ATTACHMENT B

DOCUMENTS LISTED IN DRAFT CONDITION 1

ITEM 1

Architectural Drawings Package (Dunn & Hillam Architects)

Proposed Ward Oval Multipurpose Hall, Refurbished Pavilions + Carparks - Development Application

Ward Oval Precinct, Brennan St, Cobar 2835 - Lots 7317 and 7318 in DP 1170701, Lots 19-24 in DP 22820, Lot 65 in DP651098, Lot 17 DP213415, and Lot 100 DP1280186.
Cobar Shire Council - Cobar Local Environment Plan 2012 - Joint Regional Planning Panel

A

Architectural Drawing List

Drawing No.	Drawing Title	Current Revision	Date
DA01-00	Cover Sheet	A	Thu, 21 Apr 2022
DA01-01	Overall Site Plan	A	Thu, 21 Apr 2022
DA01-02	B.01 Multipurpose Hall Ground Floor Plan	A	Thu, 21 Apr 2022
DA01-03	B.01 Multipurpose Hall Sections	A	Thu, 21 Apr 2022
DA01-04	B.01 Multipurpose Hall Elevations	A	Thu, 21 Apr 2022
DA01-05	Refurbished Pavilions Site Plan	A	Thu, 21 Apr 2022
DA01-06	B.02 Wool Pavilion		Thu, 21 Apr 2022
DA01-07	B.03 Main Pavilion		Thu, 21 Apr 2022
DA01-08	B.04 Poultry Pavilion		Thu, 21 Apr 2022
DA01-09	B.05 Trade Pavilion		Thu, 21 Apr 2022

Supporting Documents

Document	Author	Current Revision	Date
Access Report	Design Confidence	-	19-Nov-21
Arboricultural Report	Wade Ryan Consulting	3	22-Apr-22
BCA Report	Design Confidence	3	23-Nov-21
Civil + Stormwater Concept	JHA	3	23-Nov-21
Geotechnical Report	Barnson	B	13-Jul-21
Hazardous Materials Survey	PWA	-	8-Dec-21
Land Owners Consent	NSW Crown Lands	-	9-Mar-22
Lighting Design Letter	JHA	-	4-Nov-21
Noise Impact Assessment	JHA	A	18-Nov-22
Plan of Managment (WOP)	Innerwest Town Planning	1.4	17-Sep-21
Plan of Managment (B.01)	Cobar Shire Council	1	10-Nov-21
Prelim Site Investigation	Barnson	-	23-Jul-21
QS Prelim Cost Report	Altus Group Cost Consulting	-	17-Mar-21
Site Survey	Langford & Rowe	-	3-Aug-21
Statement of Environmental Effects	SJB	final	Dec-21
Traffic and Parking Assessment	Lyle Marshall & Partners	-	Nov-21

A

Schedule of Areas

	Proposed Area
Site Area	64860 sq m
Built Area	1138 sq m
Roof Area	1727 sq m
Landscaped Area (Carparks, Pathways, Refurbished Pavilion Courtyard, B.01 North + West Lawn)	3117 sq m
Decks + Verandahs (B.01)	476 sq m

A

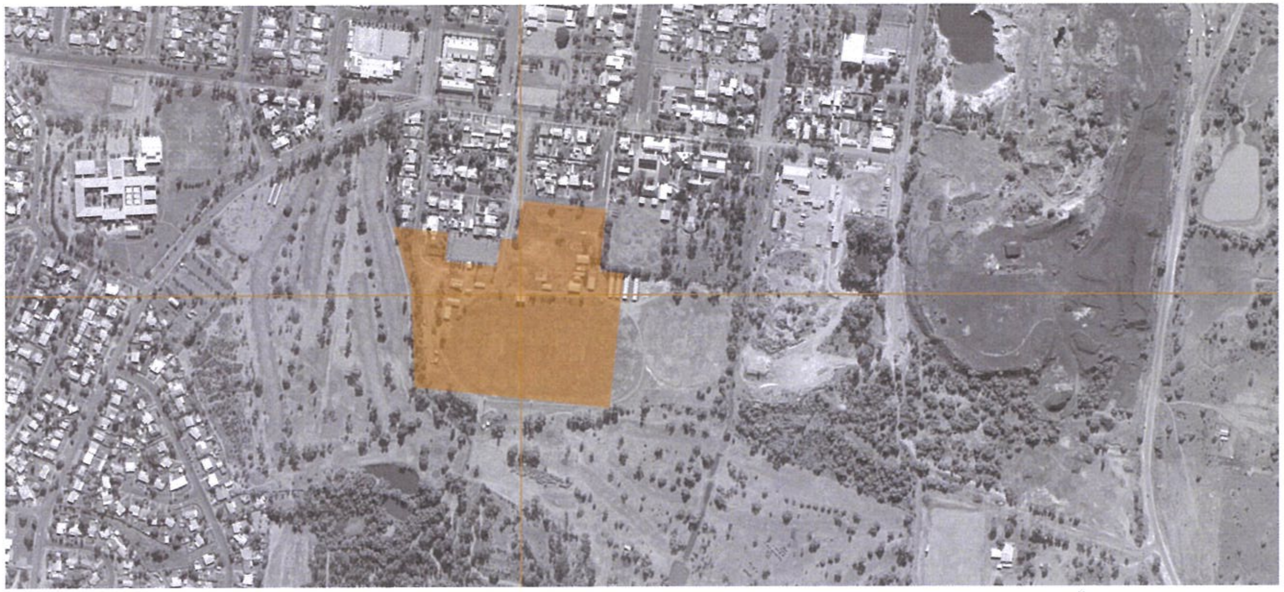
Door + Window Schedule

WINDOWS

ID	Location	Type	Height (mm)	Width (mm)
WB1.0		---	---	---
WB1.01	b.01 multipurpose hall	top hung awning window, gas strut operated, aluminium frame.	1550	2400
WB1.02	b.01 multipurpose hall	top hung awning window, gas strut operated, aluminium frame.	1550	2400
WB1.03	b.01 multipurpose hall	top hung awning window, gas strut operated, aluminium frame.	1550	2400
WB1.04	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3375
WB1.05	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3420
WB1.06	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3420
WB1.07	b.01 multipurpose hall	top hung awning window, gas strut operated, aluminium frame.	1550	2425
WB1.08	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3420
WB1.09	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3420
WB1.10	b.01 multipurpose hall	fixed glass window, aluminium frame.	2400	3375
WB1.11	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3355
WB1.12	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.13	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.14	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.15	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.16	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.17	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.18	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.19	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3400
WB1.20	b.01 multipurpose hall	operable + fixed clerestory window, aluminium frame.	1000	3355
WB1.21	b.01 multipurpose hall	not in use	1630	2400
WB1.22	b.01 multipurpose hall	not in use	1550	2400
WB1.23	b.01 multipurpose hall	fixed window, aluminium frame.	1630	2400
WB3.01	b.03 main pavilion	awning window,profiled metal panel, gas strut operated, steel frame.	1585	2640
WB3.02	b.03 main pavilion	awning window,profiled metal panel, gas strut operated, steel frame.	1585	2640
WB4.01	b.04 poultry pavilion	awning window,profiled metal panel, gas strut operated, steel frame.	1585	3494
WB5.01	b.05 trade pavilion	awning window,profiled metal panel, gas strut operated, steel frame.	1585	2740

DOORS

ID	Location	Material	Height (mm)	Width (mm)
DB1.01	b.01 multipurpose hall	double door with fixed glazing, aluminium frame. (ref. JHA acoustic report)	2400	4000
DB1.02	b.01 multipurpose hall	not in use	0	0
DB1.03	b.01 multipurpose hall	Solid Core, hinged door with fixed glass highlight, painted finish.	2400	1020
DB1.04	b.01 multipurpose hall	double door with fixed glazing, aluminium frame. (ref. JHA acoustic report)	2400	3420
DB1.05	b.01 multipurpose hall	double door with fixed glazing, aluminium frame. (ref. JHA acoustic report)	2400	3420
DB1.06	b.01 multipurpose hall	Solid Core, hinged door with fixed glass highlight, painted finish.	2400	930
DB1.07	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.08	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.09	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.10	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.11	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.12	b.01 multipurpose hall	Solid Core, hinged door with ventilation grille, painted finish.	2400	930
DB1.13	b.01 multipurpose hall	Solid Core, hinged door with fixed glass highlight, painted finish.	2400	980
DB1.14	b.01 multipurpose hall	Solid Core, hinged door with fixed glass highlight, painted finish.	2400	930
DB1.15	b.01 multipurpose hall	double door with fixed glazing, aluminium frame. (ref. JHA acoustic report)	2400	3420
DB1.16	b.01 multipurpose hall	double door with fixed glazing, aluminium frame. (ref. JHA acoustic report)	2400	3420
DB3.01	b.03 main pavilion	hinged double door, profiled metal sheeting to leaf, steel frame.	2875	2740
DB3.02	b.03 main pavilion	sliding door, profiled metal sheeting to leaf, steel frame.	2560	5370
DB4.01	b.04 poultry pavilion	sliding door, profiled metal sheeting to leaf, steel frame.	2560	7023
DB4.02	b.04 poultry pavilion	sliding door, profiled metal sheeting to leaf, steel frame.	2560	7023
DB5.01	b.05 trade pavilion	hinged double door, profiled metal sheeting to leaf, steel frame.	2200	3650
DB5.02	b.05 trade pavilion	sliding door, profiled metal sheeting to leaf, steel frame.	2560	5800
DB5.03	b.05 trade pavilion	sliding double door, profiled metal sheeting to leaf, steel frame.	2200	3030



