Forest	0	0	Method 1	<16	16-<21	21-<31	31-<42	42-<100
5	Class A Forest	0	0	Method 1	<16	16-<21	21-<31	31-<42	42-<100
6	Class A Forest	0	0	Method 1	<16	16-<21	21-<31	31-<42	42-<100
7	Class G Grassland	0	0	Method 1	<6	6-<8	8-<12	12-<17	17-<50
8	Class D Scrub	4	4	Method 1	<11	11-<15	15-<22	22-<31	31-<100
9	Excluded AS 3959-2018 2.2.3.2 (f)	N/A	N/A	Method 1	N/A	N/A	N/A	N/A	N/A

¹ Method 1 as per AS 3959-2018 Table 2.5 and Method 2 as per AS 3959-2018 Appendix B. The input variables applied, other than the calculation model defaults, are presented in Section 3.1 of this Plan.

Figure 3.2
BAL Contour Map

Lot 60 on Plan 8181
Street No.770 Brookton Highway
ROLEYSTONE



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.
Map Document Path / Name: K:\Projects\Jobs 2019\190357 - 770 Brookton Highway Roleystone (Contour Mapping)\190357 - BMP update - Sep 2020\Mapping\IMXD\190357_BAL_BMP_Lot 60 770 Brookton Hwy Roleystone_A3L.mxd

4 Identification of Bushfire Hazard Issues

This assessment has considered bushfire hazard issues for the site. The site is located adjacent to classified vegetation, but the development is able to achieve BAL-29 or lower. There are no environmental impediments to the development of the site and achieving the BAL-29 rating.

Any remnant vegetation on the road verges of Brookton Highway and Hawkstone Road that adjoin the lot envelope, will be cleared as part of this proposal. These will then be maintained as either gravel open areas, or revegetated as lawn / gardens that meet the definition of *Low Threat* under C. 2.2.3.2(f) of AS3959-2018, so as to maintain the integrity of the APZ as defined by the *Guidelines for Planning in Bushfire Prone Areas* V1.3. All on-site habitable buildings are able to achieve BAL-29 (or less) bushfire exposure. The carwash as shown in Figure 3.2 is defined as a non-habitable building as per c.78B(1b.ii) of part 10a of the LPS Regulations.

The site is an existing petrol station and as such, meets the definition of a *High Risk* land use. As such there will be the requirement for referral to DFES, and the inclusion of a Bushfire Risk Management Plan prior to the completion of the development. As an existing fuel station the development will not increase the bushfire risk to people, property or infrastructure in the surrounding area.

As outlined in Section 5 of this BMP the development is able to achieve compliance with all four Bushfire Protection Criteria, and there are no performance based solutions included as part of this proposal.

5 Assessment Against the Bushfire Protection Criteria (BPC)

5.1 Bushfire Protection Criteria - Assessment Summary

Summarised Outcome of the Assessment Against the Bushfire Protection Criteria (BPC)						
Element	Basis for Achieving Compliance with the Intent of the Element			The Proposal Cannot Achieve Compliance with the Intent of the Element	The Element is Not Applicable to the Proposal	Not a Strategic Planning Proposal therefore Location Options Do Not Apply
	All Relevant Acceptable Solutions Are or Can be Met	The Performance Principle is Addressed (one or more solutions cannot be fully met, or it is inappropriate to do so –				
		Argument Justifying Compliance with the Intent is Presented	A Performance Principle-Based Solution is Applied	Progressed as Minor or Unavoidable Development	Different bushfire protection measures are to be applied to specified development types and land uses (as per a WAPC Position Statement or guidance)	
1. Location	✓					
2. Siting and Design of Development	✓					
3. Vehicular Access	✓					
4. Water	✓					

The Proposal has been assessed against:

1. The requirements established in Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (the 'Guidelines'). The detail, including the technical requirements, are found at <https://www.planning.wa.gov.au/8194.aspx>; and
2. Any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the relevant local government. If known and applicable these have been stated in Section 5.2 of this Plan (with the detail included as an appendix if required by the relevant local government).

5.2 Bushfire Protection Criteria – Acceptable Solutions Assessment Detail

5.2.1 Element 1: Location

Bushfire Protection Criteria Element 1: Location Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.			
Acceptable Solution:	A1.1 Development Location	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.

The proposed development achieves compliance by:

- By ensuring future building work on the lot/s can be located on an area that will be subject to potential radiant heat from a bushfire not exceeding 29 kW/m² (i.e. a BAL rating of BAL-29 or less will apply). This can be achieved by using positioning, design and appropriate vegetation removal/modification; and
- Managing the remaining bushfire risk to an acceptable level by the existence/implementation and ongoing maintenance of all required bushfire protection measures, as identified within this Plan. These measures include the requirements for vegetation management, vehicular access and firefighting water supply.

5.2.2 Element 2: Siting and Design of Development

Bushfire Protection Criteria Element 2: Siting and Design of Development Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: To ensure that the siting and design of development (note: not building/construction design) minimises the level of bushfire impact.			
Acceptable Solution:	A2.1 Asset Protection Zone	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.

The proposed development achieves compliance by:

- Ensuring future building work on the lot/s can have established around it an APZ of the required dimensions - to ensure that the potential radiant heat from a bushfire to impact future building/s, does not exceed 29 kW/m² (i.e. a BAL rating of BAL-29 or less will apply to determine building construction standards).
- The APZ can be partially established within the lot boundaries. The balance of the APZ's required dimensions are being contributed by an area on adjoining land that is either non-vegetated or assessed as being managed in a low-fuel state and which can most reasonably be expected to be managed this way in perpetuity. This includes bitumised roads and managed gardens on occupied lots.
- The landowner/s having the responsibility of continuing to manage the required APZ as low threat vegetation in a minimal fuel state (including road verges on Brookton Highway and Hawkstone Road), by maintaining the APZ to the required dimensions and standard, including compliance with the local government's annual firebreak notice.
- The carwash as shown in Figure 3.2 is defined as a non-habitable building as per c.78B(1b.ii) of part 10a of the LPS Regulations, as it is not primarily occupied by humans for the purposes of living, working, studying or entertainment.

The required APZ dimensions are set out in Section 5.3.1. The APZ technical requirements (Standards) are detailed in Appendix 1.

5.2.3 Element 3: Vehicular Access

Bushfire Protection Criteria Element 3: Vehicular Access

Assessment Statements and Bushfire Protection Measures to be Applied

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Acceptable Solution:	A3.1 Two access routes	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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Brookton Highway provides safe access and egress to two different destinations. As a sealed public road, it is available to all residents and the public at all times and under all weather conditions. Brookton Highway is immediately available from the forecourt of the petrol station.

Acceptable Solution:	A3.2 Public Road	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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This proposal does not include the construction of a public road.

Acceptable Solution:	A3.3 Cul-de-sacs (including a dead-end road)	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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This proposal does not include the construction of a cul-de-sac.

Acceptable Solution:	A3.4 Battle-axe	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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This proposal does not include the construction of a battle-axe driveway.

Acceptable Solution:	A3.5 Private Driveways	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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No driveway longer than 50m is required as part of this development. The forecourt of the proposed petrol station will be constructed to meet the technical requirements for petrol stations, which meet or exceed those required for a private driveway. These requirements are set out in Appendix 2.

Acceptable Solution:	A3.6 Emergency Access Way	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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This proposal does not include the necessity for an Emergency Access Way.

Acceptable Solution:	A3.7 Fire Service Access Routes	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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This proposal does not include the necessity for a Fire Service Access Route.

Acceptable Solution:	A3.8 Firebreak Width	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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The proposed development does not require a firebreak under the City of Armadale's Firebreak Notice.

5.2.4 Element 4: Water

Bushfire Protection Criteria Element 4: Water

Assessment Statements and Bushfire Protection Measures to be Applied

Intent: To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

Acceptable Solution:	A4.1 Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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The proposed building work is located approximately 60m from the nearest hydrants located at 5 Hawkstone Road, and opposite the site on Brookton Highway. This meets the State required hydrant separation distances of less than 100m for commercial developments.

Acceptable Solution:	A4.2 Non-Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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A non-reticulated water supply is not required for this development.

Acceptable Solution:	A4.3 Non-reticulated Areas (Individual Lots)	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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A non-reticulated water supply is not required for this development.

5.3 Additional Information for Required Bushfire Protection Measures

The purpose of this section of the Plan is:

- As necessary, to provide additional detail (to that provided in the tables of Section 5.3) regarding the implementation of the acceptable solutions for those persons who will have the responsibility to apply the stated requirements;
- As necessary, to detail specific onsite vegetation management requirements such as the APZ dimensions, management of Public Open Space or application of landscaping plans for onsite vegetation;
- To discuss how staged development will be handled, if applicable; and

5.3.1 Vegetation Management

The development will require the maintenance of an on-site APZ to maintain BAL-29 separation distances. The assumption of this BMP is that the entire lot (including road verges) will be cleared as a result of the development, and that the construction and use of the petrol station will maintain a Low Threat state across the lot and road verges, in perpetuity. The vast majority of the lot will be concreted to allow vehicle movement. Any area not concreted will require vegetation management, to ensure any vegetation is maintained in a Low Threat state in perpetuity.

Asset Protection Zone (APZ) Dimensions that are to Apply

The required dimensions of the APZ will vary dependent upon the purpose for which the APZ has been defined. There are effectively three APZ dimensions that can apply:

1. An application for planning approval will be required to show that an APZ can be created which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29); and
2. If the assessment has determined a BAL rating for an existing or future building is less than BAL-29, the APZ must be of sufficient size to ensure the potential radiant heat impact of a fire does not exceed the kW/m² corresponding to the lower assessed BAL rating; or
3. Complying with the relevant local government's annual firebreak notice may require an APZ of greater size than that defined by the two previous parameters.

The dimensions (vegetation separation distances) that are to apply to the APZ for this Proposal are presented in the tables below.

The 'Planning (WAPC) BAL-29' APZ

Required Dimensions for the Subject Site

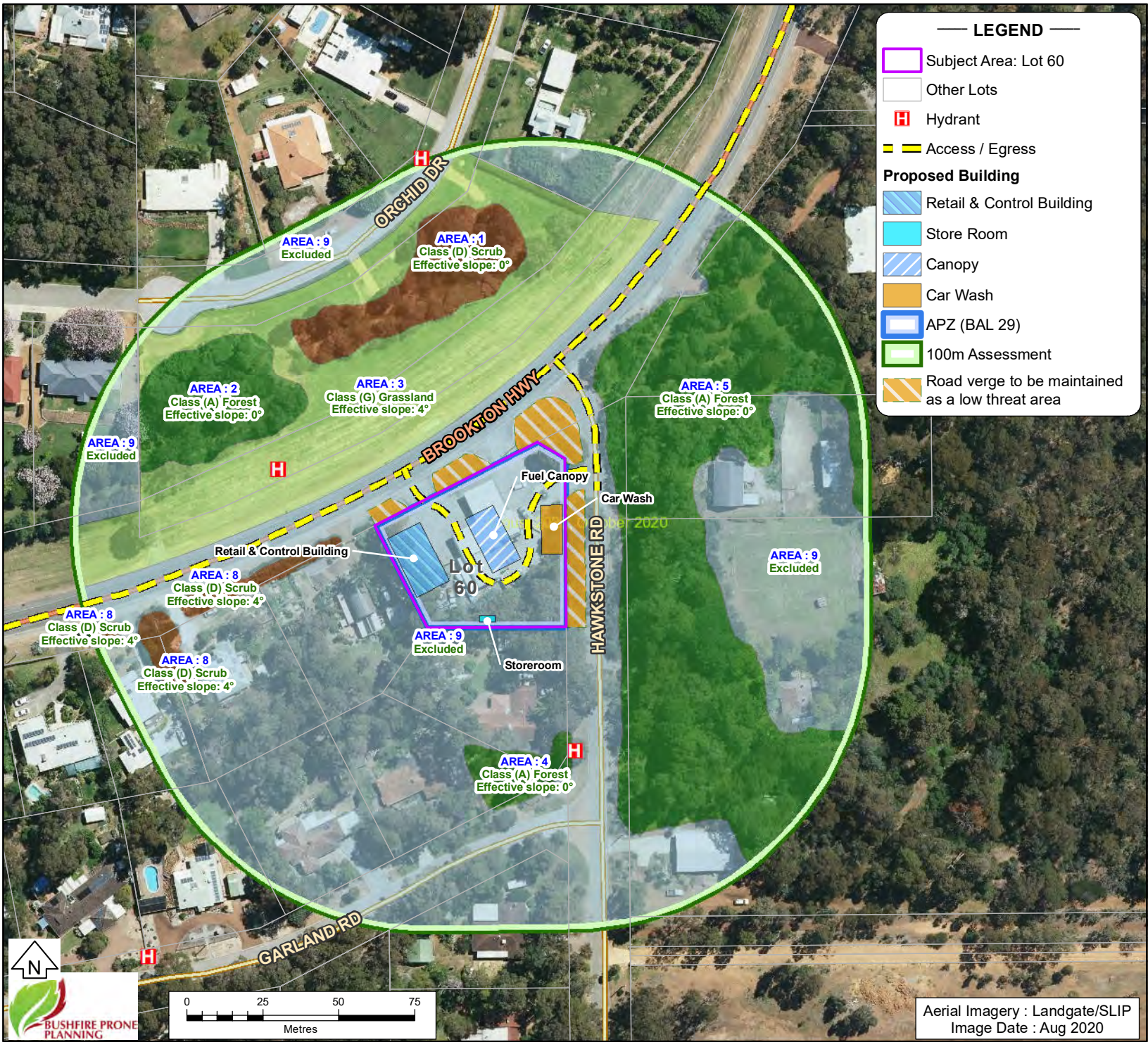
Requirement Set By		Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3)		
Relevant Fire Danger Index (AS3959-2018 Table 2.1)				80
BAL Determination Method		Method 1 (as per AS 3959-2018 s2.2.6 and Table 2.5)		
Vegetation Area	Applied Vegetation Classification	Effective Slope (degrees)	Maximum Acceptable 'Planning' BAL	Required Separation Distance (metres)
1	Class D Scrub	0	BAL-29	13
2	Class A Forest	0		21
3	Class G Grassland	4		9
4	Class A Forest	0		21
5	Class A Forest	0		21
6	Class A Forest	0		21
7	Class G Grassland	0		8
8	Class D Scrub	4		15
9	Excluded AS 3959-2018 2.2.3.2 (f)	N/A		N/A
This requirement has been established through the State bushfire provisions, SPP 3.7 and the associated Guidelines, as being a key compliance requirement for development proposals in WA.				

Figure 5.1: Bushfire Lot Management Statement (spatial representation of the bushfire protection measures)

Bushfire Management Statement (BMS) – Obligations of the Landowner to Comply with the Applicable Bushfire Management Measures

Location: 770 Brookton Highway, Roleystone	Local Government: City of Armadale	Description of Primary Building or Works: Construction of a habitable building other than a single house or ancillary dwelling
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The applicable bushfire management measures are established by the Bushfire Protection Criteria as per the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3), the City of Armadale's annual firebreak notice.



Bushfire Protection Criteria

Element 1: Location
BAL-29 is able to be achieved on this lot.

Element 2: Siting and Design
A BAL-29 APZ is able to be achieved. The proposed buildings can be positioned on the lot to achieve BAL-29 (or less) exposure. All vegetation within the Lot boundaries, and on road verges adjacent to the Lot boundaries, will be modified to meet the definition of "Low Threat" as defined by c.2.2.3.2(f) of AS3959-2018. Surrounding bitumised roads and managed manicured gardens on adjacent lots contribute to the BAL-29 APZ.

Incorporate an Asset Protection Zone (APZ) into the landscaping surrounding habitable buildings and adjacent structures within six metres of the habitable building. Comply with the legal requirements of the current *Fire Break Notice* and with any existing environmental protection constraints regarding native vegetation and habitat removal. There are financial penalties for failing to comply.

The APZ is to have the fuel loads managed and maintained to a low threat state with the requirements detailed in the Shire of Armadale's *Fire Break Notice*. A summary of the current Shire of Armadale requirements for lots <5000m² is:

- Have all flammable matter except living trees, shrubs and plants under cultivation, slashed, mowed or trimmed down by other means to a height no greater than five (5)cms across the entire property. This includes slashing between parkland, includes weeds, all grasses and hay.
- Shrubs are to be trimmed back over driveways and access ways to all buildings to three (3) metres wide with a clear vertical axis over it four (4) metres high to afford access for emergency vehicles to all structures and points of the property..

Element 3: Vehicular Access
Brookton Highway provides immediate access to two separate safe destinations.

The private driveway is less than 50m long.

Element 4: Water
The proposed development complies by being within 100m of two reticulated water hydrants. The hydrants are located on Brookton Highway, diagonally opposite the site to the west, and at 5 Hawkstone Road, Roleystone.

Construction: The proposed development is to be constructed to the standard corresponding to the BAL rating stated on the BAL Certificate, as per the Building Code of Australia. Sheds and fences are constructed of non-combustible materials. Sheds and ancillary buildings are to be located at least 6m from the dwelling.

6 Responsibilities for Implementation and Management of the Bushfire Protection Measures

Table 6.1: BMP Implementation responsibilities prior to lot sale, occupancy or building for the Landowner (Developer).

LANDOWNER (DEVELOPER) - PRIOR TO LOT SALE, OCCUPANCY OR BUILDING	
No.	Implementation Actions
1	<p>The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title (it may also need to be included on the deposited plan).</p> <p>This will be done pursuant to Section 70A Transfer of Land Act 1893 as amended ('Factors affecting use and enjoyment of land, notification on title:'). This is to give notice of the bushfire hazard and any restrictions and/or protective measures required to be maintained at the owner's cost.</p> <p>This condition ensures that:</p> <ol style="list-style-type: none"> 1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and 2. Potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan.
2	<p>Establish the Asset Protection Zone (APZ) on the lot and road verges to the dimensions and standard stated in the BMP, prior to occupancy of the site. This is the responsibility of the developer.</p>
3	<p>Prior to use of the building, there is an outstanding obligation created by this Bushfire Management Plan to develop and have approved, the required risk management plan that addresses bushfire risk management measures for onsite flammable hazards, as directed in Section 1.3.</p>
4	<p>Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be:</p> <ul style="list-style-type: none"> • The standard corresponding to the determined BAL rating, as per the bushfire provisions of the Building Code of Australia (BCA).

Table 6.2: Ongoing management responsibilities for the Landowner/Occupier.

LANDOWNER/OCCUPIER - ONGOING	
No.	Ongoing Management Actions
1	Maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP. This includes a requirement to maintain road verges that adjoin the lot boundaries in a Low Threat State, and is enforced by the <i>Annual Firebreak Notice</i> (see below).
2	Comply with the City of Armadale <i>Annual Firebreak Notice</i> issued under s33 of the Bush Fires Act 1954.
3	Maintain vehicular access routes within the lot to the required surface condition and clearances as stated in the BMP.
4	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL rating.
5	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: <ol style="list-style-type: none"> 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and 2. with any identified additional requirements established by this BMP or the relevant local government.
6	The Risk Management Plan containing bushfire risk management measures for flammable onsite hazards must be reviewed each year and relevant information updated. All required measures must continue to be complied with.

Table 6.3: Ongoing management responsibilities for the Local Government.

LOCAL GOVERNMENT - ONGOING	
No.	Ongoing Management Actions
1	Monitor landowner compliance with the Bushfire Management Plan and the annual Firebreak notice.
2	Ensure the site complies with the <i>Annual Firebreak Notice</i> .
2	Where control of an area of vegetated land is vested in the control of the local government and that area of land has influenced the assessed BAL rating/s of the subject site/s – and the BAL rating has been correctly assessed - there is an obligation to consider the impact of any changes to future vegetation management and/or revegetation plans with respect to that area.

