APPLICATION ON NOTIFICATION – CROWN DEVELOPMENT

Type of development:	SECTION 49 - STATE AGENCY DEVELOPMENT
Development Number:	361/V006/19
Applicant:	Department for Education c/ - Matthews Architects
Nature of Development:	Demolition of transportable buildings and construction of permanent classroom buildings at Paralowie R-12 School
Subject Land:	14-32 HALBA CR PARALOWIE SA 5108
Development Plan:	Salisbury Council Development Plan
Zone / Policy Area:	Residential Zone
Contact Officer:	Janine Philbey
Phone Number:	7109 7062
Consultation Start Date:	31 July 2019
Consultation Close Date:	30 August 2019
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, Adelaide, during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

Written representations must be received by the close date (indicated above) and can either be posted, hand-delivered, or emailed to the State Commission Assessment Panel (SCAP). A representation form is provided as part of this document.

Any representations received after the close date will not be considered.

Postal Address:
The Secretary
State Commission Assessment Panel
GPO Box 1815
ADELAIDE SA 5001

Street Address:
Development Division
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders Street
ADELAIDE

Email Address: scapreps@sa.gov.au

Government of South Australia

Department of Planning, Transport and Infrastructure

DEVELOPMENT ACT 1993

SECTION 49 - STATE AGENCY DEVELOPMENT

NOTICE OF APPLICATION FOR CONSENT TO DEVELOPMENT

Notice is hereby given that an application has been made by **Department for Education** for consent to demolish transportable buildings and construct permanent classroom buildings at the Paralowie R-12 School Campus. **Development Number: 361/V006/19**.

The subject land is situated at 14-32 Halba Crescent, Paralowie (being Allotment 10, F113594; CT 5549/630).

The development site is located within the Residential Zone of the Salisbury Council Development Plan (Consolidated on 4 April 2019).

The application may be examined during normal office hours at the office of the State Commission Assessment Panel (SCAP), Level 5, 50 Flinders Street, Adelaide and at the office of Salisbury Council, 12 James Street, Salisbury. Application documentation may also be viewed on the SCAP website http://www.saplanningportal.sa.gov.au/public_notices.

Any person or body who desires to do so may make representations concerning the application by notice in writing delivered to the Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 **NOT LATER THAN 30 August 2019**. Submissions may also be emailed to: scapreps@sa.gov.au.

Each person or body making a representation should state the reason for the representation and whether that person or body wishes to be given the opportunity to appear before the SCAP to further explain the representation.

Submissions may be made available for public inspection.

Should you wish to discuss the application and the public notification procedure please contact **Janine Philbey** on **7109 7062** or **Janine.Philbey@sa.gov.au**

Alison Gill
SECRETARY
STATE COMMISSION ASSESSMENT PANEL
scapreps@sa.gov.au

PUBLISHED IN : The Advertiser & The Messenger North
PUBLICATION DATE : **30 July 2019**

DEVELOPMENT ACT, 1993
S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Department for Education c/ - Matthews Architects
Development Number:	361/V006/19
Nature of Development:	Demolition of transportable buildings and construction of permanent classroom buildings at Paralowie R-12 School
Zone / Policy Area:	Residential Zone
Subject Land:	14-32 HALBA CR PARALOWIE SA 5108
Contact Officer:	Janine Philbey
Phone Number:	7109 7062
Close Date:	30 August 2019

My Name: _____ My phone number: _____

Primary method(s) of contact: Email: _____

Postal Address: _____ Postcode: _____

_____

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard by the State Commission Assessment Panel in support of your submission.

My interests are: *(please tick one)*

- ☐ owner of local property
- ☐ occupier of local property
- ☐ a representative of a company/other organisation affected by the proposal
- ☐ a private citizen

The address of the property affected is: _____

_____ Postcode _____

My interests are: *(please tick one)*

- ☐ I support the development
- ☐ I support the development with some concerns
- ☐ I oppose the development

The specific aspects of the application to which I make comment on are: _____

_____

_____

_____

_____

I: *(please tick one)*

- ☐ wish to be heard in support of my submission
- ☐ do not wish to be heard in support of my submission *(Please tick one)*

By: *(please tick one)*

- ☐ appearing personally
- ☐ being represented by the following person *(Please tick one)*

Signature: _____

Date: _____

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 /or
Email: scapadmin@sa.gov.au

DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: City of Salisbury

APPLICANT: Matthews Architects

Postal Address: 262 Melbourne Street,

North Adelaide SA 5006

Owner: Paralowie R-12 School

Postal Address: Whites Road, Paralowie

SA 5108

BUILDER: TBA

Postal Address: _____

_____ Licence No: _____

CONTACT PERSON FOR FURTHER INFORMATION

Name: Kelly Lau (Matthews Architects)

Telephone: 08-8267 4766 [work] _____ [Ah]

Fax: _____ [work] _____ [Ah]

EXISTING USE: School

FOR OFFICE USE

Development No: _____

Previous Development No: _____

Assessment No: _____

❒ Complying	Application forwarded to DA
❒ Non Complying	Commission/Council on
❒ Notification Cat 2	/ /
❒ Notification Cat 3	Decision: _____
❒ Referrals/Concurrences	Type: _____
❒ DA Commission	Date: / /

	Decision required	Fees	Receipt No	Date
Planning:				
Building:				
Land Division:				
Additional:				
Development Approval				

DESCRIPTION OF PROPOSED DEVELOPMENT: New Junior Primary, Performing Arts Centre, Year 7 Building and Minor Facade Modification to Existing Buildings

LOCATION OF PROPOSED DEVELOPMENT: Paralowie R-12 School

House No: _____ Lot No: ____ Street: Whites Road Town/Suburb: Paralowie

Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

Section No [full/part] _____ Hundred: _____ Volume: _____ Folio: _____

LAND DIVISION:

Site Area [m^2] _____ Reserve Area [m^2] _____ No of existing allotments _____

Number of additional allotments [excluding road and reserve]: _____ Lease: **YES** ❒ **NO** ❒

BUILDING RULES CLASSIFICATION SOUGHT: 9B Present classification: 9B

If Class 5,6,78 or 9 classification is sought, state the proposed number of employees: Male: _____ Female: _____

If Class 9a classification is sought, state the number o persons for whom accommodation is provided: _____

If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises: 1600

DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY? **YES** ❒ **NO** ☒

HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 2008 LEVY BEEN PAID? **YES** ❒ **NO** ☒

DEVELOPMENT COST [do not include any fit-out costs]: $ $9,500,000

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

SIGNATURE: _____ Dated: 24 / 06 / 2019

Kelly Lau (Matthews Architects)

DEVELOPMENT REGULATIONS 2008
Form of Declaration (Schedule 5 clause 2A)

Government of South Australia

To: State Commission Assessment Panel (SCAP)

From: Matthews Architects

Date of Application: 24 / 06 / 2019

Location of Proposed Development: Paralowie School

House No: _____ Lot No: _____ Street: Whites Road

Town/Suburb: Paralowie

Section No (full/part): _____ Hundred: _____

Volume: _____ Folio: _____

Nature of Proposed Development:

I Kelly Lau (Matthews Architects) **being the applicant/ a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the Electricity Act 1996. I make this declaration under clause 2A(1) of Schedule 5 of the Development Regulations 2008.**

Signed: _____ **Date:** 24 / 06 / 2019

Government of South Australia

Note 1

This declaration is only relevant to those development applications seeking authorisation for a form of development that involves the construction of a building (there is a definition of 'building' contained in section 4(1) of the Development Act 1993), other than where the development is limited to –

a) an internal alteration of a building; or
b) an alteration to the walls of a building but not so as to alter the shape of the building.

Note 2

The requirements of section 86 of the Electricity Act 1996 do not apply in relation to:

a) an aerial line and a fence, sign or notice that is less than 2.0 m in height and is not designed for a person to stand on; or
b) a service line installed specifically to supply electricity to the building or structure by the operator of the transmission or distribution network from which the electricity is being supplied.

Note 3

Section 86 of the Electricity Act 1996 refers to the erection of buildings in proximity to powerlines. The regulations under this Act prescribe minimum safe clearance distances that must be complied with.

Note 4

The majority of applications will not have any powerline issues, as normal residential setbacks often cause the building to comply with the prescribed powerline clearance distances. Buildings/renovations located far away from powerlines, for example towards the back of properties, will usually also comply.

Particular care needs to be taken where high voltage powerlines exist; or where the development:

- is on a major road;
- commercial/industrial in nature; or
- built to the property boundary.

Note 5

An information brochure: 'Building Safely Near Powerlines' has been prepared by the Technical Regulator to assist applicants and other interested persons.

This brochure is available from council and the Office of the Technical Regulator. The brochure and other relevant information can also be found at **sa.gov.au/energy/powerlinesafety**

Note 6

In cases where applicants have obtained a written approval from the Technical Regulator to build the development specified above in its current form within the prescribed clearance distances, the applicant is able to sign the form.

WHITES ROAD

CRICKET NETS

H

CAR PARK

WATERLOO CORNER ROAD

18 & 21 - DEMOLISH 2 EXISTING TRANSPORTABLE BUILDINGS

SH11

SH8

SH21

SH22

I

SH13

COURTS

C

SH7

B

J

18

21

6

D

CAR PARK E

23

SH19

5

SH15

25

SH18

24

4

26

27

SH20

SH12

28

29

30

SH17

32

31

SH16

3

G

1

HALBA CRESCENT

17

2

7

SH6

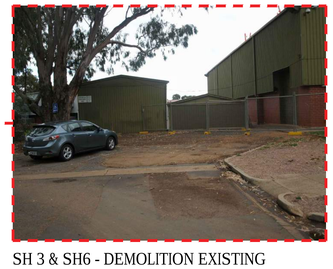
SH3

CAR PARK A

SH14

34

7 - DEMOLISH EXISTING COMMUNITY TRANSPORTABLE BUILDING



SH 3 & SH6 - DEMOLITION EXISTING COLORBOND SHEDS

SITE DEMOLITION PLAN
CONCEPT DESIGN
SCALE: 1:500

0 5 10 15 20 25 50
SCALE 1:500 METRES

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T +61 (0)8 8267 4766
262 Melbourne Street, North Adelaide, SA 5006
www.matthewsarchitects.com.au info@matthewsarchitects.com.au

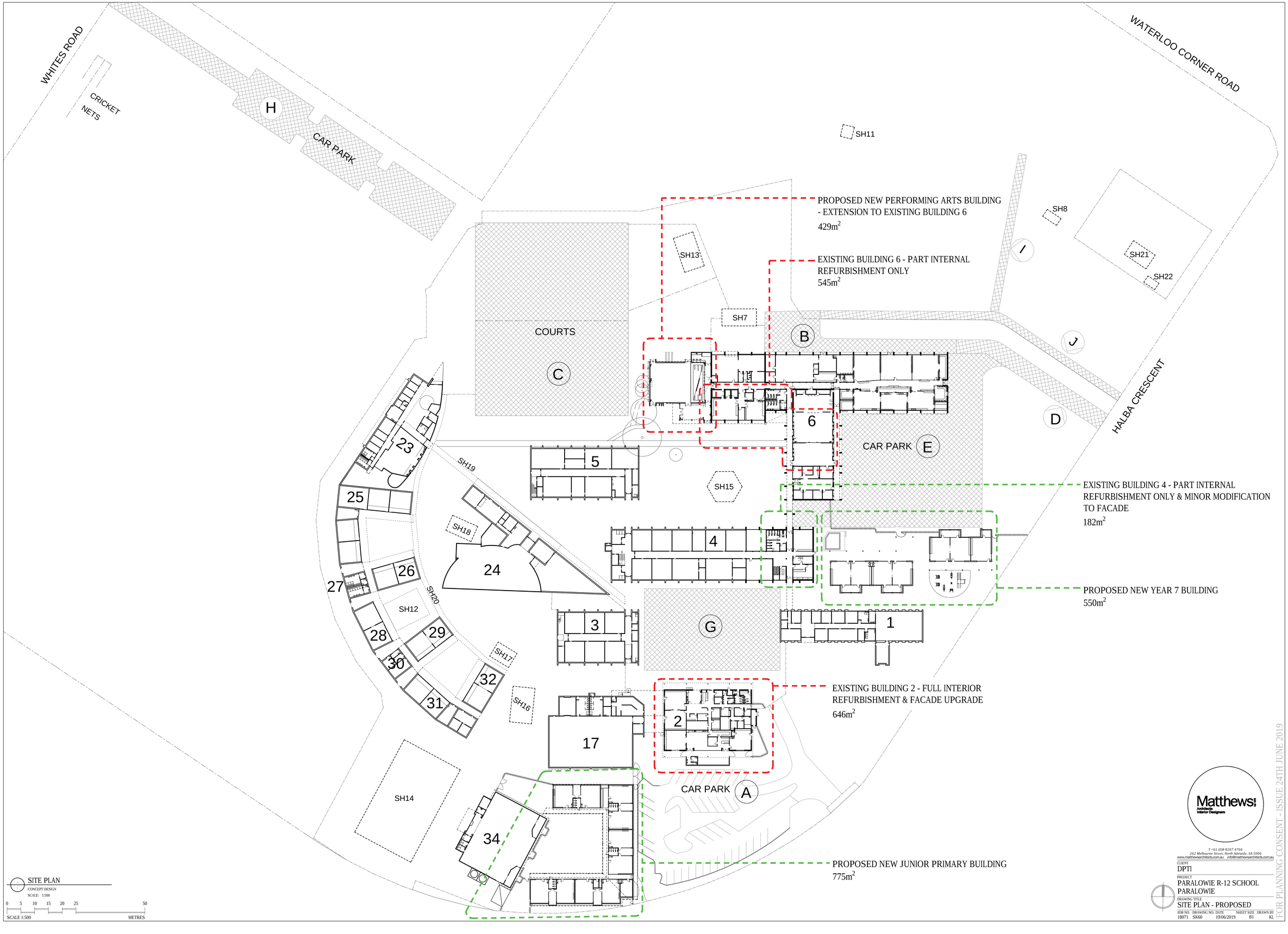
CLIENT
DPTI

PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
SITE PLAN - DEMOLITION

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK59	19/06/2019	B1	KL

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019


WHITES ROAD
CRICKET NETS
H
CAR PARK
WATERLOO CORNER ROAD
SH11
PROPOSED NEW PERFORMING ARTS BUILDING
- EXTENSION TO EXISTING BUILDING 6
429m2
SH13
EXISTING BUILDING 6 - PART INTERNAL
REFURBISHMENT ONLY
545m2
SH8
I
SH21
SH22
SH7
B
COURTS
C
J
D
HALBA CRESCENT
6
CAR PARK E
23
SH19
5
SH15
25
SH18
24
EXISTING BUILDING 4 - PART INTERNAL
REFURBISHMENT ONLY & MINOR MODIFICATION
TO FACADE
182m2
4
26
27
SH20
SH12
PROPOSED NEW YEAR 7 BUILDING
550m2
28
29
30
3
G
1
SH17
32
31
SH16
EXISTING BUILDING 2 - FULL INTERIOR
REFURBISHMENT & FACADE UPGRADE
646m2
2
17
SH14
CAR PARK A
34
PROPOSED NEW JUNIOR PRIMARY BUILDING
775m2
SITE PLAN
CONCEPT DESIGN
SCALE: 1:500
0 5 10 15 20 25 50
SCALE 1:500 METRES
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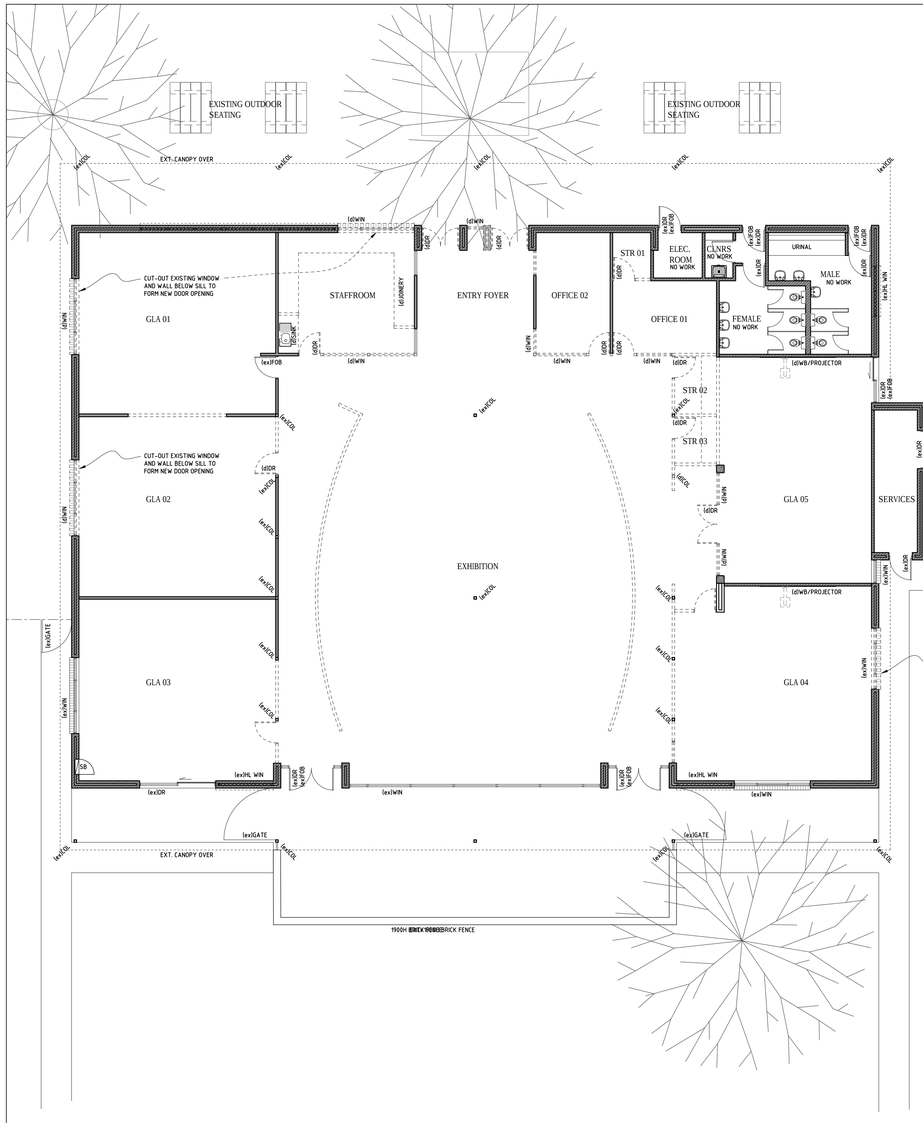
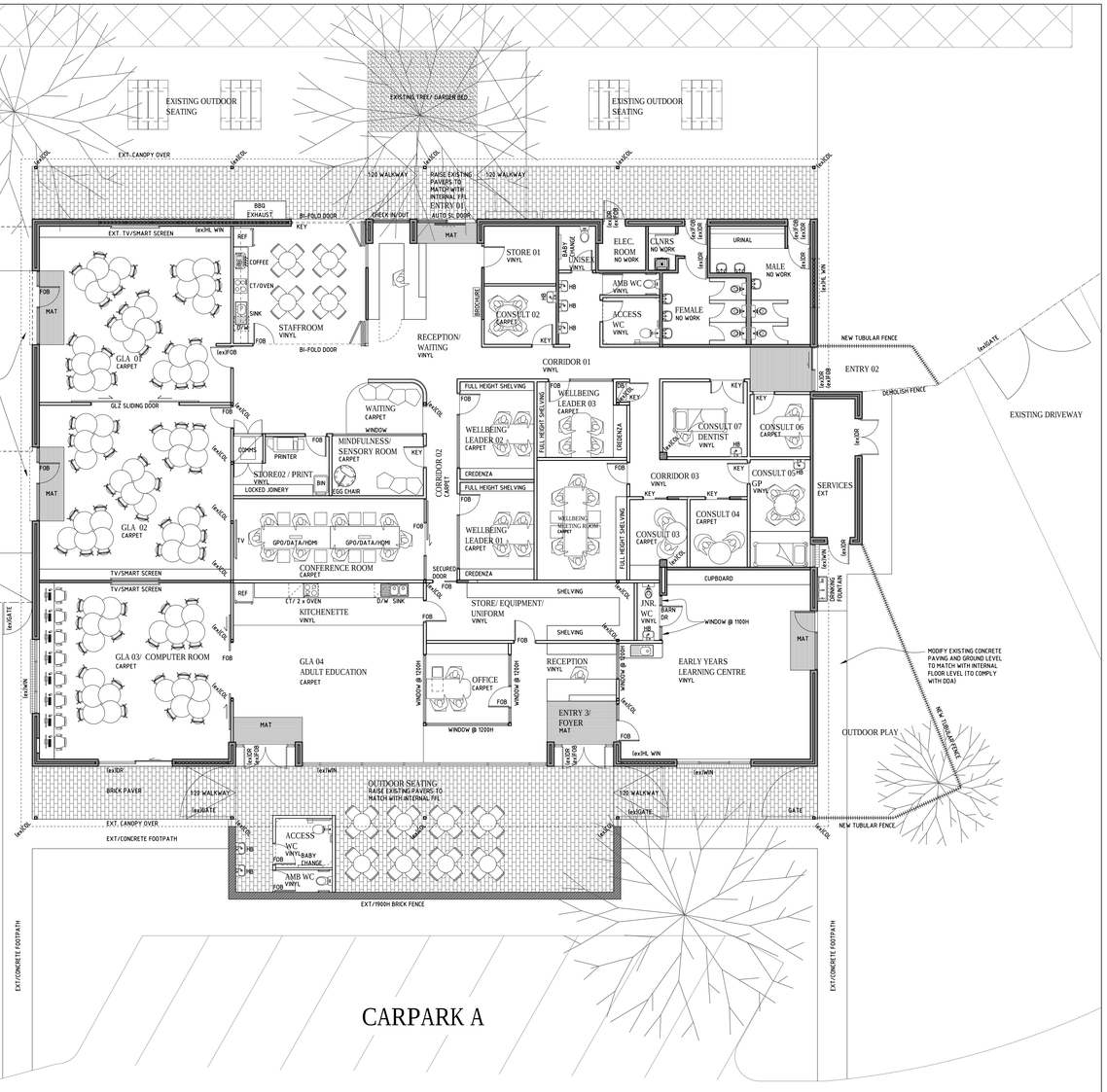
PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE
DRAWING TITLE
SITE PLAN - PROPOSED
JOB NO. DRAWING NO. DATE SHEET SIZE DRAWN BY
18071 SK60 19/06/2019 B1 KL
FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019





BUILDING 2 - DEMOLITION PLAN

WELLBEING AND COMMUNITY HUB

SCALE: 1:100

BUILDING 2 - PROPOSED PLAN

WELLBEING AND COMMUNITY HUB

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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DRAWING TITLE
BUILDING 2