Location Plan, sourced from SixMaps - NTS

Materials & Colour Schedule

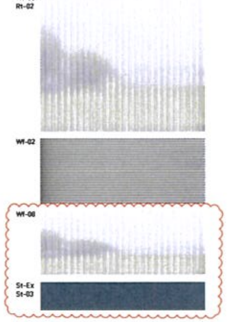
Code	Location	Type	Substrate	Colour
Structure				
St-Ex	Refurbished Pavilions	Existing painted steel structural frame	-	-
St-01	Multipurpose Hall	Painted columns	-	-
St-02	Multipurpose Hall	New painted timber and steel truss	-	-
St-03	Refurbished Pavilions	New painted steel structural frame	-	-
Roof				
Rt-01	Multipurpose Hall Roof	Profiled Metal Sheeting	-	Galvanised/zincalume
Rt-02	Refurbished Pavilions Roofs	Profiled Metal Sheeting	-	Galvanised/zincalume
Rt-03	Refurbished Pavilions Roofs	Ridge Cap	-	-
Rt-04	Roof	Ventilated Ridge Cap	-	-
Walls				
Wf-01	Pavilion External Walls	Profiled Metal Sheeting	-	Galvanised/zincalume
Wf-02	Pavilion External Walls	Profiled Metal Sheeting	-	Galvanised/zincalume
Wf-03	Wool Shed Gable Roof End	Perforated Profiled Metal Sheeting	-	Galvanised/zincalume
Wf-04	Multipurpose Hall External Walls (below sill)	FC Sheet	-	-
Wf-05	Multipurpose Hall External Walls	Profiled Metal Sheeting	-	Galvanised/zincalume
Wf-06	non longer in use	non longer in use	-	-
Wf-07	non longer in use	non longer in use	-	-
Wf-08	non longer in use	non longer in use	-	-
Floor				
Ff-01	Multipurpose Hall Internal	Floor finish	Concrete slab	-
Ff-02	Multipurpose Hall Internal	Floor finish	Concrete slab	-
Ff-03	Multipurpose Hall External	Concrete finish	Concrete slab	-
Ff-04	Multipurpose Hall Kitchen	Floor finish	Concrete slab	-
Ff-05	Pavilion Flooring	Tiles-small format	Concrete slab	-
Ff-06	Pavilion Flooring	Tiles-medium format	Concrete slab	-
Ff-07	Courtyard Flooring	Tiled Paving	Concrete slab	-
Ff-08	Multipurpose Hall Bathrooms and Change rooms	Tiles and concrete finish	Concrete slab	-
Hydraulic				
FiH-01	Courtyard	Drinking Water Station	-	-
FiH-02	Multipurpose Hall Gutter	Half Round Gutter to Hydraulic Engineer's Detail	-	-
FiH-03	Pavilion Gutter	Half Round Gutter to Hydraulic Engineer's Detail	-	-
Signage				
S-01	Multipurpose Hall	New Signage	-	-
S-02	Wool Pavilion	Existing Wool Pavilion Signage repainted	-	-
S-03	Main Pavilion	New Signage	-	-
S-04	Poultry Pavilion	New Signage	-	-
S-05	Trade Pavilion	New Signage	-	-

A

B.01 Multipurpose Hall

A

B.02-05 Refurbished Pavilions



A

Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

notes
1. all dimensions in mm.
2. do not scale from drawing.
3. this drawing has been prepared for Development Approval purposes only and is not to be used for tender or construction.
4. clarification to be sought from the architect in the event of any discrepancies in the documentation or if further information is required.

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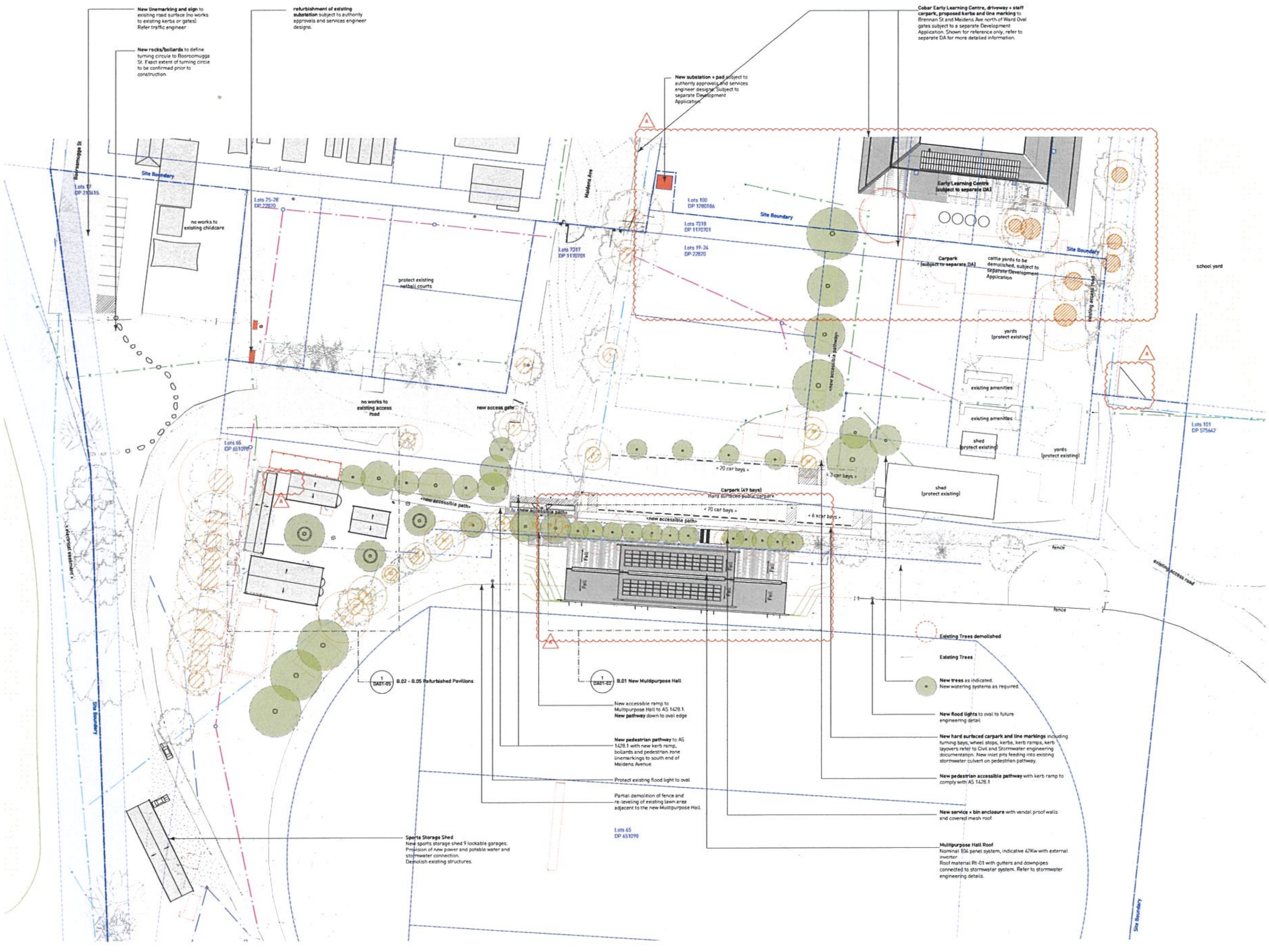
Client	Cobar Shire Council
Project	Ward Oval Pavilions Ward Oval, Cobar 2835
Issue	Development Approval
Date	Thu, 21 Apr 2022
Scale	- BA1
Drawing	Cover Sheet
Drw No.	DA01-00 Rev A
Job No.	21_305
Drawn:	CA Check: RD