Appendix 1 - Onsite Vegetation Management Technical Requirements

It is the responsibility of the landowner to maintain the established bushfire protection measures on their property. Not complying with these responsibilities can result in buildings being subject to a greater potential impact from bushfire than that determined by the assessed BAL rating presented in this Bushfire Management Plan.

For the management of vegetation within a lot (i.e. onsite) the following technical requirements exist:

1. **The APZ:** Installing and maintaining an asset protection zone (APZ) of the required dimensions to the standard established by the Guidelines for Planning in Bushfire Prone Areas (WA Planning Commission, as amended). When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.
2. **The Firebreak/Fuel Load Notice:** Complying with the requirements established by the relevant local government's annual firebreak notice issued under s33 of the Bushfires Act 1954. Note: If an APZ requirement is included in the Notice, the standards and dimensions may differ from the Guideline's APZ Standard – the larger dimension must be complied with.
3. **Changes to Vegetated/Non-Vegetated Areas:**
 - a. If applicable to this Plan, the minimum separation distance from any classified vegetation, that corresponds to the determined BAL for a proposed building, must be maintained as either a non-vegetated area or as low threat vegetation managed to a minimal fuel condition as per AS 3959-2018 s2.2.3.2 (e) and (f). Refer to Part 4 of this Appendix 1.
 - b. Must not alter the composition of onsite areas of classified vegetation (as assessed and presented in Section 3.1.2) to the extent that would require their classification to be changed to a higher bushfire threat classification (as per AS 3959-2018); and
 - c. Must not allow areas within a lot (i.e. onsite) that have been:
 - i. excluded from classification by being low threat vegetation or non-vegetated; and
 - ii. form part of the assessed separation distance that is determining a BAL rating

...to become vegetated to the extent they no longer represent a low threat (refer to Part 4 of Appendix 1). Note: The vegetation classification exclusion specifications as established by AS 3959-2018 s2.2.3.2, are included at A1.4 below for reference.

1. Requirements Established by the Guidelines – the Asset Protection Zone (APZ) Standards

(Source: Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1 and Explanatory Note E2.1)

Defining the Asset Protection Zone (APZ)

Description: An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation. For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29). It will be site specific.

The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

For subdivision planning, design elements and excluded/low threat vegetation adjacent to the lot can be utilised to achieve the required vegetation separation distances and therefore reduce the required dimensions of the APZ within the lot.

Defendable Space: The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

Establishment: The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity.

Note: Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation that can be involved in a bushfire, is unsafe.

Schedule 1: Standards for APZ

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).

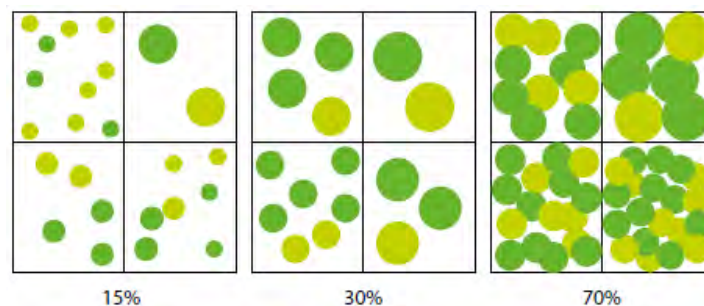
Example Fine Fuel Load of Two Tonnes per Hectare



(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.

Tree canopy cover – ranging from 15 to 70 per cent at maturity



(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

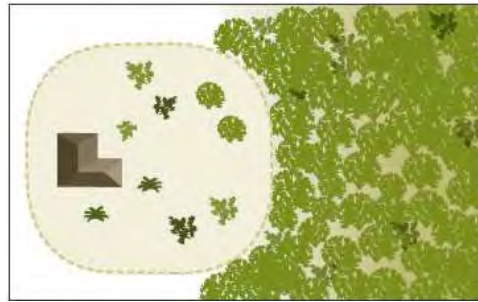
Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

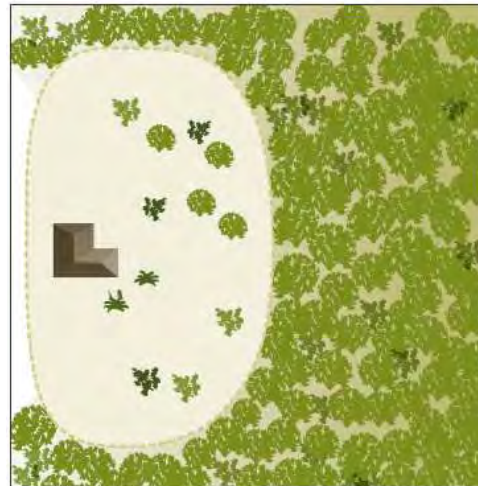
Grass: should be managed to maintain a height of 100 mm or less.

The following example diagrams illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation.

Hazard on one side
APZ



Hazard on three sides
APZ



2. Requirements Established by the Local Government – the Firebreak Notice

These requirements are established by the City of Armadale's Firebreak Notice created under s33 of the Bushfires Act 1954 and issued annually (potentially with revisions). The Notice may include additional components directed at managing fuel loads, accessibility and general property management with respect to limiting potential bushfire impact.

The City of Armadale's current Firebreak Notice is available on their website, at their offices and is distributed as ratepayer's information. It must be complied with.

If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with.

When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.

3. Requirements Recommended by DFES – Property Protection Checklists

Further guidance regarding ongoing/lasting property protection (from potential bushfire impact) is presented in the publication 'DFES – Fire Chat – Your Bushfire Protection Toolkit'. It is available from the Department of Fire and Emergency Services (DFES) website.

4. Requirements Established by AS 3959-2018 - Maintaining Areas within your Lot as 'Low Threat'

This information is provided for reference purposes. This knowledge will assist the landowner to comply with Management Requirement No. 3 set out in the Guidance Panel at the start of this Appendix. It identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

"Australian Standard - AS 3959-2018 Section 2.2.3.2: Exclusions - Low threat vegetation and non-vegetated areas:

The Bushfire Attack Level shall be classified BAL-LOW where the vegetation is one or a combination of the following:

- a) Vegetation of any type that is more than 100m from the site.*
- b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.*
- c) Multiple area of vegetation less than 0.25ha in area and not within 20m of the site or each other.*
- d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified.*
- e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.*
- f) Low threat vegetation, including grassland managed in a minimal fuel condition (i.e. insufficient fuel available to significantly increase the severity of a bushfire attack – recognisable as short cropped grass to a nominal height of 100mm for example), maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks."*

Appendix 2 - Vehicular Access Technical Requirements

Each local government may have their own standard technical requirements for emergency vehicular access and they may vary from those stated in the Guidelines.

Contact the relevant local government for the requirements that are to apply in addition to the requirements set out as an acceptable solution in the Guidelines. If the relevant local government requires that these are included in the Bushfire Management Plan, they will be included in this appendix and referenced.

Requirements Established by the Guidelines – The Acceptable Solutions

(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4)

Vehicular Access Technical Requirements - Part 1

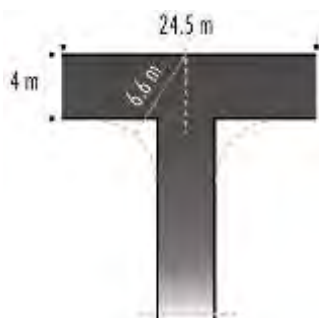
Acceptable Solution 3.5: Private Driveways

The following requirements are to be achieved:

- The design requirements set out in Part 2 of this appendix; and

Where the house site is more than 50 metres from a public road:

- Passing bays every 200 metres with a minimum length of 20 metres and a minimum width of two metres (ie combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas every 500 metres and within 50 metres of a house, designed to accommodate type 3.4 fire appliances to turn around safely (ie kerb to kerb 17.5 metres);
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes; and
- All weather surface (i.e. compacted gravel, limestone or sealed).



Vehicular Access Technical Requirements - Part 2

Technical Component	Vehicular Access Types				
	Public Roads	Cul-de-sacs	Private Driveways	Emergency Access Ways	Fire Service Access Routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum cross-fall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.

Appendix 3 - Water Technical Requirements

Requirements Established by the Guidelines - Acceptable Solution A4.1: Reticulated Areas

(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4)

The requirement is to supply a reticulated water supply and fire hydrants, in accordance with the technical requirements of the relevant water supply authority and DFES.

The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply.

Key specifications in the most recent version/revision of the design standard include:

- *Residential Standard* – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- *Commercial Standard* – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- *Rural Residential Standard* – where minimum site areas per dwelling is 10,000 m² (1ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1ha, then the residential standard (200m) is to be applied.

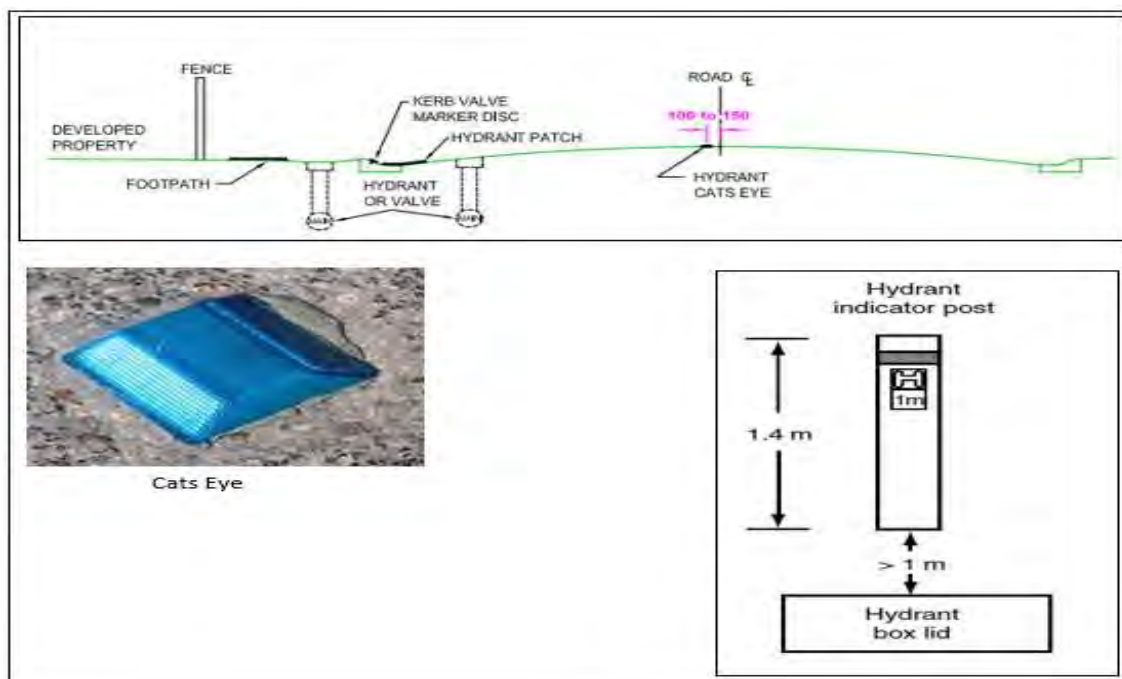


Figure A4.1: Hydrant Location and Identification Specifications

Contact the relevant water supply authority to confirm the technical requirements that are to be applied. They may differ from the minimum requirements of the 'baseline' Water Corporation's No. 63 Water Reticulation Standard.



Proposed Service Station and Auto Wash Redevelopment

770 Brookton Hwy, Roleystone

Revised Transport Impact Assessment

PREPARED FOR:
Peregrine Corporation

March 2021

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1.0 Summary

This revised Transport Impact Assessment has been prepared by Transcore on behalf of Peregrine Corporation. The subject of this report is the proposed service station and auto wash facility at 770 Brookton Highway, Roleystone, in the City of Armadale.

Transcore originally prepared a TIA in May 2019 with respect to the Development Application (DA) for the previous proposal including service station, workshop and tyre shop for the redevelopment of the existing service station. It is our understanding that DA for the redevelopment of the service station but without workshop and tyre shop was approved by Metro Outer JDAP in November 2020. Since the approval of the development application, the site plan has undergone some modifications relating to the addition of an auto wash facility with vacuum bays. Accordingly, this revised TIA is prepared for the current proposed changes to the approved plan. The updated proposed development plan is included in **Appendix A** and the approved development plan is included in **Appendix B**.

The subject site is presently occupied by a service station and workshop. Vehicle access to the site is available from crossovers on Brookton Highway and Hawkstone Road.

The net additional traffic of the proposed redevelopment when accounting for traffic from the existing development is approximately **+495 trips (daily)**, **+60 trips (AM peak hour)** and **+39 trips (PM peak hour)** on the surrounding road network. This level of additional traffic is relatively minimal and as such the impact of the redevelopment traffic on the surrounding road network will be insignificant.

The proposed redevelopment layout has been assessed with respect to fuel tanker and service vehicle entry, egress and circulation. Swept path analysis confirms that the existing entry and egress arrangements, which are to be retained as part of the redevelopment, and proposed site layout facilitate safe and efficient fuel tanker and service vehicle movements and circulation.

The traffic modelling and analysis undertaken indicates that the redevelopment traffic has insignificant impact during the post-redevelopment and 10-year post-redevelopment scenarios.

2.0 Introduction

This revised Transport Impact Assessment has been prepared by Transcore on behalf of Peregrine Corporation. The subject of this report is the proposed service station, and auto wash (as a redevelopment of the existing service station) at 770 Brookton Highway, Roleystone, in the City of Armadale.

As shown in **Figure 1**, the subject site presently accommodates a service station and workshop. It is bound by Brookton Highway to the northwest, Hawkstone Road to the east and residential properties to the west and south.

The location of the site in the context of the Metropolitan Region Scheme is indicated in **Figure 2** and Brookton Highway is classified as a Primary Regional Road in the Metropolitan Region Scheme.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed redevelopment, operation of the site crossovers and heavy vehicle access, egress and circulation.



Figure 1: Location of the subject site



Figure 2: Location of the subject site in context of the Metropolitan Region Scheme

3.0 Existing Situation

3.1 Existing Site Use, Access and Parking

The subject site currently accommodates a service station and a vehicle workshop and there are three crossovers which service the subject site. The Brookton Highway full-movement crossovers and Hawkstone Road full-movement crossover are shown in **Figure 3**.



Figure 3: Existing subject site crossovers

3.2 Existing Site Traffic Generation

Transcore undertook traffic count surveys for turning movements at the subject site crossovers and the T-intersection of Brookton Highway/Hawkstone Road during AM and PM peak hours on Wednesday 24 April 2019. Survey results are presented in **Figure 4**.

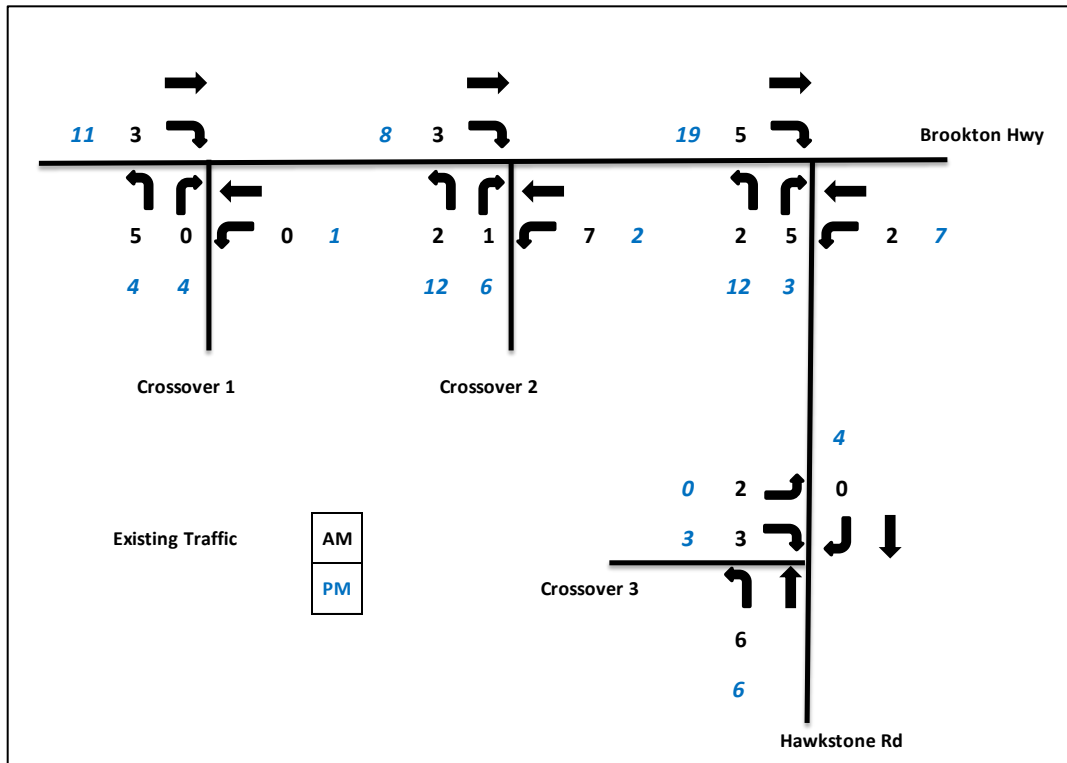


Figure 4: Existing traffic turn movements – Weekday AM & PM peak hours

Based on the traffic survey undertaken, the current service station and vehicle workshop trip generations are:

- AM peak hour: 32vph (19 in/ 13 out)
- PM peak hour: 61vph (32 in/ 29 out)

3.3 Surrounding Road Network and Traffic Management on Frontage Roads

Brookton Highway

Brookton Highway in the vicinity of the subject site is constructed to a two-lane divided standard with sealed shoulders/bicycles lanes provided on the both sides of the road.

This section of Brookton Highway is classified as a *Primary Distributor* road in the Main Roads WA *Functional Road Hierarchy* and operates under the sign posted speed limit of 70km/h.

Hawkstone Road

Hawkstone Road in the immediate vicinity of the subject site is constructed to a two-lane undivided standard with no pedestrian paths.

This section of Hawkstone Road is classified as an *Access Road* in the Main Roads WA *Functional Road Hierarchy* and operates under a default built-up area speed limit of 50km/h.

3.4 Existing Traffic Volumes on Roads and Major Intersections

Recent traffic count data obtained from Main Roads WA indicates that Brookton Highway (east of Holden Road) carried average weekday traffic flows of approximately 3,899 vehicles per day (vpd) in 2019/20.

The weekday AM peak hour on Brookton Highway occurred between 8:00am and 9:00am and the PM peak hour occurred between 3:00pm to 4:00pm with 348vph and 360vph respectively.

3.5 Heavy Vehicles

Brookton Highway adjacent to the subject site forms part of RAV Network 4 which permits access by various heavy vehicle combinations up to 27.5m long truck.

Hawkstone Road adjacent to the subject site forms part of RAV Network 1 which permits vehicles up to 20m to travel on these roads under general access, or “as of right” status.

3.6 Public Transport Access

As detailed in **Figure 5**, bus route 241 runs past the subject site on Brookton Highway which provides an opportunity to transfer to other connecting bus services.