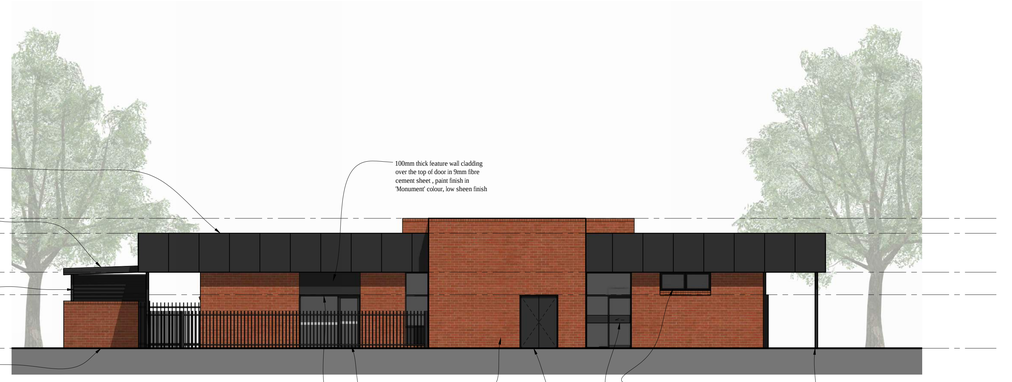
JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK61	20/06/2019	B1	K.L

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

BUILDING 2 - NORTH ELEVATION

WELLBEING AND COMMUNITY HUB

SCALE: 1:100



BUILDING 2 - EAST ELEVATION

WELLBEING AND COMMUNITY HUB

SCALE: 1:100

BUILDING 2 - SOUTH ELEVATION

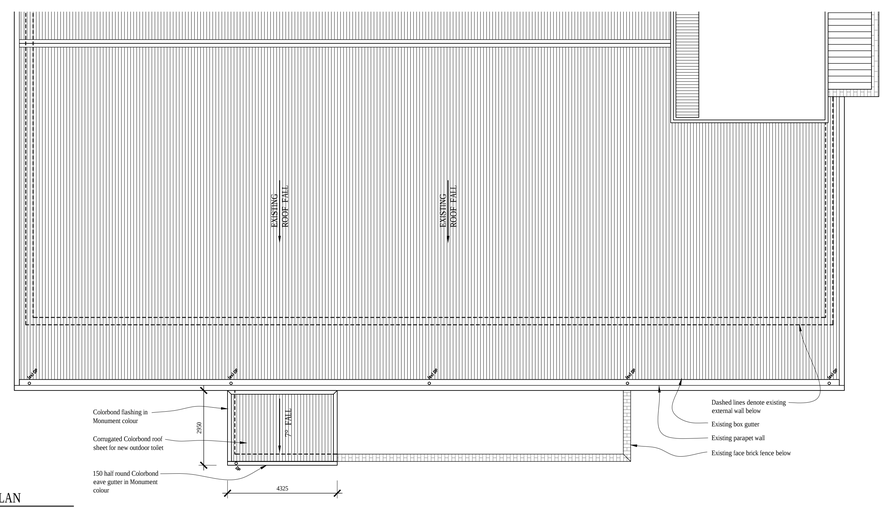
WELLBEING AND COMMUNITY HUB

SCALE: 1:100

BUILDING 2 - WEST ELEVATION

WELLBEING AND COMMUNITY HUB

SCALE: 1:100



PART ROOF PLAN

WELLBEING AND COMMUNITY HUB

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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PARALOWIE

DRAWING TITLE
BUILDING 2 - ELEV & ROOF

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK62	18/06/2019	B1	K.L.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

BUILDING 2 - NORTH WEST PERSPECTIVE
WELLBEING AND COMMUNITY HUB
SCALE: NTS

BUILDING 2 - SOUTH EAST PERSPECTIVE
WELLBEING AND COMMUNITY HUB
SCALE: NTS

BUILDING 2 - SOUTH WEST PERSPECTIVE
WELLBEING AND COMMUNITY HUB
SCALE: NTS

0 1 2 3 4 5 10
SCALE 1:100 METRES

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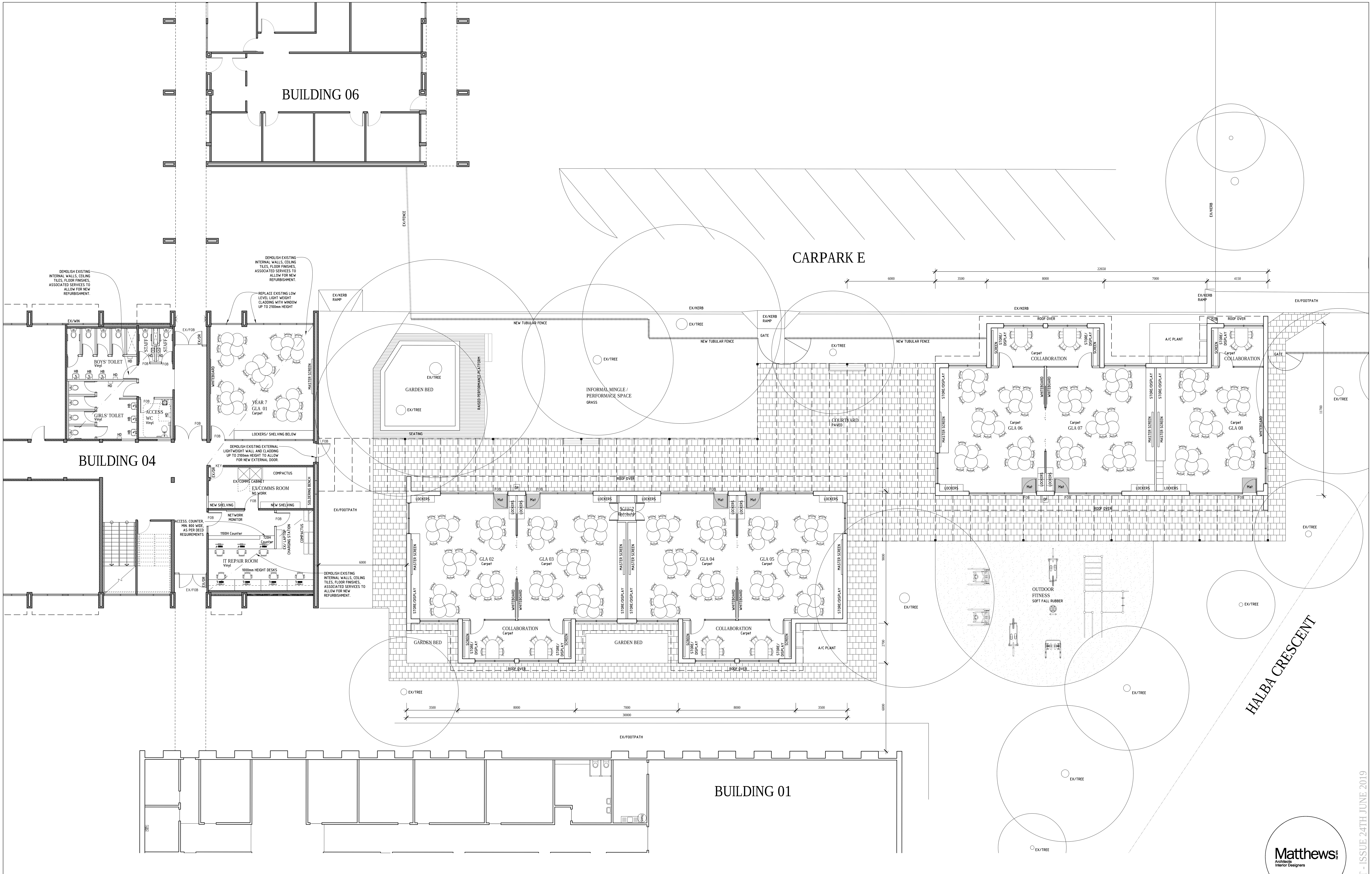
PARALOWIE

DRAWING TITLE
BUILDING 2 - 3D PERSPECTIVE

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK62	18/06/2019	B1	K.L.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019



YEAR 7 BUILDING
CONCEPT DESIGN
SCALE: 1:100

SCALE 1:100 — METRES

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
BUILDING 4 & YEAR 7 - PLAN

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK64	24/06/2019	B1	SB

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

EXISTING FALL

EXISTING FALL

EXISTING FALL

EXISTING FALL

EXISTING FALL

FALL 4°

FALL 4°

FALL 5°

FALL 4°

FALL 4°

FALL 5°

12100

3000

9000

6000

4650

5100

2800

10500

6000

2700

2300

12210

Colorbond corrugated roof sheeting, paint in 'Basalt' colour, low sheen finish.

Colorbond flashing, paint in 'Basalt' colour, low sheen finish.

Colorbond box gutter outside of building extents, paint in 'Basalt' colour, low sheen finish.

Dashed lines denote extent of building below

150mm half round Colorbond eaves gutter in 'Basalt' colour.

Colorbond corrugated roof sheeting, paint in 'Basalt' colour, low sheen finish.

DP

9000

6000

9000

600

3000

6000

YEAR 7 BUILDING

CONCEPT DESIGN

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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PROJECT
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PARALOWIE

DRAWING TITLE
BUILDING 4 & YEAR 7 - ROOF PLAN

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK65	24/06/2019	B1	SB

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

SOUTH ELEVATION

BUILDING 04 AND YEAR 7 BUILDING ELEVATION

SCALE: 1:100

NORTH ELEVATION

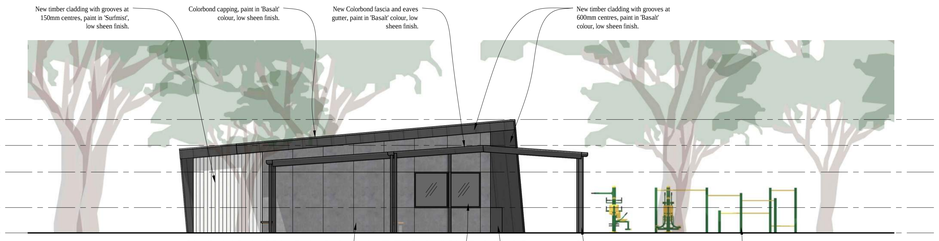
BUILDING 04 AND YEAR 7 BUILDING ELEVATION

SCALE: 1:100

EAST ELEVATION

YEAR 7 BUILDING ELEVATION

SCALE: 1:100



WEST ELEVATION

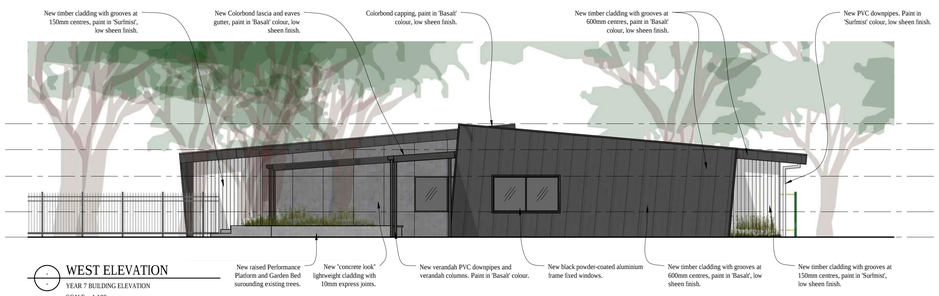
YEAR 7 BUILDING ELEVATION

SCALE: 1:100

EAST ELEVATION

YEAR 7 BUILDING ELEVATION

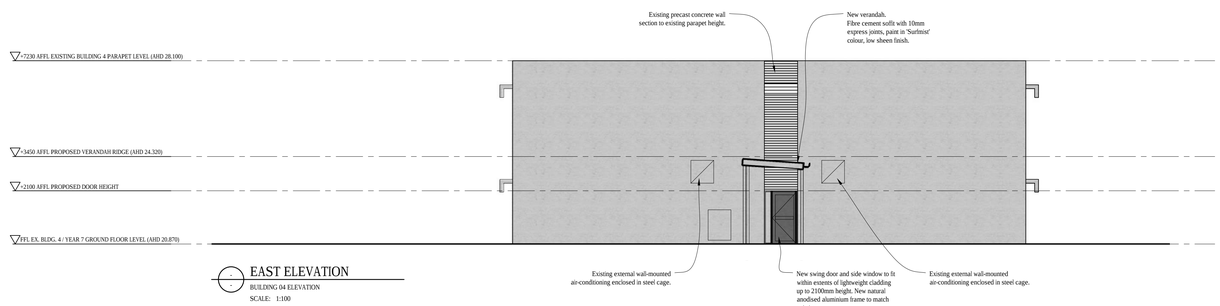
SCALE: 1:100



WEST ELEVATION

YEAR 7 BUILDING ELEVATION

SCALE: 1:100



EAST ELEVATION

BUILDING 04 ELEVATION

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
BUILDING 4 & YEAR 7 - ELEVATIONS

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK66	24/06/2019	B1	SB

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

YEAR 7 BUILDING - NORTH-WEST ELEVATED PERSPECTIVE

YEAR 7 BUILDING

SCALE: NTS

YEAR 7 BUILDING - PERSPECTIVE FROM BUILDING 04

YEAR 7 BUILDING

SCALE: NTS

YEAR 7 BUILDING - VIEW FROM COURTYARD

YEAR 7 BUILDING

SCALE: NTS

YEAR 7 BUILDING - SOUTH-WEST PERSPECTIVE

YEAR 7 BUILDING

SCALE: NTS

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
BUILDING 4 & YEAR 7 - IMAGES

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK67	24/06/2019	B1	SB

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

EXISTING BUILDING 6

COURTS

BUILDING 05

EXISTING BITUMEN

NEW PAVEMENT

EXISTING PAVEMENT

EXISTING GARDEN

EXISTING TREE

EXISTING RUBBLE PATH

CANOPY OVER

ROLLER SHUTTER

COMMS UNIT/AV

STORAGE (COMPACTUS)

CONTROL ROOM
CARPET

PROMPT (P)

FOB

KEY (EGRESS)

AV EQUIPMENT

WATER FOUNTAIN

AUDIMAT "320" RETRACTABLE SEATING: 326
RETRACTABLE SEATS; MANUAL OPERATION

PERFORMING ARTS HALL
VINYL ON CONCRETE

STAGE
SPRING TIMBER FLOOR

RETRACTABLE CYCLORAMA SCREEN

REAR PROJECTOR

OPP PROMPT (OP)

WATER POINT

FOYER KITCHENETTE

MAIN FOYER
VINYL

MOVABLE TEA / COFFEE BENCH

CORRIDOR 03
VINYL

SERVICES EXT

DESIGN TECH

DESIGN TECH

PROJECT & TOOLS

METAL WORK

METAL STORE

PROJECT STORE

STORE 01

CORRIDOR 01

VOID

OFFICE 02

SENIOR MASTER

CORRIDOR 01
EXISTING VINYL

INDIVIDUAL PRACTICE 01
CARPET

INDIVIDUAL PRACTICE 02
CARPET

INDIVIDUAL PRACTICE 03/ RECORDING
CARPET

CLEANERS' ROOM

MUSIC ROOM 03
VOCAL
CARPET

MUSIC ROOM 04
GUITAR
CARPET

CORRIDOR 02
EXISTING VINYL

MUSIC ROOM STORAGE - ACOUSTIC TREATED

GUITAR WALL HANGER

MUSIC 01
- GROUP PRACTICE
CARPET
- GIRLS CHANGE ROOM
DURING PERFORMANCES

FIXED JOINERY - RECORDING DESK STATION

OFFICE 01

W/S/PROJECTOR

LOCKERS (15 BAYS)

MUSIC 02
- DRUMS PRACTICE
CARPET
- BOYS CHANGE ROOM
DURING PERFORMANCES

MUSIC ROOM STORAGE - ACOUSTIC TREATED

GUITAR WALL HANGER

GIRLS' TOILET
Vinyl

BOYS' TOILET
Vinyl

AIR LOCK
Vinyl

ACCESS WC
Vinyl

CORRIDOR 03
MAT

DRAMA STORE 01

ELEC. SWITCH ROOM

DRAMA STORE 02

STAGE

SCREEN

EXT/WINDOW - TO BE ACOUSTIC TREATED

EXT/CANOPY OVER

WATER FOUNTAIN

SECURE BICYCLE RACK RELOCATION

DRAMA /MUSIC GLA 01

EXTENT OF EXISTING SPRING TIMBER FLOOR TBC

MIRROR WALL

MIRROR SLIDING WALL

MIRROR WALL

DRAMA /MUSIC GLA 02

CONFERENCE

CONSULT 01

KITCHENETTE

TEACHER OFFICE

STAFF OFFICE 02

PUBLIC TOILET ACCESS DURING PERFORMANCES: TO BUILDING 4

PROPOSED FLOOR PLAN
BUILDING 6 & PERFORMING ARTS
SCALE: 1:100

0 1 2 3 4 5 10
SCALE 1:100 METRES

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262 Melbourne Street, North Adelaide, SA 5006
www.matthewsarchitects.com.au info@matthewsarchitects.com.au

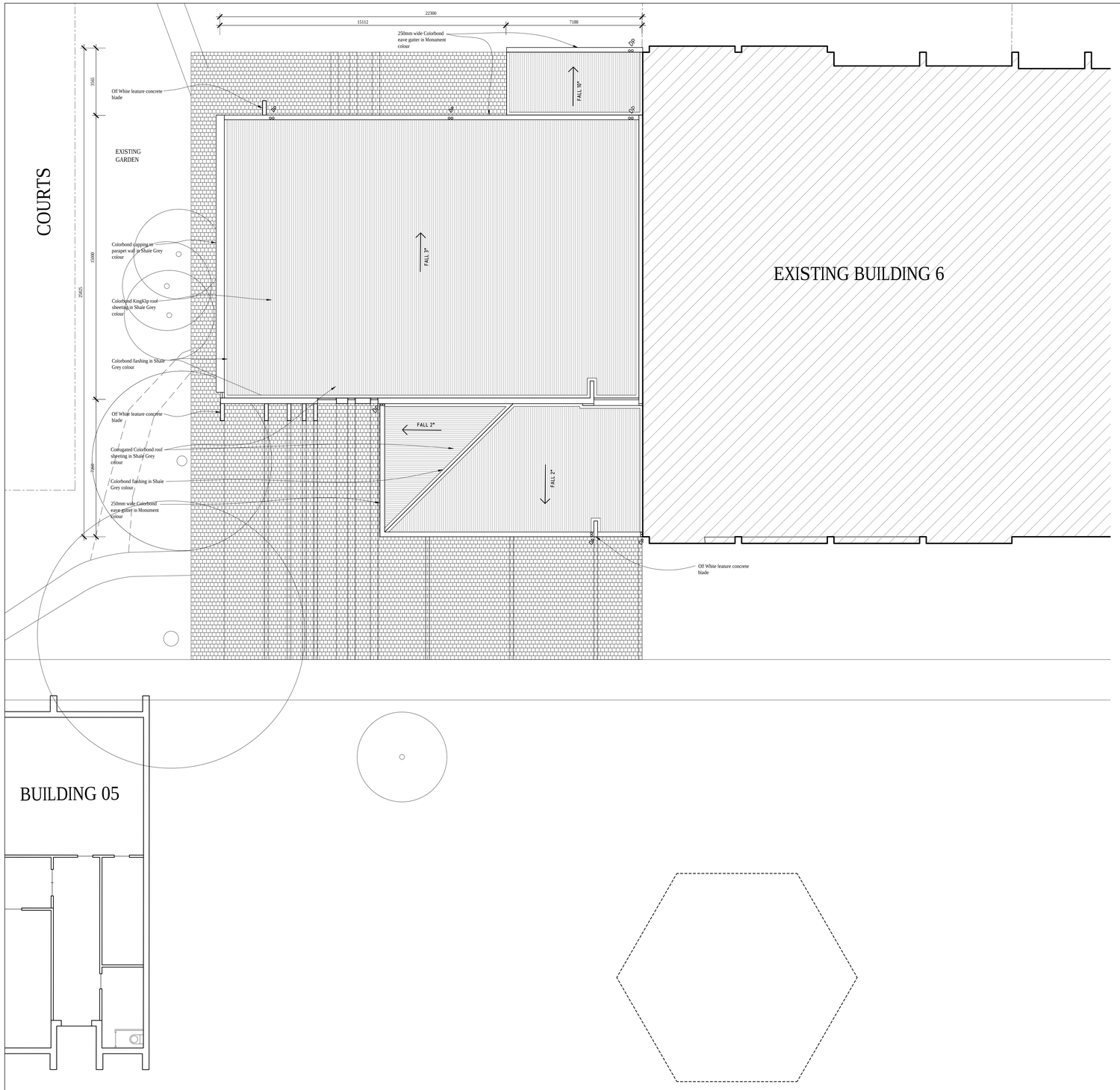
CLIENT
DPTI

PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
PERFORMING ARTS - PLAN

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK68	21/06/2019	B1	K.L,T.H.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019



PROPOSED FLOOR PLAN
ROOF PLAN
BUILDING 6 PERFORMING ARTS
BUILDING 5 PERFORMING ARTS
SCALE 1:100

0 1 2 3 4 5 10
SCALE 1:100 METRES

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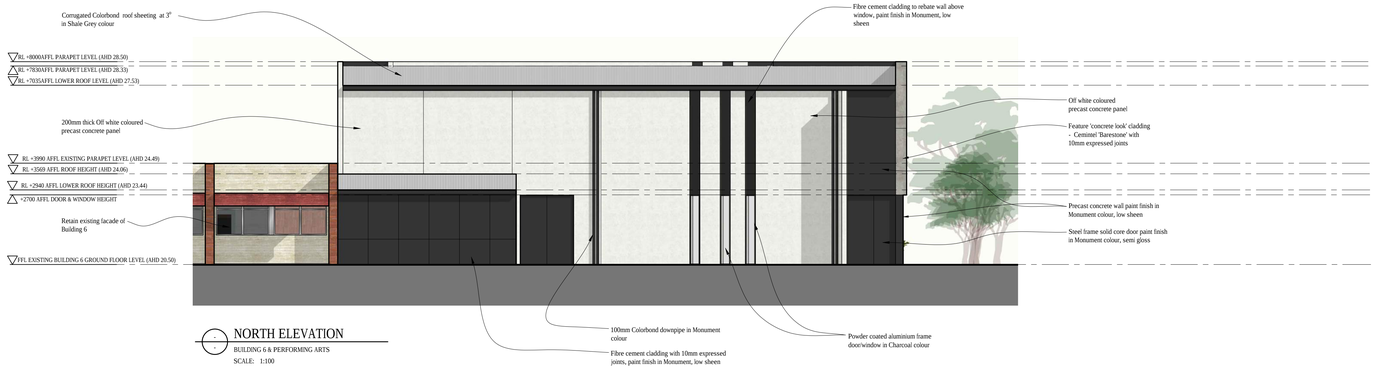
PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
PERFORMING ARTS - ROOF

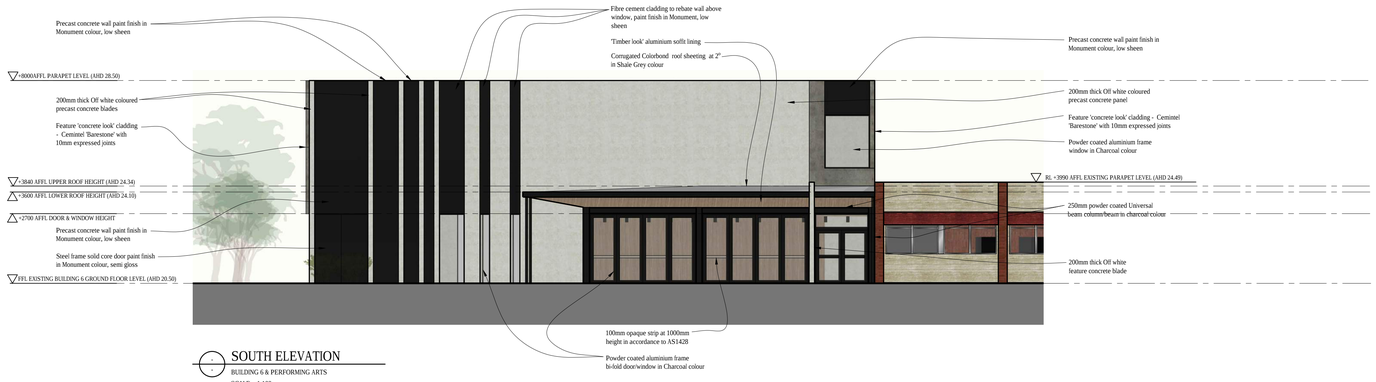
JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK69	21/06/2019	B1	T.H.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019



NORTH ELEVATION

BUILDING 6 & PERFORMING ARTS
SCALE: 1:100

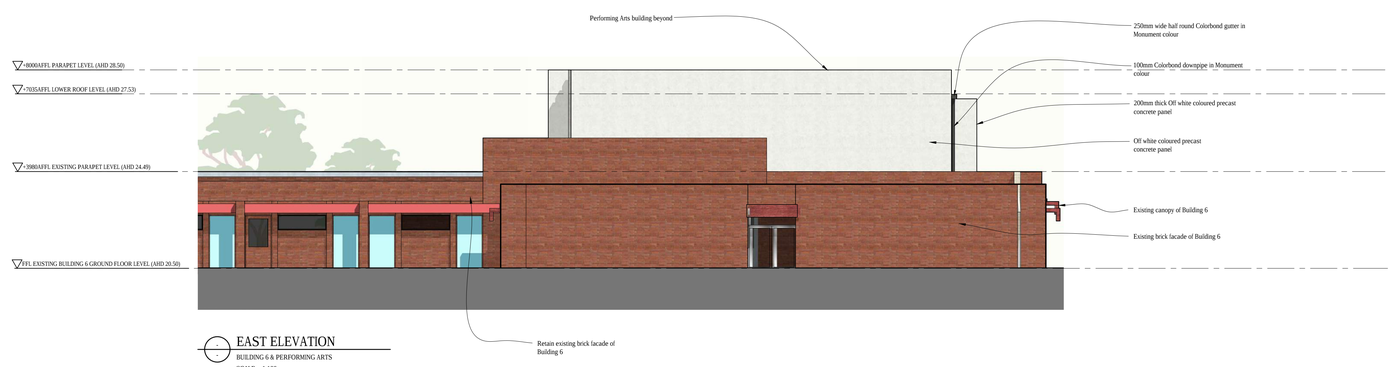


SOUTH ELEVATION

BUILDING 6 & PERFORMING ARTS
SCALE: 1:100

WEST ELEVATION

BUILDING 6 & PERFORMING ARTS
SCALE: 1:100



EAST ELEVATION

BUILDING 6 & PERFORMING ARTS
SCALE: 1:100

0 1 2 3 4 5 10
SCALE 1:100 METRES

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
PERFORMING ARTS

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK70	24/06/2019	B1	T.H.