1 DA01-01 **Overall Site Plan** Scale: 1:500

0 20 50 M

N

Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

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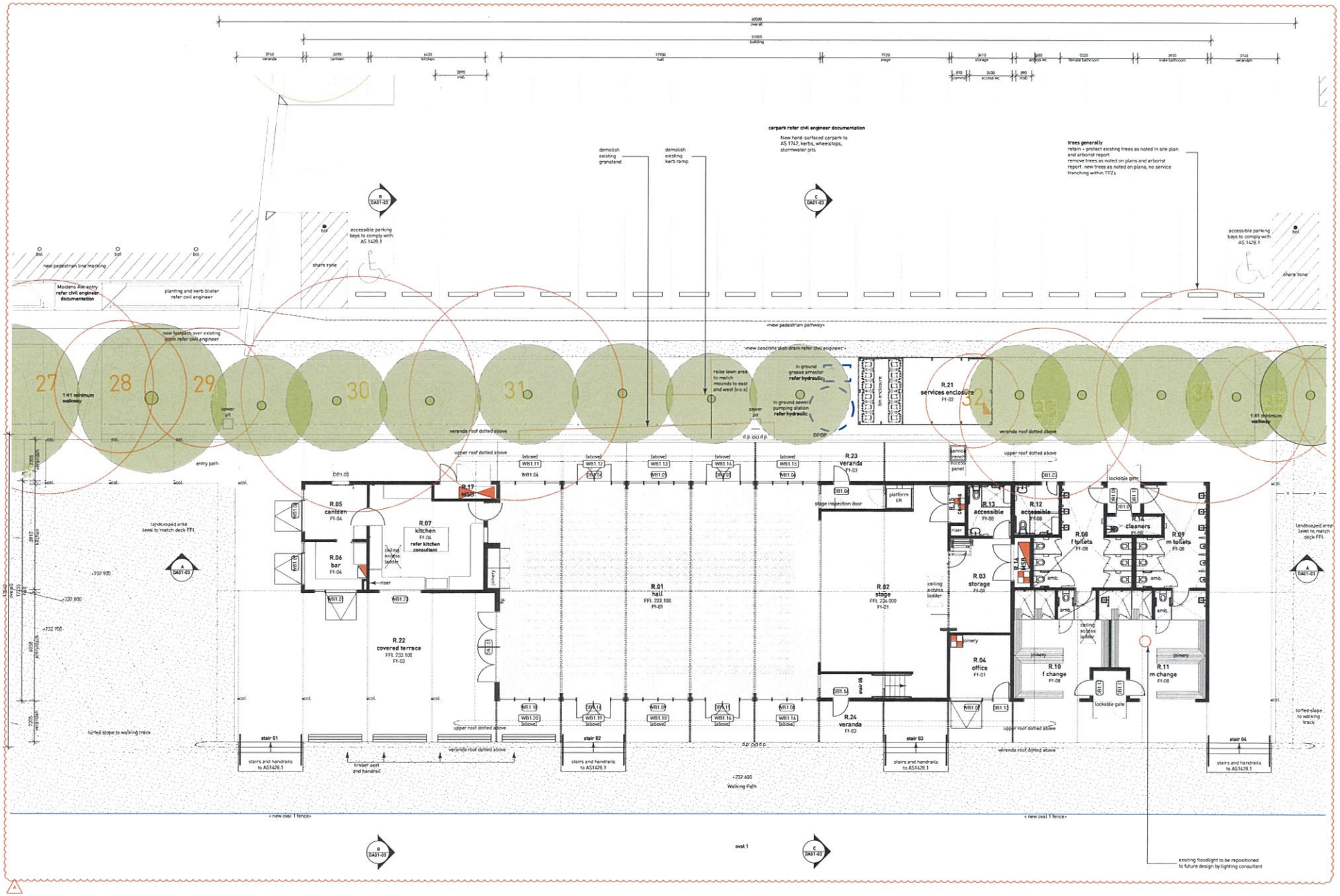
Client	Cobar Shire Council		
Project	**Ward Oval Pavilions** **Ward Oval, Cobar 2835**		
Issue	**Development Approval**		
Date	Thu, 21 Apr 2022		
Scale	1:500 BA1		
Drawing	Overall Site Plan		
Drw No.	DA01-01	Rev	A
Job No.	21_305		
Drawn:	CA	Check:	RD



Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

notes

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Client	Cobar Shire Council
Project	**Ward Oval Pavilions** **Ward Oval, Cobar 2835**
Issue	**Development Approval**
Date	Thu, 21 Apr 2022
Scale	1:100 BA1
Drawing	B.01 Multipurpose Hall Ground Floor Plan
Drw No.	DA01-02 **Rev** A
Job No.	21_305
Drawn:	CA **Check:** RD

1 / DA01-02 **B.01 Multipurpose Hall Ground Floor Plan**
Scale: 1:100

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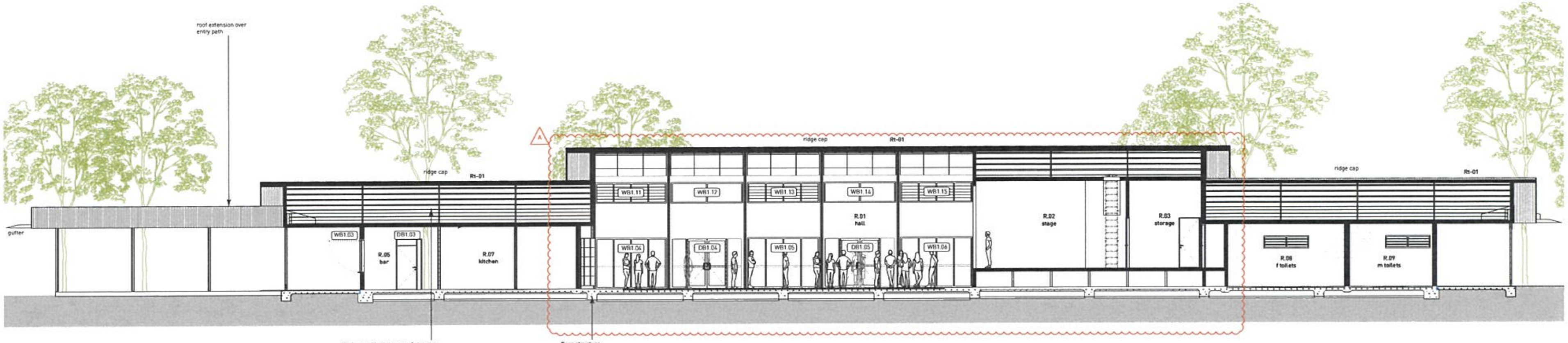


Kitchen and bathroom roof structure
roof cladding Rt-01
truss frame
half round gutters to hydraulic engineer details

Kitchen and bathroom wall structure
concrete block and timber framed walls

floor structure
concrete slab on ground. insulation between internal and external slab dowel joint. External slab edge upturn to north to minimise encroachment on root zone of trees

new trees
refer aborist report

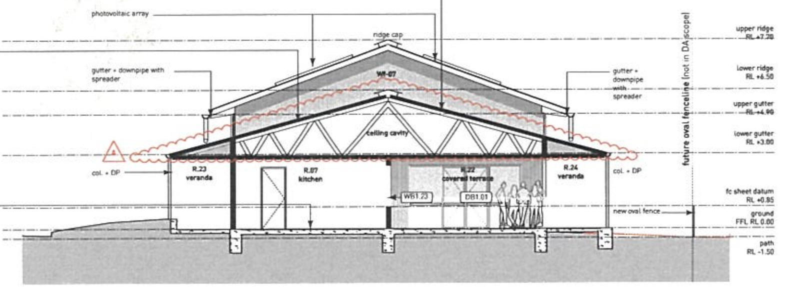
1
DA01-03
B.01 Multipurpose Hall Section A
Scale: 1:100

Deck and awning roof structure
roof cladding Rt-01
truss frame, with purlins, fixed to paired columns
soffit lining fixed to underside of purlins (flat)

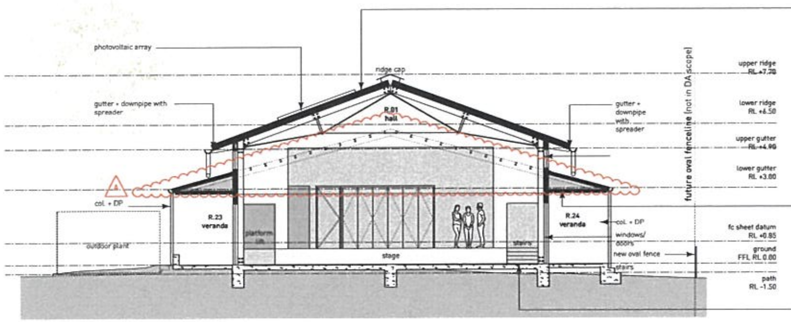
Kitchen roof structure
roof cladding Rt-01
truss frame
half round gutters to hydraulic engineer details

Kitchen wall structure
concrete block and timber framed walls

floor structure
concrete slab on ground
insulation between internal and external slab dowel joint
External slab edge upturn to north to minimise encroachment on root zone of trees



2
DA01-03
B.01 Multipurpose Hall Section B
Scale: 1:100



hall roof structure
paired LVL high-span timber columns 240x45
paired LVL high-span timber beams 240x45.
Steel plate connections between timbers to structural engineer's detail.
CHS strut and round bar to form truss
7purlins fixed to truss with roof sheeting Rt-01, fixed ventilated ridge cap.
acoustic plywood ceiling lining (or equivalent fixed between expressed column and truss structure

awning structure
LVL rafters and bottom chord with bracing plate, fixed to timber column/beam. joists fixed to LVL, soffit lining (flat)
roof overd Rt-01, half round gutters

floor structure
as for kitchen

3
DA01-03
B.01 Multipurpose Hall Section C
Scale: 1:100

Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

notes
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Client	Cobar Shire Council
Project	**Ward Oval Pavilions** **Ward Oval, Cobar 2835**
Issue	**Development Approval**
Date	Thu, 21 Apr 2022
Scale	1:100 BA1
Drawing	B.01 Multipurpose Hall Sections
Drw No.	DA01-03 **Rev** A
Job No.	21_305
Drawn:	CA **Check:** RD