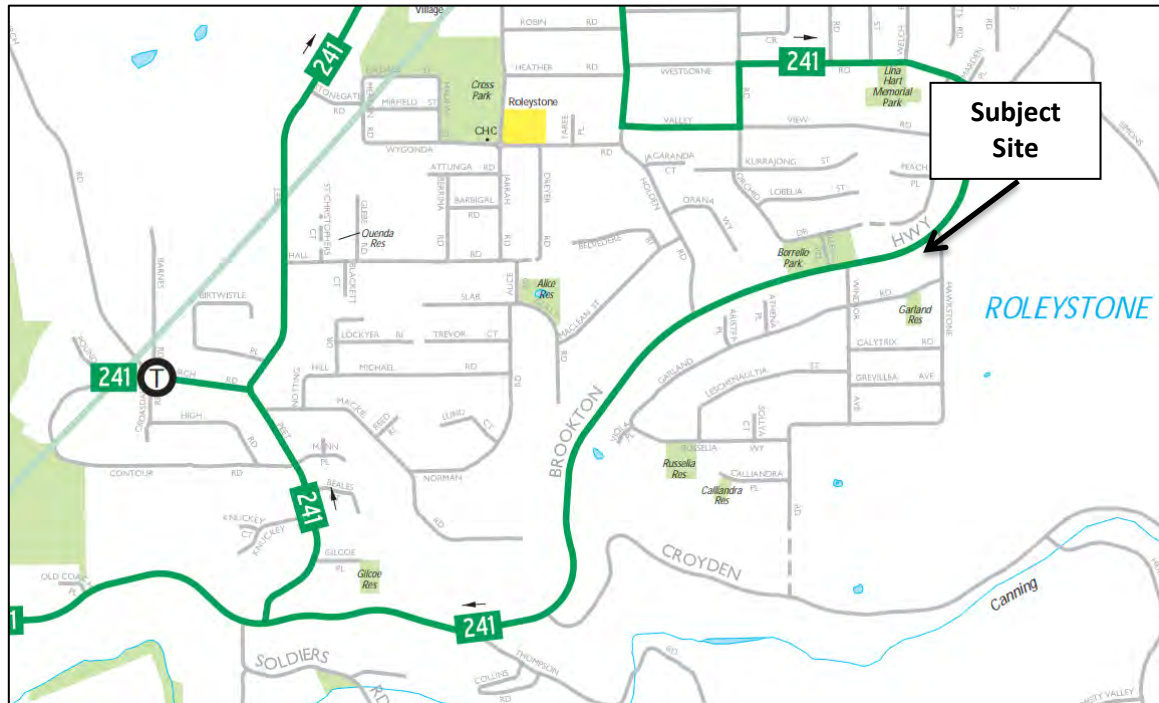


Figure 5: Existing bus routes

3.7 Pedestrian and Cyclist Facilities

Bicycle lanes are provided on both sides of the Brookton Highway in the immediate vicinity of the subject site.

The Department of Transport's *Perth Bike Map* series is shown in **Figure 6**.

There are no pedestrian paths in the immediate vicinity of the subject site.

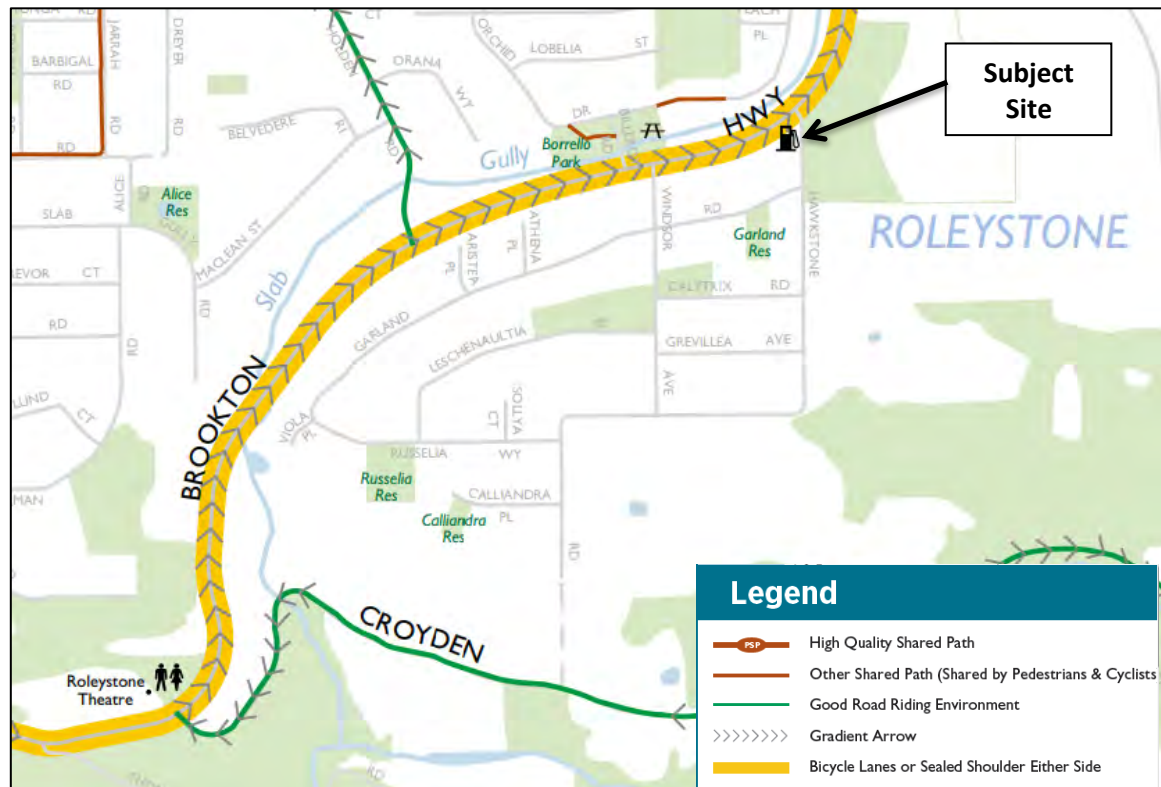


Figure 6: Bike map (source: Department of Transport)

4.0 Development Proposal

4.1 *Proposed Site Use*

The proposed redevelopment comprises:

- ✚ Light vehicle canopy with 6 fuelling points for light vehicles;
- ✚ Convenience store building;
- ✚ One auto carwash facility with two vacuum bays;
- ✚ A service bay;
- ✚ Vacuum equipment between the air & water bay and service bay; and,
- ✚ A total of 9 car parking spaces including 1 ACROD bay

The layout of the proposed redevelopment is shown in the plan included in **Appendix A**.

4.2 *Proposed Access for all Modes*

As part of the proposed redevelopment, it is proposed to retain the existing western Brookton Highway crossovers (crossover 1) and Hawkstone Road crossover (crossover 2) without any modifications and close the existing eastern Brookton Highway crossover (crossover 3) as shown in **Figure 7**.

It should be noted that the kerbing shown on the site plan at the subject site crossovers already exist and the development does not propose any changes to these two retained crossovers.

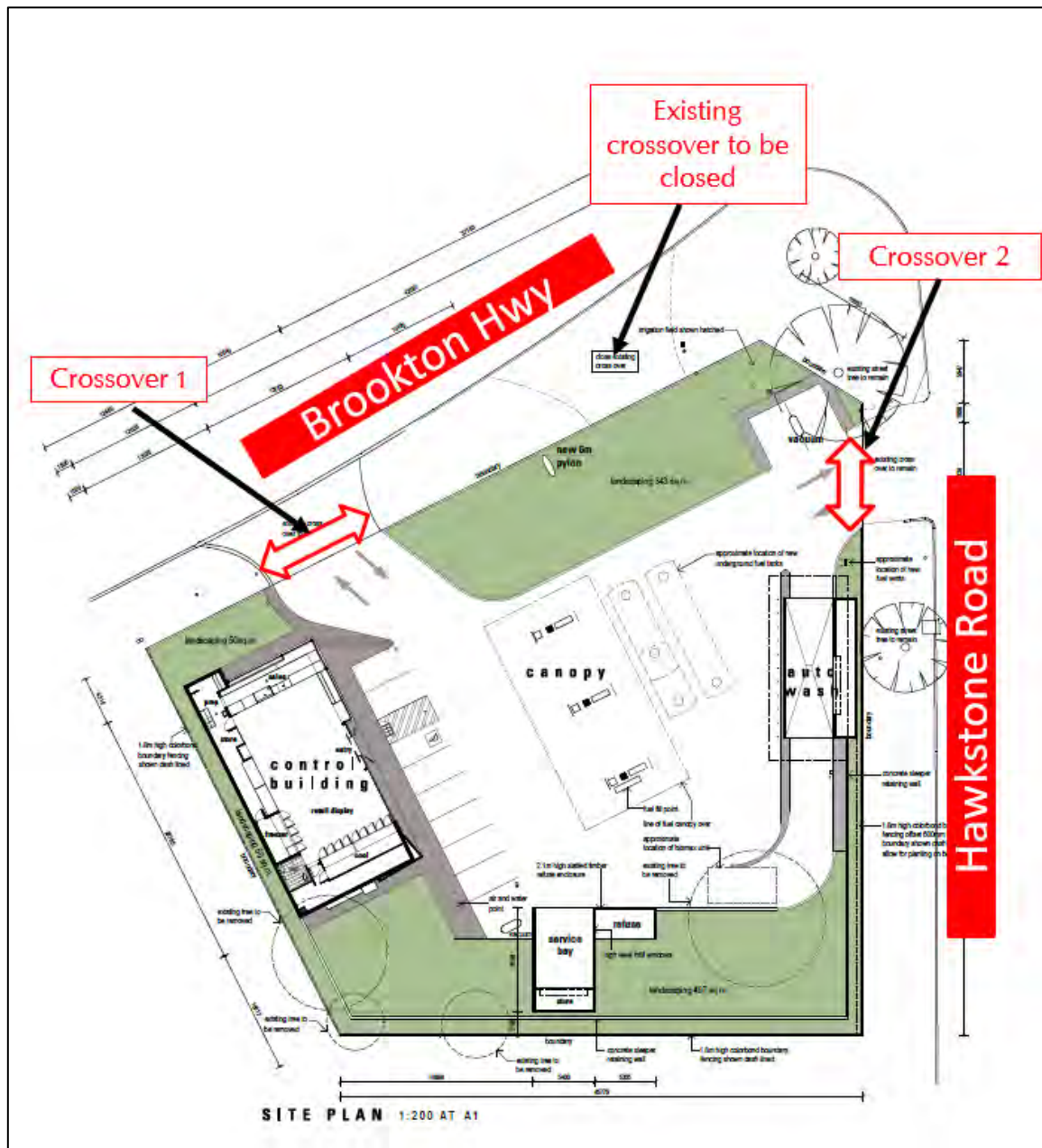


Figure 7: Development crossovers

Deliveries and waste collection will be accommodated within the site. Turn path analysis was undertaken for 19m fuel tanker and 8.8m service vehicle, which are proposed for this site, to enter, circulate and exit the site.

Heavy vehicle access, egress and circulation are discussed in further detail in **Section 9.0** of this report.

5.0 Changes to Surrounding Transport Networks

No changes to the surrounding road network are proposed as part of this redevelopment. As part of the redevelopment, it is proposed to close the existing eastern crossover on Brookton Highway and no other modifications to the other two existing crossovers or any additional crossovers are proposed for the subject site.

6.0 Integration with Surrounding Area

The subject site has been operating as a service station with a workshop for a number of years and the proposed redevelopment is in line with the existing land uses on the subject site.

7.0 Traffic Assessment

7.1 *Assessment Period*

The assessment years that have been adopted for this analysis are the years 2021 & 2031, which represent the assumed post-redevelopment and 10-years post-redevelopment scenarios.

The proposed redevelopment is expected to generate highest traffic movements during the weekday peak hour periods of the adjacent road network.

Review of the Main Roads WA traffic count data indicates that the peak weekday traffic hours on Brookton Highway in this vicinity are between 8:00 am and 9:00am and between 3:00pm and 4:00pm. Accordingly, Transcore undertook traffic count surveys during these periods and trip generation was estimated and traffic analysis was undertaken for these periods.

7.2 Trip Generation and Distribution

7.2.1 Estimated Existing Traffic Generation

There is a service station with associated convenience store and a vehicle workshop currently operating at the subject site. Transcore undertook traffic count surveys on Wednesday, 24 April 2019 that indicate the existing development traffic generations are:

- AM peak hour: 32vph (19 in/ 13 out)
- PM peak hour: 61vph (32 in/ 29 out)

In order to establish the proportional factor of daily and PM peak hour traffic generation (AM peak hour traffic is lower) for existing development, trip rates for a typical “Gasoline/Service Station with Convenience Market (945)” from the “ITE Trip Generation Manual 10th Edition” publication were sourced:

Gasoline/Service Station with Convenience Market (945)

- ✚ Weekday PM peak hour: 13.99 trips per fuelling point
- ✚ Weekday: 205.36 trips per fuelling point

The weekday daily trip generation was divided by weekday PM peak hour trip generation to establish the adjustment factor. Therefore, the adjustment factor is calculated as following:

$$(Eq1) \quad Adjustment \ Factor = 205.36/13.99 = \underline{14.7}$$

The adjustment factor derived in Equation 1 implies that daily traffic generation is 14.7 times of the PM peak hour traffic generation for service stations. Accordingly, it is estimated that the existing development daily traffic generation is 897vpd (61 x 14.7).

The existing peak hour traffic turning movements at the subject site crossovers are shown in **Section 3.2** of this report.

7.2.2 Proposed Redevelopment Traffic Generation

The traffic that would be generated by the proposed redevelopment has been estimated using trip generation rates derived from:

- ✚ ITE Trip Generation Manual 10th Edition

The trip rates which were used to estimate the proposed redevelopment traffic generation are as following:

Gasoline/Service Station with Convenience Market (945) – Vehicle Fuelling Positions

- ✚ AM Peak Hour: 12.47 trips per fuelling point
- ✚ PM Peak Hour: 13.99 trips per fuelling point
- ✚ Weekday: 205.36 trips per fuelling point

Accordingly, it is estimated that the traffic generation of the proposed service station are:

- ✚ AM Peak Hour: $12.47 \times 6 = 75\text{vph}$;
- ✚ PM Peak Hour: $13.99 \times 6 = 84\text{vph}$; and,
- ✚ Weekday: $205.36 \times 6 = 1,232$ vehicles.

The directional split of inbound and outbound trips for this element of the proposed redeveloped service station is estimated to be about 50/50 for inbound/outbound trips during the peak hours.

For this redevelopment 60% passing trade is conservatively assumed for service station with convenience store.

Auto Wash Facility

The proposed carwash facility is a fully automated with 1 x auto wash tunnel. Based on the information available to Transcore, it is established that the total service time per vehicle in normal circumstances will be 4.5 minutes to 6 minutes depending on the wash options selected (for example basic wash only takes 4.5 minutes whereas the top wash with dryers would take about 6 minutes per vehicle). For the purpose of trip generation, the total service time per vehicle (including using the vacuum bays) is assumed to be about 6 minutes. This translates into a service rate of 10 vehicles per hour or total inbound and outbound traffic of 20 vehicles per hour.

The proposed auto car wash would operate 24/7 although the busiest days of the week are expected to be Fridays and weekends (subject to good clear weather). Peak periods would be 9:00 am to 12 noon and 2 pm to 6 pm, both during weekdays and weekends.

Accordingly, it is estimated that the weekday traffic generations for auto wash facility are:

AM Peak Hour: $(60 \text{ minutes} / 6 \text{ minutes}) \times 2 = 20\text{vph}$; and,
PM Peak Hour: $(60 \text{ minutes} / 6 \text{ minutes}) \times 2 = 20\text{vph}$.



Generally, the peak hour traffic generation is typically in the order of 10% to 20% of total daily traffic generation. This would indicate daily traffic generation in the range of 5 to 10 times the peak hour traffic generation. Assuming conservatively that daily traffic generation is 10 times the peak hour traffic generation, the upper estimation of daily trip generation would be $(20 \times 10 = 200)$ trips for auto wash facility.

The directional split of inbound and outbound trips for the auto wash facility is estimated to be about 50/50 for inbound/outbound trips during the peak hours. For this redevelopment, 20% cross trade is conservatively assumed for auto wash and service station (20% of auto wash customers buy fuel as well).

As detailed in **Table 1**, it is estimated that the proposed redevelopment would generate approximately 1,392 vehicular trips per day (both inbound and outbound) with approximately 92 and 100 trips during the weekday AM and PM peak hours respectively.

The net additional traffic when accounting for traffic from existing development is conservatively **+495 trips (daily), +60 trips (AM peak hour) and +39 trips (PM peak hour)** on the surrounding road network.

Two traffic distributions have been modelled for the weekday AM and PM peak hours:

-  Passing trade traffic as detailed in **Figure 8**.
-  Non-passing trade traffic as detailed in **Figure 9**.

The total proposed redevelopment traffic is detailed in **Figure 10**. The redevelopment traffic distribution modelled in this report has been evaluated by considering the catchment area of the proposed redevelopment, existing traffic patterns and the identified key traffic routes.