FOR PLANNING CONSENT - ISSUE 24ST JUNE 2019

NORTH EAST PERSPECTIVE
BUILDING 6 & PERFORMING ARTS
SCALE: NTS

NORTH WEST PERSPECTIVE
BUILDING 6 & PERFORMING ARTS
SCALE: NTS

SOUTH EAST PERSPECTIVE
BUILDING 6 & PERFORMING ARTS
SCALE: NTS

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
PERFORMING ARTS - 3D

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK71	24/06/2019	B1	T.H.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

BUILDING 17
EMERGENCY VEHICLE ACCESS
BUILDING 34
NATIVE PLAY LANDSCAPE
CARPARK A
HARD PLAY SURFACE
PAVER
GLA 01
GLA 02
GLA 03
GLA 04
GLA 05
GLA 06
GLA 07
GLA 08
GLA 09
GLA 10
COLLABORATION 01
COLLABORATION 02
COLLABORATION 03
COLLABORATION 04
COLLABORATION 05
GIRLS' TOILET 01
GIRLS' TOILET 02
BOYS' TOILET 01
BOYS' TOILET 02
ACCESS WC
TEACHER PREP
SERVICES
ENTRANCE POINT
GARDEN BED
STORAGE SHED
AGRICULTURE GARDEN
EXISTING RAINWATER TANK
EXISTING TREE
EXISTING FENCE
MASTER SCREEN
STORE / WINDOW SEAT
LOCKERS
TRAYS
TEACHERS DESK
PREP SINK
ART SINK
CARPET
VINYL
GATE

PROPOSED FLOOR PLAN
JUNIOR PRIMARY
SCALE: 1:100

0 1 2 3 4 5 10
SCALE 1:100 METRES

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
JUNIOR PRIMARY - GRD PLAN

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK72	24/06/2019	B1	KL

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

BUILDING 17

EMERGENCY VEHICLE ACCESS

HARD PLAY SURFACE

BUILDING 34

NATIVE PLAY LANDSCAPE

CARPARK A

STORAGE SHED

AGRICULTURE GARDEN

2.5° FALL

2.7° FALL

2.2° FALL

2.3° FALL

2.1° FALL

2° FALL

6° FALL

150 half round Colorbond eave gutter in Monument colour

Corrugated Colorbond roof sheet in Monument colour

Dashed lines denote perimeter of external wall

Colorbond fashing/barge capping in Monument colour

PROPOSED ROOF PLAN

JUNIOR PRIMARY

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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PROJECT
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PARALOWIE

DRAWING TITLE
JUNIOR PRIMARY - ROOF PLAN

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK73	24/06/2019	B1	K.L.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

WEST ELEVATION

JUNIOR PRIMARY

SCALE: 1:100

EAST ELEVATION

JUNIOR PRIMARY

SCALE: 1:100

NORTH ELEVATION - NORTHERN BLOCK

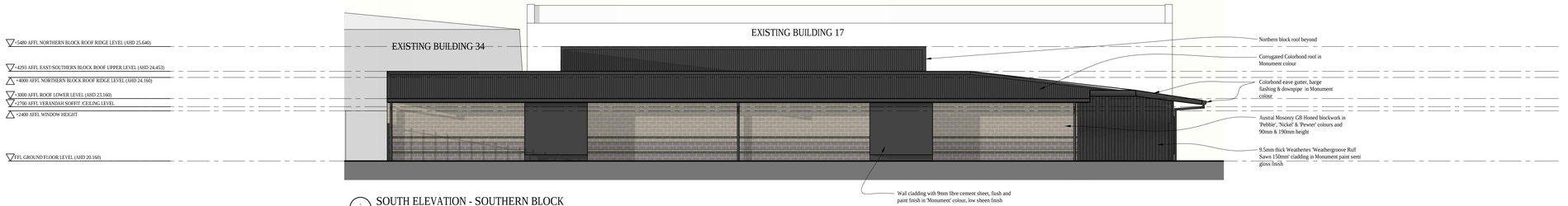
JUNIOR PRIMARY

SCALE: 1:100

NORTH ELEVATION - SOUTHERN BLOCK

JUNIOR PRIMARY

SCALE: 1:100



SOUTH ELEVATION - SOUTHERN BLOCK

JUNIOR PRIMARY

SCALE: 1:100

SOUTH ELEVATION - NORTHERN BLOCK

JUNIOR PRIMARY

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
JR PRIMARY - ELEVATIONS

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK75	24/06/2019	B1	K.L.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

SOUTH EAST PERSPECTIVE
JUNIOR PRIMARY
SCALE: NTS

INTERNAL COUTYARD PERSPECTIVE
JUNIOR PRIMARY
SCALE: NTS

NORTH WEST PERSPECTIVE
JUNIOR PRIMARY
SCALE: NTS

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PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE

DRAWING TITLE
JR PRIMARY - PERSPECTIVE

JOB NO.	DRAWING NO.	DATE	SHEET SIZE	DRAWN BY
18071	SK75	24/06/2019	B1	K.L.

FOR PLANNING CONSENT - ISSUE 24TH JUNE 2019

Scale Bar Units in Millimetres

0 10 20 50 100 200 300 400 500 600 700 800

CARPARK E

REMOVE SECTION OF EXISTING PAVING AND REGRADE TO SUIT NEW FFL

AHD - 20.87 T.B.C.

AHD - 20.86 T.B.C.
FFL - RELATIVE TO TEMP SURVEY = 100.50

AHD - 20. 86 T.B.C.
FFL - RELATIVE TO TEMP SURVEY = 100.50

grated drain against the paving to limit / remove need to excavate into tree root zone. subject to Landscape design input on Play space.

EXISTING TREE TO BE RETAINED - PROTECT ROOT ZONE.

BUILDING 01

SINGLE STOREY CLASSROOM BUILDING

BREEZEWAY

HALBA CRESCENT

REFER TO SHEET C201 FOR CONTINUATION

FINAL STORMWATER PIPE RUNS ARE STILL TO BE CO-ORDINATED WITH THE FINAL DETENTION TANK LOCATIONS.
FLUSH-OUT PITS SHALL BE PROVIDED PRIOR TO RISER TO EACH TANK TO DPTI STANDARDS.

FINAL SURVEY WITH AHD LEVELS AND SERVICES LOCATIONS IS STILL TO BE INCLUDED.
SURVEY CURRENTLY SHOWN IS FOR RELATIVE LEVEL PURPOSES ONLY.

SW RETENTION AND RE-USE NOT PROPOSED

LEGEND

- NEW STORMWATER PIPE (UNSEALED SYSTEM).
- STORMWATER PIPE EXISTING.
- GRATED INLET PIT
- JUNCTION BOX
- SIDE ENTRY PIT
- IP — STORMWATER INSPECTION POINT.
- DP — DOWN PIPES. ALL DOWN PIPES TO HAVE A 100Ø uPVC TAIL CONNECTING TO MAIN STORM WATER RUN U.N.O.
- P*** — DESIGN LEVEL: P-PAVEMENT LEVEL; TK-TOP OF KERB; WT-WATER TABLE; TP-TOP OF PIT; IL- INVERT LEVEL; EX-EXISTING LEVEL; TB-TOP BATTER; BB-BOTTOM BATTER; TW-TOP OF WALL; L-LANDSCAPE LEVEL
- +52.35 — EXISTING SPOT LEVELS FROM SURVEY.
- P*** — NEW CARPARK/DRIVEWAY PAVING CONTOUR LEVELS.
- DENOTES BATTER SLOPE
- FALL — DENOTES SURFACE FALL
- NEW BRICK PAVING, ARCHITECTS SELECTION.
- LANDSCAPE AREA.
- DEMOLISH EXISTING.
- RWT — DENOTES: 4 OFF x 5000L ABOVE GROUND RAIN WATER TANKS FOR DETENTION.

STORM WATER DETENTION :
- 5Yr ARI PRE-DEVELOPMENT DISCHARGE = 7.28L/S
- 5Yr ARI POST-DEVELOPMENT DETENTION = 8.2m³ = 8200L
- 100Yr ARI PRE-DEVELOPMENT DISCHARGE = 15.98L/S
- 100Yr ARI POST-DEVELOPMENT DETENTION = 17.8m³ = 17800L

PRELIMINARY
05/07/2019

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bca engineers
cpr COMBE PEARSON REYNOLDS CONSULTING ENGINEERS

REV	DATE	AMENDMENTS	INIT.
X	XX.XX.XX	XXXXXXXXXXXX ISSUE	XX

Government of South Australia
Department of Planning, Transport and Infrastructure

CONTRACT EXECUTION

CONTRACTOR _____ DATE _____

WITNESS _____ DATE _____

CONTRACT NAME
PARALOWIE R-12 CAPITAL WORKS

SITE ADDRESS
168-186 WHITES ROAD, PARALOWIE SA 5108

DRAWING TITLE
BUILDING 4 & YEAR 7
SITEWORKS AND DRAINAGE PLAN SHEET 1

CONTRACT NO.	DRAWN BY – CHECKED BY
7225-PC-2018	T.A.C. D.R.
PSC JOB NO.	SCALE AND SHEET SIZE
180312	1:100 @ B1
DPTI ASSET NO.	SHEET NO.
01099	C200
DPTI DRAWING NO.	REVISION
XXXX-AR-20XX	X

Scale Bar Units in Millimetres

0 10 20 50 100 200 300 400 500 600 700 800

LEGEND

- NEW STORMWATER PIPE (UNSEALED SYSTEM).
- STORMWATER PIPE EXISTING.
- GRATED INLET PIT
- JUNCTION BOX
- SIDE ENTRY PIT
- IP — STORMWATER INSPECTION POINT.
- DP — DOWN PIPES, ALL DOWN PIPES TO HAVE A 100Ø uPVC TAIL CONNECTING TO MAIN STORM WATER RUN U.N.O.
- DESIGN LEVEL — P-PAVEMENT LEVEL, TK-TOP OF KERB, WT-WATER TABLE, TP-TOP OF PIT, IL- INVERT LEVEL, EX-EXISTING LEVEL, TB-TOP BATTER, BB-BOTTOM BATTER, TW-TOP OF WALL, L-LANDSCAPE LEVEL
- + 53.35 — EXISTING SPOT LEVELS FROM SURVEY.
- NEW CARPARK/DRIVEWAY PAVING CONTOUR LEVELS.
- DENOTES BATTER SLOPE
- FALL — DENOTES SURFACE FALL
- NEW BRICK PAVING, ARCHITECTS SELECTION.
- LANDSCAPE AREA.
- DEMOLISH EXISTING.
- RWT — DENOTES- 4 OFF x 5000L ABOVE GROUND RAIN WATER TANKS FOR DETENTION.

STORM WATER DETENTION :

- 5Yr ARI PRE-DEVELOPMENT DISCHARGE = 7.28L/S
- 5Yr ARI POST-DEVELOPMENT DETENTION = 8.2m³ = 8200L
- 100Yr ARI PRE-DEVELOPMENT DISCHARGE = 15.98L/S
- 100Yr ARI POST-DEVELOPMENT DETENTION = 17.8m³ = 17800L

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REV	DATE	AMENDMENTS	INIT.
X	XX.XX.XX	XXXXXXXXXXXX ISSUE	XX

Government of South Australia
Department of Planning, Transport and Infrastructure

CONTRACT EXECUTION

CONTRACTOR DATE

WITNESS DATE

CONTRACT NAME
PARALOWIE R-12 CAPITAL WORKS

SITE ADDRESS
168-186 WHITES ROAD, PARALOWIE SA 5108

DRAWING TITLE
BUILDING 4 & YEAR 7
SITEWORKS AND DRAINAGE PLAN SHEET 2

PRELIMINARY 05/07/2019

CONTRACT NO.	DRAWN BY – CHECKED BY
7225-PC-2018	T.A.C. D.R.
PSC JOB NO.	SCALE AND SHEET SIZE
180312	1:100 @ B1
DPTI ASSET NO.	SHEET NO.
01099	C201
DPTI DRAWING NO.	REVISION
XXXX-AR-20XX	X

Scale Bar Units in Millimetres

0 10 20 50 100 200 300 400 500 600 700 800

PIT DETAILS TO BE CONFIRMED BY NEW SURVEY

PIT DETAILS TO BE CONFIRMED BY NEW SURVEY

SW RETENTION AND RE-USE NOT PROPOSED

EXISTING 300 GIP TO REMAIN. TP 20.010 IL 19.610 C.O.S.

EXISTING 900 JB TO REMAIN. TP 20.415 IL 19.385 C.O.S.

EXISTING TREE TO BE RETAINED - PROTECT ROOT ZONE.

EXISTING TREE TO BE RETAINED - PROTECT ROOT ZONE.

EXISTING 600 GIP TO REMAIN. IL 98.91 C.O.S.

EXISTING 900 JB TO REMAIN. IL UNKNOWN

REMOVE EXISTING GREASE ARRESTOR

EXISTING PIPE TO BE COMPLETELY REMOVED AND COMPACTED. BACKFILL TO BELOW NEW FOOTPRINT AND PAVING AREAS.

EXISTING TRANSPORTABLE BUILDINGS TO BE REMOVED REFER LEWTON REPORT FOR FURTHER INFORMATION.

EXISTING TRANSPORTABLE BUILDINGS TO BE REMOVED REFER LEWTON REPORT FOR FURTHER INFORMATION.

CONFIRM ANY NEW PAVING TO THIS AREA??

FFL - 20.50 T.B.C.

FFL - RELATIVE TO TEMP SURVEY = 100.14

EXISTING AHD FFL - 20.50 TBC

FINAL STORMWATER PIPE RUNS ARE STILL TO BE CO-ORDINATED WITH THE FINAL DETENTION TANK LOCATIONS.
FLUSH-OUT PITS SHALL BE PROVIDED PRIOR TO RISER TO EACH TANK TO DPTI STANDARDS.

FINAL SURVEY WITH AHD LEVELS AND SERVICES LOCATIONS IS STILL TO BE INCLUDED.
SURVEY CURRENTLY SHOWN IS FOR RELATIVE LEVEL PURPOSES ONLY.

LEGEND

- NEW STORMWATER PIPE (UNSEALED SYSTEM).
- STORMWATER PIPE EXISTING.
- GRATED INLET PIT
- JUNCTION BOX
- SIDE ENTRY PIT
- IP — STORMWATER INSPECTION POINT.
- DP — DOWN PIPES. ALL DOWN PIPES TO HAVE A 100Ø uPVC TAIL CONNECTING TO MAIN STORM WATER RUN U.N.O.
- DESIGN LEVEL — P-PAVEMENT LEVEL; TK-TOP OF KERB; WT-WATER TABLE; TP-TOP OF PIT; IL- INVERT LEVEL; EX-EXISTING LEVEL; TB-TOP BATTER; BB-BOTTOM BATTER; TW-TOP OF WALL; L-LANDSCAPE LEVEL
- EXISTING SPOT LEVELS FROM SURVEY.
- NEW CARPARK/DRIVEWAY PAVING CONTOUR LEVELS.
- DENOTES BATTER SLOPE
- FALL — DENOTES SURFACE FALL
- NEW BRICK PAVING, ARCHITECT'S SELECTION.
- LANDSCAPE AREA.
- DEMOLISH EXISTING.
- RWT — DENOTES- 2 OFF x 3500L ABOVE GROUND RAIN WATER TANKS FOR DETENTION.

STORM WATER DETENTION :

- 5Yr ARI PRE-DEVELOPMENT DISCHARGE = 8.83L/S
- 5Yr ARI POST-DEVELOPMENT DETENTION = 2.47m³ = 2470L
- 100Yr ARI PRE-DEVELOPMENT DISCHARGE = 17.98L/S
- 100Yr ARI POST-DEVELOPMENT DETENTION = 7.07m³ = 7070L

PRELIMINARY 05/07/2019

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REV	DATE	AMENDMENTS	INT.
X	XX.XX.XX	XXXXXXXXXXXX ISSUE	XX

Government of South Australia
Department of Planning, Transport and Infrastructure

CONTRACT EXECUTION

CONTRACTOR DATE

WITNESS DATE

CONTRACT NAME
PARALOWIE R-12 CAPITAL WORKS

SITE ADDRESS
168-186 WHITES ROAD, PARALOWIE SA 5108

DRAWING TITLE
BUILDING 6 & PERFORMING ARTS
SITEWORKS AND DRAINAGE PLAN

CONTRACT NO:	DRAWN BY - CHECKED BY
7225-PC-2018	T.A.C. D.R.
PSC JOB NO:	SCALE AND SHEET SIZE
180312	1:100 @ B1
DPTI ASSET NO:	SHEET NO:
01099	C300
DPTI DRAWING NO.	REVISION
XXXX-AR-20XX	X

Scale Bar Units in Millimetres

0 10 20 50 100 200 300 400 500 600 700 800

EXISTING (AHD) FFL - 19.90 T.B.C.

AHD - 20.16 T.B.C.
FFL - RELATIVE TO TEMP SURVEY = 99.80

AHD - 20.16 T.B.C.
FFL - RELATIVE TO TEMP SURVEY = 99.80

AHD - 20.16 T.B.C.
FFL - RELATIVE TO TEMP SURVEY = 99.80

3000L RAINWATER DETENTION TANK TO SUIT COUNCIL REQUIREMENTS. SW RETENTION AND RE-USE NOT PROPOSED

3000L RAINWATER DETENTION TANK TO SUIT COUNCIL REQUIREMENTS. SW RETENTION AND RE-USE NOT PROPOSED

75MM DIAM ORIFACE PLATE FIXED TO FACE OF OUTLET TO DRAINAGE PIPE TO ALLOW DETENTION AT GROUND LEVEL

PROPOSED CONCRETE LINED SWALE FOR DETENTION PURPOSES. 35M X 1.5M WIDE X 150 DEEP = 7.9m3

NEW 200mm HIGH KERB ON INSIDE OF EXISTING FENCE LINE.

EXISTING SHED TO BE REMOVED (EX FFL 99.72)

EXISTING SHED TO BE REMOVED (EX FFL 99.72)

EXISTING 900 SEP TP 99.66 IL 98.87

EXISTING PIT TP C.O.S. IL 18.645

BITUMEN CARPARK

BUILDING 34

LEGEND

K&WT	CONCRETE KERB & WATERTABLE HEIGHT AS NOTED.
K	CONCRETE KERB HEIGHT AS NOTED.
	NEW STORMWATER PIPE (UNSEALED SYSTEM).
	STORMWATER PIPE EXISTING.
	GRATED INLET PIT
	JUNCTION BOX
	SIDE ENTRY PIT
IP	STORMWATER INSPECTION POINT.
DP	DOWN PIPES. ALL DOWN PIPES TO HAVE A 150Ø uPVC TAIL CONNECTING TO MAIN STORM WATER RUN U.N.O.
P***	DESIGN LEVEL — P-PAVEMENT LEVEL; TK-TOP OF KERB; WT-WATER TABLE; TP-TOP OF PIT; IL- INVERT LEVEL; EX-EXISTING LEVEL; TB-TOP BATTER; BB-BOTTOM BATTER; TW-TOP OF WALL; L-LANDSCAPE LEVEL
63.35	EXISTING SPOT LEVELS FROM SURVEY.
P***	NEW CARPARK/DRIVEWAY PAVING CONTOUR LEVELS.
FALL	DENOTES SURFACE FALL
	NEW BRICK PAVING, ARCHITECTS SELECTION.
	LANDSCAPE AREA.
	DEMOLISH EXISTING.

STORM WATER DETENTION :

- 5Yr ARI PRE-DEVELOPMENT DISCHARGE = 15.45L/S
- 5Yr ARI POST-DEVELOPMENT DETENTION = 6.4m³ = 6400L
- 100Yr ARI PRE-DEVELOPMENT DISCHARGE = 35.02L/S
- 100Yr ARI POST-DEVELOPMENT DETENTION = 13.9m³ = 13900L

DETENTION PROVIDED BY CONCRETE LINED DRAIN TO THE SOUTH OF BUILDING PLUS 2 X 3000L ABOVE GROUND TANKS

FINAL STORMWATER PIPE RUNS ARE STILL TO BE CO-ORDINATED WITH THE FINAL DETENTION TANK LOCATIONS.
FLUSH-OUT PITS SHALL BE PROVIDED PRIOR TO RISER TO EACH TANK TO DPTI STANDARDS.