R.08 female + R.09 male toilets - ventilation grilles
min 55% free area
2.5m² minimum area

outdoor plant room + bin enclosure shown in front)
acoustic + ventilated panelled enclosure to acoustic and mechanical engineer's requirements

renew mounded turfed area with new trees

MSB access doors

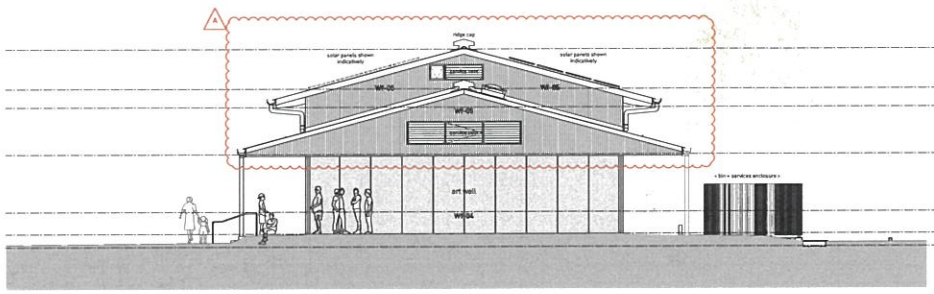
new signage S-01
metal sign powdercoated with lettering cut out fixed to roof

new planting
adjacent to the new main entry accessible kerb ramp and entry path

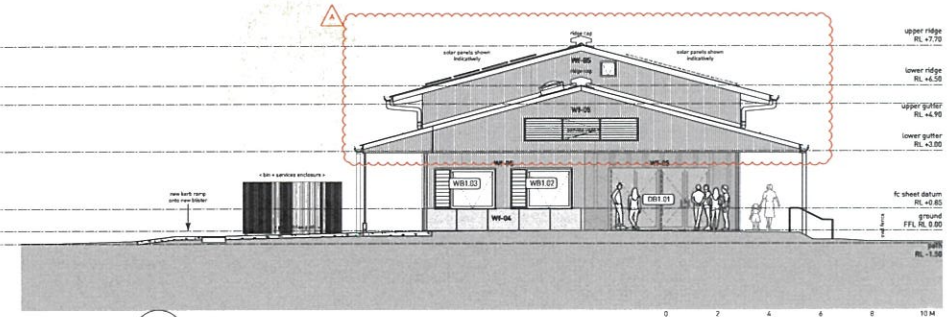
existing trees - general
refer to aboricultural report for full schedule of trees to be retained, removed, and tended to.

1 DA01-04 **B.01 Multipurpose Hall Elevation North**
Scale: 1:100

2 DA01-04 **Multipurpose Hall Elevation South**
Scale: 1:100



3 DA01-04 **Multipurpose Hall Elevation East**
Scale: 1:100



4 DA01-04 **Multipurpose Hall Elevation West**
Scale: 1:100

Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

notes
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Client	Cobar Shire Council
Project	**Ward Oval Pavilions** **Ward Oval, Cobar 2835**
Issue	**Development Approval**
Date	Thu, 21 Apr 2022
Scale	1:100 @A1
Drawing	B.01 Multipurpose Hall Elevations
Drw No.	DA01-04 **Rev** A
Job No.	21_305
Drawn:	CA **Check:** RD

protect existing trees
refer arborist report

new drain connected to stormwater system.
Refer to civil engineering documentation

Careful demolition of existing poultry pavilion
steel framing for re-use, demolish slab. cap,
sever and remove all redundant services.

Demolish existing bitumen
connection to access road

Demolish existing toilet block,
slab and footings, cap and
sever any redundant services.

New trees to be planted ahead
of future playground

«new trees and watering system»

proposed concrete path
compliant with AS1428.1

proposed bubbler

proposed pole
top light

proposed light

New courtyard FFL
to be flush with
existing FFL.

New ground surface

«protect existing trees»

Cut existing bitumen to allow for a new
tree pit, new soil (600 deep) and tree.
Install mulch and inground irrigation.
Species selection to align with Council
requirements. Proposed circular bench
around tree.

75mm min slab to B.04,
contractor to inspect pit prior
to construction to establish
depth of existing power supply.
Caution must be taken during
groundworks.

Demolish existing Dining Hall
and slab. Cap and sever all
services that are redundant.

B.05- trade pavilion
Refurbish existing pavilion
*FFL RL 232.60 VOS
*Survey levels existing FFL
to be verified on site

B.04 - poultry pavilion
New pavilion
*FFL RL 232.60
VOS

B.02 - wool pavilion
Refurbish existing
pavilion to a gazebo
*FFL RL 232.50 VOS

B.06- courtyard
new porous paving or gravel
finish FF-06 to comply with AS
1428.1

drainage pit and
stormwater system to civil
engineering detail

proposed bench + tree.
tree and tree pit to be
confirmed by council
landscape guidelines

B.03 - main pavilion
Refurbish existing pavilion
*FFL RL 232.60 VOS

RL 232.50

1 DA01-05

Refurbished Pavilions - Site Plan
Scale: 1:100

0 2 5 7 10 M

N

Rev	Date	By	Notes
A	21/4/22	CA	building size, parking

notes
1. all dimensions in mm.
2. do not scale from drawing.
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Jonathan Temple NSW ARB No. 8526
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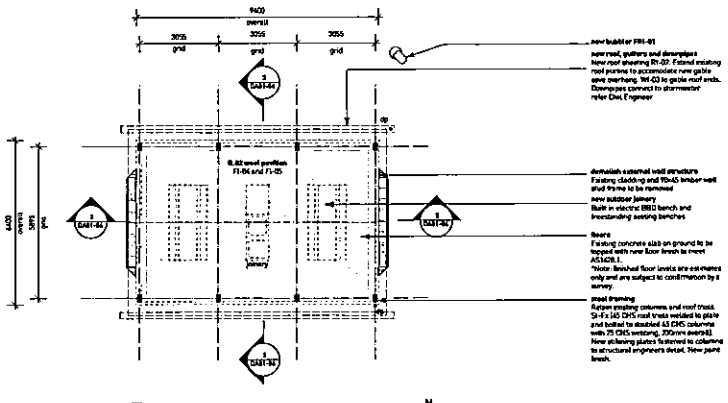
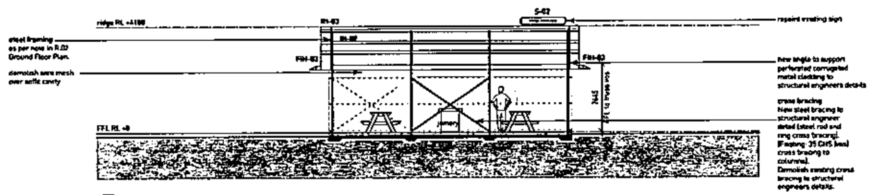
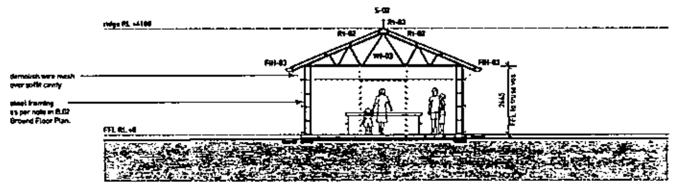
Client	Cobar Shire Council
Project	**Ward Oval Pavilions** **Ward Oval, Cobar 2835**
Issue	**Development Approval**
Date	Thu, 21 Apr 2022
Scale	1:100 @A1
Drawing	Refurbished Pavilions Site Plan
Drw No.	DA01-05 **Rev** A
Job No.	21_305
Drawn:	CA **Check:** RD



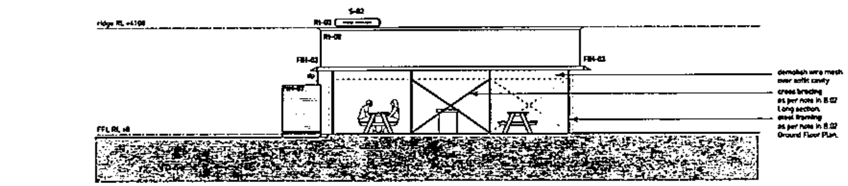
1 B.02 Ground Floor Plan
Scale 1:100



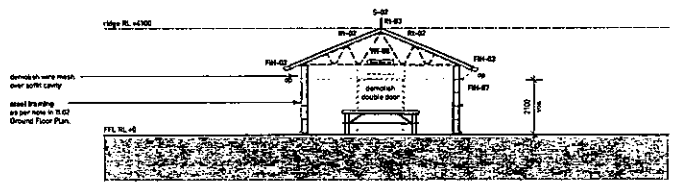
2 B.02 Long Section
Scale 1:100



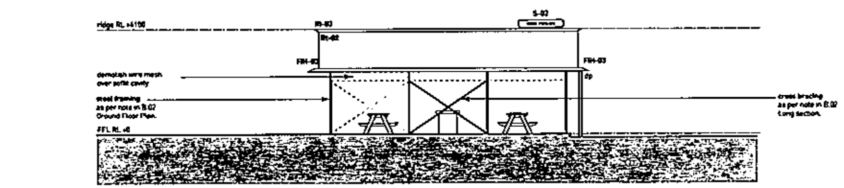
3 B.02 Short Section
Scale 1:100



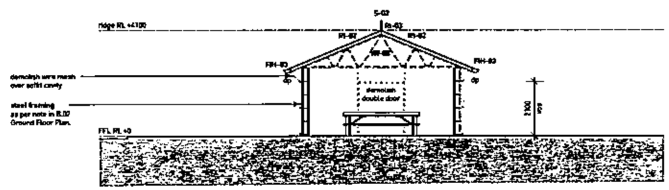
4 B.02 North Elevation
Scale 1:100



5 B.02 East Elevation
Scale 1:100



6 B.02 South Elevation
Scale 1:100



7 B.02 West Elevation
Scale 1:100

notes
All refurbishment of existing structure to comply with structural engineering requirements and required codes.