Table 1: Estimated proposed redevelopment traffic generation

Land use	Quantity	Daily Rate	AM Peak	PM Peak	Daily Trips	AM Trips	PM Trips	AM		PM		Cross Trade	Daily Trips	AM		PM	
								IN	OUT	IN	OUT			IN	OUT	IN	OUT
Fuel Station regular bowser - fuelling position	6	205.36	12.47	13.99	1232	75	84	38	38	42	42		1232	38	38	42	42
Auto wash	1	200	20	20	200	20	20	10	10	10	10	20%	160	8	8	8	8
Total					1432	95	104	48	48	52	52		1392	46	46	50	50

Passing Trade	Passing Traffic	AM		PM			Non-pasisng Traffic	AM		PM	
	Daily Trips	IN	OUT	IN	OUT		Daily Trips	IN	OUT	IN	OUT
60%	739	23	23	25	25	40%	493	15	15	17	17
0%	0	0	0	0	0	100%	160	8	8	8	8
	739	23	23	25	25		653	23	23	25	25

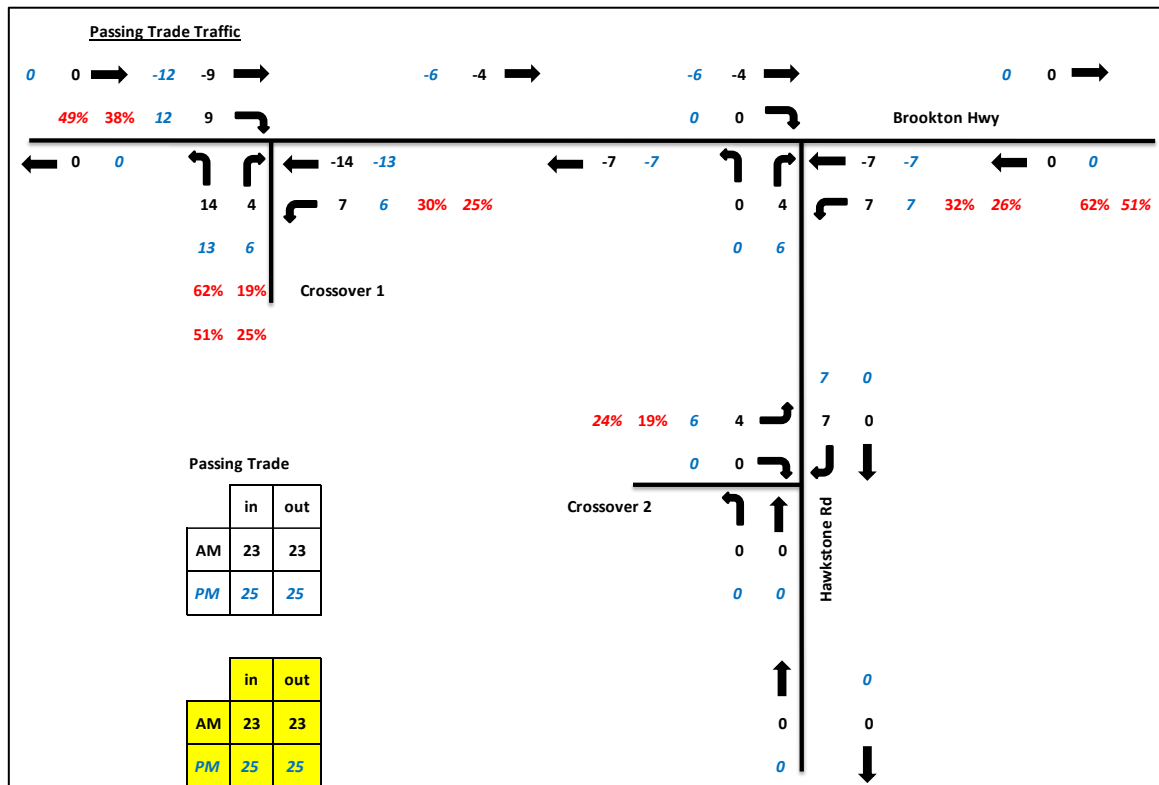


Figure 8: Redevelopment passing trade traffic - weekday AM & PM peak hour

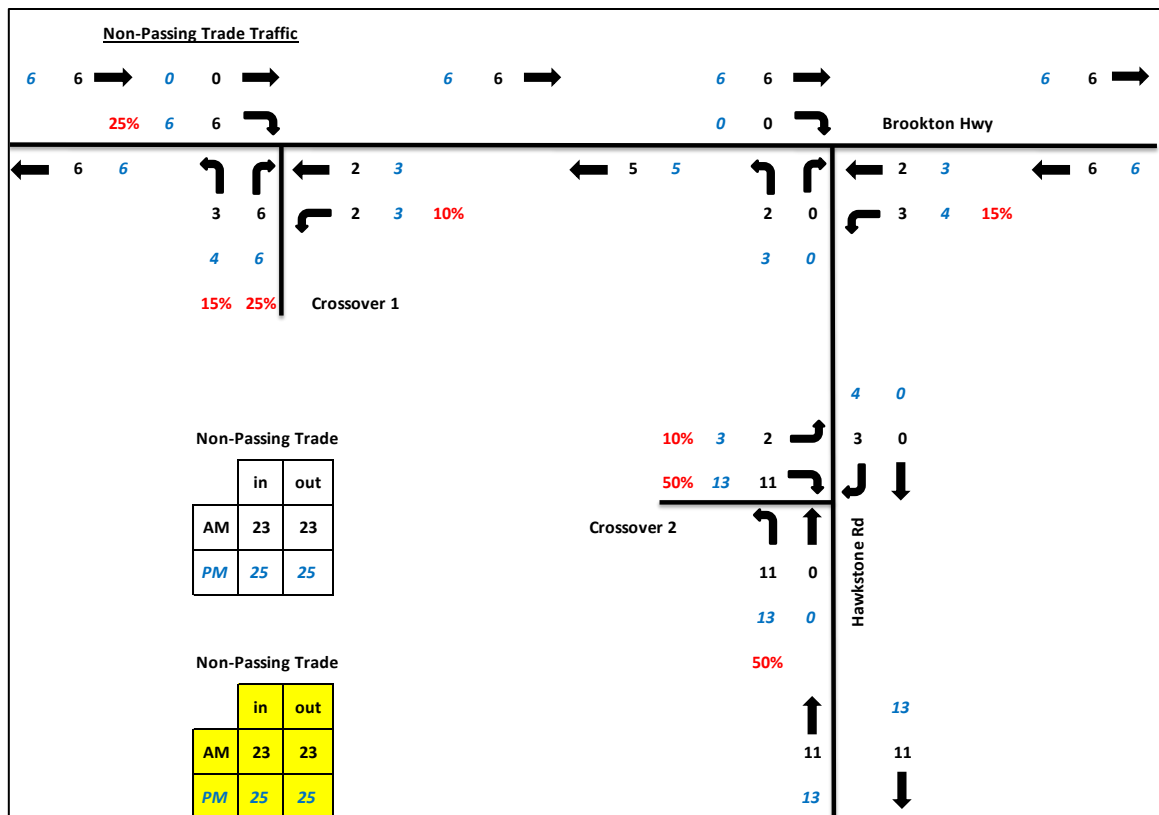


Figure 9: Redevelopment (Additional) non-passing trade traffic - weekday AM & PM peak hour

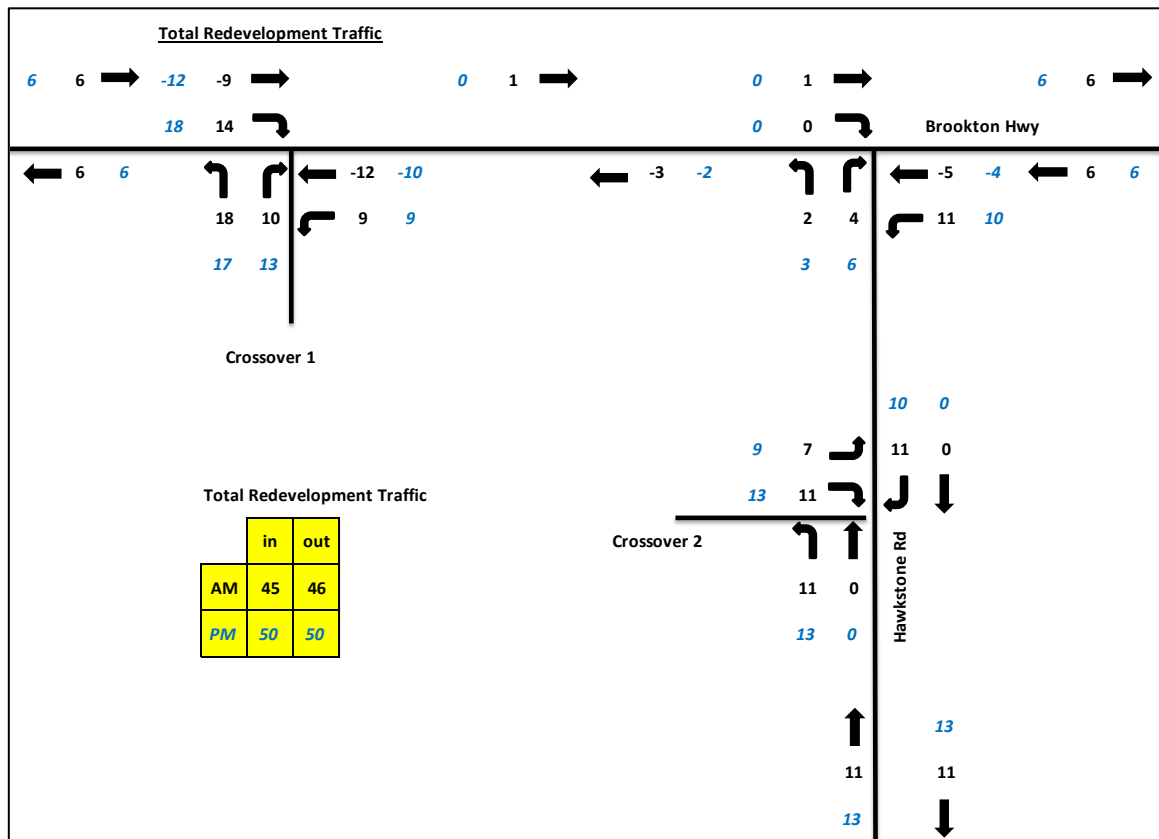


Figure 10: Total peak hour traffic generated by the proposed redevelopment – Weekday AM and PM peak hours

7.3 Traffic Flows

The existing traffic flows used as a base for traffic assessment are presented in **Figure 11**. Traffic volumes for Brookton Highway and Hawkstone Road were established from Main Roads WA traffic counts and traffic count surveys undertaken by Transcore on Wednesday, 24 April 2019.

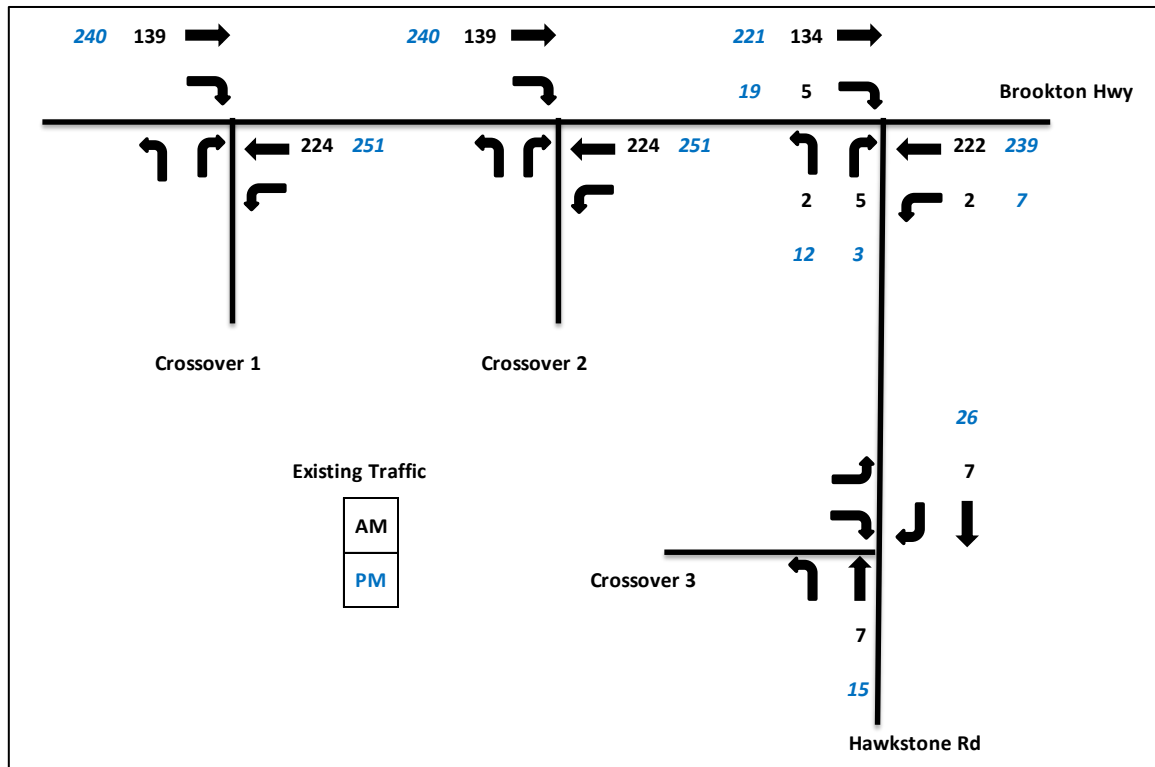


Figure 11: Existing traffic flows near the subject site – Weekday AM & PM peak hours

The combined base and redevelopment traffic volumes for the post-redevelopment scenario are presented in **Figure 12**.

To approximate the year 2031 traffic on Brookton Highway and Hawkstone Road a traffic growth of 20% has been applied to through traffic on these roads.

The total ten-year post-redevelopment traffic volumes are presented in **Figure 13**.

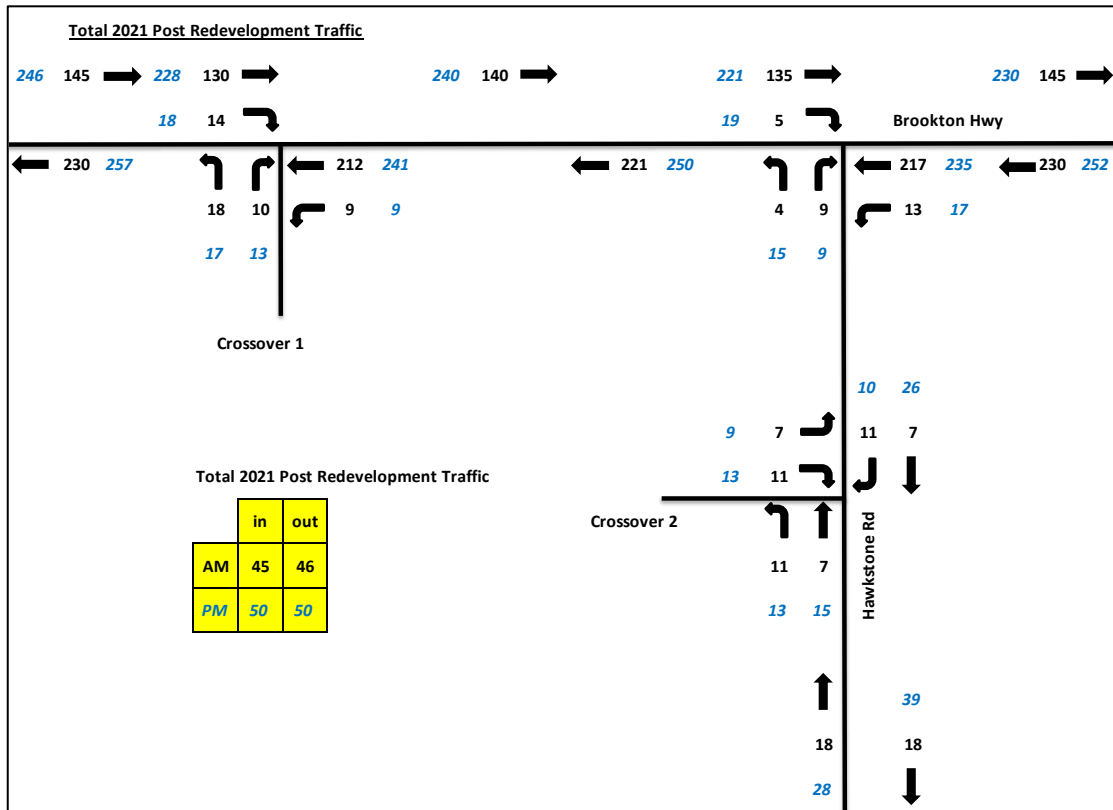


Figure 12: Post-redevelopment traffic flows near the subject site – Weekday AM and PM peak hours

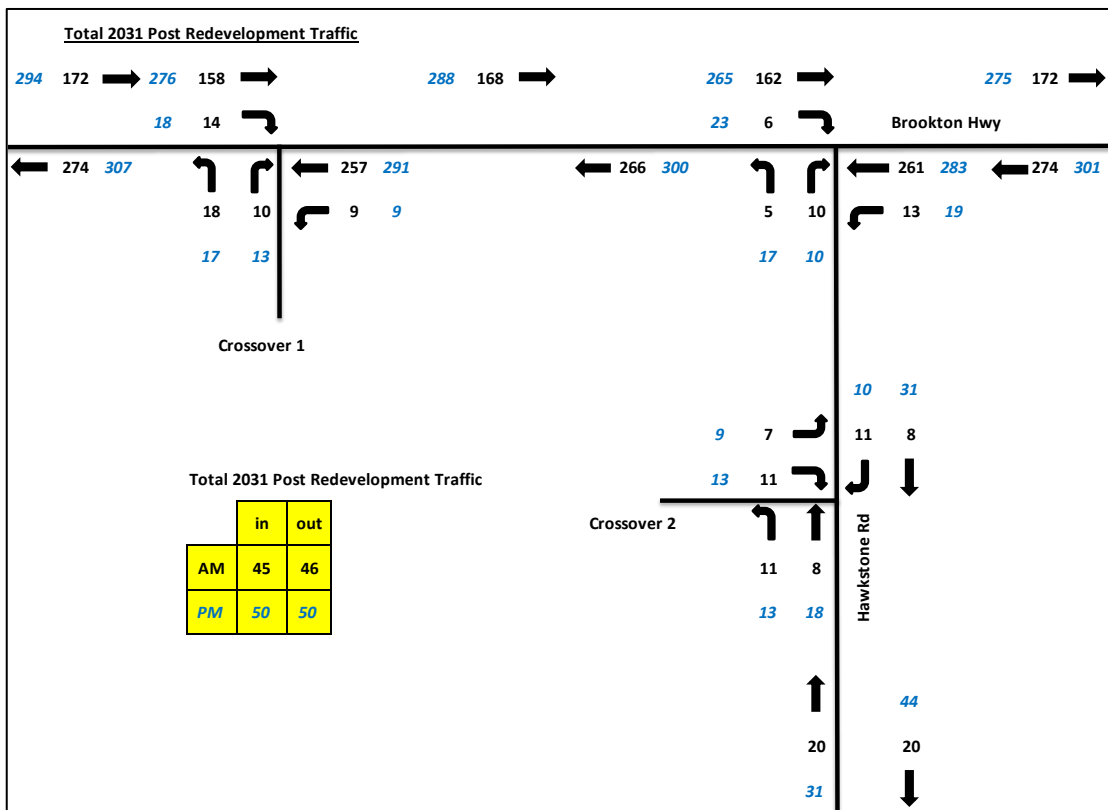


Figure 13: Estimated 10-year total post-redevelopment traffic flows near the subject site – Weekday AM and PM peak hours

7.4 Analysis of Intersection and Development Accesses

A SIDRA Network model was developed for the subject site crossovers on Brookton Highway and Hawkstone Road and T-intersection of Brookton Highway/Hawkstone Road in order to assess their operations in the post-redevelopment and 10-year post-redevelopment scenarios for AM and PM peak hours. Relevant heavy vehicle settings and parameters were updated in accordance with Main Roads WA's latest requirements.

Capacity analysis was undertaken using the SIDRA computer software package. SIDRA is an intersection modelling tool commonly used by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These characteristics are defined as follows:

- ✚ **Degree of Saturation (DoS):** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow up to one for saturated flow or capacity.
- ✚ **Level of Service (LoS):** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- ✚ **Average Delay:** is the average of all travel time delays for vehicles through the intersection.
- ✚ **95% Queue:** is the queue length below which 95% of all observed queue lengths fall.

The results of the SIDRA analysis are attached in **Appendix C**.

SIDRA results indicate that the subject site Brookton Highway crossover, Hawkstone Road crossover and T-intersection of Brookton Highway/Hawkstone Road operate with an overall of LoS A with minimal queues and delays during the morning and afternoon peak hours for the post-redevelopment and 10-year post-redevelopment scenarios. Accordingly, it is concluded that proposed redevelopment traffic has insignificant impact on the surrounding road network.

7.5 Impact on Surrounding Roads

The WAPC Transport Impact Assessment Guidelines (2016) provides guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where the

structure plan traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

The proposed redevelopment will not increase traffic flows anywhere near the quoted WAPC threshold to warrant further detailed analysis. As detailed in **Section 7.0**, the proposed redevelopment will not increase traffic on any lanes on the surrounding road network by more than 100vph therefore the impact on the surrounding road network is insignificant.

7.6 Impact on Neighbouring Areas

The traffic generated by the proposed redevelopment is not expected to significantly affect surrounding areas and the road network has been designed to accommodate this type and level of development traffic.

7.7 Traffic Noise and Vibration

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB (A) increase in road noise. The proposed redevelopment will not increase traffic volumes on surrounding roads anywhere near this level.

8.0 Parking

The proposed redevelopment provides a total of 9 car parking spaces including 1 ACROD bay. One loading/unloading bay will also be provided. It is considered that the proposed parking provision is sufficient to accommodate the needs of the proposed redevelopment.