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PRELIMINARY 05/07/2019

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bca engineers
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REV	DATE	AMENDMENTS	INT.
X	XX.XX.XX	XXXXXXXXXXXX ISSUE	XX

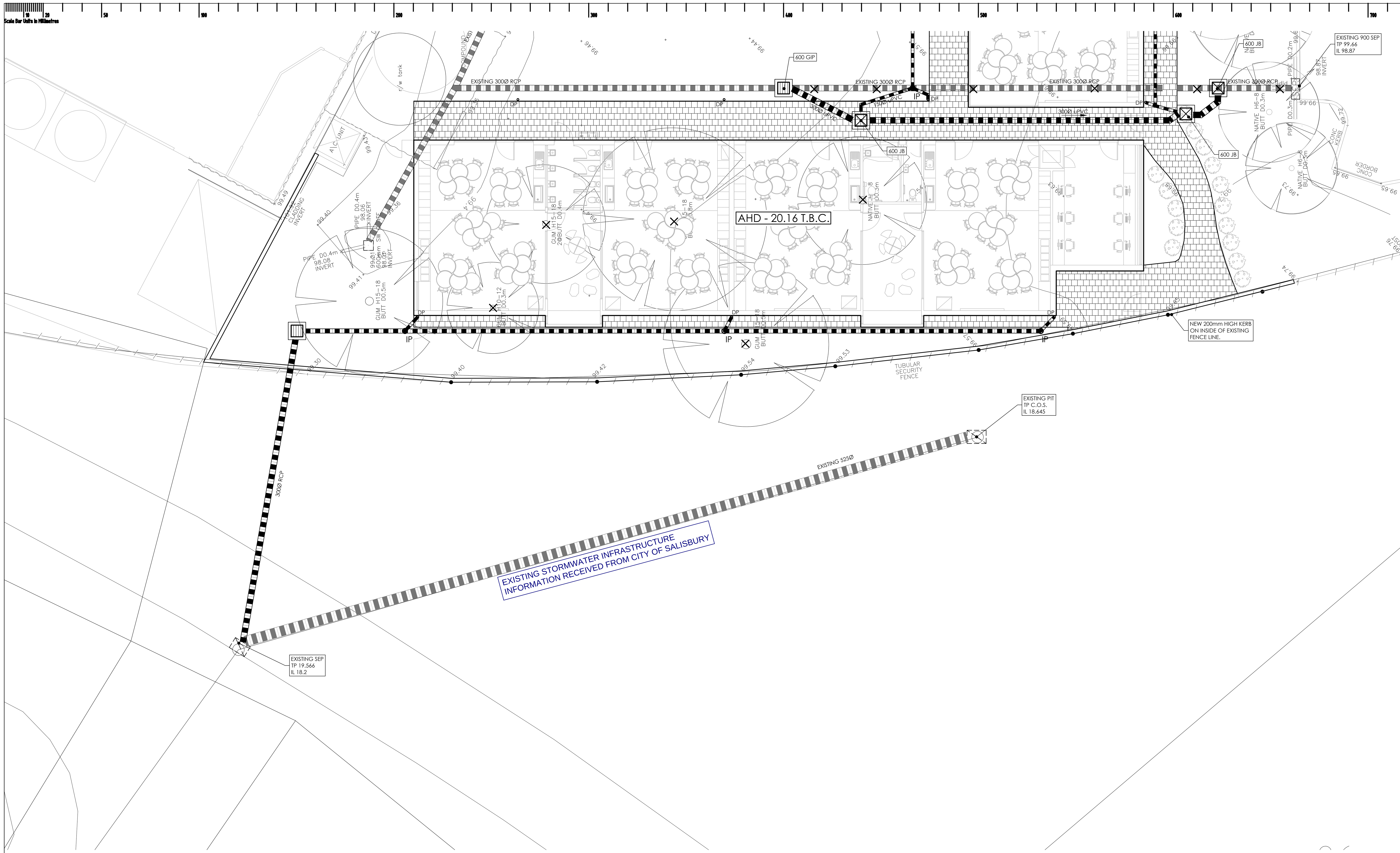
CONTRACT EXECUTION
CONTRACTOR DATE
WITNESS DATE

CONTRACT NAME:
PARALOWIE R-12 CAPITAL WORKS

SITE ADDRESS:
168-186 WHITES ROAD, PARALOWIE SA 5108

DRAWING TITLE:
JUNIOR PRIMARY
SITEWORKS AND DRAINAGE PLAN SHEET 1

CONTRACT NO.: 7225-PC-2018	DRAWN BY - CHECKED BY: T.A.C. D.R.
PSC JOB NO.: 180312	SCALE AND SHEET SIZE: 1:100 @ B1
DPTI ASSET NO.: 01099	SHEET NO.: C400
DPTI DRAWING NO.: XXXX-AR-20XX	REVISION: X



LEGEND

Symbol	Description
K&WT	CONCRETE KERB & WATERTABLE HEIGHT AS NOTED.
K	CONCRETE KERB HEIGHT AS NOTED.
	NEW STORMWATER PIPE (UNSEALED SYSTEM).
	STORMWATER PIPE EXISTING.
	GRATED INLET PIT
	JUNCTION BOX
	SIDE ENTRY PIT
IP	STORMWATER INSPECTION POINT.
DP	DOWN PIPES. ALL DOWN PIPES TO HAVE A 150Ø uPVC TAIL CONNECTING TO MAIN STORM WATER RUN U.N.O.
P **.**	DESIGN LEVEL: P-PAVEMENT LEVEL, TK-TOP OF KERB, WT-WATER TABLE, TP-TOP OF PIT, IL- INVERT LEVEL, EX-EXISTING LEVEL, TB-TOP BATTER, BB-BOTTOM BATTER, TW-TOP OF WALL, L-LANDSCAPE LEVEL
+ 53.35	EXISTING SPOT LEVELS FROM SURVEY.
P **.**	NEW CARPARK/DRIVEWAY PAVING CONTOUR LEVELS.
FALL	DENOTES SURFACE FALL
	NEW BRICK PAVING, ARCHITECT'S SELECTION.
	LANDSCAPE AREA.
X	DEMOLISH EXISTING.

STORM WATER DETENTION :

- 5Yr ARI PRE-DEVELOPMENT DISCHARGE = 15.45L/S
- 5Yr ARI POST-DEVELOPMENT DETENTION = 6.4m³ = 6400L
- 100Yr ARI PRE-DEVELOPMENT DISCHARGE = 35.02L/S
- 100Yr ARI POST-DEVELOPMENT DETENTION = 13.9m³ = 13900L

PRELIMINARY 05/07/2019

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bca engineers
cpr COMBE PEARSON REYNOLDS CONSULTING ENGINEERS

REV.	DATE	AMENDMENTS	INIT.
X	XX.XX.XX	XXXXXXXXXXXXX ISSUE	XX

Government of South Australia
Department of Planning, Transport and Infrastructure

CONTRACT EXECUTION

CONTRACTOR DATE

WITNESS DATE

CONTRACT NAME
PARALOWIE R-12 CAPITAL WORKS

SITE ADDRESS
168-186 WHITES ROAD, PARALOWIE SA 5108

DRAWING TITLE
JUNIOR PRIMARY
SITEWORKS AND DRAINAGE PLAN SHEET 2

CONTRACT NO.	DRAWN BY - CHECKED BY
7225-PC-2018	T.A.C. D.R.
PSC JOB NO.	SCALE AND SHEET SIZE
180312	1:100 @ B1
DPTI ASSET NO.	SHEET NO.
01099	C401
DPTI DRAWING NO.	REVISION
XXXX-AR-20XX	X

COMBE PEARSON REYNOLDS
CONSULTING ENGINEERS

Stormwater Management Plan & Calculations

Prepared For:

Matthews Architects

Site:

Paralowie High School

Job No: 180312

Dated: Friday, 5 July 2019

Prepared By:

David Reynolds

Combe Pearson Reynolds

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PROPOSED NEW SCHOOL BUILDINGS
for
PARALOWIE R – 12 SCHOOL

STORMWATER MANAGEMENT PLAN

INTRODUCTION

The following outlines the proposed plan to manage the disposal of stormwater from the post development site of three proposed new School buildings for Paralowie School.

The stormwater concept has been based upon the architectural plans prepared by the Architect, Matthews Architects, and the survey provided.

The existing site is located off Whites Road Paralowie, but the proposed buildings relate more towards Halba Crescent and Coreena Avenue Paralowie.

The proposed works includes the following:

- 2 New single storey Year 7 buildings adjacent Halba Crescent;
- A new Performing Arts Centre as an addition to Building 6, and
- 3 new Junior Primary Buildings joined under a common roof adjacent to Coreena Avenue.

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This Stormwater Management Plan addresses the following issues:

- general stormwater management from the new impervious areas to connect in to either the adjacent School system or available Infrastructure
- stormwater detention from the new impervious areas locally to each of the buildings involved.

This plan has been prepared in accordance with design advice issued from the engineering department of the City Salisbury outlining requirements of detention stated in correspondence dated 3 July 2019.

This document is to be read in conjunction with:

- Architectural drawings Matthews Architects site plans,
- 180312-C200 and C201, C300, C400 and C401 dated 5 July 2019; and
- Stormwater Calculations Pages in Appendix A

GENERAL STORMWATER MANAGEMENT

The new works will be designed for the following stormwater criteria as outlined by the City of Charles Sturt engineering department:

- Pre development flows for 5 year ARI limit the post development 5 year ARI flows, or
- Pre development flows for 100 year ARI limit the post development 5 year ARI flows, whichever provides the greater detention volumes.

It is proposed that stormwater from the development will discharge to either the existing School SW network or into the Existing SW mains on Halba to Coreena network. City of Salisbury has provided information from their Drains Model to provide general locations and Invert Levels of such infrastructure.

FINISHED FLOOR LEVEL REQUIREMENTS

The proposed buildings are to have a finished floor levels to meet or be adjacent to the existing buildings to which they relate.

The perimeter pavements around the buildings shall grade away from the building and as such divert any chance for overland flows to elsewhere on the site.

The above measures have been addressed in order to maintain an appropriate freeboard level higher than surrounding formed ground surfaces to enable overload flows from 1:100 ARI storm events to exit the site in an appropriate manner.

Flood mapping of the area does not indicate any issues with overland 100 year ARI flooding.

STORMWATER - DETENTION

The City of Salisbury requires the following stormwater detention criteria for this site:

- Pre development flows for 5 year ARI limit the post development 5 year ARI flows, or
- Pre development flows for 100 year ARI limit the post development 5 year ARI flows, whichever provides the greater detention volumes.

Stormwater detention calculations (refer appendix A) have thus been undertaken to assess the detention in accordance with council requirements.

As a result, it is proposed to provide the detention volumes shown on the drawings. All the sites will use above ground SW detention tanks that are fed from wet system in ground pipes, complete with standards DPTI flush out valves for ease of maintenance. Low flow pipes or orifice plates will be fitted to reduce the velocity of discharge from the tanks and overflow pipes will be fitted to enable safe discharge of water in case of blockage.

The above features will ensure that DPTI and Council requirements in regards to stormwater discharge will be met.

STORMWATER - QUALITY

A gross pollutant trap will be installed prior to the stormwater entering the detention underground tank in order to treat the stormwater runoff from the carpark to council requirements before discharge. These gross pollutant trap will be specified in order to meet council's water quality requirements and will be specified in the detailed design phase of this project.

ISSUES DURING CONSTRUCTION

The management of stormwater during construction will be under constant monitoring by the appointed construction manager and by CPR on behalf of the developer.

The construction manager will be employed to maintain control measures on site and to minimise run-off from the site which may contain fine earth particles and any deleterious material that washes off site will be cleaned up by the contractor.

Prepared by

David Reynolds
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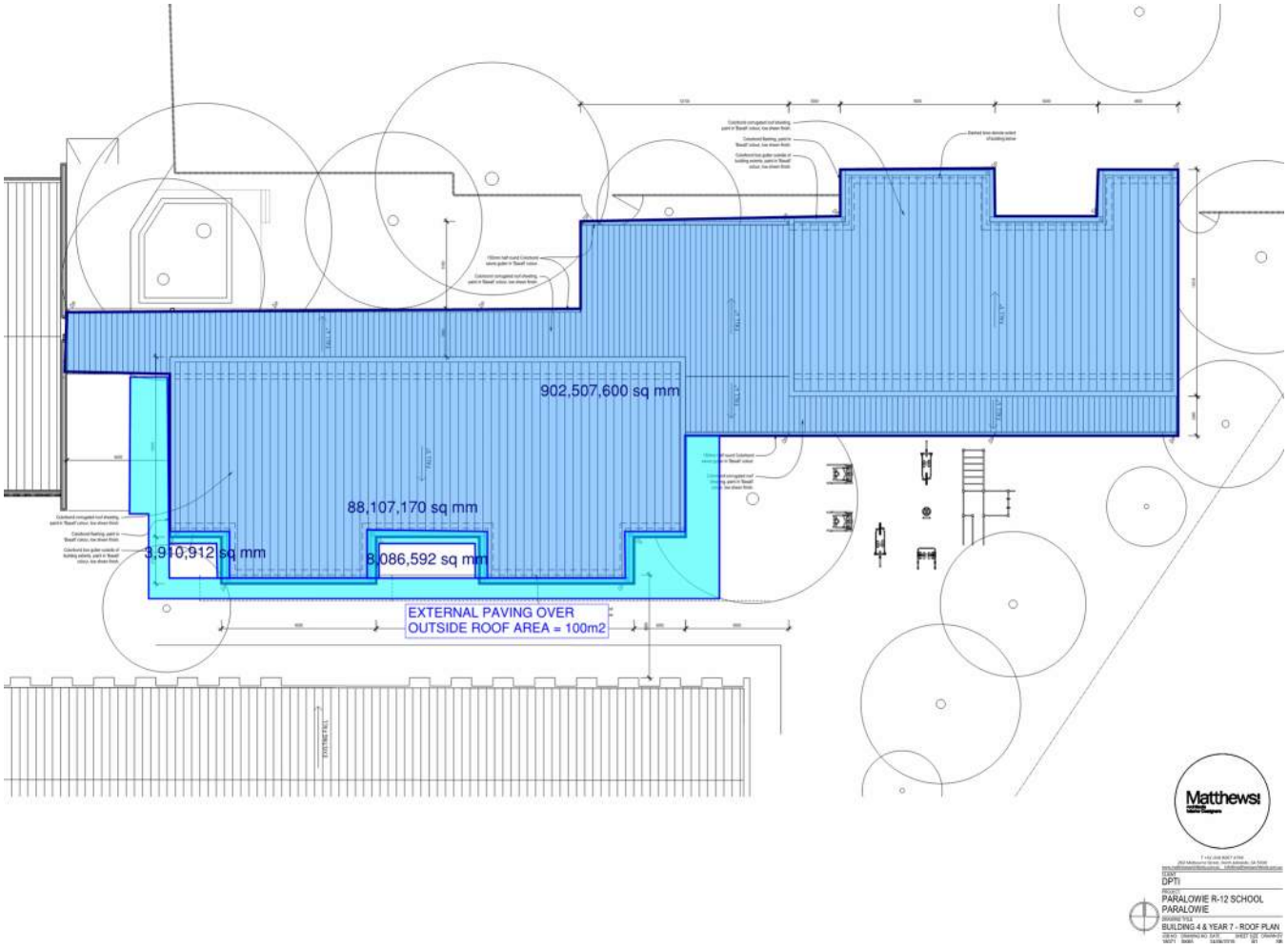
Encl.

APPENDIX A:
- Stormwater Calculations

Year 7 Buildings



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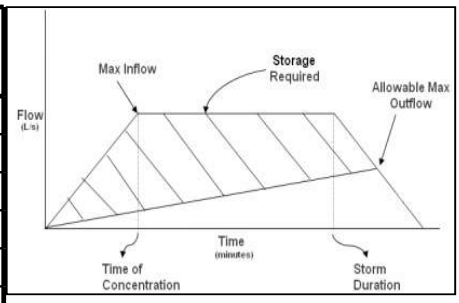
PARALOWIE R-7

PRE-DEVELOPMENT - YEAR 7 - 1 IN 5 YEAR ARI FLOWS

Roof Area	0	m^2	**Pervious Area**	933
Roof Pitch	5	degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1			
			Pavement Area- footpath	70
			Run-Off Coefficient	0.9
			Total site area	1003 m2
Storm Design Recurrence Interval	5	years	Local to the development	
Time of Concentration	10.0	minutes	Based on	
Max Allowable Outflow	7.28	L/s	(AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	9.83	2.95	
10	60	**7.28**	4.37	
15	49.1	5.96	5.36	
20	42.1	5.11	6.13	
25	37.1	4.50	6.76	
30	33.4	4.05	7.30	
35	30.5	3.70	7.77	
40	28.1	3.41	8.19	
50	24.4	2.96	8.89	
55	22.7	2.76	9.09	
60	21	2.55	9.18	
65	19.3	2.34	9.14	
70	17.6	2.14	8.97	
75	15.9	1.93	8.69	
80	14.2	1.72	8.27	
85	12.5	1.52	7.74	
90	10.8	1.31	7.08	



Minimum Tank Size	**0.00**	**m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.007283333	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	1644.299	mm^2
Approx Pipe Diameter	45.76	mm

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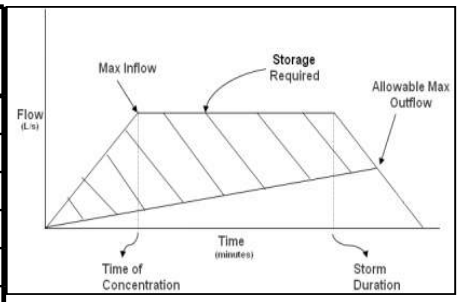
PARALOWIE R-7

POST-DEVELOPMENT YEAR 7 AREA - 1 IN 5 YEAR ARI EVENT

Roof Area	903	m^2	**Pervious Area**	0
Roof Pitch	2	degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1			
			Pavement Area	100
			Run-Off Coefficient	0.9
			Total site area	1003 m2
Storm Design Recurrence Interval	5	years	Local to the development	
Time of Concentration	10.0	minutes		
Max Allowable Outflow	7.280	L/s	Based on (AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	22.77	6.83	3.56
10	**60**	**16.87**	**10.12**	**5.75**
15	49.1	13.80	12.42	6.96
20	42.1	11.83	14.20	7.65
25	37.1	10.43	15.64	8.00
30	33.4	9.39	16.90	8.16
35	30.5	8.57	18.01	8.18
40	28.1	7.90	18.96	8.04
50	24.4	6.86	20.58	7.47
55	22.7	6.38	21.06	6.86
60	21	5.90	21.25	5.96
65	19.3	5.43	21.16	4.78
70	17.6	4.95	20.78	3.31
75	15.9	4.47	20.11	1.55
80	14.2	3.99	19.16	-0.50
85	12.5	3.51	17.92	-2.83
90	10.8	3.04	16.39	-5.45

Minimum Tank Size	**8.18 m^3**



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.00728	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	1643.546	mm^2
Approx Pipe Diameter	45.75	mm

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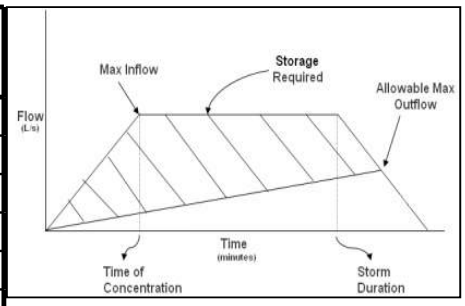
PRE-DEVELOPMENT - YEAR 7 - 1 IN 5 YEAR ARI FLOWS

Roof Area	0 m^2	**Pervious Area**	933
Roof Pitch	5 degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1		
		Pavement Area - Rubble	70
		Run-Off Coefficient	0.7
		Total site area	1003 m2
Storm Design Recurrence Interval	100 years	Local to the development	
Time of Concentration	10.0 minutes	Based on	
Max Allowable Outflow	15.98 L/s	(AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	21.86	6.56	
10	136	**15.98**	9.59	
15	110	12.93	11.63	
20	94	11.05	13.25	
25	82	9.64	14.45	
30	73	8.58	15.44	
35	66.5	7.81	16.41	
40	61	7.17	17.20	
50	53	6.23	18.68	
55	49	5.76	19.00	
60	45	5.29	19.04	
65	41	4.82	18.79	
70	37	4.35	18.26	
75	33	3.88	17.45	
80	29	3.41	16.36	
85	25	2.94	14.98	
90	21	2.47	13.32	



Minimum Tank Size	**0.00**	**m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.01598	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	3607.674	mm^2
Approx Pipe Diameter	67.77	mm

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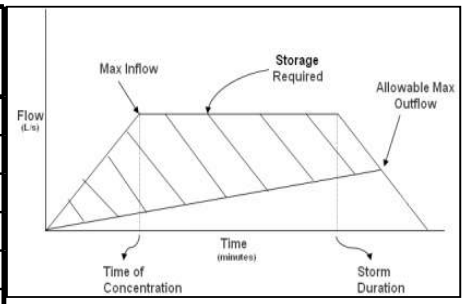
PARALOWIE R-7

POST-DEVELOPMENT YEAR 7 AREA - 1 IN 100 YEAR ARI EVENT

Roof Area	903 m^2	**Pervious Area**	0
Roof Pitch	2 degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1		
		Pavement Area	100
		Run-Off Coefficient	0.9
		Total site area	1003 m2
Storm Design Recurrence Interval	100 years	Local to the development	
Time of Concentration	10.0 minutes		
Max Allowable Outflow	15.980 L/s	Based on (AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	52.29	15.69	8.50
10	136	38.23	22.94	13.35
15	110	30.92	27.83	15.85
20	94	26.42	31.71	17.33
25	82	23.05	34.58	17.80
30	73	20.52	36.94	17.76
35	66.5	18.69	39.26	17.68
40	61	17.15	41.15	17.18
50	53	14.90	44.70	15.93
55	49	13.77	45.46	14.29
60	45	12.65	45.54	11.98
65	41	11.53	44.95	8.99
70	37	10.40	43.68	5.33
75	33	9.28	41.74	1.00
80	29	8.15	39.13	-4.02
85	25	7.03	35.84	-9.70
90	21	5.90	31.88	-16.06

Minimum Tank Size	**17.80 m^3**



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.01598	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	3607.674	mm^2
Approx Pipe Diameter	67.77	mm

Performing Arts

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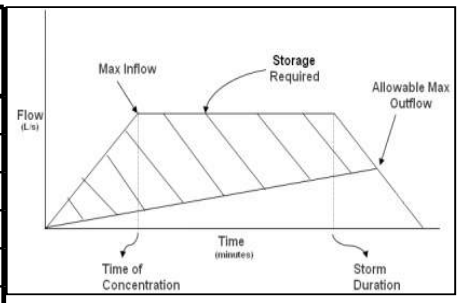
PARALOWIE R-7

PRE-DEVELOPMENT - PAC - 1 IN 5 YEAR ARI FLOWS

Roof Area	138	m^2	**Pervious Area**	354	
Roof Pitch	5	degrees	**Run-Off Coefficient**	0.4	
Run-Off Coefficient	1				
			Pavement Area- footpath	270	
			Run-Off Coefficient	0.9	
			Total site area	762	m2
Storm Design Recurrence Interval	5	years	Local to the development		
Time of Concentration	10.0	minutes	Based on		
Max Allowable Outflow	8.83	L/s	(AR&R 1987)		