*Note: finished floor levels are estimates only and are subject to confirmation by a survey.

Code	Type
St-Fx	Existing painted steel structure
St-03	New painted steel structure
Rt-02	Profiled Metal Sheeting
Rt-03	Ridge Cap
Rt-04	Ventilated Ridge Cap
Wl-01	Profiled Metal Sheeting
Wl-02	Profiled Metal Sheeting
Wl-03	Perforated Profiled Metal Sheeting
Fl-05	Tiles-small format
Fl-06	Tiles-medium format
Fl-07	Tiled Paving
FxH-01	Drinking Water Station
FxH-03	Half Round 250mm Gutter
FxH-07	Water Tank
S-02	Existing Wool Pavilion Signage repainted

Rev Date By Notes

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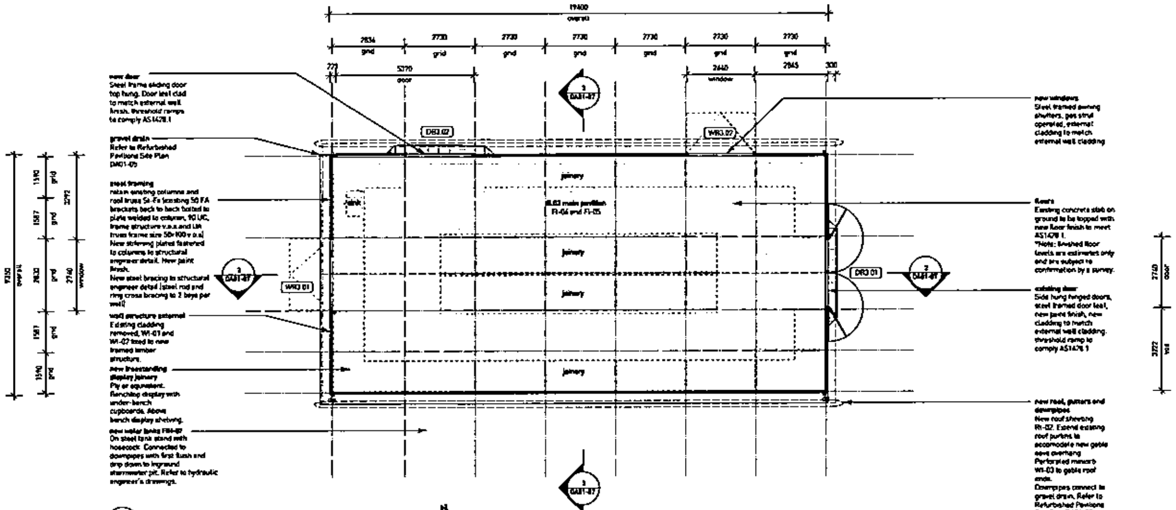
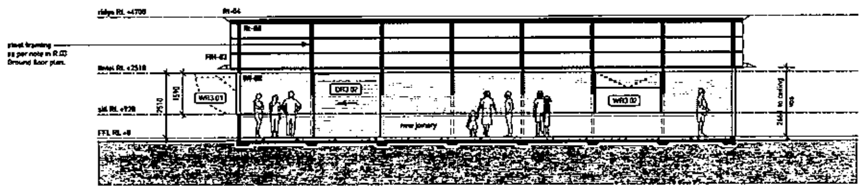
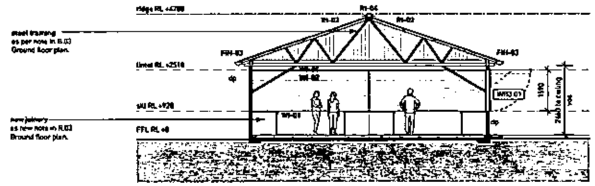
Client	Cobar Shire Council
Project	Ward Oval Pavilions Ward Oval, Cobar 2835
Issue	Development Approval
Date	Thu, 21 Apr 2022
Scale	1:100 @A1
Drawing	B 02 Wool Pavilion
Drw No.	DA01-06 Rev
Job No.	21_305
Drawn	CA Check RD



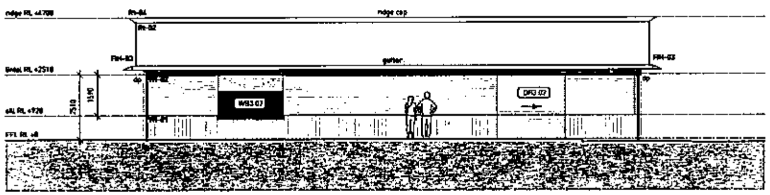
B.03 Ground Floor Plan
Scale 1:100



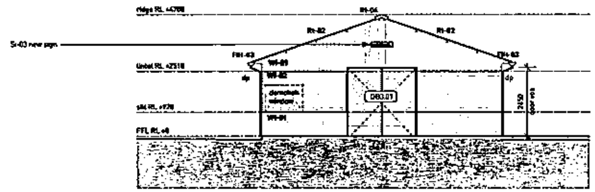
B.03 Long Section
Scale 1:100



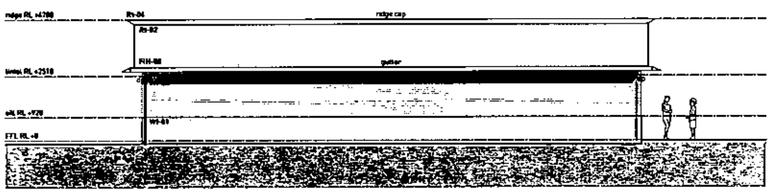
B.03 Short Section
Scale 1:100



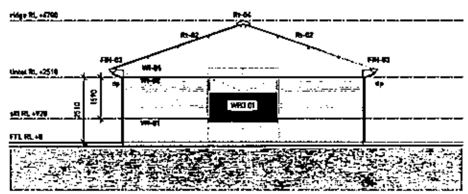
B.03 North Elevation
Scale 1:100



B.03 East Elevation
Scale 1:100



B.03 South Elevation
Scale 1:100



B.03 West Elevation
Scale 1:100

notes
All refurbishment of existing structure to comply with structural engineering requirements and required codes.

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Code	Type
St-Ex	Existing painted steel structure
St-03	New painted steel structure
Rf-02	Profiled Metal Sheeting
Rf-03	Ridge Cap
Rf-04	Ventilated Ridge Cap
Wl-01	Profiled Metal Sheeting
Wl-02	Profiled Metal Sheeting
Wl-03	Perforated Profiled Metal Sheeting
Fl-05	Tiles-small format
Fl-06	Tiles-medium format
Fl-07	Tiled Paving
FtH-01	Drinking Water Station
FtH-03	Half Round 250mm Gutter
FtH-07	Water Tank
S-07	Existing Ward Pavilion Signage repainted