9.0 Provision for Heavy Vehicles

The largest service vehicle which is expected to use the site is a 19m fuel tanker for fuel deliveries as per existing operations. 19.0m fuel tanker would enter the subject site via the western existing crossover (crossover 1) on Brookton Highway, access the fill point and exit the site via the existing Hawkstone Road crossover (crossover 2).

The service bay and the storage area are proposed to be located at the southern side of the subject site. Deliveries and waste collection will be accommodated within the site. Delivery and service trucks are also anticipated to enter the subject site via the western existing crossover (crossover 1) on Brookton Highway, then reverse back to the service bay for loading and unloading activities. The delivery and service trucks will then exit the site via the existing Hawkstone Road crossover (crossover 2) in forward gear.

Fuel tankers and service trucks are expected to access the site during off peak periods of the service station for the ease of manoeuvring of the trucks within the site.

Turn path analysis was undertaken for 19.0m fuel tanker and 8.8m service vehicles to confirm satisfactory entry, circulation and egress. The turn path diagrams are included in **Appendix D**.

10.0 Conclusions

This revised Transport Impact Assessment has been prepared by Transcore on behalf of Peregrine Corporation. The subject of this revised report is the proposed service station and auto wash facility as part of the redevelopment of the existing service station at 770 Brookton Highway, Roleystone, in the City of Armadale.

Transcore originally prepared a TIA in May 2019 with respect to the Development Application (DA) for the previous proposal including service station, workshop and tyre shop for the redevelopment of the existing service station. It is our understanding that DA for the redevelopment of the service station but without workshop and tyre shop was approved by Metro Outer JDAP in November 2020. Since the approval of the development application, the site plan has undergone some modifications relating to the addition of an auto wash facility with vacuum bays. Accordingly, this revised TIA is prepared for the current proposed changes to the approved plan.

The subject site is presently occupied by a service station and workshop. Vehicle access to the site is available from crossovers on Brookton Highway and Hawkstone Road.

As part of the proposed redevelopment, it is proposed to retain the existing western crossover (crossover 1) on Brookton Highway and Hawkstone Road crossover (crossover 2) without any modification, but closing the existing eastern crossover on Brookton Highway (crossover 3).

The proposed redevelopment provides a total of 9 car parking spaces including 1 ACROD bay. It is considered that the car parking supply satisfactorily meet the needs of the proposed redevelopment.

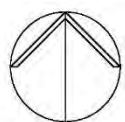
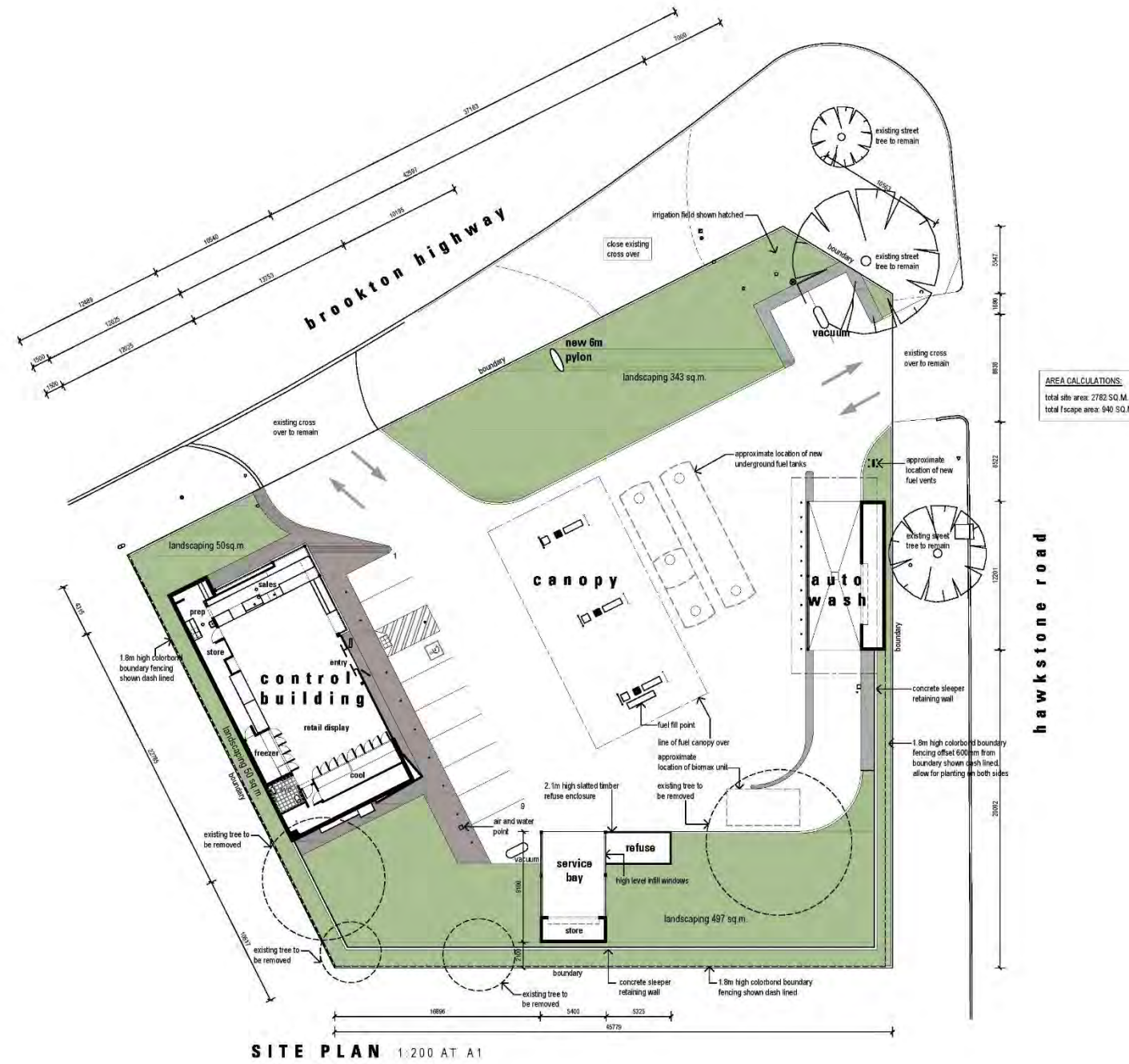
The net addition of traffic when accounting for existing development traffic is conservatively estimated as **+495 trips (daily), +60 trips (AM peak hour) and +39 trips (PM peak hour)** on the surrounding road network. This traffic is relatively minimal and as such would not have any significant impact on the surrounding road network.

Traffic modelling and analysis undertaken demonstrates the subject site crossovers and T-intersection of Brookton Highway/Hawkstone Road would operate at LoS A with minimal queues and delays for post-redevelopment and 10-year post-redevelopment scenarios. Accordingly, it is concluded that the redevelopment traffic has insignificant impact on the operations of the surrounding roads and intersection.

In conclusion, the findings of this revised Transport Impact Assessment are supportive of the proposed redevelopment.

Appendix A

PROPOSED REDEVELOPMENT PLAN



12.03.2021
 20JN1390SK01g

OTR ROLEYSTONE

770 BROOKTON HIGHWAY, ROLEYSTONE, WA

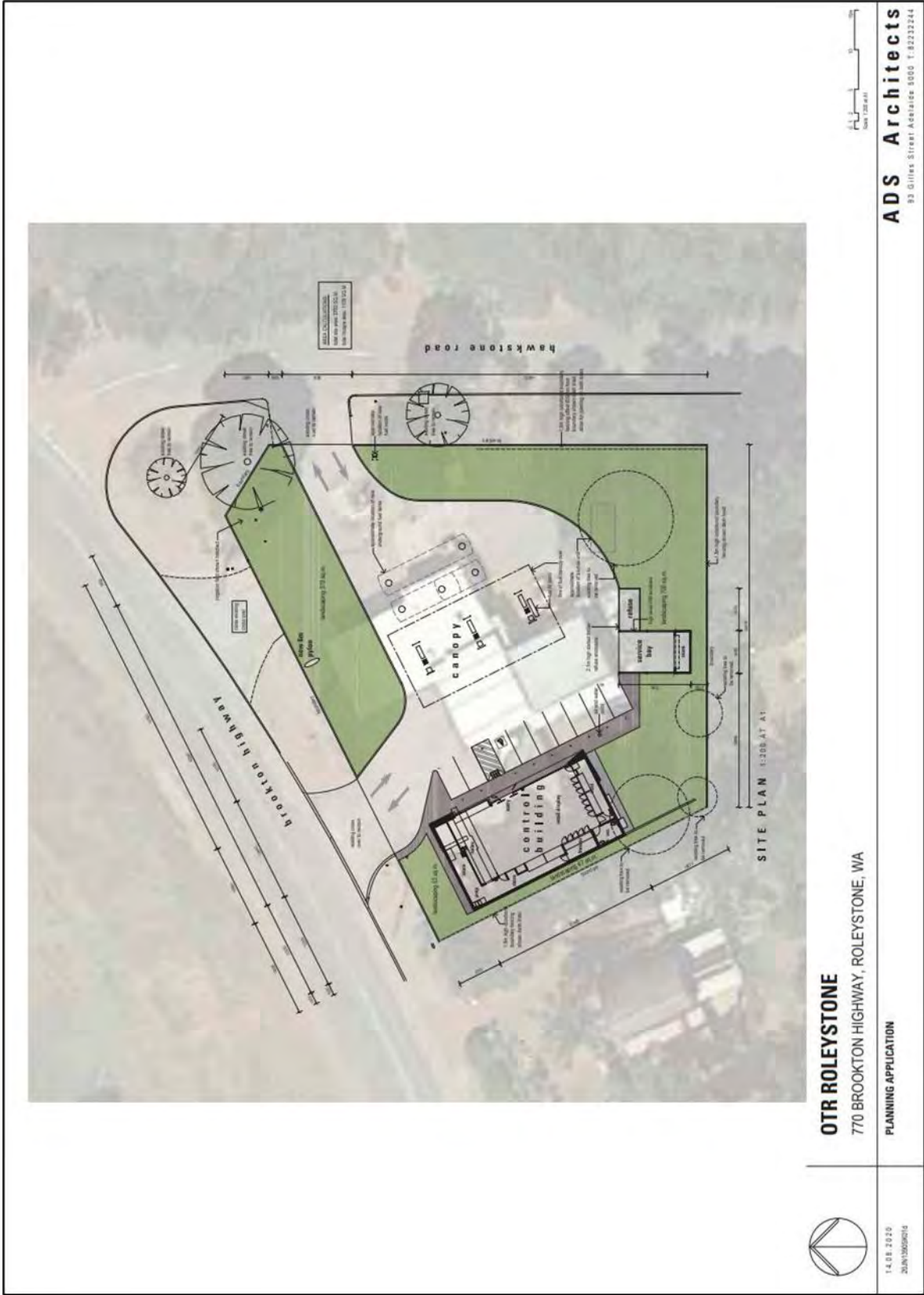
PLANNING APPLICATION

0 1 2 5 10 15m
 Scale 1:200 at A1

ADS Architects
 93 Gilles Street Adelaide 5000 T:82232244

Appendix B

APPROVED REDEVELOPMENT PLAN



Appendix C

SIDRA OUTPUTS

SIDRA Network model layout – weekday AM and PM peak periods

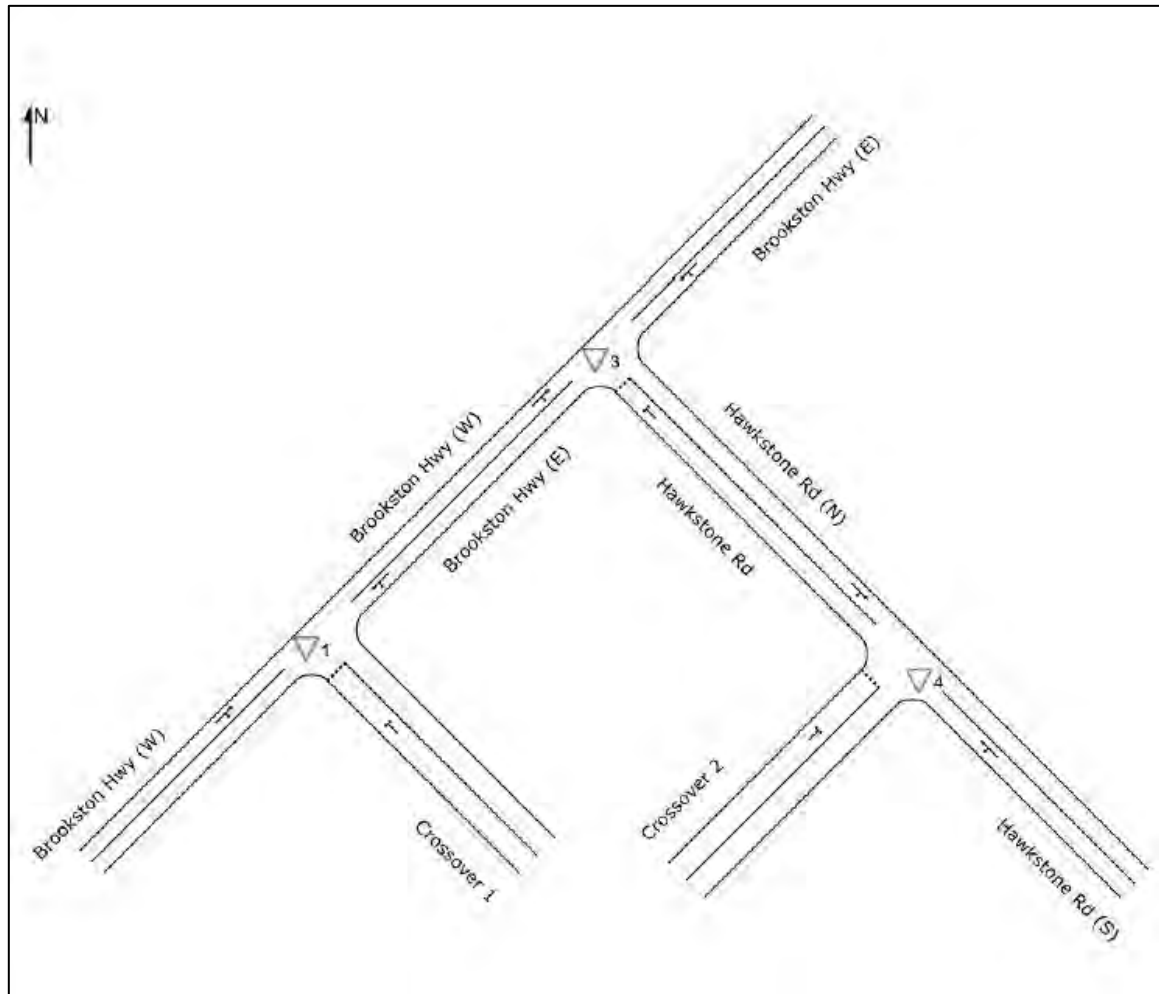


Table 2. SIDRA results for the Brookton Highway crossover 1 – weekday AM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Crossover 1														
10	L2	19	2.0	19	2.0	0.027	3.3	LOS A	0.1	0.7	0.33	0.52	0.33	54.8
12	R2	11	2.0	11	2.0	0.027	4.1	LOS A	0.1	0.7	0.33	0.52	0.33	20.6
Approach		29	2.0	29	2.0	0.027	3.6	LOS A	0.1	0.7	0.33	0.52	0.33	51.8
NorthEast: Brookston Hwy (E)														
1	L2	9	2.0	9	2.0	0.137	3.5	LOS A	0.0	0.0	0.00	0.02	0.00	47.4
2	T1	223	11.4	223	11.4	0.137	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	69.6
Approach		233	11.0	233	11.0	0.137	0.1	NA	0.0	0.0	0.00	0.02	0.00	69.4
SouthWest: Brookston Hwy (W)														
8	T1	137	12.4	137	12.4	0.092	0.1	LOS A	0.1	0.9	0.08	0.06	0.08	67.3
9	R2	15	2.0	15	2.0	0.092	7.2	LOS A	0.1	0.9	0.08	0.06	0.08	63.5
Approach		152	11.4	152	11.4	0.092	0.8	NA	0.1	0.9	0.08	0.06	0.08	66.9
All Vehicles		414	10.5	414	10.5	0.137	0.6	NA	0.1	0.9	0.05	0.07	0.05	67.4

Table 3. SIDRA results for the Brookton Highway crossover 1 – weekday PM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Crossover 1														
10	L2	18	2.0	18	2.0	0.032	3.4	LOS A	0.1	0.8	0.37	0.56	0.37	54.0
12	R2	14	2.0	14	2.0	0.032	4.9	LOS A	0.1	0.8	0.37	0.56	0.37	19.0
Approach		32	2.0	32	2.0	0.032	4.1	LOS A	0.1	0.8	0.37	0.56	0.37	49.7
NorthEast: Brookston Hwy (E)														
1	L2	9	2.0	9	2.0	0.155	3.5	LOS A	0.0	0.0	0.00	0.02	0.00	47.5
2	T1	254	11.4	254	11.4	0.155	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	69.6
Approach		263	11.1	263	11.1	0.155	0.1	NA	0.0	0.0	0.00	0.02	0.00	69.5
SouthWest: Brookston Hwy (W)														
8	T1	240	12.4	240	12.4	0.157	0.1	LOS A	0.2	1.3	0.07	0.05	0.07	67.9
9	R2	19	2.0	19	2.0	0.157	7.4	LOS A	0.2	1.3	0.07	0.05	0.07	63.9
Approach		259	11.6	259	11.6	0.157	0.6	NA	0.2	1.3	0.07	0.05	0.07	67.5
All Vehicles		554	10.8	554	10.8	0.157	0.6	NA	0.2	1.3	0.05	0.06	0.05	67.6

Table 4. SIDRA results for the Hawkstone Road crossover 2 – weekday AM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd (S)														
1	L2	12	2.0	12	2.0	0.010	4.6	LOS A	0.0	0.0	0.00	0.33	0.00	43.3
2	T1	7	12.4	7	12.4	0.010	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	46.4
Approach		19	6.0	19	6.0	0.010	2.8	NA	0.0	0.0	0.00	0.33	0.00	44.4
NorthWest: Hawkstone Rd (N)														
8	T1	7	11.4	7	11.4	0.011	0.0	LOS A	0.0	0.4	0.07	0.30	0.07	47.7
9	R2	12	2.0	12	2.0	0.011	2.8	LOS A	0.0	0.4	0.07	0.30	0.07	4.9
Approach		19	5.7	19	5.7	0.011	1.7	NA	0.0	0.4	0.07	0.30	0.07	20.8
SouthWest: Crossover 2														
10	L2	7	2.0	7	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	24.3
12	R2	12	2.0	12	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	45.7
Approach		19	2.0	19	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	44.1
All Vehicles		57	4.6	57	4.6	0.014	2.4	NA	0.0	0.4	0.04	0.37	0.04	35.5