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	11.93	3.58	
10	**60**	**8.83**	**5.30**	
15	49.1	7.23	6.51	
20	42.1	6.20	7.44	
25	37.1	5.46	8.19	
30	33.4	4.92	8.85	
35	30.5	4.49	9.43	
40	28.1	4.14	9.93	
50	24.4	3.59	10.78	
55	22.7	3.34	11.03	
60	21	3.09	11.13	
65	19.3	2.84	11.08	
70	17.6	2.59	10.88	
75	15.9	2.34	10.53	
80	14.2	2.09	10.03	
85	12.5	1.84	9.39	
90	10.8	1.59	8.59	



Minimum Tank Size	**0.00**	**m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.008833333	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	1994.229	mm^2
Approx Pipe Diameter	50.39	mm

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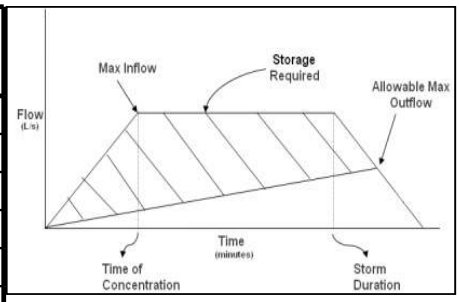
PARALOWIE R-7

POST-DEVELOPMENT PAC AREA - 1 IN 5 YEAR ARI EVENT

Roof Area	464	m^2	**Pervious Area**	0
Roof Pitch	2	degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1			
			Pavement Area	298
			Run-Off Coefficient	0.9
			Total site area	762 m2
Storm Design Recurrence Interval	5	years	Local to the development	
Time of Concentration	10.0	minutes		
Max Allowable Outflow	8.830	L/s	Based on (AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	16.70	5.01	1.04
10	60	12.37	7.42	2.12
15	49.1	10.12	9.11	2.49
20	42.1	8.68	10.41	2.47
25	37.1	7.65	11.47	2.20
30	33.4	6.88	12.39	1.80
35	30.5	6.29	13.20	1.28
40	28.1	5.79	13.90	0.66
50	24.4	5.03	15.09	-0.81
55	22.7	4.68	15.44	-1.78
60	21	4.33	15.58	-2.96
65	19.3	3.98	15.51	-4.35
70	17.6	3.63	15.24	-5.96
75	15.9	3.28	14.75	-7.77
80	14.2	2.93	14.05	-9.79
85	12.5	2.58	13.14	-12.03
90	10.8	2.23	12.02	-14.47
Minimum Tank Size			**2.49**	**m^3**



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.00883	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	1993.477	mm^2
Approx Pipe Diameter	50.38	mm

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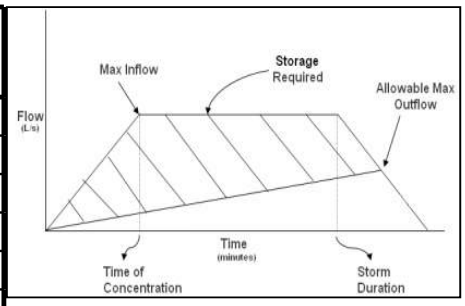
PARALOWIE R-7

PRE-DEVELOPMENT - PAC - 1 IN 5 YEAR ARI FLOWS

Roof Area	138 m^2	**Pervious Area**	354
Roof Pitch	5 degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1		
		Pavement Area - Rubble	270
		Run-Off Coefficient	0.7
		Total site area	762 m2
Storm Design Recurrence Interval	100 years	Local to the development	
Time of Concentration	10.0 minutes	Based on	
Max Allowable Outflow	17.98 L/s	(AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	24.59	7.38	
10	**136**	**17.98**	**10.79**	
15	110	14.54	13.09	
20	94	12.43	14.91	
25	82	10.84	16.26	
30	73	9.65	17.37	
35	66.5	8.79	18.46	
40	61	8.07	19.36	
50	53	7.01	21.02	
55	49	6.48	21.38	
60	45	5.95	21.42	
65	41	5.42	21.14	
70	37	4.89	20.55	
75	33	4.36	19.63	
80	29	3.83	18.41	
85	25	3.31	16.86	
90	21	2.78	14.99	



Minimum Tank Size	**0.00 m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.017982222	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	4059.699	mm^2
Approx Pipe Diameter	71.90	mm

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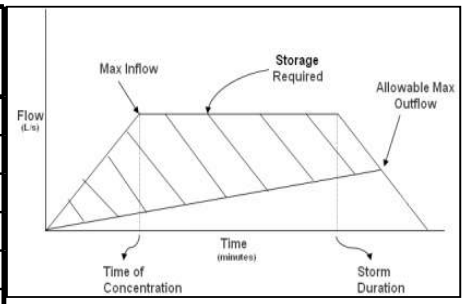
PARALOWIE R-7

POST-DEVELOPMENT PAC AREA - 1 IN 100 YEAR ARI EVENT

Roof Area	464 m^2	**Pervious Area**	0	
Roof Pitch	2 degrees	**Run-Off Coefficient**	0.4	
Run-Off Coefficient	1			
		Pavement Area	298	
		Run-Off Coefficient	0.9	
		Total site area	762 m2	
Storm Design Recurrence Interval	100 years	Local to the development		
Time of Concentration	10.0 minutes			
Max Allowable Outflow	17.980 L/s	Based on (AR&R 1987)		

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	38.34	11.50	3.41
10	136	28.03	16.82	6.03
15	110	22.67	20.41	6.92
20	94	19.37	23.25	7.07
25	82	16.90	25.35	6.47
30	73	15.05	27.08	5.51
35	66.5	13.71	28.78	4.51
40	61	12.57	30.17	3.20
50	53	10.92	32.77	0.41
55	49	10.10	33.33	-1.73
60	45	9.27	33.39	-4.37
65	41	8.45	32.96	-7.50
70	37	7.63	32.03	-11.12
75	33	6.80	30.61	-15.24
80	29	5.98	28.69	-19.86
85	25	5.15	26.28	-24.96
90	21	4.33	23.37	-30.57
Minimum Tank Size			**7.07 m^3**	



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.01798	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	4059.198	mm^2
Approx Pipe Diameter	71.89	mm

Junior Primary

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Job No: 180312-JP
Page: SW-JP-1
Date : 5/07/19
Design: DR

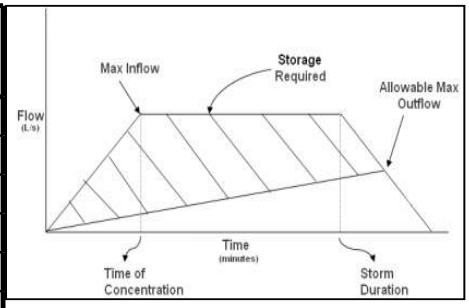
PARALOWIE R-7

PRE-DEVELOPMENT - 1 IN 5 YEAR ARI FLOWS

Roof Area	125	m^2	**Pervious Area**	1119	
Roof Pitch	5	degrees	**Run-Off Coefficient**	0.4	
Run-Off Coefficient	1				
			Pavement Area - Rubble	497	
			Run-Off Coefficient	0.7	
			Total site area	1741	m2
Storm Design Recurrence Interval	5	years	Local to the development		
Time of Concentration	10.0	minutes	Based on		
Max Allowable Outflow	15.45	L/s	(AR&R 1987)		

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	20.86	6.26	
10	60	**15.45**	9.27	
15	49.1	12.64	11.38	
20	42.1	10.84	13.01	
25	37.1	9.55	14.33	
30	33.4	8.60	15.48	
35	30.5	7.85	16.49	
40	28.1	7.24	17.37	
50	24.4	6.28	18.85	
55	22.7	5.85	19.29	
60	21	5.41	19.47	
65	19.3	4.97	19.38	
70	17.6	4.53	19.03	
75	15.9	4.09	18.42	
80	14.2	3.66	17.55	
85	12.5	3.22	16.42	
90	10.8	2.78	15.02	

Minimum Tank Size	**0.00 m^3**



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.01545	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	3488.020	mm^2
Approx Pipe Diameter	66.64	mm

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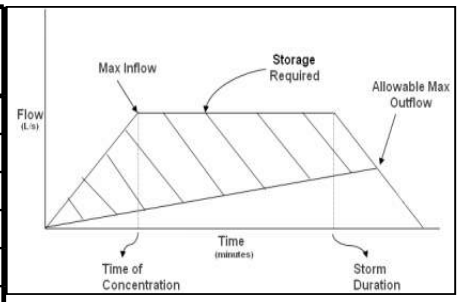
Design:	DR

PARALOWIE R-7

POST-DEVELOPMENT JUNIOR PIMARY AREA - 1 IN 5 YEAR ARI EVENT

Roof Area	1066	m^2	**Pervious Area**	493
Roof Pitch	2	degrees	**Run-Off Coefficient**	0.4
Run-Off Coefficient	1			
			Pavement Area	182
			Run-Off Coefficient	0.9
			Total site area	1741 m2
Storm Design Recurrence Interval	5	years	Local to the development	
Time of Concentration	10.0	minutes		
Max Allowable Outflow	15.450	L/s	Based on (AR&R 1987)	

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	81	32.60	9.78	2.83
10	**60**	**24.15**	**14.49**	**5.22**
15	49.1	19.76	17.79	6.20
20	42.1	16.95	20.33	6.43
25	37.1	14.93	22.40	6.18
30	33.4	13.44	24.20	5.66
35	30.5	12.28	25.78	4.92
40	28.1	11.31	27.14	3.97
50	24.4	9.82	29.46	1.65
55	22.7	9.14	30.15	0.02
60	21	8.45	30.43	-2.02
65	19.3	7.77	30.30	-4.47
70	17.6	7.08	29.75	-7.33
75	15.9	6.40	28.80	-10.60
80	14.2	5.72	27.43	-14.28
85	12.5	5.03	25.66	-18.37
90	10.8	4.35	23.47	-22.88



Minimum Tank Size	**6.43 m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.01545	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	3488.020	mm^2
Approx Pipe Diameter	66.64	mm

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CONSULTING ENGINEERS

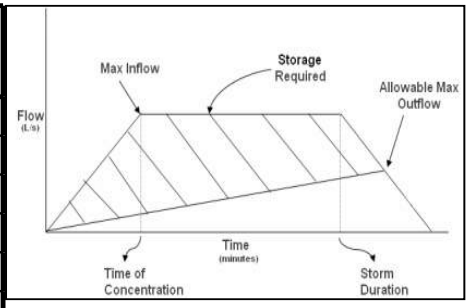
Job No: 180312-JP
Page: SW-JP-3
Date : 5/07/19
Design: DR

PARALOWIE R-7

PRE-DEVELOPMENT - 1 IN 5 YEAR ARI FLOWS

Roof Area	125	m^2	**Pervious Area**	1119	
Roof Pitch	5	degrees	**Run-Off Coefficient**	0.4	
Run-Off Coefficient	1				
			Pavement Area - Rubble	497	
			Run-Off Coefficient	0.7	
			Total site area	1741	m2
Storm Design Recurrence Interval	100	years	Local to the development		
Time of Concentration	10.0	minutes	Based on		
Max Allowable Outflow	35.02	L/s	(AR&R 1987)		

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	47.90	14.37	
10	136	**35.02**	21.01	
15	110	28.33	25.49	
20	94	24.21	29.05	
25	82	21.12	31.67	
30	73	18.80	33.84	
35	66.5	17.12	35.96	
40	61	15.71	37.70	
50	53	13.65	40.94	
55	49	12.62	41.64	
60	45	11.59	41.71	
65	41	10.56	41.17	
70	37	9.53	40.02	
75	33	8.50	38.24	
80	29	7.47	35.84	
85	25	6.44	32.83	
90	21	5.41	29.20	



Minimum Tank Size	**0.00 m^3**

Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.03502	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	7906.179	mm^2
Approx Pipe Diameter	100.33	mm

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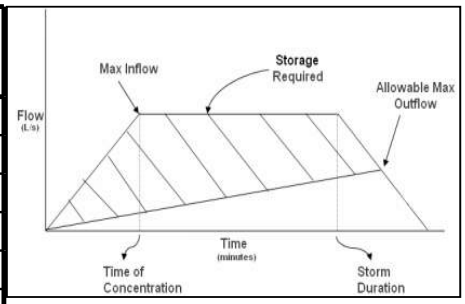
Design: DR

PARALOWIE R-7

POST-DEVELOPMENT JUNIOR PIMARY AREA - 1 IN 100 YEAR ARI EVENT

Roof Area	1066 m^2	**Pervious Area**	493	
Roof Pitch	2 degrees	**Run-Off Coefficient**	0.4	
Run-Off Coefficient	1			
		Pavement Area	182	
		Run-Off Coefficient	0.9	
		Total site area	1741 m2	
Storm Design Recurrence Interval	100 years	Local to the development		
Time of Concentration	10.0 minutes			
Max Allowable Outflow	35.020 L/s	Based on (AR&R 1987)		

Duration (Minutes)	Intensity (mm/h)	Inflow (L/s)	Inflow Volume (m^3)	Max Storage (m^3)
5	186	74.87	22.46	6.70
10	**136**	**54.74**	**32.84**	**11.83**
15	110	44.28	39.85	13.58
20	94	37.84	45.40	13.88
25	82	33.01	49.51	12.74
30	73	29.38	52.89	10.86
35	66.5	26.77	56.21	8.93
40	61	24.55	58.93	6.40
50	53	21.33	64.00	0.96
55	49	19.72	65.08	-3.20
60	45	18.11	65.20	-8.34
65	41	16.50	64.36	-14.44
70	37	14.89	62.55	-21.50
75	33	13.28	59.77	-29.53
80	29	11.67	56.03	-38.53
85	25	10.06	51.32	-48.49
90	21	8.45	45.64	-59.42
Minimum Tank Size			**13.88 m^3**	



Outlet Orifice Design		
Approximate head above outlet	1	m water
Max allowable outflow	0.03502	m^3/s
Discharge Velocity	4.43	m/s
Approx Pipe area	7906.179	mm^2
Approx Pipe Diameter	100.33	mm

APPENDIX B:
- Stormwater Management Plan
190312-C200, C300, C400 – Site Plans

arborman® tree solutions
PROFESSIONALS IN ARBORICULTURE

Arboricultural Impact Assessment and Development Impact Report

Site: Paralowie R-12 School

Date: Thursday, 11 July 2019
ATS5541-ParalowieR-12DIR

Contents

Report Reference Number: ATS5541-ParalowieR-12DIR

Report prepared for

Kelly Lau, Project Leader
Matthews Architects

Author

Jason Williams, Consulting Arborist,
Arborman Tree Solutions Pty Ltd

Executive Summary

Arborman Tree Solutions undertook an assessment of the potential impacts to the identified trees located within the school grounds of the Paralowie R-12 School; which may occur from the proposed development. A total of 35 trees and 1 tree group has been assessed as the development is likely to impact upon these trees.

Trees 3, 6, 12, 25 and 31 have been assessed and determined to have a short useful life expectancy due to their poor overall condition. Trees 2, 9, 13, 16-19, 21-23, 28-30, 32-34, Tree Group 35 and Tree 36 are in direct conflict with the proposal. These trees require removal to accommodate the proposal.

Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 have a major encroachment however, there is scope to achieve the proposal and have the trees remain viable. Trees 12 and 25 have no calculated encroachment, these trees can be retained and will not be impacted by the proposed development. If the recommendations within this document and the guidelines of AS4970-2009 are closely adhered to, Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 are not expected to be compromised by this development.

Brief

Arborman Tree Solutions was engaged by Matthews Architects to undertake an Arboricultural Impact Assessment and provide a Development Impact Report for Paralowie R-12 School. The purpose of the Arboricultural Impact Assessment and Development Impact Report is to identify potential impacts the proposed development will have on the identified trees.

The proposed development includes the redevelopment of several buildings and the construction of new buildings over three areas of the school. This assessment will determine the potential impacts the proposal may have on the trees within the school and to recommend impact mitigation strategies in accordance with Australian Standard AS4970-2009 *Protection of trees on development sites* (AS4970-2009) for the trees to be retained.

In accordance with section 2.2 of the AS4970-2009 the following information is provided:

- Assessment of the health, form and structure of the subject trees.
- Identification of the legislative status of trees on site as defined in the *Development Act 1993.*
- Identify and define the Tree Protection Zone and Structural Root Zone for each tree.
- Identify potential impacts the development may have on tree health and/or stability.
- Recommend impact mitigation strategies in accordance with AS4970-2009 for trees to be retained.
- Provide information in relation to the management of trees.

Documents and Information Provided

The following information was provided for the preparation of this assessment

- Proposed plans: Job No. 18071, SK 38 Dated: 22/05/2019

Site Location

Figure 1: Survey site location - Paralowie R-12 School

Methodology

The potential impact of the proposed works on tree condition is considered in accordance with the guidelines in AS4970-2009 *Protection of trees on development sites* (AS4970-2009). When determining potential impacts of an encroachment into a Tree Protection Zone (TPZ), the following should be considered as outlined in section 3.3.4 of AS4970-2009 section 3.3.4;

a) Location of roots and root development.

b) The potential loss of root mass from the encroachment.

c) Tree species and tolerance to root disturbance.

d) Age, vigour and size of the tree.

e) Lean and stability of the tree.

f) Soil characteristics and volume, topography and drainage.

g) The presence of existing or past structures or obstacles affecting root growth.

h) Design factors.

Impacts are classified into the following categories: -

No Impact - no encroachment into the TPZ has been identified.
Low <10% - the identified encroachment is less than 10% of the TPZ area.
Low >10% - the identified encroachment is greater than 10% of the TPZ area however there are factors that indicate the proposed development will not negatively impact tree viability.
High >10% - the identified encroachment is greater than 10% of the TPZ area but does not impact the Structural Root Zone (SRZ) or the trunk.
Substantial - the identified encroachment is greater than 20% of the TPZ area but does not impact the SRZ or the trunk.
Conflicted - the identified encroachment impacts the SRZ and/or the trunk.

Trees with calculated encroachments greater than 10% and with an Impact identified as ‘Low’ have features or considerations identified in clauses in AS4970-2009 3.3.4 which indicate these trees should be sustainable.

Trees with calculated encroachments greater than 10% and with an Impact identified as ‘High’ do not have any features or considerations identified in clauses in AS4970-2009 3.3.4 and therefore non-destructive excavation and/or tree sensitive construction is required to minimise potential impacts.

Trees with an Impact identified as ‘Substantial’ have calculated encroachments greater than 20% and therefore alternative design solutions, additional root investigations and/or tree sensitive construction measures are required, in some instances tree removal may be required to accommodate the development.

Trees with an Impact identified as ‘Conflicted’ directly impact upon the SRZ or the trunk of the tree, additional root investigations or tree sensitive construction measures are not available, and the only option is alternative designs or tree removal.

Regulatory Status, Tree Protection Zones and Development Impacts are shown in Appendix B.

Discussion

Arborman Tree Solutions undertook an assessment of the potential impacts to the identified trees located within the school grounds of the Paralowie R-12 School; which may occur from the proposed development. The proposed development includes the redevelopment of some buildings and the construction of new buildings over three areas of the school. This assessment provides recommendations in accordance with Australian Standard AS4970-2009 *Protection of trees on development sites* (AS4970-2009).

There was a selection of different species identified within the school grounds with the majority of the trees identified as *Eucalyptus spp*. *Eucalyptus spp*. generally have a moderate to good tolerance to root disturbance and the school wishes to retain as many trees as possible during the development. A total of 35 trees and 1 tree group have been assessed as the development is likely to impact upon these trees. The trees are located within the school grounds which is under the control of the Minister for Education therefore, all trees within the school, irrespective of size, are exempt from regulation. The removal, pruning or development within close proximity to the trees, does not require approval from the City of Salisbury to undertake the proposed works.

Within the Paralowie R-12 school, five trees (Trees 3, 6, 12, 25 and 31) have been identified as poor specimens, these trees have been recommended for removal irrespective of any proposed development. These trees display either poor health and/or structure and therefore they have a short useful life expectancy. Trees identified with either poor health or structure are in an advanced state of decline that cannot be halted or remediated. As there are no options to effectively manage these trees, their removal is warranted as best Arboricultural practice.

Within AS4970-2009 relevant information is provided to assist with redeveloping within close proximity to trees. Any tree that requires protection should be retained whilst remaining viable during and post development. Further guidance on how to suitably manage any proposed or encountered encroachments is identified in AS4970-2009. When assessing potential impacts, a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) are the principle means of protecting a tree and are provided in accordance with AS4970-2009 section 1.4.5 and 3.2. This standard has been applied to ensure trees identified for retention remain viable and the development is achievable.

The encroachment for Trees 2, 9, 13, 16-19, 21-23, 28-30, 32-34, Tree Group 35 and Tree 36 have been calculated as a 'Major' encroachment as per AS4970-2009. These trees are highly unlikely to remain viable due to the level of encroachment that has been proposed. These trees are either in direct conflict with the proposal or have a substantial calculated encroachment into their root zones. Reasonable alternative designs are not available to reduce the proposed encroachment for these trees and therefore require removal to accommodate the proposal.

The encroachment within the Tree Protection Zone of Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 has also been calculated to be greater than 10% of each TPZ which is classified as a 'Major Encroachment' as per AS4970-2009. However, AS4970-2009 identifies relevant factors that indicate that these trees will not be negatively impacted by the development as listed under 3.3.4 TPZ encroachment considerations. This is due to the trees displaying attributes which indicate the proposal can be achieved without substantial impacts to the trees. These considerations include: -

- 3.3.4 (d), '*Age, vigour and size of the tree'*
  The trees' overall good condition and viability indicate that they can tolerate the proposed level of encroachment without substantial impacts. Healthy and vigorous trees can manage reasonable levels of pruning, demolition of existing structures, changes in soil grade and other root zone encroachments as they have adapted to their environment and conditions through appropriate physiological responses.

- 3.3.4 (g), '*The presence of existing or past structures or obstacles affecting root growth'*
  The existing paths and buildings have been in situ or used for more than 30 years and were in place before the identified trees achieved maturity or were planted. This would therefore restrict root development in these areas due to the poor growing environment created by compaction. Given the trees have adapted to their environment appropriately, it is unlikely the proposal will have a substantial impact on the trees' long-term viability. Many of the new paths are essentially replacing the existing, this is unlikely to have any substantial impacts to these trees.
- 3.3.4 (h), '*Design factors'*
  Low impact methodologies and materials have been recommended to ensure the identified trees are not substantially impacted by the proposal. Permeable paving has been recommended to be utilised around the proposed buildings within the TPZ of the identified trees.

Permeable paving is a material used in the construction of paths, driveways and roadways. It consists of a paver that allows water and oxygen filtration to penetrate beneath the paver to a substrate that consists of structural sand and an Ecocell system. This system can be installed at the existing grade with the purpose of restricting the potential additional compaction of the soil within a calculated Tree Protection Zone. This system allows for nutrient, water and microbial exchange for the trees' rooting system and allows for the trees that are to be retained within a development to be successfully developed around and remain viable for the foreseeable future.

Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 have a major encroachment however, there is scope to achieve the proposal and have the trees remain viable. If the recommendations within this document and the guidelines of AS4970-2009 are understood and followed, Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 are not expected to be compromised by this development.

Recommended Tree Management and Protection

The following recommendations are presented based on the Arboricultural Impact Assessment and have been provided to appropriately manage the identified trees:

Pre- Development

The following five points apply to all trees identified within the site and these recommendations shall be implemented prior to the commencement of other site works.