Rev Date By Notes

notes
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Surveyor - Langford & Rowe
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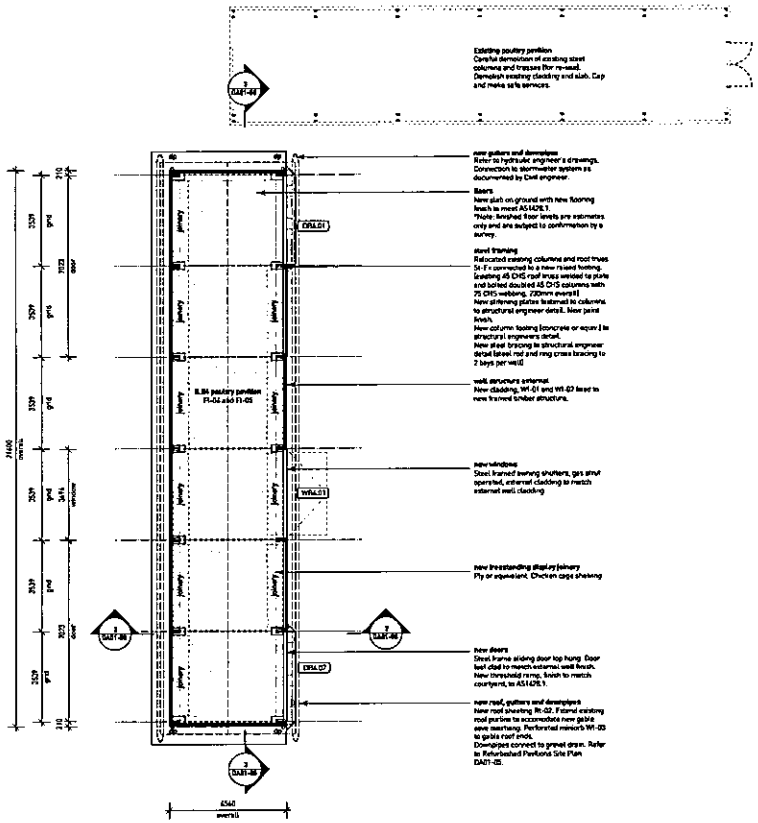
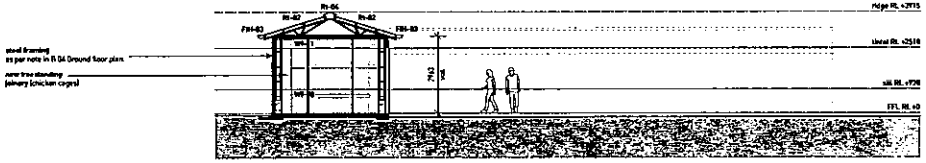
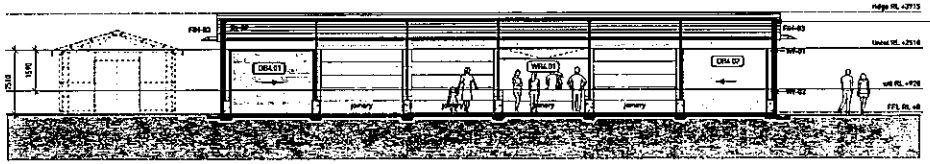
Client	Cobar Shire Council		
Project	Ward Oval Pavilions Ward Oval, Cobar 2835		
Issue	Development Approval		
Date	Thu, 21 Apr 2022		
Scale	1:100	@A1	
Drawing	B.03 Main Pavilion		
Drw No.	DA01-07	Rev	
Job No.	21_305		
Drawn	CA	Check:	RD



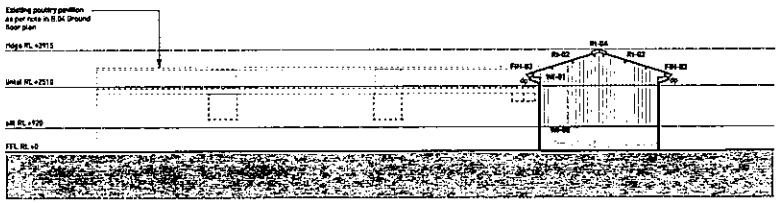
1 B.04 Ground Floor Plan
Scale: 1:100



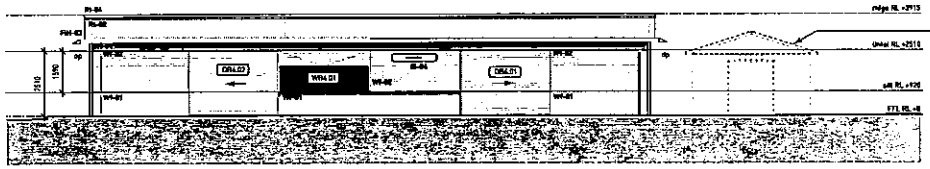
1 B.04 Short Section
Scale: 1:100



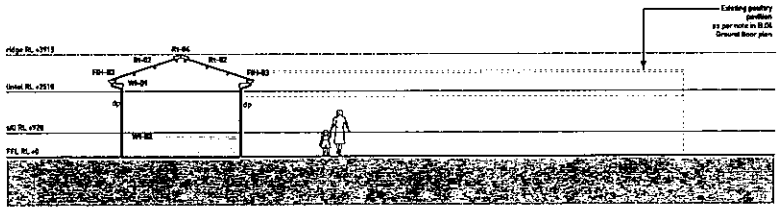
2 B.04 Long Section
Scale: 1:100



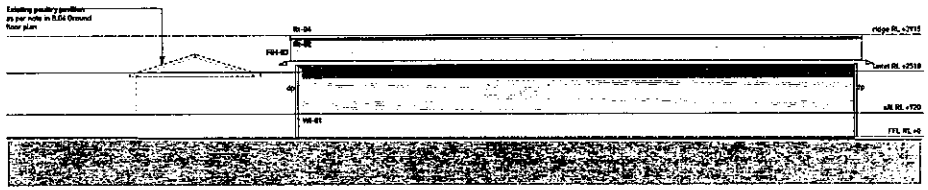
4 B.04 North Elevation
Scale: 1:100



5 B.04 East Elevation
Scale: 1:100



6 B.04 South Elevation
Scale: 1:100



7 B.04 West Elevation
Scale: 1:100

notes
All refurbishment of existing structure to comply with structural engineering requirements and required codes.

*Note: finished floor levels are estimates only and are subject to confirmation by a survey

Code	Type
St-Fx	Existing painted steel structure
St-02	New painted steel structure
Rf-02	Profiled Metal Sheeting
Rf-03	Ridge Cap
Rf-04	Ventilated Ridge Cap
Wf-01	Profiled Metal Sheeting
Wf-02	Profiled Metal Sheeting
Wf-03	Perforated Profiled Metal Sheeting
Ft-05	Tiles small format
Ft-04	Tiles medium format
Ft-07	Tiled Paving
Fsw-01	Dressing Water Station
Fsw-03	Wall Hung 210mm Butler
Fsw-07	Water Tank
S-07	Existing Hotel Pavilion Signage repainted

Rev	Date	By	Notes

notes
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2. do not scale from drawing.
3. the drawing has been prepared for Development Approval purposes only and is not to be used for tender or construction
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Nathan Hillam Number NSW ARB No. 6386
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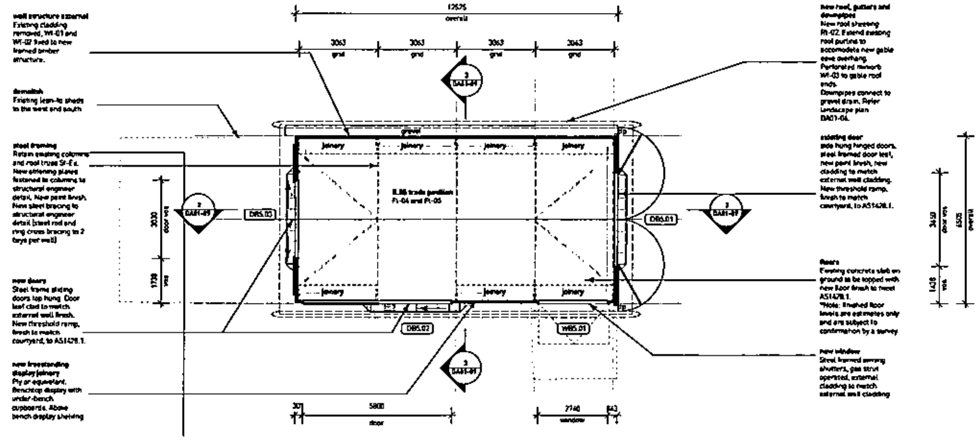
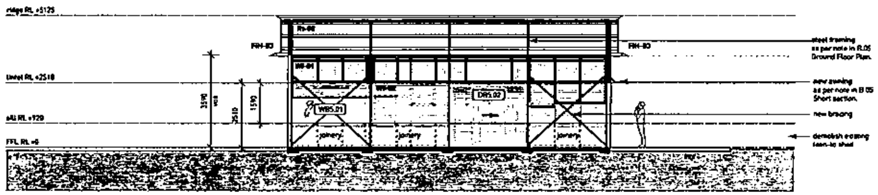
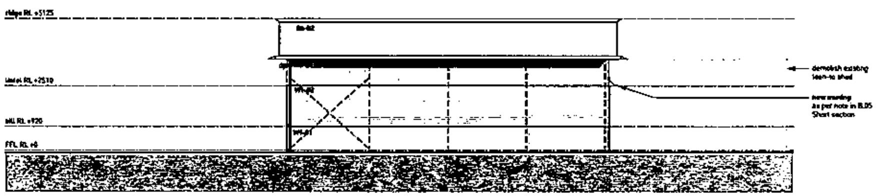
Client	Cobar Shire Council
Project	Ward Oval Pavilions Ward Oval, Cobar 2835
Issue	Development Approval
Date	Thu, 21 Apr 2022
Scale	1:100 @A1
Drawing	B.04 Poultry Pavilion
Drw No.	DA01-08 Rev
Job No.	21_305
Drawn	CA Check: RD



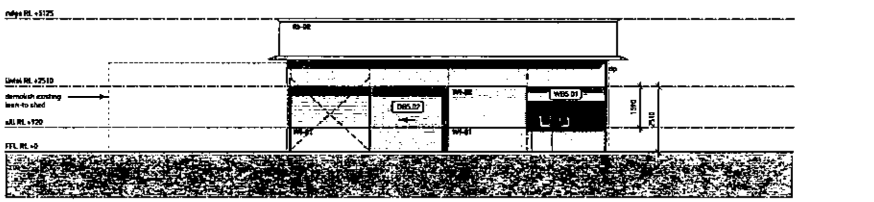
3 B.05 Ground floor plan
DA01-09 Scale 1:100