Table 5. SIDRA results for the Hawkstone Road crossover 2 – weekday PM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd (S)														
1	L2	14	2.0	14	2.0	0.016	4.6	LOS A	0.0	0.0	0.00	0.25	0.00	43.9
2	T1	16	12.4	16	12.4	0.016	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	47.1
Approach		29	7.6	29	7.6	0.016	2.1	NA	0.0	0.0	0.00	0.25	0.00	45.6
NorthWest: Hawkstone Rd (N)														
8	T1	27	11.4	27	11.4	0.021	0.0	LOS A	0.1	0.5	0.06	0.14	0.06	48.8
9	R2	11	2.0	11	2.0	0.021	2.8	LOS A	0.1	0.5	0.06	0.14	0.06	5.0
Approach		38	8.8	38	8.8	0.021	0.8	NA	0.1	0.5	0.06	0.14	0.06	36.0
SouthWest: Crossover 2														
10	L2	9	2.0	9	2.0	0.017	2.6	LOS A	0.1	0.4	0.07	0.47	0.07	24.0
12	R2	14	2.0	14	2.0	0.017	2.7	LOS A	0.1	0.4	0.07	0.47	0.07	45.6
Approach		23	2.0	23	2.0	0.017	2.7	LOS A	0.1	0.4	0.07	0.47	0.07	43.9
All Vehicles		91	6.7	91	6.7	0.021	1.7	NA	0.1	0.5	0.04	0.26	0.04	40.9

Table 6. SIDRA results for the T-intersection of Brookton Highway / Hawkstone Road – weekday AM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd														
10	L2	4	11.4	4	11.4	0.016	3.6	LOS A	0.1	0.4	0.37	0.55	0.37	19.5
12	R2	9	12.4	9	12.4	0.016	4.6	LOS A	0.1	0.4	0.37	0.55	0.37	47.9
Approach		14	12.1	14	12.1	0.016	4.3	LOS A	0.1	0.4	0.37	0.55	0.37	45.9
NorthEast: Brookston Hwy (E)														
1	L2	14	2.0	14	2.0	0.142	6.4	LOS A	0.0	0.0	0.00	0.04	0.00	68.9
2	T1	228	11.4	228	11.4	0.142	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	68.9
Approach		242	10.9	242	10.9	0.142	0.4	NA	0.0	0.0	0.00	0.04	0.00	68.9
SouthWest: Brookston Hwy (W)														
8	T1	142	12.4	142	12.4	0.089	0.0	LOS A	0.0	0.3	0.03	0.02	0.03	69.5
9	R2	5	2.0	5	2.0	0.089	4.2	LOS A	0.0	0.3	0.03	0.02	0.03	65.0
Approach		147	12.0	147	12.0	0.089	0.2	NA	0.0	0.3	0.03	0.02	0.03	69.5
All Vehicles		403	11.3	403	11.3	0.142	0.4	NA	0.1	0.4	0.02	0.05	0.02	68.3

Table 7. SIDRA results for the T-intersection of Brookton Highway / Hawkstone Road – weekday PM peak period (2021 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd														
10	L2	16	11.4	16	11.4	0.027	3.7	LOS A	0.1	0.8	0.37	0.56	0.37	19.6
12	R2	9	12.4	9	12.4	0.027	5.5	LOS A	0.1	0.8	0.37	0.56	0.37	47.8
Approach		25	11.8	25	11.8	0.027	4.4	LOS A	0.1	0.8	0.37	0.56	0.37	41.3
NorthEast: Brookston Hwy (E)														
1	L2	18	2.0	18	2.0	0.156	6.4	LOS A	0.0	0.0	0.00	0.04	0.00	68.7
2	T1	247	11.4	247	11.4	0.156	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	68.7
Approach		265	10.8	265	10.8	0.156	0.4	NA	0.0	0.0	0.00	0.04	0.00	68.7
SouthWest: Brookston Hwy (W)														
8	T1	233	12.4	233	12.4	0.153	0.1	LOS A	0.2	1.4	0.07	0.05	0.07	68.8
9	R2	20	2.0	20	2.0	0.153	4.4	LOS A	0.2	1.4	0.07	0.05	0.07	59.1
Approach		253	11.6	253	11.6	0.153	0.5	NA	0.2	1.4	0.07	0.05	0.07	68.7
All Vehicles		543	11.2	543	11.2	0.156	0.6	NA	0.2	1.4	0.05	0.07	0.05	67.8

Table 8. SIDRA results for the Brookton Highway crossover 1 – weekday AM peak period (2031 Post-redevelopment)

Movement Performance - Vehicles													
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles	Distance m			km/h
SouthEast: Crossover 1													
10	L2	19	2.0	19	2.0	0.028	3.5	LOS A	0.1	0.8	0.37	0.55	54.3
12	R2	11	2.0	11	2.0	0.028	4.6	LOS A	0.1	0.8	0.37	0.55	19.7
Approach		29	2.0	29	2.0	0.028	3.9	LOS A	0.1	0.8	0.37	0.55	51.2
NorthEast: Brookston Hwy (E)													
1	L2	9	2.0	9	2.0	0.165	3.5	LOS A	0.0	0.0	0.00	0.02	47.6
2	T1	271	11.4	271	11.4	0.165	0.0	LOS A	0.0	0.0	0.00	0.02	69.6
Approach		280	11.1	280	11.1	0.165	0.1	NA	0.0	0.0	0.00	0.02	69.5
SouthWest: Brookston Hwy (W)													
8	T1	166	12.4	166	12.4	0.110	0.1	LOS A	0.1	1.0	0.08	0.05	67.6
9	R2	15	2.0	15	2.0	0.110	7.4	LOS A	0.1	1.0	0.08	0.05	63.7
Approach		181	11.6	181	11.6	0.110	0.7	NA	0.1	1.0	0.08	0.05	67.3
All Vehicles		491	10.7	491	10.7	0.165	0.6	NA	0.1	1.0	0.05	0.05	67.7

Table 9. SIDRA results for the Brookton Highway crossover 1 – weekday PM peak period (2031 Post-redevelopment)

Movement Performance - Vehicles													
Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles	Distance m			km/h
SouthEast: Crossover 1													
10	L2	18	2.0	18	2.0	0.036	3.6	LOS A	0.1	0.9	0.42	0.59	53.3
12	R2	14	2.0	14	2.0	0.036	5.7	LOS A	0.1	0.9	0.42	0.59	17.7
Approach		32	2.0	32	2.0	0.036	4.5	LOS A	0.1	0.9	0.42	0.59	48.7
NorthEast: Brookston Hwy (E)													
1	L2	9	2.0	9	2.0	0.186	3.5	LOS A	0.0	0.0	0.00	0.02	47.7
2	T1	306	11.4	306	11.4	0.186	0.0	LOS A	0.0	0.0	0.00	0.02	69.7
Approach		316	11.1	316	11.1	0.186	0.1	NA	0.0	0.0	0.00	0.02	69.5
SouthWest: Brookston Hwy (W)													
8	T1	291	12.4	291	12.4	0.188	0.1	LOS A	0.2	1.5	0.07	0.04	68.1
9	R2	19	2.0	19	2.0	0.188	7.7	LOS A	0.2	1.5	0.07	0.04	64.1
Approach		309	11.8	309	11.8	0.188	0.6	NA	0.2	1.5	0.07	0.04	67.8
All Vehicles		657	11.0	657	11.0	0.188	0.5	NA	0.2	1.5	0.05	0.05	67.9

Table 10. SIDRA results for the Hawkstone Road crossover 2 – weekday AM peak period (2031 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd (S)														
1	L2	12	2.0	12	2.0	0.011	4.6	LOS A	0.0	0.0	0.00	0.31	0.00	43.4
2	T1	8	12.4	8	12.4	0.011	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	46.5
Approach		20	6.4	20	6.4	0.011	2.7	NA	0.0	0.0	0.00	0.31	0.00	44.6
NorthWest: Hawkstone Rd (N)														
8	T1	8	11.4	8	11.4	0.011	0.0	LOS A	0.0	0.4	0.07	0.28	0.07	47.8
9	R2	12	2.0	12	2.0	0.011	2.8	LOS A	0.0	0.4	0.07	0.28	0.07	4.9
Approach		20	6.0	20	6.0	0.011	1.6	NA	0.0	0.4	0.07	0.28	0.07	22.2
SouthWest: Crossover 2														
10	L2	7	2.0	7	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	24.3
12	R2	12	2.0	12	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	45.6
Approach		19	2.0	19	2.0	0.014	2.6	LOS A	0.0	0.4	0.05	0.47	0.05	44.1
All Vehicles		59	4.8	59	4.8	0.014	2.3	NA	0.0	0.4	0.04	0.35	0.04	36.0

Table 11. SIDRA results for the Hawkstone Road crossover 2 – weekday PM peak period (2031 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV % veh/h	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd (S)														
1	L2	14	2.0	14	2.0	0.018	4.6	LOS A	0.0	0.0	0.00	0.23	0.00	44.1
2	T1	19	12.4	19	12.4	0.018	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	47.4
Approach		33	8.0	33	8.0	0.018	1.9	NA	0.0	0.0	0.00	0.23	0.00	45.9
NorthWest: Hawkstone Rd (N)														
8	T1	33	11.4	33	11.4	0.024	0.0	LOS A	0.1	0.5	0.05	0.12	0.05	48.9
9	R2	11	2.0	11	2.0	0.024	2.8	LOS A	0.1	0.5	0.05	0.12	0.05	5.0
Approach		43	9.1	43	9.1	0.024	0.7	NA	0.1	0.5	0.05	0.12	0.05	37.7
SouthWest: Crossover 2														
10	L2	9	2.0	9	2.0	0.017	2.6	LOS A	0.1	0.4	0.08	0.47	0.08	23.9
12	R2	14	2.0	14	2.0	0.017	2.7	LOS A	0.1	0.4	0.08	0.47	0.08	45.6
Approach		23	2.0	23	2.0	0.017	2.7	LOS A	0.1	0.4	0.08	0.47	0.08	43.8
All Vehicles		99	7.1	99	7.1	0.024	1.6	NA	0.1	0.5	0.04	0.24	0.04	41.7

Table 12. SIDRA results for the T-intersection of Brookton Highway / Hawkstone Road – weekday AM peak period (2031 Post-redevelopment)

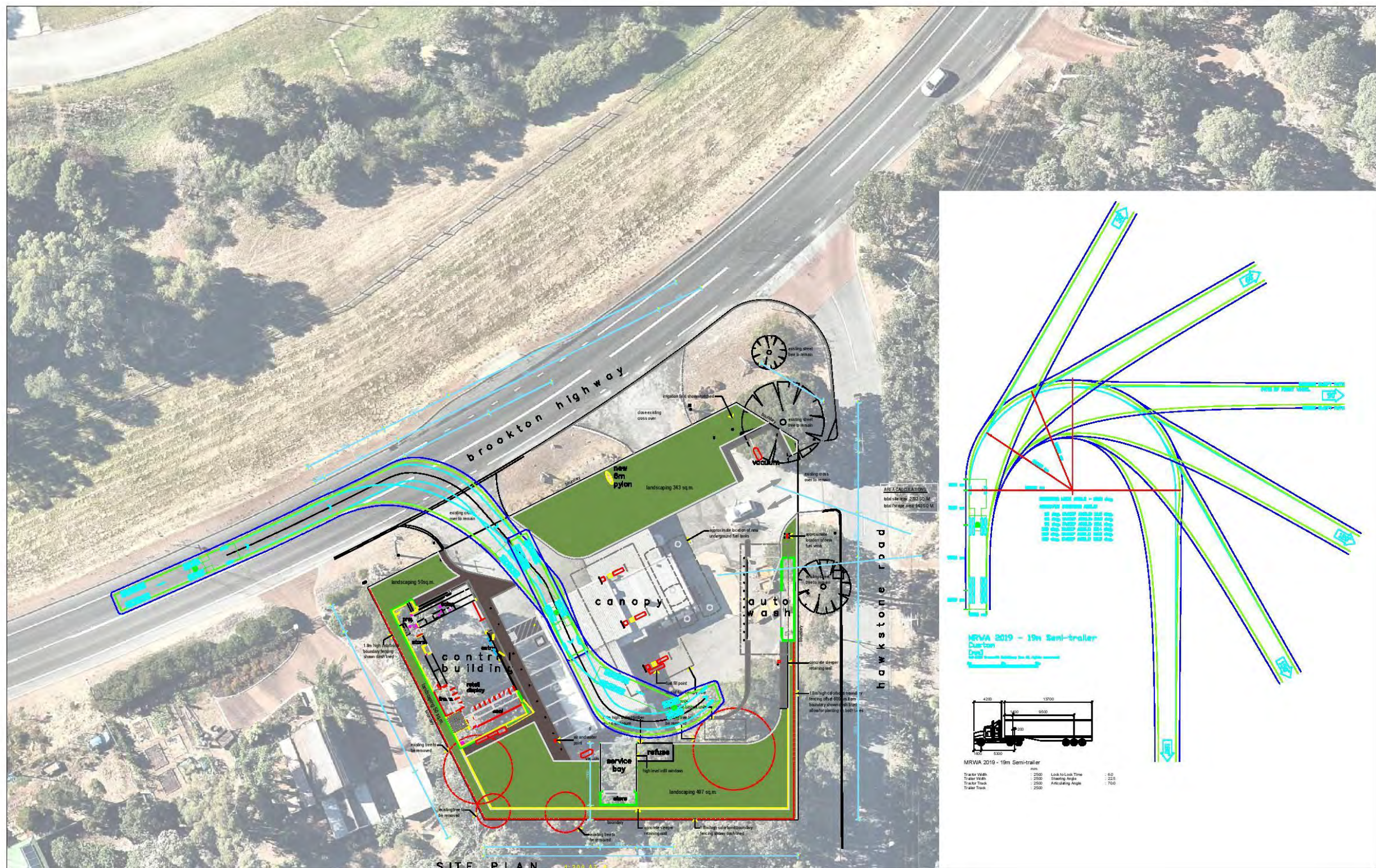
Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd														
10	L2	5	11.4	5	11.4	0.019	3.8	LOS A	0.1	0.6	0.41	0.58	0.41	18.4
12	R2	11	12.4	11	12.4	0.019	5.1	LOS A	0.1	0.6	0.41	0.58	0.41	47.4
Approach		16	12.1	16	12.1	0.019	4.7	LOS A	0.1	0.6	0.41	0.58	0.41	45.0
NorthEast: Brookston Hwy (E)														
1	L2	14	2.0	14	2.0	0.170	6.4	LOS A	0.0	0.0	0.00	0.03	0.00	69.1
2	T1	275	11.4	275	11.4	0.170	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	69.1
Approach		288	11.0	288	11.0	0.170	0.3	NA	0.0	0.0	0.00	0.03	0.00	69.1
SouthWest: Brookston Hwy (W)														
8	T1	171	12.4	171	12.4	0.107	0.1	LOS A	0.1	0.4	0.03	0.02	0.03	69.4
9	R2	6	2.0	6	2.0	0.107	4.4	LOS A	0.1	0.4	0.03	0.02	0.03	64.5
Approach		177	12.0	177	12.0	0.107	0.2	NA	0.1	0.4	0.03	0.02	0.03	69.4
All Vehicles		481	11.4	481	11.4	0.170	0.4	NA	0.1	0.6	0.03	0.04	0.03	68.3

Table 13. SIDRA results for the T-intersection of Brookton Highway / Hawkstone Road – weekday PM peak period (2031 Post-redevelopment)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m				km/h
SouthEast: Hawkstone Rd														
10	L2	18	11.4	18	11.4	0.034	4.0	LOS A	0.1	1.0	0.42	0.59	0.42	18.3
12	R2	11	12.4	11	12.4	0.034	6.4	LOS A	0.1	1.0	0.42	0.59	0.42	47.2
Approach		28	11.8	28	11.8	0.034	4.9	LOS A	0.1	1.0	0.42	0.59	0.42	40.2
NorthEast: Brookston Hwy (E)														
1	L2	20	2.0	20	2.0	0.187	6.4	LOS A	0.0	0.0	0.00	0.04	0.00	68.8
2	T1	298	11.4	298	11.4	0.187	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	68.8
Approach		318	10.8	318	10.8	0.187	0.4	NA	0.0	0.0	0.00	0.04	0.00	68.8
SouthWest: Brookston Hwy (W)														
8	T1	279	12.4	279	12.4	0.185	0.2	LOS A	0.2	1.9	0.09	0.05	0.09	68.6
9	R2	24	2.0	24	2.0	0.185	4.7	LOS A	0.2	1.9	0.09	0.05	0.09	57.8
Approach		303	11.6	303	11.6	0.185	0.5	NA	0.2	1.9	0.09	0.05	0.09	68.5
All Vehicles		649	11.2	649	11.2	0.187	0.7	NA	0.2	1.9	0.06	0.07	0.06	67.7

Appendix D

SWEPT PATH ANALYSIS



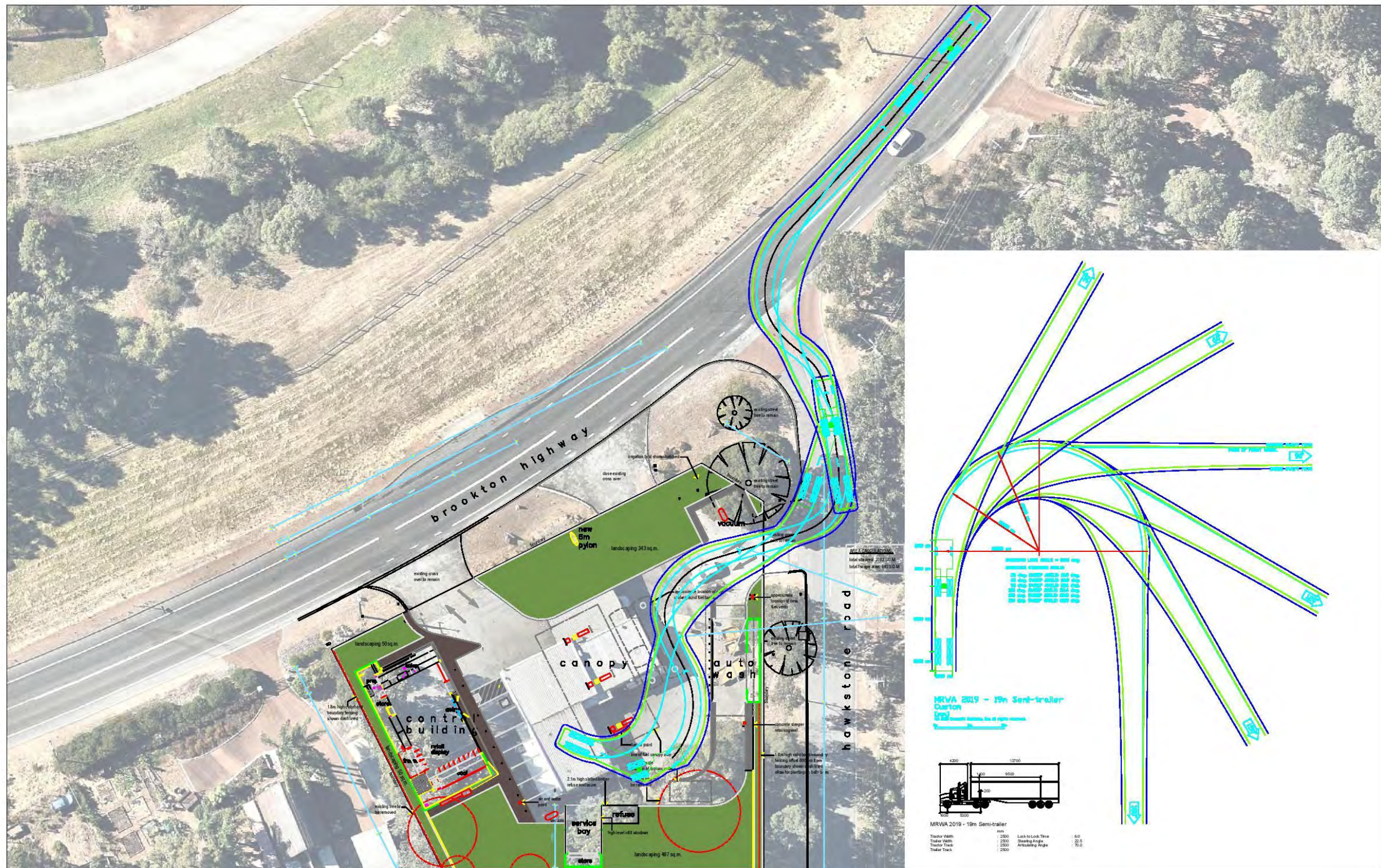
770 Brookton Hwy, Roleystone
 19.0m Semi-Trailer: MRWA (15m Radius) & Austroads 2013
 Fuel Tanker Entry