1. Appoint a Project Arborist to be consulted on all matters relating to the care and maintenance of the trees to be retained and the Tree Protection Zone (TPZ).
2. The trees identified within this report are not protected under the *Development Act 1993* or by the local council. Their removal or other tree damaging activity, if necessary, does not require council approval.
3. Trees 3, 6, 12, 25 and 31 are in poor overall condition and require removal irrespective of the proposal.
4. Trees 2, 9, 13, 16-19, 21-23, 28-30, 32-34, Tree Group 35 and Tree 36 are in direct conflict with the proposal and therefore these trees also require removal to accommodate the proposal.
5. Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 have a 'Major' calculated encroachment however, these trees can be retained and protected in a proposed development.

Development and Construction

The Following points apply to Trees 1, 4, 5, 7, 8, 10, 11, 14, 15, 20, 24, 26 and 27 which have been identified for retention.

1. Erect a protective fence to protect as much of the TPZ as practical of each tree to be retained to prevent unauthorised entry, ensure the area is clearly signed TREE PROTECTION ZONE - NO ACCESS. The fence must be constructed with sturdy temporary fencing, 1.8 metres high. An example of this is shown in Appendix E Tree Protection Zone Guidelines. This sign and fence can be removed once the development has concluded. The fences are to be installed prior to the removal of any of the hardstand and prior to the development being started.
2. The demolition of the existing hardstand within the trees' TPZ is to be managed with care to ensure any roots that may have grown around the concrete edges are managed and protected appropriately. All material is to be pulled out of the trees' TPZ and away from the trees.
3. If any roots are identified during the site works or during any excavation, the Project Arborist should be contacted so that reasonable management options can be explored and undertaken to reduce potential impacts to the tree or trees.
4. If the development is to occur during the warmer months between October and March, additional water will be required for the trees to reduce any potential shock that may occur from the proposed works.
5. No storage of material, equipment or temporary building is permitted within the cordoned off TPZ's.
6. The cordoned off area of each TPZ should have mulch installed and additional water applied during the development phase. This is to reduce any potential shock or decline to the trees that may occur due to the minor changes in their environment.
7. Permeable Paving at the existing grade has been recommended within the proposed development for the trees that are being retained. This will ensure the trees continue to get the necessary amounts of water, nutrients and oxygen. Permeable paving is available in an array of styles and colours and can be sourced easily through landscaping and paving suppliers.

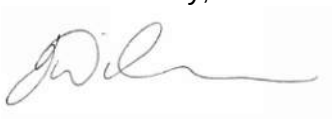
Post Construction

The Project Arborist should inspect the trees once the development has concluded. This is to verify the trees' condition has not declined and to identify any potential remediation, if required, for the trees.

These recommendations have been provided to ensure the balance between development and arboricultural management have been addressed and considered. If the recommendations are followed and adhered to the subject trees will not be negatively impacted by this proposal.

Thank you for the opportunity to provide this report. Should you have any questions or require further information, please contact me and I will be happy to be of assistance.

Yours sincerely,



JASON WILLIAMS
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Graduate Certificate in Arboriculture
Diploma of Arboriculture
International Society of Arboriculture – Tree Risk Assessment (TRAQ)
Arboriculture Australia - Registered Consulting Arborist
Quantified Tree Risk Assessment (QTRA) Licensee – 5775

Glossary

Size: approximate height and width of tree in metres.

Age: identification of the maturity of the subject tree.

Useful Life Expectancy: expected number of the years that the subject specimen will remain alive and sound in its current location and/or continues to achieve the relevant Principles of Development Control.

Health: visual assessment of tree health.

Structure: visual assessment of tree structure.

Circumference: trunk circumference measured at one metre above ground level. This measurement is used to determine the status of the tree in relation to the *Development Act 1993*.

Diameter at Breast Height (DBH): trunk diameter measured at 1.4 metres above ground level used to determine the Tree Protection Zone as described in Australian Standard AS4970-2009 *Protection of trees on development sites*.

Diameter at Root Buttress (DRB): trunk diameter measured just above the root buttress as described in Australian Standard AS4970-2009 *Protection of trees on development sites* and is used to determine the Structural Root Zone.

Tree Damaging Activity Tree damaging activity includes those activities described within the *Development Act 1993* such as removal, killing, lopping, ringbarking or topping or any other substantial damage such as mechanical or chemical damage, filling or cutting of soil within the TPZ. Can also include forms of pruning above and below the ground.

Tree Protection Zone: area of root zone that should be protected to prevent substantial damage to the tree's health.

Structural Root Zone: calculated area within the tree's root zone that is considered essential to maintain tree stability.

Project Arborist A person with the responsibility for carrying out a tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The Project Arborist must be competent in arboriculture, having acquired through training, minimum Australian Qualification Framework (AQTF) Level 5, Diploma of Horticulture (Arboriculture) and/or equivalent experience, the knowledge and skills enabling that person to perform the tasks required by this standard.

Important: When assessing trees against the *Development Act 1993* and local Development Plan the term "Important" is used when assessing a tree's amenity, aesthetic and environmental contribution. Commissioner Nolan of the Environment, Resource and Development Court in the case of *Savoy Developments Pty Ltd v Town of Gawler* [2013] SAERDC 32 defined "Important" in the following manner:

"In my view, for habitat to be raised to the level of 'important' (as sought by Objective 2(d)), it must be beyond that likely to be expected in any mature tree of indigenous origins – that is, it is beyond the normal level that might be expected or that it is so unique or special that it may be considered important."

Whilst this definition relates to Habitat Value this definition has been considered and applied when assessing all Objectives that use the term "*Important*".

References

Australian Standard AS4970–2009 ***Protection of trees on development sites***: Standards Australia.

Matheny N. Clark J. 1998: ***Trees and Development a Technical Guide to Preservation of Trees During Land Development***: International Society of Arboriculture, Champaign, Illinois, USA.

Appendix A - Tree Assessment Methodology

Tree Assessment Form (TAF©)

Record	Description
Tree	In botanical science, a tree is a perennial plant which consists of one or multiple trunks which supports branches and leaves. Trees are generally taller than 5 metres and will live for more than ten seasons, with some species that live for hundreds or thousands of seasons.
Genus and Species	Botanical taxonomy of trees uses the binominal system of a genus and species, often there are subspecies and subgenus as well as cultivars. When identifying tree species, identification techniques such as assessing the tree's form, flower, stem, fruit and location are used. Identifying the right species is critical in assessing the tree's legalisation and environmental benefit. All efforts are made to correctly identify each tree to species level, where possible. Genus is the broader group to which the tree belongs e.g. *Eucalyptus, Fraxinus* and *Melaleuca*. Species identifies the specific tree within the genus e.g. *Eucalyptus camaldulensis*, *Fraxinus griffithi* or *Melaleuca styphelioides*. Trees will also be assigned the most commonly used Common Name. Common Names are not generally used for identification due to their nonspecific use, i.e. *Melia azedarach* is commonly known as White Cedar in South Australia but is also called Chinaberry Tree, Pride of India, Bead-tree, Cape Lilac, Syringa Berrytree, Persian Lilac, and Indian Lilac; equally similar common names can refer to trees from completely different Genus e.g. Swamp Oak, Tasmanian Oak and English Oak are from the *Casuarina, Eucalyptus* and *Quercus* genus's respectively.
Height	Tree height is estimated by the arborist at the time of assessment. Tree height is observed and recorded in the following ranges; <5m, 5-10m, 10-15m and >20m.
Spread	Tree crown spread is estimated by the arborist at the time of assessment and recorded in the following ranges <5m, 5-10m, 10-15m, 15-20m, >20m.
Health	Tree health is assessed using the Arborman Tree Solutions - Tree Health Assessment Method that is based on international best practice.
Structure	Tree structure is assessed using Arborman Tree Solutions - Tree Structure Assessment Method that is based on international best practice.
Tree Risk Assessment	Tree Risk is assessed using Tree Risk Assessment methodology. The person conducting the assessment has been trained in the International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ), Quantified Tree Risk Assessment (QTRA) and/or VALID Tree Risk Assessment (VALID). Refer to the Methodology within the report for additional information.
Legislative Status	Legislation status is identified through the interpretation of the *Development Act 1993*, the *Natural Resource Management Act 2004,* the *Native Vegetation Act 1991* and/or any other legislation that may apply.
Mitigation	Measures to reduce tree risk, improve tree condition, remove structural flaws, manage other conditions as appropriate may be recommended in the form of pruning and is listed in the Tree Assessment Findings (Appendix B). Tree pruning is recommended in accordance with AS4373-2007 *Pruning amenity trees* where practicable. Where measures to mitigate risk is not possible and the risk is unacceptable, then tree removal or further investigation is recommended.

Useful Life Expectancy (ULE)

ULE Rating	Definition
Surpassed	The tree has surpassed its Useful Life Expectancy. Trees that achieve a surpassed ULE may do so due to poor health, structure or form. Additionally, trees that are poorly located such as under high voltage powerlines or too close to structures may also achieve a surpassed ULE. Trees that achieve this status will be recommended for removal as there are no reasonable options to retain them.
<10 years	The tree displays either or both Poor Health and/or Structure and is considered to have a short Useful Life Expectancy of less than ten years. Some short-lived species such as *Acacia sp*. may naturally achieve a short ULE.
>10 years	The tree displays Fair Health or Structure and Good Health or Structure and is considered to have a Useful Life Expectancy of ten years or more. Trees identified as having a ULE of >10, will require mitigation such as pruning, stem injections or soil amelioration to increase their ULE.
>20 years	The tree displays Good Health and Structure and is considered to have an extended Useful Life Expectancy of more than twenty years.

Maturity (Age)

Age Class	Definition
Senescent	The tree has surpassed its optimum growing period and is declining and/or reducing in size. May be considered as a veteran in relation to its ongoing management. Tree will have generally reached greater than 80% of its expected life expectancy.
Mature	A mature tree is one that has reached its expected overall size, although the tree's trunk is still expected to continue growing. Tree maturity is also assessed based on species; as some trees are much longer lived than others. Tree will have generally reached 20-80% of its expected life expectancy.
Semi Mature	A tree which has established but has not yet reached maturity. Normally tree establishment practices such as watering will have ceased. Tree will generally not have reached 20% of its expected life expectancy.
Juvenile	A newly planted tree or one which is not yet established in the landscape. Tree establishment practices such as regular watering will still be in place. Tree will generally be a newly planted specimen up to five years old; this may be species dependant.

Tree Health Assessment (THA©)

Category	Description
Good	Tree displays normal vigour, uniform leaf colour, no or minor dieback (<5%), crown density (>90%). When a tree is deciduous, healthy axillary buds and typical internode length is used to determine its health. A tree with good health would show no sign of disease and no or minor pest infestation was identified. The tree has little to no pest and/or disease infestation.
Fair	Tree displays reduced vigour abnormal leaf colour, a moderate level of dieback (<15%), crown density (>70%) and in deciduous trees, reduced axillary buds and internode length. Minor pest and/or disease infestation potentially impacting on tree health. Trees with fair health have the potential to recover with reasonable remedial treatments.
Poor	Tree displays an advanced state of decline with low or no vigour, chlorotic or dull leaf colour, with high crown dieback (>15%), low crown density (<70%) and/or in deciduous trees, few or small axillary buds and shortened internode length. Pest and or disease infestation is evident and/or widespread. Trees with poor health are highly unlikely to recover with any remedial treatments; these trees have declined beyond the point of reversal.
Dead	The tree has died and has no opportunity for recovery.

Tree Structural Assessment (TSA©)

Category	Description
Good	Little to no branch failure observed within the crown, well-formed unions, no included bark, good branch and trunk taper present, root buttressing and root plate are typical. Trees that are identified as having good health display expected condition for their age, species and location.
Fair	The tree may display one or more of the following a history of minor branch failure, included bark unions may be present however, are stable at this time, acceptable branch and trunk taper present, root buttressing and root plate are typical. Trees with fair structure will generally require reasonable remediation methods to ensure the tree's structure remains viable.
Poor	History of significant branch failure observed in the crown, poorly formed unions, unstable included bark unions present, branch and/or trunk taper is abnormal, root buttressing and/or root plate are atypical.
Failed	The structure of the tree has or is in the process of collapsing.

Tree Form Assessment (TFA©)

Category	Description
Good	Form is typical of the species and has not been altered by structures, the environment or other trees.
Fair	The form has minor impacts from structures, the environment or adjacent trees which has altered its shape. There may be slight phototropic response noted or moderate pruning which has altered the tree's form.
Poor	The tree's form has been substantially impacted by structures, the environment, pruning or other trees. Phototropic response is evident and unlikely to be corrected.
Atypical	Tree form is highly irregular due to structures or other trees impacting its ability to correctly mature. Extreme phototropic response is evident; or the tree has had a substantially failure resulting in its poor condition, or extensive pruning has altered the tree's form irreversibly.

Priority

Category	Description
Low	Identified works within this priority should be carried out within 12 months.
Medium	Identified works within this priority should be carried out within 6 months.
High	Identified works within this priority should be carried out within 3 months.
Urgent	Identified works within this priority should be carried out immediately. Works within this priority rating will be brought to attention of the responsible person at the time of assessment.

Tree Retention Rating (TRR)

The Tree Retention Rating is based on a number of factors that are identified as part of the standard tree assessment criteria including Condition, Size, Environmental, Amenity and Special Values. These factors are combined in a number of matrices to provide a Preliminary Tree Retention Rating and a Tree Retention Rating Modifier which combine to provide a Tree Retention Rating that is measurable, consistent and repeatable.

Preliminary Tree Retention Rating

The Preliminary Tree Retention Rating is conducted assessing Tree Health and Structure to give an overall Condition Rating and Height and Spread to give an overall Size Rating. The following matrices identify how these are derived.

Condition Matrix				
Structure	**Health**			
	Good	**Fair**	**Poor**	**Dead**
Good	C1	C2	C3	C4
Fair	C2	C2	C3	C4
Poor	C3	C3	C4	C4
Failed	C4	C4	C4	C4

Size Matrix					
Spread	**Height**				
	>20	**15-20**	**10-15**	**5-10**	**<5**
>20	S1	S1	S1	S2	S3
15-20	S1	S1	S2	S3	S3
10-15	S1	S2	S2	S3	S4
5-10	S2	S3	S3	S4	S5
<5	S3	S3	S4	S5	S5

The results from the Condition and Size Matrices are then placed in the Preliminary Tree Retention Rating Matrix.

Preliminary Tree Retention Rating				
Size	**Condition**			
	C1	**C2**	**C3**	**C4**
S1	High	Moderate	Low	Low
S2	Moderate	Moderate	Low	Low
S3	Moderate	Moderate	Low	Low
S4	Moderate	Moderate	Low	Low
S5	Low	Low	Low	Low

The Preliminary Tree Retention Rating gives a base rating for all trees regardless of other environmental and/or amenity factors and any Special Value considerations. The Preliminary Tree Retention Rating can only be modified if these factors are considered to be of high or low enough importance to warrant increasing or, in a few cases, lowering the original rating.

Tree Retention Rating Modifier

The Preliminary Tree Retention Rating is then qualified against the recognised Environmental and Amenity benefits that trees present to the community thereby providing a quantitative measure to determine the overall Tree Retention Rating. Data is collected in relation to Environmental and Amenity attributes which are compared through a set of matrices to produce a Tree Retention Rating Modifier.

Environmental Matrix				
Origin	**Habitat**			
	Active	**Inactive**	**Potential**	**No Habitat**
Indigenous	E1	E1	E2	E3
Native	E1	E2	E3	E3
Exotic	E2	E3	E3	E4
Weed	E3	E3	E4	E4

Amenity Matrix				
Character	**Aesthetics**			
	High	**Moderate**	**Low**	**None**
Important	P1	P1	P2	P3
Moderate	P1	P2	P3	P3
Low	P2	P3	P3	P4
None	P3	P3	P4	P4

Tree Retention Rating Modifier				
Amenity	**Environment**			
	E1	**E2**	**E3**	**E4**
P1	High	High	Moderate	Moderate
P2	High	Moderate	Moderate	Moderate
P3	Moderate	Moderate	Moderate	Moderate
P4	Moderate	Moderate	Moderate	Low

Tree Retention Rating

The results of the Preliminary Tree Retention Rating and the Tree Retention Rating Modifier matrices are combined in a final matrix to give the actual Tree Retention Rating.

Tree Retention Rating Matrix			
Tree Retention Rating Modifier	**Preliminary Tree Retention Rating**		
	High	**Moderate**	**Low**
High	Important	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

Special Value Trees

There are potentially trees that have Special Value for reasons outside of normal Arboricultural assessment protocols and therefore would not have been considered in the assessment to this point; to allow for this a Special Value characteristic that can override the Tree Retention Rating can be selected. Special Value characteristics that could override the Tree Retention Rating would include factors such as the following:

Cultural Values

Memorial Trees, Avenue of Honour Trees, Aboriginal Heritage Trees, Trees planted by Dignitaries and various other potential categories.

Environmental Values

Rare or Endangered species, Remnant Vegetation, Important Habitat for rare or endangered wildlife, substantial habitat value in an important biodiversity area and various other potential categories.

Where a tree achieves one or more Special Value characteristics the Tree Retention Rating will automatically be overridden and assigned the value of Important.

Tree Retention Rating Definitions

Important These trees are considered to be important and will in almost all instances be required to be retained within any future development/redevelopment. It is highly unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should as a minimum be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites* however given the level of importance additional considerations may be required.

High These trees are considered to be important and will in most instances be required to be retained within any future development/redevelopment. It is unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

Moderate These trees are considered to be suitable for retention however they achieve less positive attributes than the trees rated as Important or High and as such their removal or other tree damaging activity is more likely to be considered to be acceptable in an otherwise reasonable and expected development. The design process should where possible look to retain trees with a Moderate Retention Rating. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

Low These trees are not considered to be suitable for retention in any future development/redevelopment; trees in this category do not warrant special works or design modifications to allow for their retention. Trees in this category are likely to be approved for removal and/or other tree damaging activity in an otherwise reasonable and expected development. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 *Protection of trees on development sites*.

Development Impact Assessment

Potential development impacts were determined in accordance with Australian Standard 4970-2009 *Protection of trees on development sites.* The identification of the impact of development considers a number of factors including the following:

a. The extent of encroachment into a tree's Tree Protection Zone by the proposed development as a percentage of the area.

b. Results of any non-destructive exploratory investigations that may have occurred to determine root activity.

c. Any required pruning that may be needed to accommodate the proposed development.

d. Tree species and tolerance to root disturbance.

e. Age, vigour and size of the tree.

f. Lean and stability of the tree.

g. Soil characteristics and volume, topography and drainage.

h. The presence of existing or past structures or obstacles potentially affecting root growth.

i. Design factors incorporated into the proposed development to minimise impact.

Impacts were classified into the following categories:

- **None** The proposed development does not impact on the tree.
- **Low** The proposed development is unlikely to impact the health of the tree.
- **Moderate** The proposed development is expected to impact the health of the tree however mitigation strategies are available to maintain tree condition.
- **High** The proposed development is expected to substantially the health and potentially the stability of the tree.
- **Conflicted** The proposed development substantially affects the tree including the Structural Root and/ the trunk.

Trees with an impact identified as 'Low' require general Tree Protection Zone management.

Trees with Low Retention Ratings and High or Conflicted impacts are recommended for removal as alternative designs or installation methods are not warranted.

Trees with a Moderate Retention Rating and High or Conflicted impacts are recommended for further investigation such as minor design alteration, other considerations or removal.

Trees with a High Retention Rating and High or Conflicted impacts are recommended for alternative installation methods, alternative designs or if these are not practicable or are unreasonable, tree removal may be recommended.

Appendix B - Tree Assessment Findings

Eucalyptus cladocalyx 'Nana'

Tree No: 1

Dwarf Sugar Gum

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>10 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	7.92 metres
Structural Root Zone:	2.83 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus steedmanii

Tree No: 2

Steedman's Mallet

Inspected:	2 July 2019
Height:	>5 metres
Spread:	<5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	2.88 metres
Structural Root Zone:	1.88 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

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Eucalyptus spathulata

Tree No: 3

Swamp Mallet

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>5 metres
Health:	Good
Structure:	Poor
Form:	Poor
Trunk Circumference:	<2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	4.32 metres
Structural Root Zone:	2.23 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is extensive decay within the primary structure.

Recommendation	Remove

Tree removal is recommended.

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Eucalyptus salubris

Tree No: 4

Gimlet Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	4.68 metres
Structural Root Zone:	2.34 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus socialis

Tree No: 5

Red Mallee

Inspected:	2 July 2019
Height:	>5 metres
Spread:	<5 metres
Health:	Fair
Structure:	Good
Form:	Poor
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	2.64 metres
Structural Root Zone:	1.85 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus cladocalyx 'Nana'

Tree No: 6

Dwarf Sugar Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>10 metres
Health:	Good
Structure:	Poor
Form:	Fair
Trunk Circumference:	>2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	7.80 metres
Structural Root Zone:	2.81 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the existing or past structures in the root zone would minimise root activity in this area.

Observations

There is extensive decay within the primary structure.

Recommendation	Remove

Tree removal is recommended.

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Corymbia ficifolia

Tree No: 7

Red Flowering Gum

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>15 metres
Health:	Fair
Structure:	Good
Form:	Good
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	9.96 metres
Structural Root Zone:	3.14 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the existing or past structures in the root zone would minimise root activity in this area.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Grevillea robusta

Tree No: 8

Silky Oak

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>5 metres
Health:	Fair
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	5.04 metres
Structural Root Zone:	2.37 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus campaspe

Tree No: 9

Silver Gimlet

Inspected:	2 July 2019
Height:	>20 metres
Spread:	>15 metres
Health:	Poor
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	5.16 metres
Structural Root Zone:	2.37 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is dieback of branch ends throughout the crown.

Recommendation	Remove

Tree removal is required to support the proposed development.

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Angophora costata

Tree No: 10

Brittle Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	4.80 metres
Structural Root Zone:	2.32 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Corymbia citriodora

Tree No: 11

Lemon Scented Gum

Inspected:	2 July 2019
Height:	>20 metres
Spread:	>15 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	>3 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	11.76 metres
Structural Root Zone:	3.42 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	High

This tree has a High Retention Rating and should be protected in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus gardneri

Tree No: 12

Blue Mallet

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Poor
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	5.04 metres
Structural Root Zone:	2.39 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	No Impact

No encroachment into the TPZ area has been identified.

Observations

There is extensive decay within the primary structure.

Recommendation	Remove

Tree removal is recommended.

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Eucalyptus polyanthemos

Tree No: 13

Red Box

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>10 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	9.00 metres
Structural Root Zone:	3.03 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	High

This tree has a High Retention Rating and should be protected in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

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Eucalyptus crebra

Tree No: 14

Narrow-leaved Ironbark

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	6.00 metres
Structural Root Zone:	2.55 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is less than 10% of the TPZ area and the proposed development is not expected to have a noticeable impact on the viability of the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus calycogona

Tree No: 15

Square-fruited Mallee

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>5 metres
Health:	Fair
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	3.66 metres
Structural Root Zone:	2.30 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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Eucalyptus gracillis

Tree No: 16

White Mallee

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>10 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	6.82 metres
Structural Root Zone:	3.22 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus polyanthemos

Tree No: 17

Red Box

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	5.64 metres
Structural Root Zone:	2.47 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Casuarina cunninghamiana Tree No: 18

River She Oak

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Fair
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	4.08 metres
Structural Root Zone:	2.20 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Casuarina cunninghamiana

Tree No: 19

River She Oak

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	3.96 metres
Structural Root Zone:	2.15 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Corymbia maculata

Tree No: 20

Spotted Gum

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>15 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	>2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	7.44 metres
Structural Root Zone:	2.78 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	High

This tree has a High Retention Rating and should be protected in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus odorata

Tree No: 21

Peppermint Box

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	5.28 metres
Structural Root Zone:	2.49 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus odorata

Tree No: 22

Peppermint Box

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	4.83 metres
Structural Root Zone:	2.30 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus odorata

Tree No: 23

Peppermint Box

Inspected:	2 July 2019
Height:	>5 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	3.96 metres
Structural Root Zone:	2.15 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus polyanthemos

Tree No: 24

Red Box

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>10 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	5.76 metres
Structural Root Zone:	2.51 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus oleosa

Tree No: 25

Acorn Mallee

Inspected:	2 July 2019
Height:	<5 metres
Spread:	<5 metres
Health:	Poor
Structure:	Good
Form:	Poor
Trunk Circumference:	<2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	2.28 metres
Structural Root Zone:	1.68 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	No Impact

No encroachment into the TPZ area has been identified.