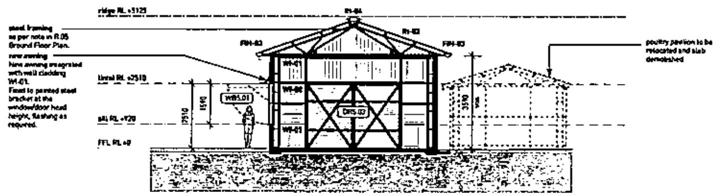
2 B.05 Long section
DA01-09 Scale 1:100



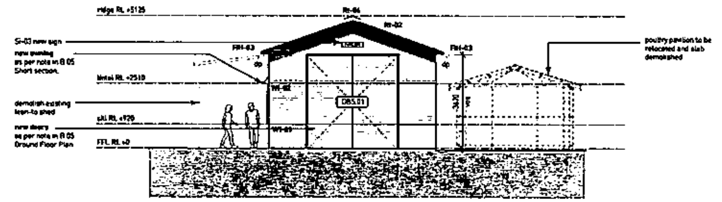
6 B.05 North Elevation
DA01-09 Scale 1:100



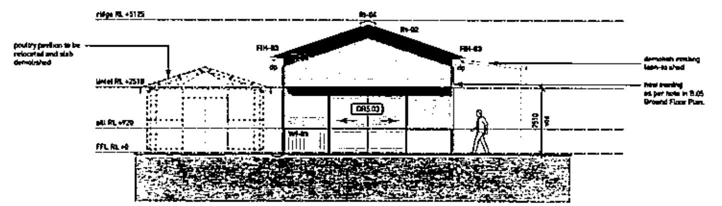
4 B.05 South Elevation
DA01-09 Scale 1:100



4 B.05 Short section
DA01-09 Scale 1:100



5 B.05 East Elevation
DA01-09 Scale 1:100



7 B.05 West Elevation
DA01-09 Scale 1:100

notes
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*Note: finished floor levels are estimates only and are subject to confirmation by a survey

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Rt-03	Ridge Cap
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Wl-01	Profiled Metal Sheeting
Wl-02	Profiled Metal Sheeting
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Fl-05	Tiles-small format
Fl-06	Tiles-medium format
Fl-07	Tiled Paving
FiH-01	Drinking Water Station
FiH-03	Half Round 250mm Gutter
FiH-07	Water Tank
S-02	Existing Wool Pavilion Signage repainted

Rev Date By Notes

notes
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Traffic engineer -
Lyle Marshall & Partners
contact ph: (02) 9636 0086

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E admin@dunnhillam.com.au
Nominated architects: Ashley Dunn NSW ARB no. [illegible]
Jonathan Temple NSW ARB no. [illegible]
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Client	Cobar Shire Council
Project	Ward Oval Pavilions Ward Oval, Cobar 2835
Issue	Development Approval
Date	Thu, 21 Apr 2022
Scale	1:100 @A1
Drawing	B.05 Trade Pavilion
Drw No.	DA01-09 Rev
Job No.	21_305
Drawn	CA Checked RD

ITEM 2

Arboricultural Impact Assessment (Wade Ryan Contracting)

ARBORICUTURAL ASSESSMENT FOR RE-DEVELOPMENT OF WARD OVAL PAVILION COBAR SHIRE COUNCIL NSW – 2021-22

1. INTRODUCTION.

Cobar Shire Council are planning the re-development of the Ward Oval pavilion – off Brennan Street Cobar. There are a number of existing trees around the development site and an assessment of the tree vegetation is required to determine what trees are on site, condition, significance and recommendations for retention (or removal); to assist the design and planning process.

2. SCOPE AND PURPOSE.

The report has been commissioned by Carly Hunter - Project Coordinator with Cobar Shire Council (Contact 0419 506 641); and Rose Davies - Dunn & Hillam Architects (Contact 0420 820 010). The site was formally inspected on 15 July 2021.

The report is designed to provide;

- accurate identification of tree vegetation,
- tree condition, including any hazards present
- evaluation of the trees relative to their contribution to the environment, amenity and any other identified values
- evaluation of potential development impacts
- recommendations for management of the issues identified.

Interpretation of impacts and recommendations are based on the author's interpretation of *Australian Standard 4970-2009 Protection of trees on development sites*.

Diagram One provides identification of the site within the Ward Oval Precinct and general number ordering of the trees.

Diagram Two provides the proposed site plan for the development with tree locations, numbers and Tree Protection Zones allocated within comments.

Table one provides a detailed list and evaluation criteria of the trees surrounding the development. Table 1 is also provided in Microsoft Excel Format – as a separate file.

The following Drawings were supplied to aid in the evaluation process.

Ward Oval Pavilion – Preliminary DA Data Set – Brennan St Cobar 2835. (Various Lot numbers). Cobar Shire Council. Dunn and Hillam Architects – 33 Salisbury St Botany NSW 2019. Job No. 21_305 Dated 18 Oct 2021.

Page 3 – drawing no. DA01-01 has been extracted and included at the conclusion of the report.

Ward Oval Pavilion Cobar – Slab and Framing and ground works plan. Drawing A-010 dated 12 April 2022. Dunn and Hillam Architects – 33 Salisbury St Botany NSW 2019. Job No. 21_305

This drawing has been edited and comments include – at conclusion of this report.

3. Site Conditions and Background.

The Ward Oval Precinct comprises a multi-purpose sport and recreation facility – including formal sporting grounds, Showground, open space areas, stock yards and supporting buildings, including a grand stand. The proposal is to re-develop the existing Grandstand into a Pavilion with enhanced facilities.

The proposal for the redevelopment of the pavilion includes other associated buildings to be refurbished to the west of the current sporting pavilion and the car park to the north of the current pavilion.

A scattering of amenity trees – mostly Australian Natives pieces are contained broadly across the site. The existing canopy coverage is considered a low percentage, considering the site is an open space recreation facility and Cobar is located in the semi-arid area of central west of NSW.

There are some 38 trees identified and reported within the around the proposed re-development of the Pavilion and other buildings.

There is no remnant vegetation identified. There are no individual significant trees identified, although there is a line of 9 medium to large *Eucalyptus camaldulensis* (River Red Gums) located in a single line on the west boundary of the development that as a group of trees are considered to be significant. 8 of the 9 trees forms line of larger native vegetation that has some imposing qualities in the local landscape and provides some quality amenity values, as some of larger shade trees in the vicinity.

Photo 1 *– Line of 8 Eucalyptus camaldulensis (River Red Gums) that on the west edge of the development site. Buildings in the back ground are to be refurbished. Trees numbered 10 to 18.*

Photo 2 *– Area of Car park that forms the north area of the development site, with existing pavilion in middle of shot and the other buildings to right that are to be refurbished. Proposed building encroaches heavily on circled trees – tree numbers 27 – 31 – right side circle. Tree 32 to left of building and as per photo 3 below.*

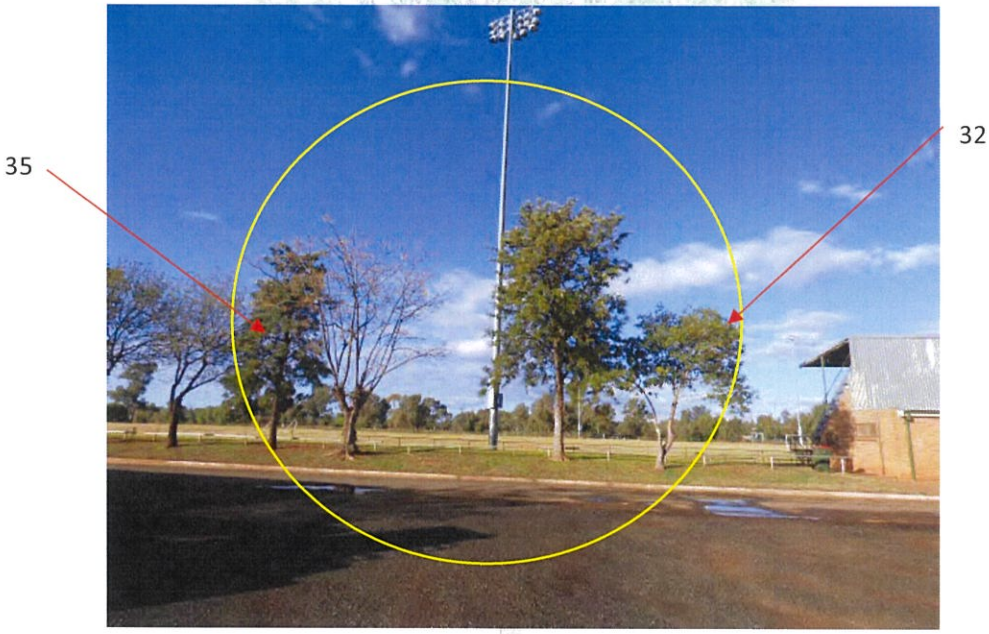

Photo 3 *– Example of some of the other trees contained within the development site. Proposed new building heavily conflicts with circled trees – numbers 32 -35 inclusive (Tree 32 on right)*