LEGEND

Vehicle Body
 Wheel Path
 500mm Clearance

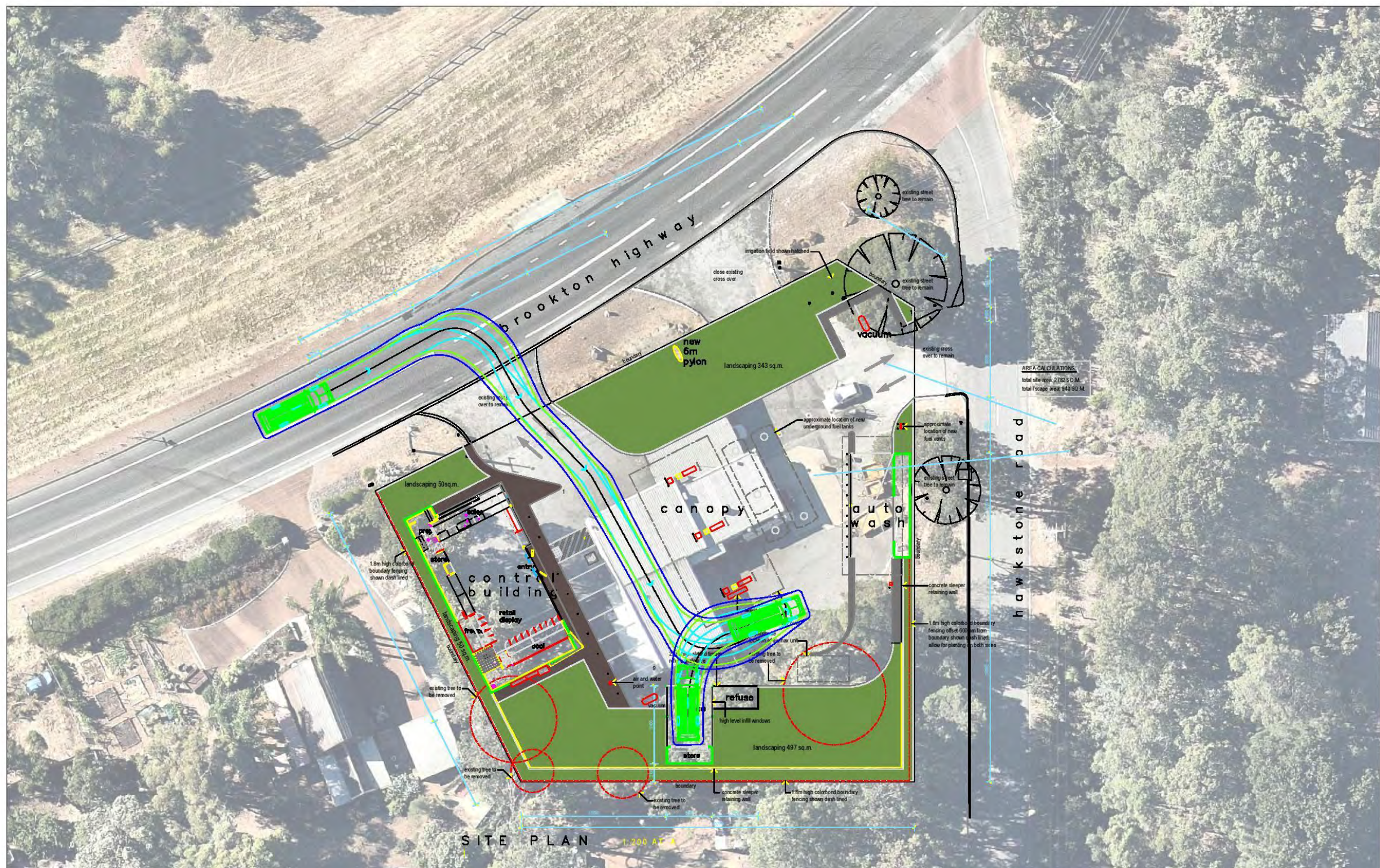
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 19/03/2021
 Scale: 1:500 @ A3





t19.099.sk04c
 19/03/2021
 Scale: 1:500 @ A3





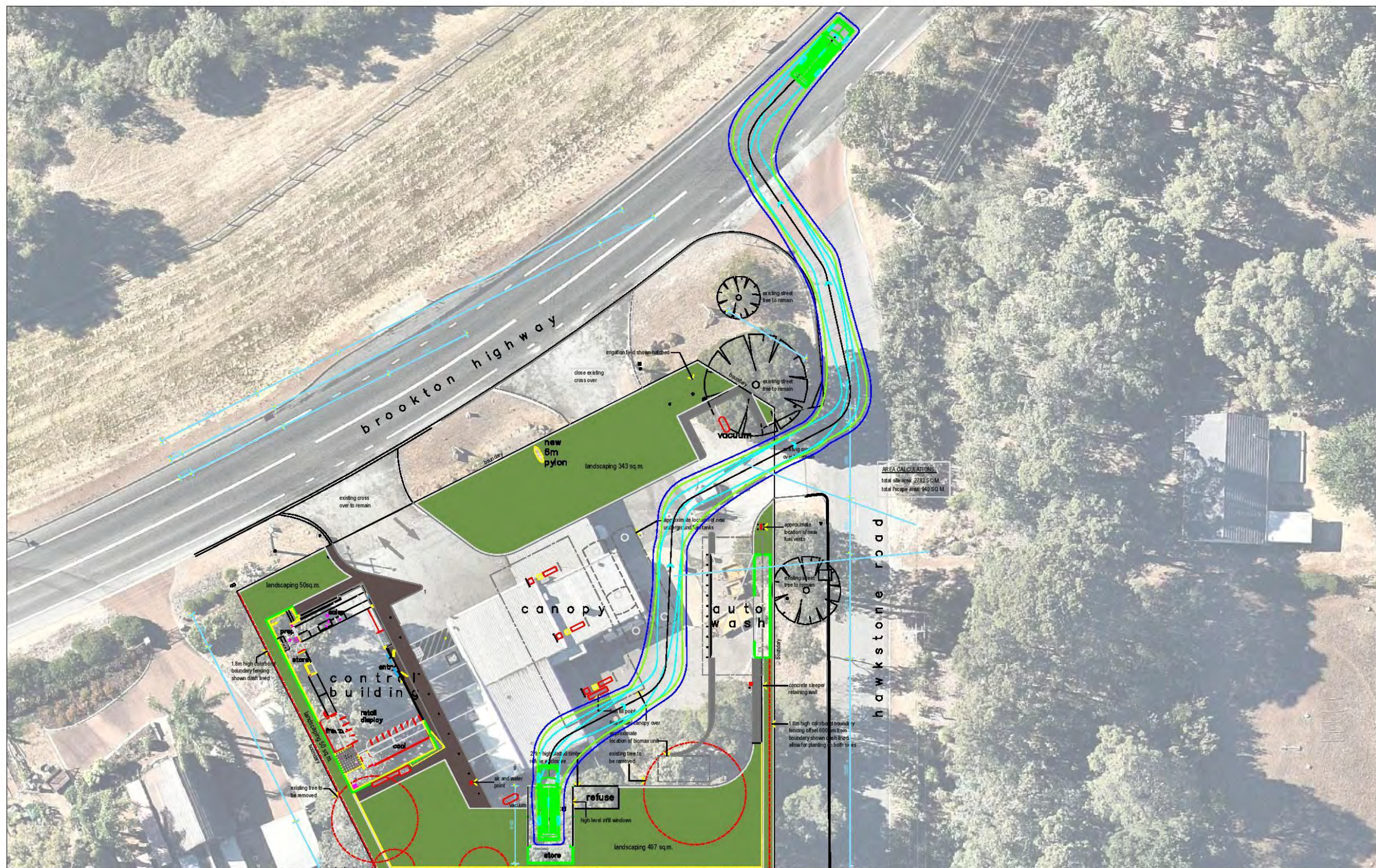
770 Brookton Hwy, Roleystone
Austroads 2013: 8.8m Service Vehicle
Service Vehicle Entry

LEGEND
Vehicle Body
Wheel Path
500mm Clearance



t19.099.sk05a
19/03/2021
Scale: 1:400 @ A3





770 Brookton Hwy, Roleystone
 Austroads 2013: 8.8m Service Vehicle
 Service Vehicle Exit

LEGEND

Vehicle Body
 Wheel Path
 500mm Clearance

t19.099.sk06a
 19/03/2021
 Scale: 1:400 @ A3





LG Ref: 10.2019.378.1
DAP Ref: DAP/19/01701
Enquiries: (08) 6551 9919

Mr Nik Hidding
Peter Webb and Associates
PO Box 920
SUBIACO WA 6904

Dear Mr Hidding

**METRO OUTER JDAP - CITY OF ARMADALE - DAP APPLICATION - 10.2019.378.1
- DETERMINATION**

Property Location:	Lot 60 (770) Brookton Highway, Roleystone
Application Details:	Proposed Service Station

Thank you for your Form 1 Development Assessment Panel (DAP) application and plans submitted to the City of Armadale on 21 November 2019 for the above-mentioned development.

This application was considered by the Metro Outer JDAP at its meeting held on 9 November 2020, where in accordance with the provisions of the City of Armadale Town Planning Scheme No.4, it was resolved to **approve** the application as per the attached notice of determination.

Should the applicant not be satisfied by this decision, an application may be made to amend or cancel this planning approval in accordance with regulation 17 and 17A of the *Planning and Development (Development Assessment Panels) Regulations 2011*.

Please also be advised that there is a right of review by the State Administrative Tribunal in accordance with Part 14 of the *Planning and Development Act 2005*. Such an application must be made within 28 days of the determination, in accordance with the *State Administrative Tribunal Act 2004*.

Should you have any queries with respect to the conditions of approval, please contact Ms Jacqueline Farmer on behalf of the City of Armadale on 9394 5453.

Yours sincerely,

DAP Secretariat

12 November 2020

Encl. DAP Determination Notice
Approved Plans

Cc: Ms Jacqueline Farmer - City of Armadale



Planning and Development Act 2005

City of Armadale Town Planning Scheme No.4

Metro Outer Joint Development Assessment Panel

**Determination on Development Assessment Panel
Application for Planning Approval**

Property Location: Lot 60 (770) Brookton Highway, Roleystone

Application Details: Proposed Service Station

In accordance with regulation 8 of the *Planning and Development (Development Assessment Panels) Regulations 2011*, the above application for planning approval was **granted** on 9 November 2020, subject to the following:

Approve DAP Application reference DAP/19/1701 and accompanying plans (attached) in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of the City of Armadale Town Planning Scheme No. 4, subject to the following conditions:

Conditions

1. Pursuant to clause 26 of the Metropolitan Region Scheme, this approval is deemed to be an approval under clause 24(1) of the Metropolitan Region Scheme.
2. This decision constitutes planning approval only and is valid for a period of 2 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
3. A schedule of external colours and materials shall be submitted to the City's Planning Services and approved by the City. The development shall be completed and maintained in accordance with the approved schedule to the satisfaction of the City.
4. To meet drainage requirements, prior to occupation of the development the developer/owner shall, to the specifications and satisfaction of the City:
 - a) Submit a stormwater management plan incorporating water sensitive design principles for approval and implement the approved plan;
 - b) Show any drainage easements as may be required on the Certificate of Title in favour of the City; and,
 - c) Relocate, remove or upgrade any drainage infrastructure on the lot or within the adjoining road reserve that is impacted by the proposed development.



5. If new fencing is proposed, or where fencing that exists does not meet these standards, fencing shall be installed prior to occupation or the creation of multiple lots from the development (whichever is the earlier) in accordance with the following and maintained thereafter:
 - a) Internal fencing and other property boundary fencing shall be at least 1.8m high measured from the new ground level / top of retaining walls in accordance with Part 2 of the City's Fencing Local Law 2011 (or superseding standard); and,
 - b) Fencing within the front street setback area or abutting the public realm (i.e. streets or public open space) shall be visually permeable above 1.2m and truncated adjacent to driveways in accordance with Part 3 of the City's Fencing Local Law 2011 (or superseding standard).
6. Lighting shall comply with Australian Standard 4282-1997 "Control of the obtrusive effects of outdoor lighting" or its equivalent and the City's Environment, Animals and Nuisance Local Laws.
7. Prior to occupation, noise mitigation measures recommended within the noise management plan submitted by Reverberate Consulting (dated 21/08/2020, attached), shall be completed and implemented to the satisfaction of the City.
8. Habitable buildings shall be constructed in-accordance with Australian Standard 3959 – Construction of Buildings in Bush Fire Prone Areas (or superseding standard) and the requirements as set out in the Bushfire Management Plan submitted by Bushfire Prone Planning (dated 22/09/2020, attached).
9. The Bushfire Management Plan submitted by Bushfire Prone Planning (dated 22/09/2020, attached), shall be implemented including site preparation and establishment of the Asset Protection Zone prior to commencement of the use.
10. Prior to construction commencing, a landscape plan shall be submitted to and approved by the City. The landscape plan shall include:
 - a) Plant species (predominantly West Australian natives);
 - b) Numbers, location, container size;
 - c) Method of irrigation of the landscaped areas;
 - d) Landscaping and treatment of adjoining verge areas;
 - e) A minimum 2 metre wide landscaping strip between the parking area and the street boundary of the site;
 - f) The provision of shade trees within the car park at the rates of at least 1 tree per 10 metre interval along any line of car parking or as otherwise agreed;
 - g) Retention of existing trees as identified on the approved site plan;All landscaping shall be installed prior to occupancy of the development and maintained as per the approved plan thereafter.
11. Any landscaping undertaken shall comply with the Bushfire Management Plan and Landscape Plan approved by the City for the site.



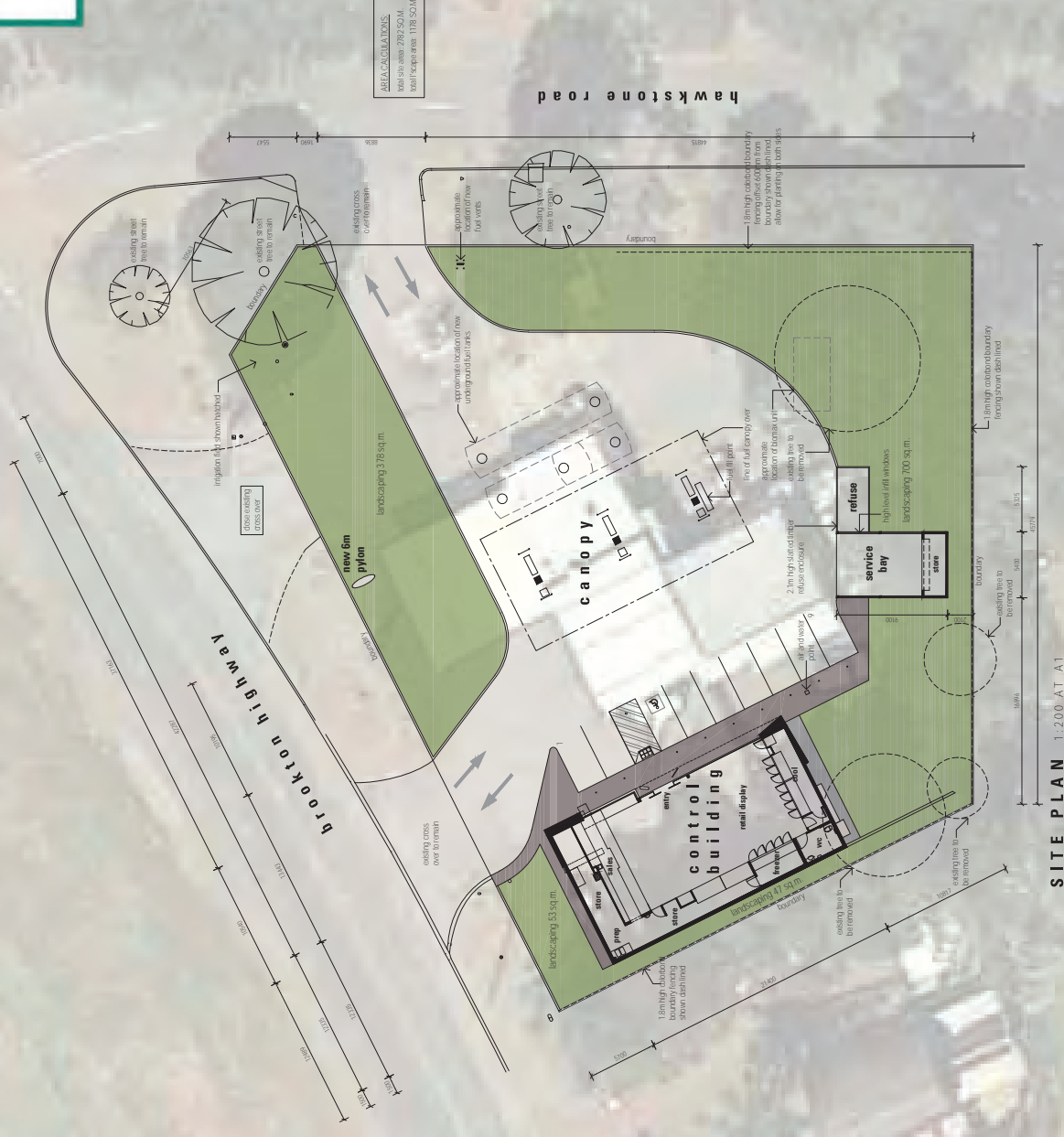
12. Prior to occupation, to meet vehicle manoeuvring space requirements the developer/owner shall, to the specifications and satisfaction of the City:
 - a) Construct/seal all such areas, including drainage and kerbing/markings where necessary, in accordance with the approved site plan;
 - b) Relocate/remove any services/infrastructure as necessary;
 - c) Remove any existing crossover(s) and reinstate all kerbing/footpaths/verge areas;
 - d) Arrange for continuous maintenance of all such areas thereafter.
13. Prior to occupation of the development, the existing effluent disposal system shall be decommissioned and the site reinstated.
14. Only clean fill (as defined by the Department Water & Environmental Regulation) shall be used.
15. No materials shall be stored in car parking areas.
16. Prior to occupation of the development, outdoor storage areas shall be screened from public view (e.g. from roads, reserves etc.), to the satisfaction of the City.
17. Prior to occupation of the development, all rubbish bin storage areas and servicing areas associated with the development shall be appropriately screened from public vantage points to the satisfaction of the City.
18. Prior to occupation of the development, air conditioning units, compressors and other equipment related to utilities shall be screened from public view and positioned so as to avoid any adverse effects, including noise, on the occupants of nearby residential properties to the satisfaction of the City.
19. In accordance with the requirements of Local Planning Policy PLN 3.12 - Percent for Public Art, prior to the commencement of the development, the applicant and/or landowner is to make a monetary contribution to the City of Armadale Public Art Reserve Account equal to one per cent (1%) of the estimated total development cost.
20. The signs shall be erected in accordance with the approved plans (attached).
21. The applicant and/or landowner shall be responsible for all signage maintenance, removal (within 24 hours should any sign be damaged), replacement and removal of graffiti (within 3 working days) and maintained to the satisfaction of the City.
22. All signage artwork shall be limited to content associated with promoting the approved use to the satisfaction of the City.
23. Prior to occupation, the crossovers to Lot 60 Brookton Highway must be rationalised to a single crossover to comply with Section 3.3.1 of WAPC Development Control Policy 5.1 Regional Roads (Vehicular Access).
24. The signs and sign structures are to be placed on private property and must not over hang or encroach upon the road reserve. If the signs are illuminated, it must be of a low-level not exceeding 300cd/m² during the hours of night, and not flash, pulsate or chase during all hours and must not contain fluorescent, reflective or retro reflective colours or materials.