Observations

There is dieback of branch ends throughout the crown.

Recommendation	Remove

Tree removal is recommended.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus porosa

Tree No: 26

Mallee Box

Inspected:	2 July 2019
Height:	<5 metres
Spread:	<5 metres
Health:	Fair
Structure:	Fair
Form:	Poor
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	3.00 metres
Structural Root Zone:	1.91 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is minor dieback of branch ends throughout the crown. There is minor decay within the primary structure.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus leucoxylon

Tree No: 27

South Australian Blue Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Fair
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	5.64 metres
Structural Root Zone:	2.49 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is minor decay within the primary structure.

Recommendation	Apply TPZ

This tree should be protected in accordance with AS4970-2009.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus leucoxylon

Tree No: 28

South Australian Blue Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	3.36 metres
Structural Root Zone:	2.02 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus sideroxylon

Tree No: 29

Mugga or Red Ironbark

Inspected:	2 July 2019
Height:	>10 metres
Spread:	>5 metres
Health:	Poor
Structure:	Good
Form:	Poor
Trunk Circumference:	>2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	6.03 metres
Structural Root Zone:	2.56 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is dieback of branch ends throughout the crown.

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus intertexta

Tree No: 30

Smooth Barked Coolibah

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>15 metres
Health:	Poor
Structure:	Poor
Form:	Fair
Trunk Circumference:	>2 metres
Useful Life Expectancy:	Surpassed
Tree Protection Zone:	9.48 metres
Structural Root Zone:	3.09 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is dieback of branch ends throughout the crown. There is an unstable union in the primary structure.

Recommendation	Remove

Tree removal is required to support the proposed development.

arborman tree solutions
PROFESSIONALS IN ARBORICULTURE

Eucalyptus leucoxylon

Tree No: 31

South Australian Blue Gum

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>5 metres
Health:	Good
Structure:	Poor
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	6.48 metres
Structural Root Zone:	2.65 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	Low

The identified encroachment is greater than 10% of the TPZ area however the proposed development incorporates features that minimise the impact on the tree.

Observations

There is extensive decay within the primary structure.

Recommendation	Remove

Tree removal is recommended.

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Acacia pendula

Tree No: 32

Weeping Myall

Inspected:	2 July 2019
Height:	<5 metres
Spread:	>5 metres
Health:	Fair
Structure:	Good
Form:	Poor
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	3.00 metres
Structural Root Zone:	1.91 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is minor dieback of branch ends throughout the crown.

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus camaldulensis

Tree No: 33

River Red Gum

Inspected:	2 July 2019
Height:	>15 metres
Spread:	>10 metres
Health:	Good
Structure:	Poor
Form:	Poor
Trunk Circumference:	>2 metres
Useful Life Expectancy:	<10 years
Tree Protection Zone:	8.16 metres
Structural Root Zone:	2.88 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

The tree appears to have been pollarded previously.

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus camaldulensis

Tree No: 34

River Red Gum

Inspected:	2 July 2019
Height:	>10 metres
Spread:	<5 metres
Health:	Good
Structure:	Fair
Form:	Fair
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	5.04 metres
Structural Root Zone:	2.34 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Moderate

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is minor decay within the primary structure.

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Inspected:	2 July 2019
Height:	<5 metres
Spread:	<5 metres
Health:	Good
Structure:	Good
Form:	Good
Trunk Circumference:	<2 metres
Useful Life Expectancy:	>20 years
Tree Protection Zone:	12.00 metres
Structural Root Zone:	3.31 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	Low

This tree has a Low Retention Rating and should not form a material constraint to any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

Small group of immature native trees.

Recommendation	Remove

Tree removal is required to support the proposed development.

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PROFESSIONALS IN ARBORICULTURE

Eucalyptus camaldulensis

Tree No: 36

River Red Gum

Inspected:	2 July 2019
Height:	>20 metres
Spread:	>20 metres
Health:	Good
Structure:	Fair
Form:	Good
Trunk Circumference:	>3 metres
Useful Life Expectancy:	>10 years
Tree Protection Zone:	15.00 metres
Structural Root Zone:	3.82 metres

Legislative Status	Exempt

This tree is exempt from control under the Development Act 1993.

Retention Rating	High

This tree has a High Retention Rating and should be protected in any future development.

Development Impact	**Conflicted**

The identified encroachment impacts the SRZ or the trunk.

Observations

There is minor decay within the primary structure.

Recommendation	Remove

Tree removal is required to support the proposed development.

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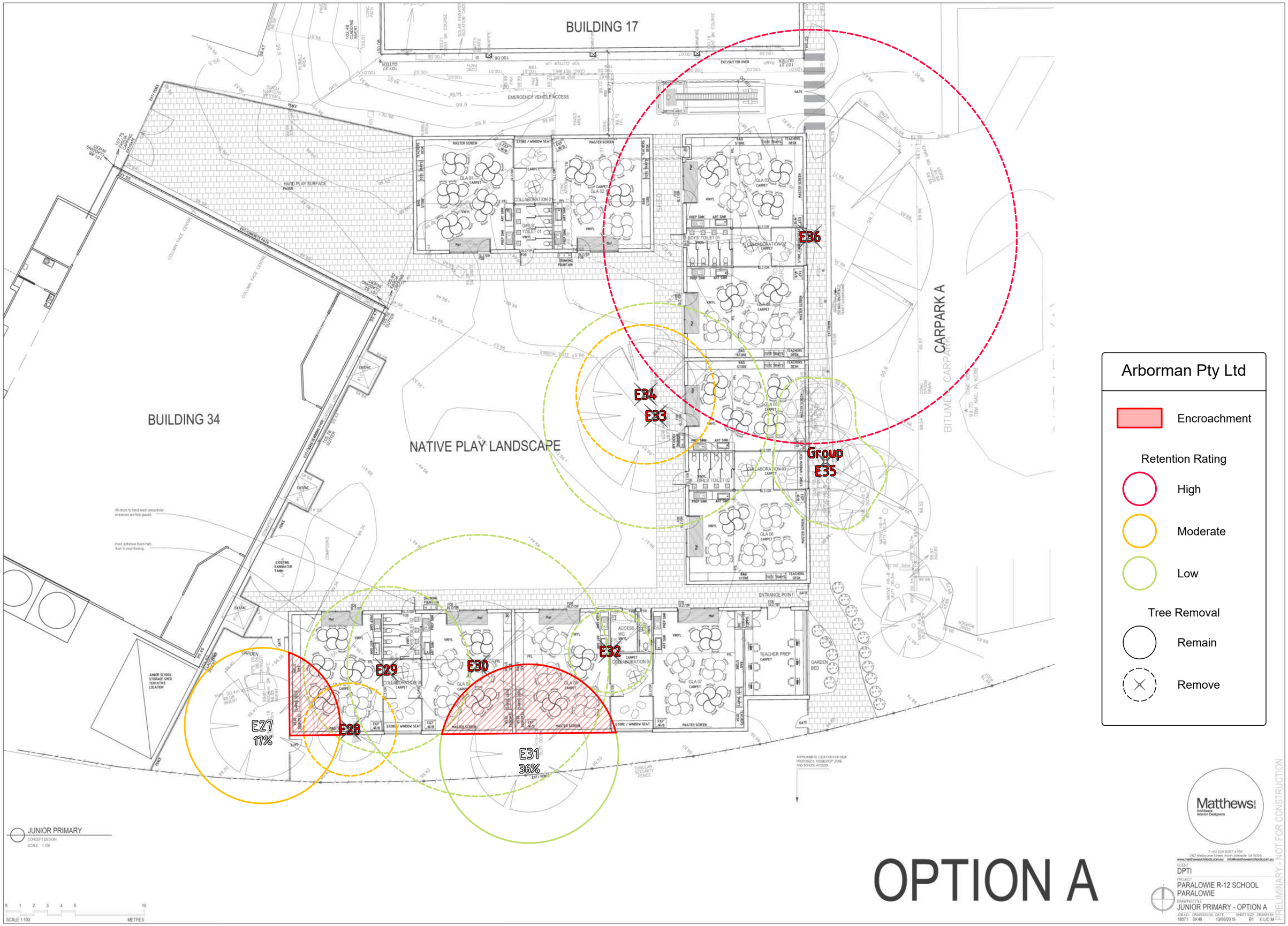
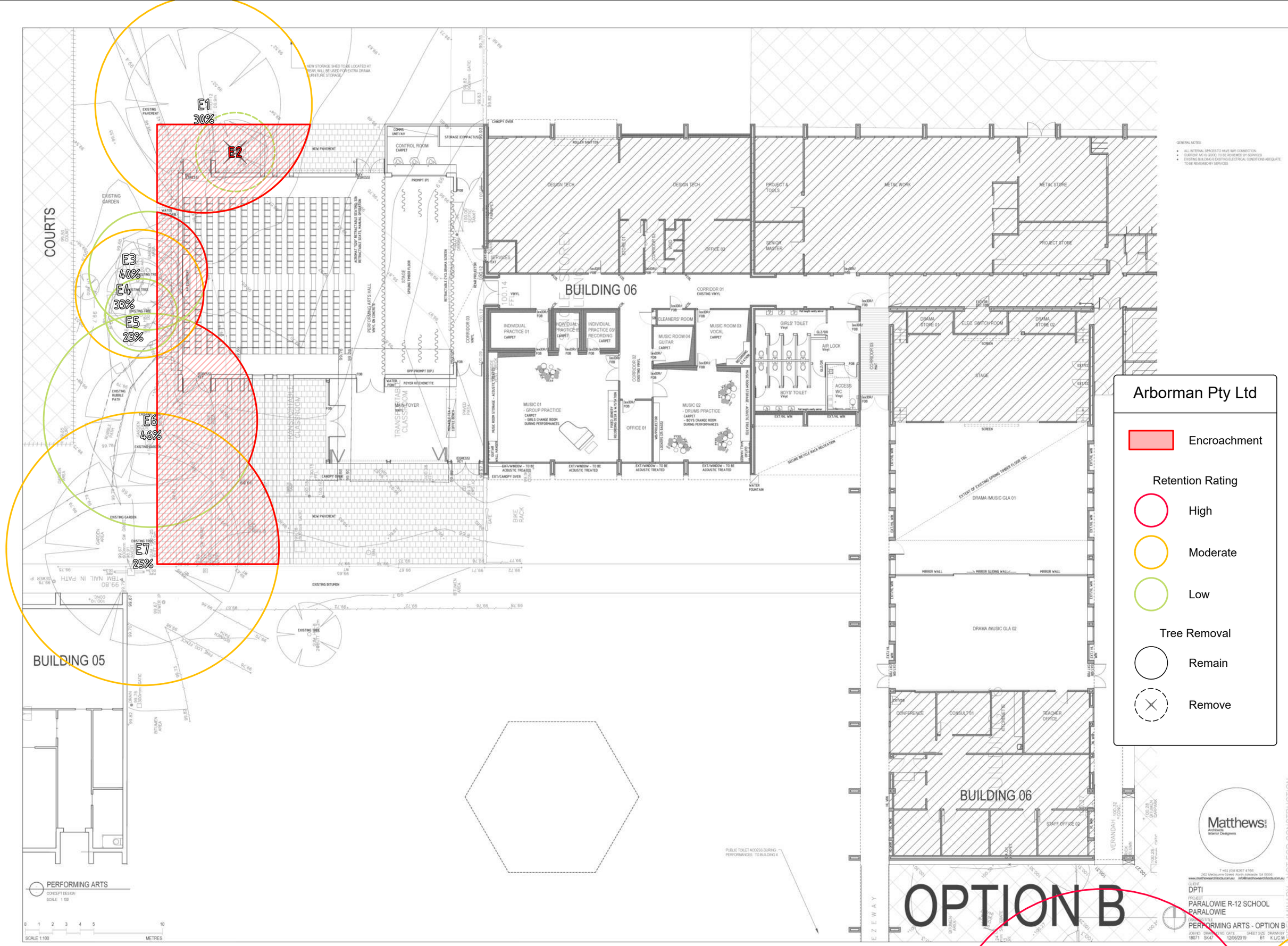
PROFESSIONALS IN ARBORICULTURE

Appendix C - Mapping


BUILDING 17
BUILDING 34
NATIVE PLAY LANDSCAPE
CARPARK A
HARD PLAY SURFACE
EMERGENCY VEHICLE ACCESS
ENTRANCE POINT
JUNIOR SCHOOL STORAGE SHED TENTATIVE LOCATION
E36
E34
E33
Group E35
E32
E29
E30
E27 17%
E28
E31 36%
Arborman Pty Ltd
Encroachment
Retention Rating
High
Moderate
Low
Tree Removal
Remain
Remove
JUNIOR PRIMARY
CONCEPT DESIGN
SCALE 1:100
SCALE 1:100
METRES
OPTION A
Matthews
Architects
Interior Designers
CLIENT
DPTI
PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE
DRAWING TITLE
JUNIOR PRIMARY - OPTION A
JOB NO. DRAWING NO. DATE SHEET SIZE DRAWN BY
18071 SK46 13/06/2019 B1 K.L/C.M
PRELIMINARY - NOT FOR CONSTRUCTION


E1
30%
E2
E3
40%
E4
33%
E5
23%
E6
46%
E7
25%
COURTS
EXISTING GARDEN
EXISTING PAVEMENT
NEW PAVEMENT
NEW STORAGE SHED TO BE LOCATED AT REAR, WILL BE USED FOR EXTRA DRAMA FURNITURE STORAGE
CONTROL ROOM
CARPET
STORAGE (COMPACTUS)
COMMS UNIT/A/V
CANOPY OVER
ROLLER SHUTTER
DESIGN TECH.
DESIGN TECH.
PROJECT & TOOLS
METAL WORK
METAL STORE
PROJECT STORE
SENIOR MASTER
OFFICE 02
STORE 01
CORRIDOR 03
WIND
SERVICES EXT
BUILDING 06
CORRIDOR 01
EXISTING VINYL
INDIVIDUAL PRACTICE 01
CARPET
INDIVIDUAL PRACTICE 02
INDIVIDUAL PRACTICE 03/ RECORDING
CLEANERS' ROOM
MUSIC ROOM 03 VOCAL
MUSIC ROOM 04 GUITAR
GIRLS' TOILET
Vinyl
AIR LOCK
BOYS' TOILET
ACCESS WC
CORRIDOR 02
MUSIC 01
- GROUP PRACTICE
CARPET
- GIRLS CHANGE ROOM DURING PERFORMANCES
OFFICE 01
MUSIC 02
- DRUMS PRACTICE
CARPET
- BOYS CHANGE ROOM DURING PERFORMANCES
DRAMA STORE 01
ELEC. SWITCH ROOM
DRAMA STORE 02
STAGE
SCREEN
EXT/WINDOW – TO BE ACOUSTIC TREATED
EXT/CANOPY OVER
SECURE BICYCLE RACK RELOCATION
WATER FOUNTAIN
EXTENT OF EXISTING SPRING TIMBER FLOOR TBC
DRAMA /MUSIC GLA 01
MIRROR WALL
MIRROR SLIDING WALL
DRAMA /MUSIC GLA 02
CONFERENCE
CONSULT 01
KITCHETTE
TEACHER OFFICE
STAFF OFFICE 02
VERANDAH
BUILDING 05
TRANSITIONAL CLASSROOM
MAIN FOYER
VINYL
FOYER KITCHENETTE
PERFORMING ARTS HALL
VINYL ON CONCRETE
STAGE
SPRUNG TIMBER FLOOR
ASPHALT TOPP RETRACTABLE SEATING SYS RETRACTABLE SEATS, MANUAL OPERATION
RETRACTABLE CYCLORAMA SCREEN
BEAM PROJECTION
PAVED PATH
BIKE RACK
EXISTING BITUMEN
EXISTING TREES
EXISTING RUBBLE PATH
EXISTING GARDEN AREA
EXISTING TREE
PERFORMING ARTS
CONCEPT DESIGN
SCALE 1:100
SCALE 1:100
METRES
PUBLIC TOILET ACCESS DURING PERFORMANCES TO BUILDING 4
EZEWAY
OPTION B
GENERAL NOTES
ALL INTERNAL SPACES TO HAVE WIFI CONNECTION
CURRENT A/C IS GOOD, TO BE REVIEWED BY SERVICES
EXISTING BUILDING IS EXISTING ELECTRICAL CONDITIONS ADEQUATE TO BE REVIEWED BY SERVICES
Arborman Pty Ltd
Encroachment
Retention Rating
High
Moderate
Low
Tree Removal
Remain
Remove
Matthews
Architects
Interior Designers
CLIENT
DPTI
PROJECT
PARALOWIE R-12 SCHOOL
PARALOWIE
DRAWING TITLE
PERFORMING ARTS - OPTION B
JOB NO. DRAWING NO. DATE SHEET SIZE DRAWN BY
18071 SK47 12/06/2019 B1 K.LI/C.M
PRELIMINARY - NOT FOR CONSTRUCTION

Arborman Pty Ltd

Encroachment

Retention Rating

High

Moderate

Low

Tree Removal

Remain

Remove

BUILDING 06

BUILDING 04

BUILDING 01

CARPARK

CARPARK E

BREEZEWAY

HALBA CRESCENT

E8 26%

E9

E10 40%

E11 26%

E12 0%

E13

E14 1%

E15 37%

E16

E17

E18

E19

E20 45%

E21

E22

E23

E24 15%

E26

YEAR 7 BUILDING

CONCEPT DESIGN

SCALE: 1:100

0 1 2 3 4 5 10

SCALE 1:100 METRES

Matthews Architects Interior Designers

262 Melbourne Street, North Adelaide SA 5006

CLIENT DPTI

PROJECT PARALOWIE R-12 SCHOOL PARALOWIE

DRAWING TITLE BUILDING 4 & YEAR 7

JOB NO. 18071 | DRAWING NO. SK40 | DATE 12/06/2019 | SHEET SIZE B1 | DRAWN BY KL

PRELIMINARY - NOT FOR CONSTRUCTION

Appendix D – Tree Assessment Summary

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Tree Assessment Summary

Tree No.	Botanic Name	Legislative Status	Retention Rating	Development Impact	TPZ Radius	Observations	Recommendations
1	*Eucalyptus cladocalyx 'Nana'*	Exempt	Moderate	Low	7.92 metres		This tree should be protected in accordance with AS4970-2009.
2	*Eucalyptus steedmanii*	Exempt	Low	Conflicted	2.88 metres		Tree removal is required to support the proposed development.
3	*Eucalyptus spathulata*	Exempt	Low	Low	4.32 metres	There is extensive decay within the primary structure.	Tree removal is recommended.
4	*Eucalyptus salubris*	Exempt	Moderate	Low	4.68 metres		This tree should be protected in accordance with AS4970-2009.
5	*Eucalyptus socialis*	Exempt	Low	Low	2.64 metres	There is minor dieback of branch ends throughout the crown.	This tree should be protected in accordance with AS4970-2009.
6	*Eucalyptus cladocalyx 'Nana'*	Exempt	Low	Low	7.80 metres	There is extensive decay within the primary structure.	Tree removal is recommended.
7	*Corymbia ficifolia*	Exempt	Moderate	Low	9.96 metres	There is minor dieback of branch ends throughout the crown.	This tree should be protected in accordance with AS4970-2009.
8	*Grevillea robusta*	Exempt	Moderate	Low	5.04 metres	There is minor dieback of branch ends throughout the crown.	This tree should be protected in accordance with AS4970-2009.
9	*Eucalyptus campaspe*	Exempt	Low	Conflicted	5.16 metres	There is dieback of branch ends throughout the crown.	Tree removal is required to support the proposed development.
10	*Angophora costata*	Exempt	Moderate	Low	4.80 metres		This tree should be protected in accordance with AS4970-2009.
11	*Corymbia citriodora*	Exempt	High	Low	11.76 metres		This tree should be protected in accordance with AS4970-2009.
12	*Eucalyptus gardneri*	Exempt	Low	No Impact	5.04 metres	There is extensive decay within the primary structure.	Tree removal is recommended.

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Tree Assessment Summary

Tree No.	Botanic Name	Legislative Status	Retention Rating	Development Impact	TPZ Radius	Observations	Recommendations
13	*Eucalyptus polyanthemos*	Exempt	High	Conflicted	9.00 metres		Tree removal is required to support the proposed development.
14	*Eucalyptus crebra*	Exempt	Moderate	Low	6.00 metres		This tree should be protected in accordance with AS4970-2009.
15	*Eucalyptus calycogona*	Exempt	Moderate	Low	3.66 metres	There is minor dieback of branch ends throughout the crown.	This tree should be protected in accordance with AS4970-2009.
16	*Eucalyptus gracillis*	Exempt	Moderate	Conflicted	6.82 metres		Tree removal is required to support the proposed development.
17	*Eucalyptus polyanthemos*	Exempt	Moderate	Conflicted	5.64 metres		Tree removal is required to support the proposed development.
18	*Casuarina cunninghamiana*	Exempt	Moderate	Conflicted	4.08 metres	There is minor dieback of branch ends throughout the crown.	Tree removal is required to support the proposed development.
19	*Casuarina cunninghamiana*	Exempt	Moderate	Conflicted	3.96 metres		Tree removal is required to support the proposed development.
20	*Corymbia maculata*	Exempt	High	Low	7.44 metres		This tree should be protected in accordance with AS4970-2009.
21	*Eucalyptus odorata*	Exempt	Moderate	Conflicted	5.28 metres		Tree removal is required to support the proposed development.
22	*Eucalyptus odorata*	Exempt	Moderate	Conflicted	4.83 metres		Tree removal is required to support the proposed development.
23	*Eucalyptus odorata*	Exempt	Moderate	Conflicted	3.96 metres		Tree removal is required to support the proposed development.
24	*Eucalyptus polyanthemos*	Exempt	Moderate	Low	5.76 metres		This tree should be protected in accordance with AS4970-2009.

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PROFESSIONALS IN ARBORICULTURE

Tree Assessment Summary

Tree No.	Botanic Name	Legislative Status	Retention Rating	Development Impact	TPZ Radius	Observations	Recommendations
25	*Eucalyptus oleosa*	Exempt	Low	No Impact	2.28 metres	There is dieback of branch ends throughout the crown.	Tree removal is recommended.
26	*Eucalyptus porosa*	Exempt	Low	Low	3.00 metres	There is minor dieback of branch ends throughout the crown. There is minor decay within the primary structure.	This tree should be protected in accordance with AS4970-2009.
27	*Eucalyptus leucoxylon*	Exempt	Moderate	Low	5.64 metres	There is minor decay within the primary structure.	This tree should be protected in accordance with AS4970-2009.
28	*Eucalyptus leucoxylon*	Exempt	Moderate	**Conflicted**	3.36 metres		Tree removal is required to support the proposed development.
29	*Eucalyptus sideroxylon*	Exempt	Low	**Conflicted**	6.03 metres	There is dieback of branch ends throughout the crown.	Tree removal is required to support the proposed development.
30	*Eucalyptus intertexta*	Exempt	Low	**Conflicted**	9.48 metres	There is dieback of branch ends throughout the crown. There is an unstable union in the primary structure.	Tree removal is required to support the proposed development.
31	*Eucalyptus leucoxylon*	Exempt	Low	Low	6.48 metres	There is extensive decay within the primary structure.	Tree removal is recommended.
32	*Acacia pendula*	Exempt	Low	**Conflicted**	3.00 metres	There is minor dieback of branch ends throughout the crown.	Tree removal is required to support the proposed development.
33	*Eucalyptus camaldulensis*	Exempt	Low	**Conflicted**	8.16 metres	The tree appears to have been pollarded previously.	Tree removal is required to support the proposed development.
34	*Eucalyptus camaldulensis*	Exempt	Moderate	**Conflicted**	5.04 metres	There is minor decay within the primary structure.	Tree removal is required to support the proposed development.
35	*Group - Native*	Exempt	Low	**Conflicted**	12.00 metres	Small group of immature native trees.	Tree removal is required to support the proposed development.

Tree Assessment Summary

Tree No.	Botanic Name	Legislative Status	Retention Rating	Development Impact	TPZ Radius	Observations	Recommendations
36	*Eucalyptus camaldulensis*	Exempt	High	**Conflicted**	15.00 metres	There is minor decay within the primary structure.	Tree removal is required to support the proposed development.

Appendix E - Tree Protection Zone Guidelines

Tree Protection Zone General Specifications and Guidelines

The Tree Protection Zone(s) is identified on the site plan. The TPZ is an area where construction activities are regulated for the purposes of protecting tree viability. The TPZ should be established so that it clearly identifies and precludes development/construction activities including personnel.

If development activities are required within the TPZ then these activities must be reviewed and approved by the Project Arborist. Prior to approval, the Project Arborist must be certain that the tree(s) will remain viable as a result of this activity.

Work Activities Excluded from the Tree Protection Zone:

a) Machine excavation including trenching;

b) Excavation for silt fencing;

c) Cultivation;

d) Storage;

e) Preparation of chemicals, including preparation of cement products;

f) Parking of vehicles and plant;

g) Refuelling;

h) Dumping of waste;

i) Wash down and cleaning of equipment;

j) Placement of fill;

k) Lighting of fires;

l) Soil level changes;

m) Temporary or permanent installation of utilities and signs, and

n) Physical damage to the tree.

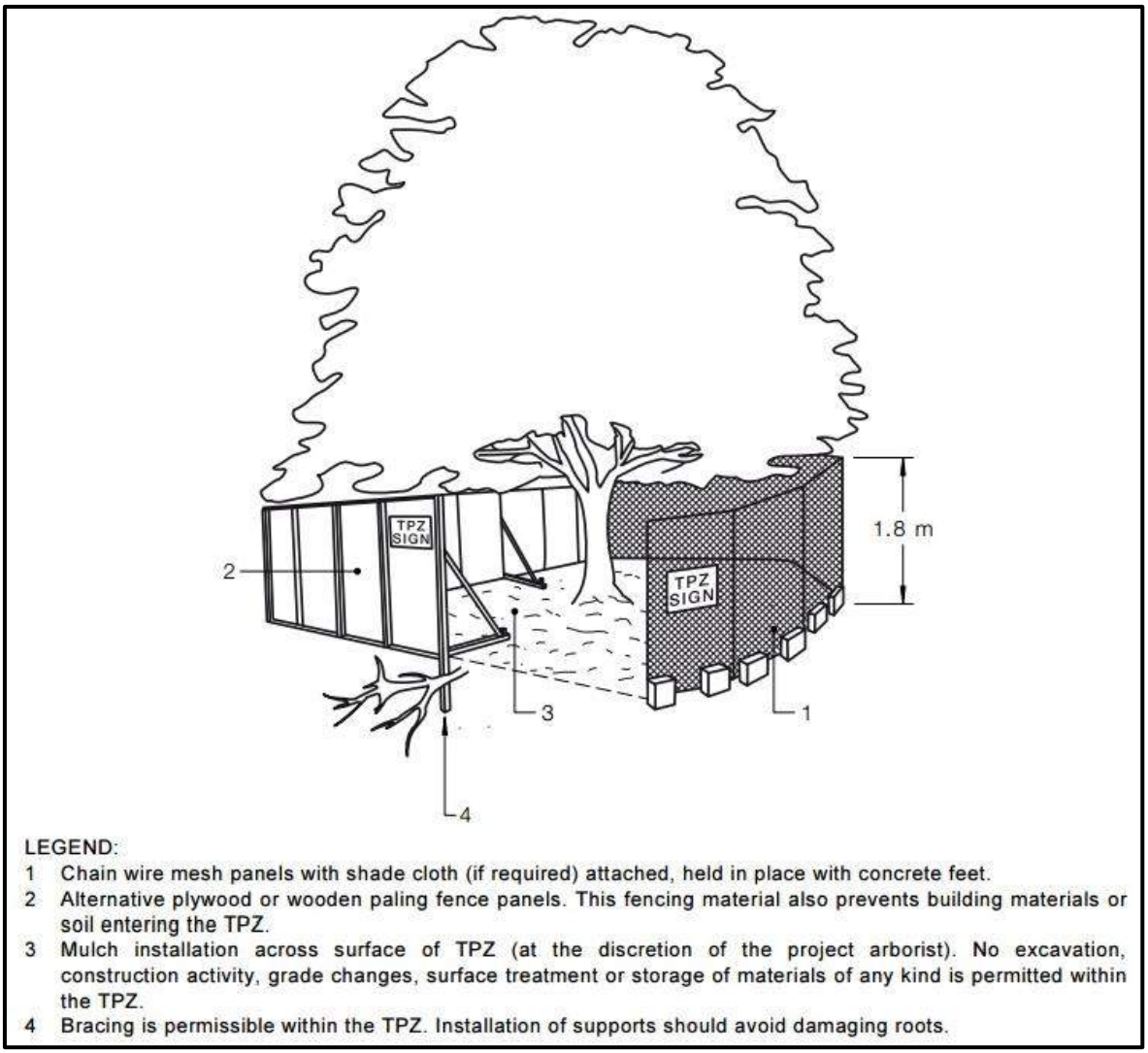
Protective Fencing
Protective fencing must be installed around the identified Tree Protection Zone (See Figure1). The fencing should by chain wire panels and compliant with AS4687 - 2007 *Temporary fencing and hoardings*. Shade cloth or similar material should be attached around the fence to reduce dust, other particulates and liquids entering the protected area.

Temporary fencing on 28kg bases are recommended for use as this eliminates any excavation requirements to install fencing. Excavation increase the likelihood of root damage therefore should be avoided where possible throughout the project.

Existing perimeter fencing and other structures may be utilised as part of the protective fencing.

Any permanent fencing should be post and rail with the set out determined in consultation with the Project Arborist.

Where the erection of the fence is not practical the Project Arborist is to approve alternative measures.



LEGEND:
1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

Figure 1 Showing example of protection fencing measures suitable.

Other Protection Measures

General
When a TPZ exclusion area cannot be established due to practical reasons or the area needs to be entered to undertake construction activities then additional tree protection measures may need to be adopted. Protection measures should be compliant with AS4970-2009 and approved by the Project Arborist

Installation of Scaffolding within Tree Protection Area.
Where scaffolding is required within the TPZ branch removal should be minimised. Any branch removal required should be approved by the Project Arborist and performed by a certified Arborist and performed in accordance with AS4373-2007. Approval to prune branches must be documented and maintained.

Ground below scaffold should be protected by boarding (e.g. scaffold board or plywood sheeting) as shown in Figure below. The boarding should be left in place until scaffolding is removed.

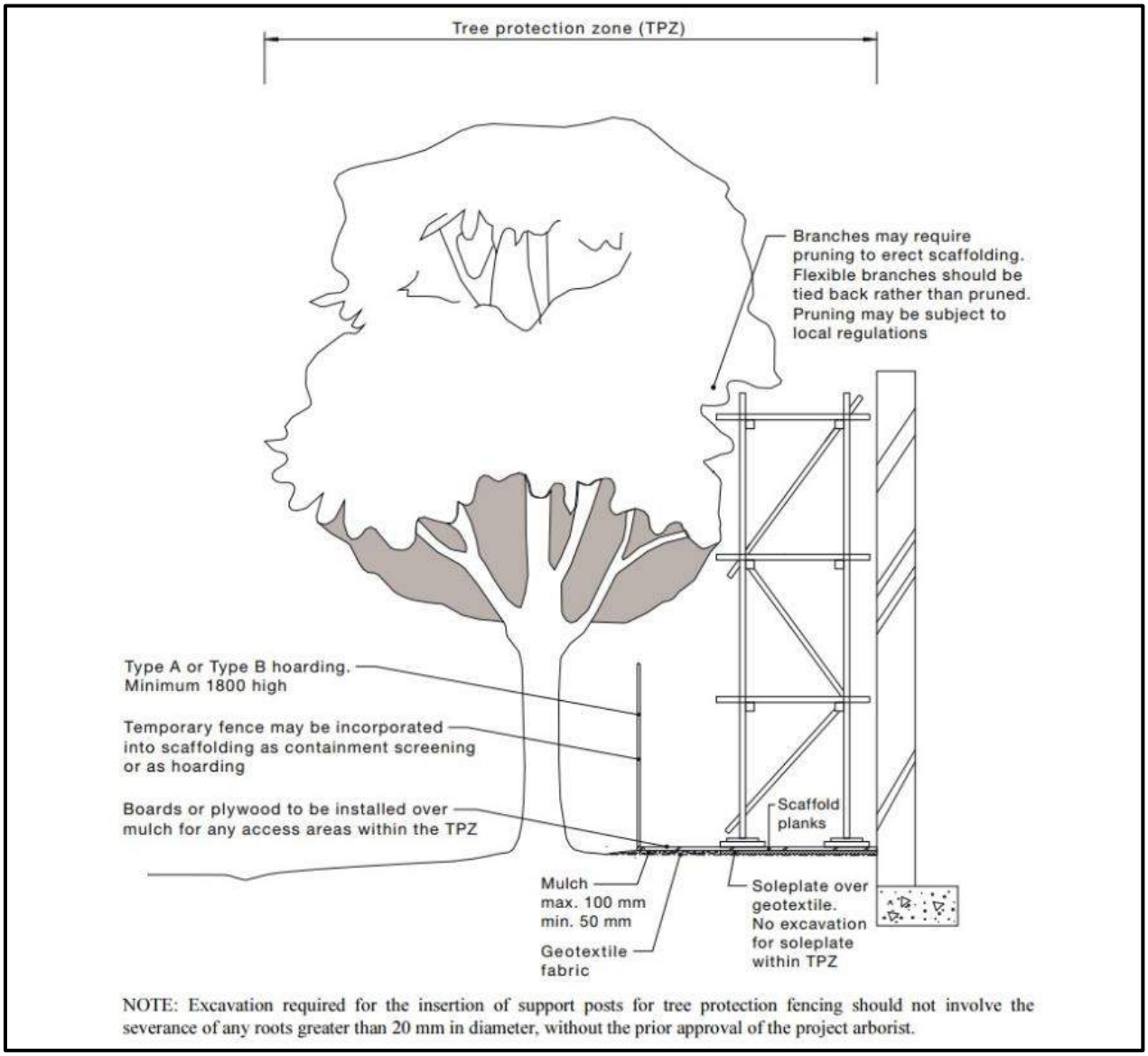
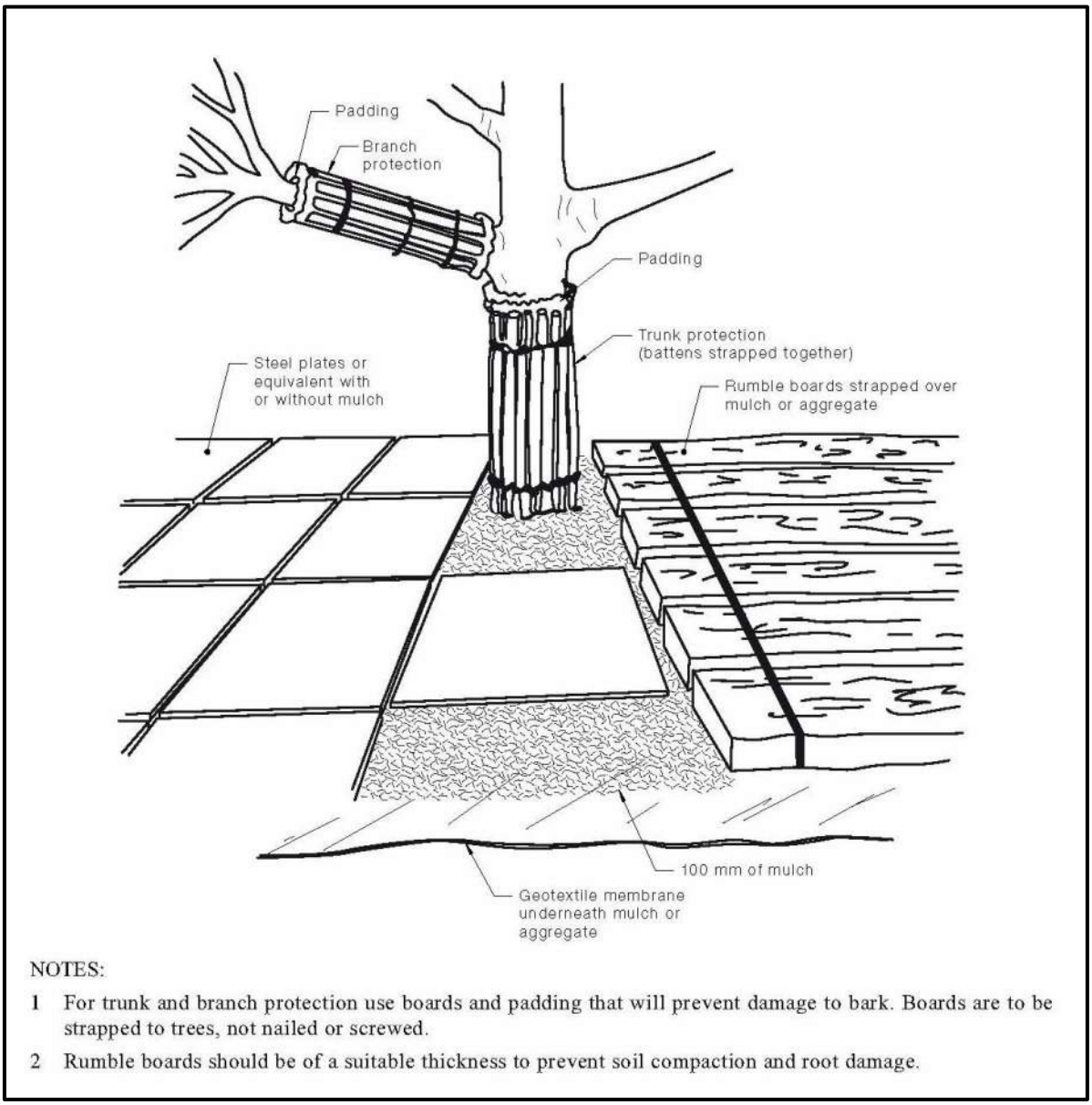


Figure 2 – Showing scaffold constructed within TPZ.

Ground Protection
Where access is required within the TPZ ground protection measures are required. Ground protection is to be designed to prevent both damage to the roots and soil compaction.

Ground protection methods include the placement of a permeable membrane beneath a layer of non-compactable material such as mulch or a no fines gravel which is in turn covered with rumble boards or steel plates.



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Figure 3 – Ground protection methods.

Document Source:
Diagrams in this document are sourced from AS4970-2009 Protection of trees on development sites*. Further information and guidelines are available in within that document.*

Paving Construction within a Tree Protection Zone
Paving within any Tree Protection Zone (TPZ) must be carried out above natural ground level unless it can be shown with non-destructive excavation (AirSpade® or similar) that no or insignificant root growth occupies the proposed construction area.

Due to the adverse effect filling over a Tree Protection Zone (TPZ) can have on tree health; alternative mediums other than soil must be used. Available alternative mediums include structural soils or the use of a cellular confinement system such as *Ecocell*®.

Ecocell®
Ecocell® systems are a cellular confinement system that can be filled with large particle sized gravels as a sub-base for paving systems to reduce compaction to the existing grade.

Site preparation
- Clearly outline to all contracting staff entering the site the purpose of the TPZ's and the contractors' responsibilities. No fence is to be moved and no person or machinery is to access the TPZ's without consent from the City of Unley and/or the Project Arborist.

- Fence off the unaffected area of the TPZ with a temporary fence leaving a 1.5 metre gap between the work area and the fence; this will prevent machinery access to the remaining root zone.

Installation of Ecocell® and EcoTrihex Paving®
- Install a non-woven geotextile fabric for drainage and separation from sub base with a minimum of 600mm overlap on all fabric seams as required.

- Add Ecocell®, fill compartments with gravel and compact to desired compaction rate.

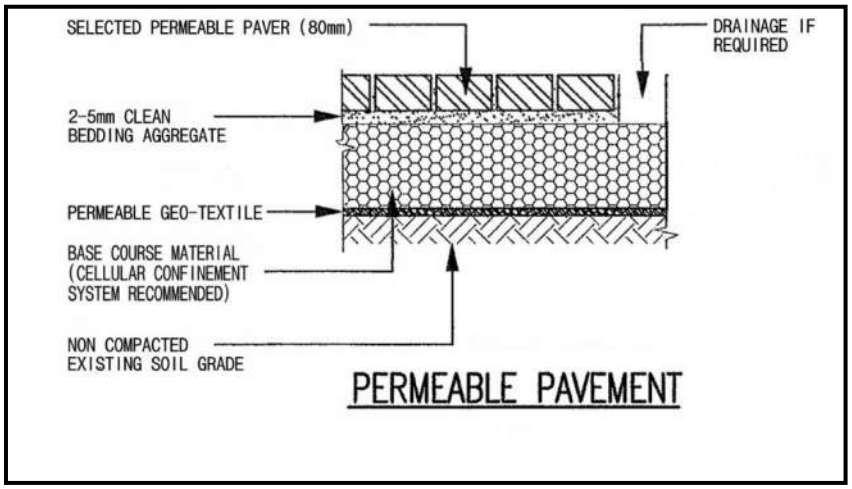
- If excessive groundwater is expected incorporate an appropriate drainage system within the bedding sand level.

- Add paving sand to required depth and compact to paving manufacturer's specifications.

- Lay EcoTrihex Paving® as per manufactures specifications and fill gaps between pavers with no fines gravel.

- Remove all debris, vegetation cover and unacceptable in-situ soils. No excavation or soil level change of the sub base is allowable for the installation of the paving.

- Where the finished soil level is uneven, gullies shall be filled with 20 millimetre coarse gravel to achieve the desired level.



This construction method if implemented correctly can significantly reduce and potentially eliminated the risk of tree decline and/or structural failure and effectively increase the size of the Tree Protection Zone to include the area of the paving.

Certificates of Control

Stage in development	Tree management process	
	Matters for consideration	**Actions and certification**
Development submission	Identify trees for retention through comprehensive arboricultural impact assessment of proposed construction. Determine tree protection measures Landscape design	Provide arboricultural impact assessment including tree protection plan (drawing) and specification
Development approval	Development controls Conditions of consent	Review consent conditions relating to trees
Pre-construction (Sections 4 and 5)		
Initial site preparation	State based OHS requirements for tree work Approved retention/removal Refer to AS 4373 for the requirements on the pruning of amenity trees Specifications for tree protection measures	Compliance with conditions of consent Tree removal/tree retention/transplanting Tree pruning Certification of tree removal and pruning Establish/delineate TPZ Install protective measures Certification of tree protection measures
Construction (Sections 4 and 5)		
Site establishment	Temporary infrastructure Demolition, bulk earthworks, hydrology	Locate temporary infrastructure to minimize impact on retained trees Maintain protective measures Certification of tree protection measures
Construction work	Liaison with site manager, compliance Deviation from approved plan	Maintain or amend protective measures Supervision and monitoring
Implement hard and soft landscape works	Installation of irrigation services Control of compaction work Installation of pavement and retaining walls	Remove selected protective measures as necessary Remedial tree works Supervision and monitoring
Practical completion	Tree vigour and structure	Remove all remaining tree protection measures Certification of tree protection
Post construction (Section 5)		
Defects liability/ maintenance period	Tree vigour and structure	Maintenance and monitoring Final remedial tree works Final certification of tree condition

Document Source:

This table has been sourced from AS4970-2009 Protection of trees on development sites. *Further information and guidelines are available in within that document.*

Tree Protection Zone

NO ACCESS

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PROFESSIONALS IN ARBORICULTURE

Appendix F – Root Pruning

Root Pruning

Tree roots are responsible for the uptake of nutrients and water as well as anchoring the plant in the ground. Root pruning may cause tree stress, allow for pathogen attack or/and could cause instability. AS4373-2007 *Pruning of amenity trees* identifies the following; 'Specialist advice from a person with a minimum of AQF level 4 in arboriculture should be sought before any root pruning occurs.

When is Root Pruning Required?

Whether it is to trench for services, a swimming pool, or make way for a building addition, tree roots may likely need to be cut and pruned to accommodate these additions. The key to Root Pruning is using the right equipment. Backhoes and heavy machinery are intended for large scale excavation, not Root Pruning. Heavy machinery can rip roots and tear them all the way back to the trunk, which can lead to decay, health decline and possible destabilisation of the tree. All cuts shall be clean cuts made with sharp tools such as secateurs, pruners, handsaws, chainsaws or specialised root pruning equipment. This helps prevent root damage and aids in root regeneration.

The impact from Root Pruning depends on several factors (see below). Damage may occur when more cuts or bigger cuts are made or when the cuts are within close proximity to the trunk of the tree.

Factors to consider when Root Pruning

- Root size: larger roots may generate fewer new roots once cut.
- Number of roots cut: if too many roots are cut this could result in tree stress.
- Proximity of the cuts to the tree's trunk; cutting roots close to the trunk could result in substantial impacts to tree health and stability.
- Tree Species: some species tolerate Root Pruning more than others.
- Tree Age: trees that are old or senescent are more likely to stress and could decline or die.
- Tree Condition: trees in poor health or with poor structure should not have Root Pruning undertaken.
- Tree Lean: leaning trees should not have root pruning undertaken.
- Soil type and site drainage: shallow soils require root pruning to be undertaken further from the tree's trunk.

Root Pruning Recommended Practice

1) Root pruning is undertaken when tree roots are cleanly severed from the tree in order to prevent damage which would normally be caused by excavation.

2) The soil around the roots is removed by hand or non-destructive excavations, the roots can be seen before pruning. This is called making a "root pruning trench".

3) Once exposed, the roots are cleanly cut, then top soil is put into the root pruning trench to encourage root regrowth in that area.

4) This system prevents future problems with the tree by minimizing damage to its roots.

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