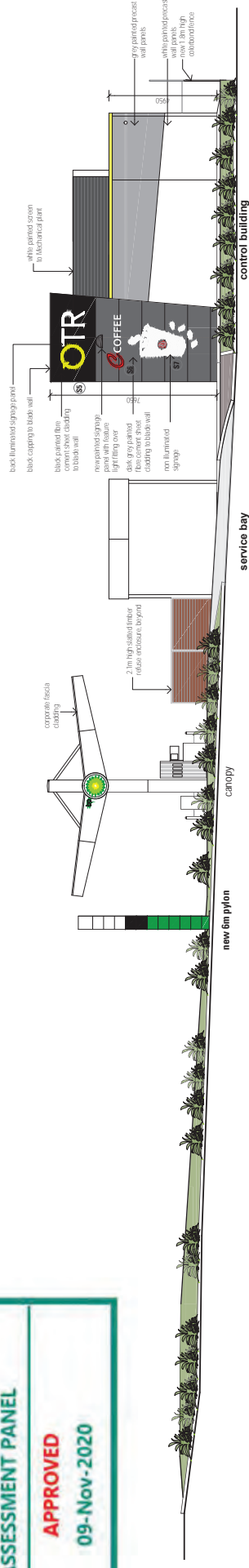
Advice Notes

1. Premises must comply with the *Food Act 2008* and the Food Standards Code.
2. Compliance with the *Environmental Protection (Noise) Regulations 1997* is required, particularly with regard to installation of equipment (air conditioning units, pumps etc.).
3. The applicant and/or landowner will be required to submit an Effluent Treatment System Application to the City's Health Services which is available on the City's website: <https://www.armadale.wa.gov.au/sewage-and-effluent-disposal>
4. The applicant and/or landowner is advised that the location of LPG cylinders, tanks and regulators must comply with any relevant requirements of Australian Standard AS/NZS 1596 and the *Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999*.
5. The applicant and/or landowner is advised that the premises must comply with the *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007*.
6. Please note the requirement of Condition 24 & 25 were set by Main Roads Western Australia (MRWA). All enquiries regarding this Condition should be directed to MRWA's Metropolitan Region Asset Manager, at:
Main Roads WA
PO Box 6202
EAST PERTH WA 6892
TEL: 138 138
FAX: 9323 4430
7. Main Roads will not make any provision now, or in the future, for any traffic management treatment including, but not limited to, guard rails, slip lanes, traffic islands, additional signage and pavement markings, as a result of this development.

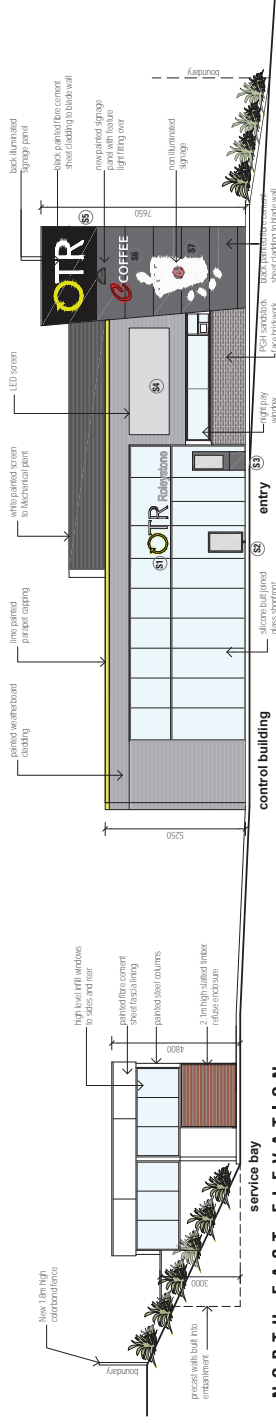
Where an approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) or local government approval under regulation 17A of the *Planning and Development (Development Assessment Panels) Regulations 2011*.



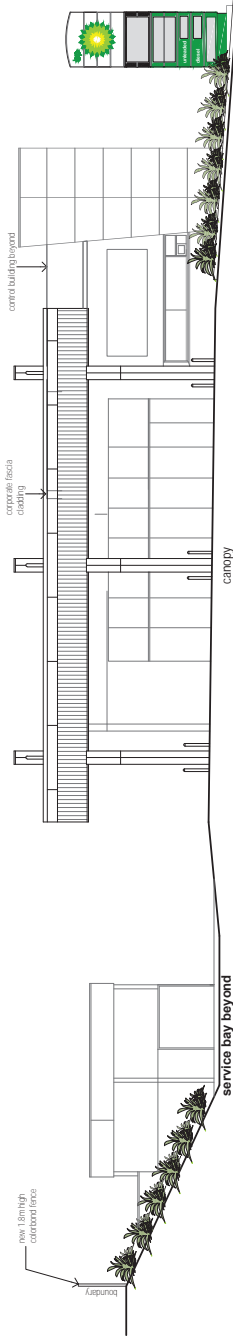
SITE PLAN



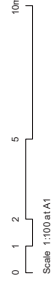
NORTH WEST ELEVATION
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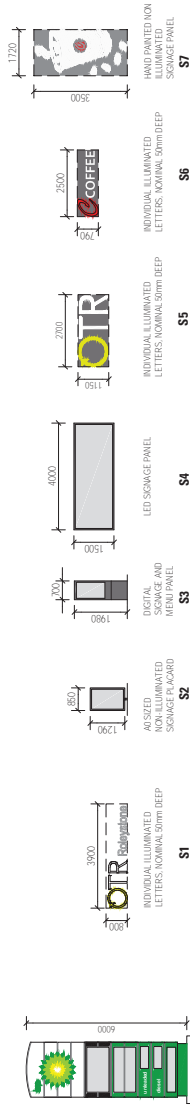
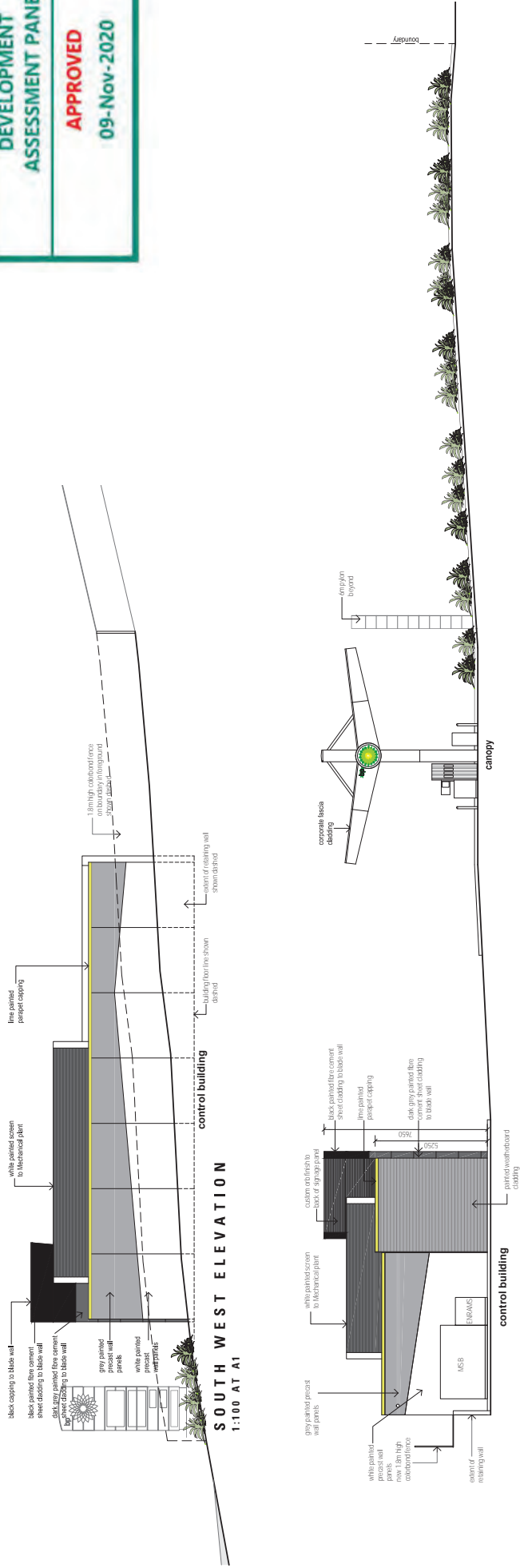


NORTH EAST ELEVATION
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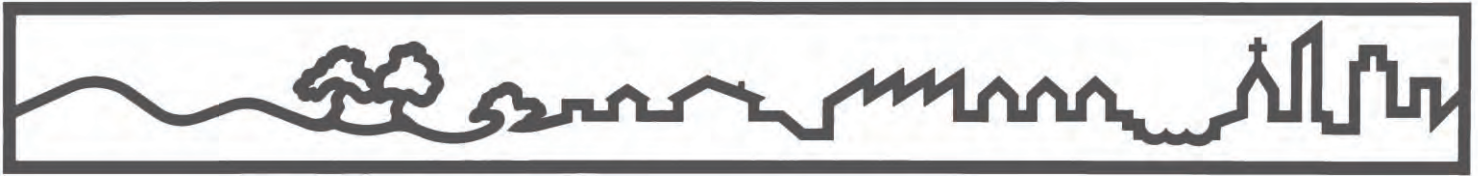


NORTH EAST ELEVATION - CANOPY
1:100 AT A1





OTR ROLEYSTONE
770 BROOKTON HIGHWAY, ROLEYSTONE, WA



30 June 2021

Our Ref: C2348-03

Chief Executive Officer
City of Armadale
7 Orchard Avenue
ARMADALE WA 6112

Attention: Jacqueline Farmer – Statutory Planning Officer

Dear Sir/Madam

**AMENDED FORM 2 APPLICATION –AMENDMENTS TO DAP APPROVAL
LOT 60 (#770) BROOKTON HIGHWAY, ROLEYSTONE (DAP/19/01701)**

Peter Webb & Associates (**PWA**) acts for *OTR 282 Pty Ltd (OTR)* the registered proprietor of Lot 60 (#770) Brookton Highway, Roleystone (**Subject Site**).

Conditional approval was granted by the Metro Outer Joint Development Assessment Panel (**JDAP**) at its meeting held on 9 November 2020 for a proposed Service Station (**Proposed Development**) at the Subject Site (reference no: DAP/19/01701) (**Approval**).

A copy of the DAP Approval is included at **Annexure 1**.

The approved Service Station has not yet been constructed.

On behalf of OTR, we now propose to amend the Approval following confirmation of OTR's requirements pursuant to Regulation 17 of the *Planning & Development (Development Assessment Panels) Regulations 2011*.

The proposed Form 2 Application meets Regulation 17(1) (c) which is as follows:

- (c) *to amend an aspect of the development approved which, if amended, would not substantially change the development approved.*

For this purpose, please find **enclosed** a completed and signed DAP Form 2, City of Armadale Application for Planning Approval Form and MRS Form 1.

A Form 2 Application was submitted in April 2021, however that Application has since been amended and this new cover letter sets out the proposed Amendments for the City/DAP consideration.

1. THE SITE:

The Subject Site comprises Lot 60 (#770) Brookton Highway, Roleystone. The site is located on the corner of Hawkstone Road. The site is within the City of Armadale local government area.

The subject site has a total land area of 2,782m² and is currently improved with an existing Service Station and associated motor vehicle workshop.

The site has a frontage of approximately 60.19m to Brookton Highway and a frontage of approximately 55.34m to Hawkstone Street, as well as a truncation of 10.56m at the corner. The site

The site rises from 218.00 AHD at the north-west corner of the site to 223.60 AHD at the south-east corner of the site.

An Aerial Photograph of the site is included at **Figure 1**.



Figure 1: **Aerial Photograph (Landgate)**

The Certificate of Title for the Subject Site is included at **Annexure 2**.

2. PROPOSED AMENDMENTS:

This application proposes some minor amendments to the approved Service Station, and this comes as a result of confirming OTR's final requirements for operation of the facility.

The previously submitted DAP Form 2 Application (submitted April 2021) included an auto wash facility, however following investigation into waste water collection and discharge, it was concluded that the auto wash is something that does not work for this site. Therefore, the auto wash facility has been removed from the Form 2 Application.

The Amended Plans (without the auto wash) are included at **Annexure 3**.

A summary list of proposed amendments are set out below:

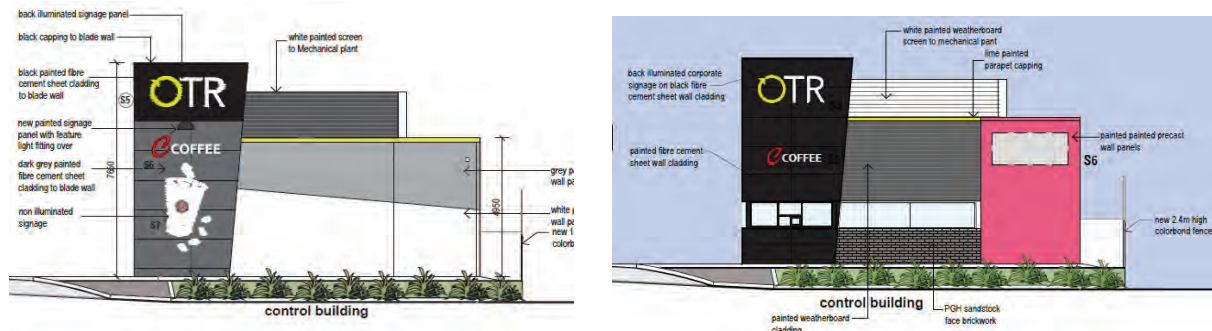
1. Proposed vacuum bays, located near the Hawkstone Road crossover;
2. Proposed minor internal modification of the convenience store control building and minor relocation of the building closer to Brookton Highway (with a street setback of 4.315m);
3. Proposed minor external design changes to the approved convenience store building (and in our view, improved street presence);
4. Proposed addition of a 3.3m high price board (displaying fuel prices) along the Brookton Highway frontage, to co-exist with a 6.00m high (previously approved) Pylon Sign which will be for OTR and displaying its products and services (for example what can be found in the convenience store, and signage for the vehicle service/tyre change bay, etc)
5. Proposed 2.1m high barrier fence along the southern and eastern boundaries as shown on the Site Plan (reduced from the previously proposed 2.4m).

Accordingly, the changes proposed are very minor and the main layout of the service station (including convenience store, fuel canopy, vehicle / tanker access, and crossovers) all remain generally unchanged.

2.1 Convenience Store Design Change

The approved convenience store building has been designed with some external design changes which results in improved streetscape presence. The Brookton Highway façade has been improved, as shown below (DAP approved design on left; proposed new design on right).

As can be seen, the convenience store building now features a window, feature weatherboard cladding, and different (improved) colours and materials.



There are resulting changes to the other facades of the convenience store building as well, and they are detailed on the plans.

Removing the auto wash facility has enabled the landscaping area to be increased closer to the originally approved amount. The proposed landscaping area is now 1039m², which represents 37.3% of the subject land.

None of the above minor amendments requires any change to the Conditions contained within the current DAP Approval.

The previously submitted Form 2 Application included updated Acoustic Report, Bushfire Management Plan and Traffic Report to account for the inclusion of the auto wash. As the auto wash has now been removed, and the site layout essentially falls back to the approved layout, these updated reports are now redundant and do not need to be assessed.

3 TOWN PLANNING CONSIDERATIONS:

3.1 Zoning & Land Use

The Subject Site is zoned “Residential R5” with an Additional Use (AU7) designation shown on the scheme map of the City of Armadale Local Planning Scheme No. 4 (**LPS4**).

Clause 3.5 of LPS4, when read with Item 7 of the table in Schedule 2 of LPS4, provides that notwithstanding the underlying residential zoning of the Subject Site, a “Service Station” is a “P” (Permitted) use on the Subject Site.

Part 2 of Schedule 1 of LPS4 provides that in the Scheme, unless the context otherwise requires:

“service station” means premises used for —

- (a) *the retail sale of petroleum products, motor vehicle accessories and goods of an incidental/convenience retail nature; and*
- (b) *the carrying out of greasing, tyre repairs and minor mechanical repairs to motor vehicles,*

but does not include premises used for a transport depot, panel beating, spray painting, major repairs or wrecking;

There is no doubt that the proposed activities of convenience retailing, sale of fuel and vehicle servicing neatly fit within the LPS4 definition of Service Station.

There are no town planning issues that arise from the amendments set out in this resubmission.

3.2 Signage

The City's PLN 4.2 Advertisements (Signage) Policy provides a framework for regulating the design and placement of signage.

This application proposes two Pylon Signs; one 6.00m in height for OTR (for the displaying of its products and services), and one 3.30m in height for the display of fuel pricing which is a necessary (and legal) component of a Service Station.

Table 1 below provides the details of the two proposed Pylon Signs and assesses them against the relevant standards of PLN 4.2.

Sign	Definition	Relevant Standards	Proposed	Compliant
Pylon Sign	<i>Means a sign supported by one or more supports and not attached to a building and includes a detached sign framework supported by one or more support posts to which sign infill's may be added. Includes a monolith sign (a pylon sign which is infilled from the ground level to the top of the sign to appear as a solid wall and where the supporting columns cannot be seen).</i>	• Max height: 6.00m	Height 6.00m and 3.30m	✓
		• length across the face of the sign: 2.5m	Length across face <2.50m	✓
		• Maximum width: 500mm	Width 500mm	✓
		• Minimum clearance 2.4m unless it is designed as a monolith and has the underside at ground level	Ground level	✓
		• Minimum distance from any other pylon sign: 10m	Distance between Pylon Signs >10m	✓
		• One pylon per road frontage or one for every 50m of linear road frontage	Two Pylons along Brookton Hwy (60.19m road frontage)	✓
		• Be geometrically two-sided (not v-shaped)	Two sided (flat)	✓
		• Individual pylon signs in close proximity for individual tenancies where multiple tenancies are proposed will not be supported. Pylon signs shall be designed to provide one infill panel for each tenancy.	One 6.0m pylon sign for the single OTR tenancy advising of products and services available, plus one 3.3m high price board for the display of fuel prices	✓
		• May be illuminated in accordance with Note C of the policy.	Both pylon signs are illuminated	✓

Table 1: Signage Requirements

Therefore, the two (2) proposed Pylon Signs comply with the Policy requirements.

4 CONCLUSION:

It is considered that the proposed changes to the approved development are relatively minor and can be approved by the JDAP.

We look forward to the City of Armadale's timely assessment of the application, and the City's recommendation for approval to the Metro Outer JDAP.

Should you wish to discuss any part of this Application, please do not hesitate to contact us on 9388 7111.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Nik Hidding', with a stylized flourish at the end.

NIK HIDDING
Director