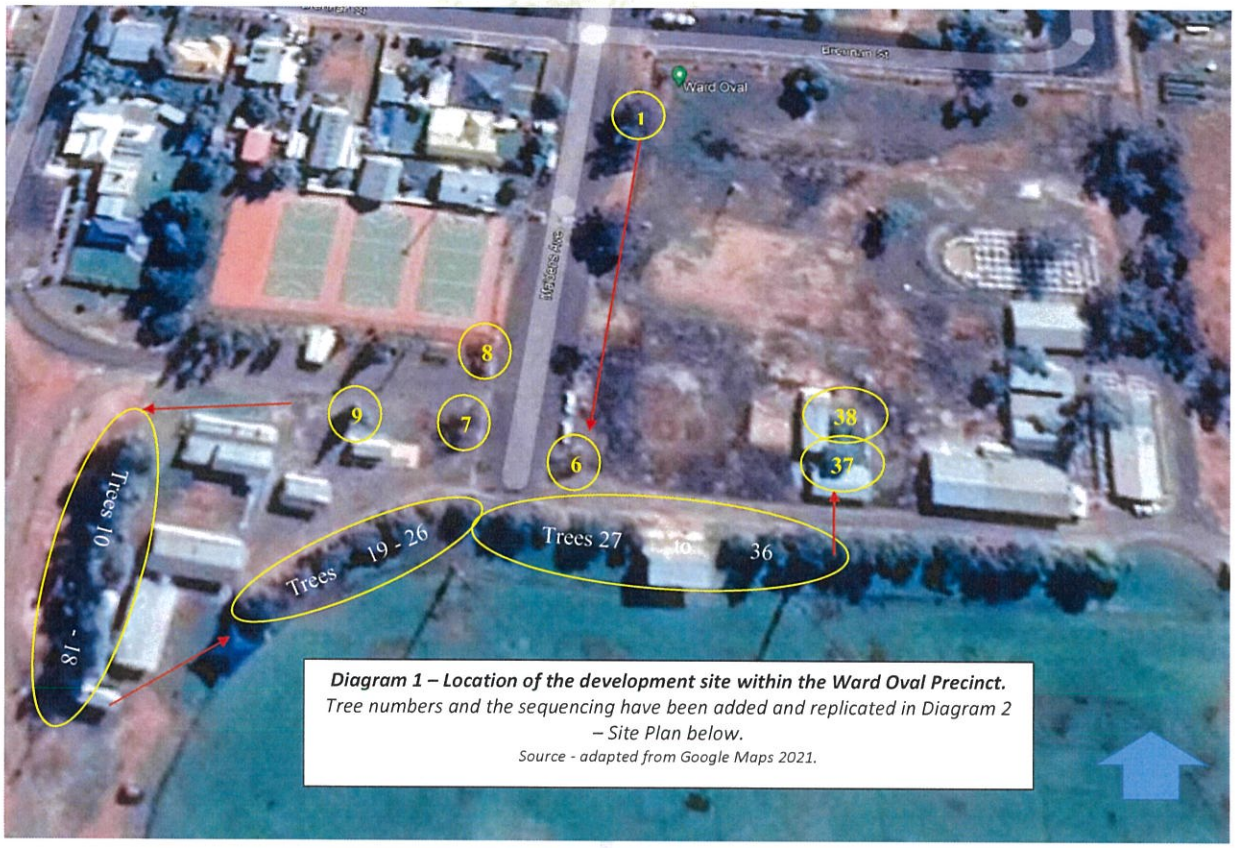

Diagram 1 – Location of the development site within the Ward Oval Precinct.
Tree numbers and the sequencing have been added and replicated in Diagram 2 – Site Plan below.
Source - adapted from Google Maps 2021.

4. Summary of Tree Assessment and Initial Tree Evaluation.

- 38 Trees are identified as potentially impacted by the development.
- Each tree is individually graded for its retention value within the development based upon a range of criteria as detailed within Table 1. The following Table A is a summary of all 38 trees retention values.
- None of the 38 trees are identified as significant as individual trees, although there is a strong argument that the line of trees numbered 10 to 17 inclusive are significant as a group of trees that are somewhat imposing within the local landscape and provide good amenity values as the only larger trees in the immediate vicinity and specifically within the development area.

Table A – Summary of Tree Evaluation

Evaluation Category	Descriptors	Tree No's
Retain Priority	A Significant or Very Significant tree – Strong positive amenity and/or other values – normally long life expectancy. Replacement very long term – 80-100 years or more Removal would be very difficult to justify	
Retain	Tree with Positive Amenity values and/or other values with longer life expectancy – replacement long term 40- 100 years. Removal would be difficult to justify.	1, 2, 3, 10 to 17 inclusive.
Retain if Possible	Tree with some positive amenity or other values – in fair or good condition with some useful remaining life expectancy or contribution. However if the impost on the development of retention is very high or the development impact on the tree is high then removal or replacement can be considered a valid decision. On balance of considerations the tree is worth retaining.	5 to 9 inclusive 19 to 24 Inclusive 26, 27 30, 31 33 to 38 Inclusive
Remove	The tree is normally in poor condition with short useful life expectancy, or structurally unsound to a point not worth ameliorating. A new tree is normally considered a better long term option.	25, 28, 29, 32
Remove Priority	The tree is in very poor condition or a weed species or structurally very poor – a replacement tree/s is a far better option	17

5. **Discussion and Development impacts.** On Review of the final drawings for the development and assessment of the impacts to the trees, the following is a summary of the trees that are recommended for removal.

Trees numbers 4, 18 and 27 to 35 inclusive are recommended for removal.

The proposed development footprint of the new north side of the building is located at or inside the structural root zones of Trees 27 to 35 and impacts to the trees cannot be adequately managed to maintain the vitality and integrity of the trees. Several were graded as 'Retain if Feasible' – however given the very major impacts to the trees establishing a new line of trees is considered a far better option. Trees 4 and 18 are in very poor condition – retention is futile.

Photo 4 Tree 33

Example of one of the trees across the north side of the building with exposed root system – that will be severed immediacy outside the circle if it was retained. This is inside the structural root zone.

Photo 5 Tree 30 – *Further example of tree located at the north side of the proposed building where the new building alignment will be inside the SRZ – again major root system will be lost and severed.*

- Tree 29 – small *Melia azedarach* (White Cedar) with onset of decay in stem system. Tree is considered in poor condition with likely short useful life expectancy. Removal and replacement with a new tree is considered a better option that ensuring the development protects the tree through the development process only to have the tree replaced in the coming 4-5 years or so. It is often the case that a new tree will establish in location with a better long term result than an existing tree having to cope with major impacts from development.

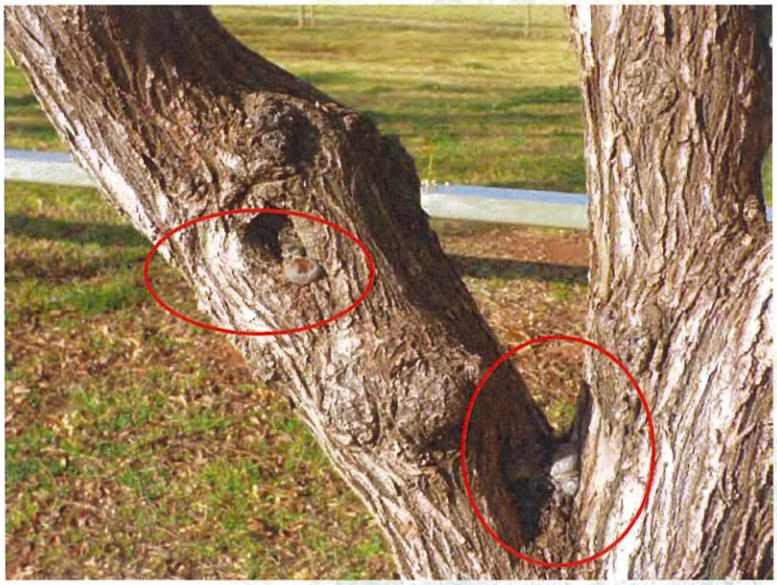

Photo 6
Tree 29 *with onset of decay in primary stem structures – evidence by developing bracket fungi. Sounding with a plastic mallet indicated moderate levels of decay.*
Tree removal and replacement is considered a better option.

- **Tree 28 and 32** are small mature *Lophostemon confertus* (QLD Brush Box). The species is considered unsuitable for the Cobar Climate. The tree would require <u>significant</u> supplement irrigation to have any real opportunity to develop into a medium sized tree (of which it is capable in good conditions) with good amenity values. The current foliage or leaf density on tree 28 is only 50 to 60% at best. Tree 32 is about 75%.
    - Review of the Cobar Rainfall statistics (BOM 2021) indicated that the calendar years of 2017, 2018 and 2019 had poor or very poor natural rainfall. Annual average rainfall is 389 mm. 2018 produced only 136 mm in total. These two trees clearly struggled to survive these years despite some irrigation at the location.
    - Rainfall for 2020 was slightly above average at 429 mm. The 7 months year to date for 2021 has resulted in 75% of the total yearly average.
    - These rainfall statistics clearly indicate that the these two trees should have strong canopy or leaf coverage from recent 18 months of good rainfall if the species was able to cope with the local conditions.

Photo 7 – Tree 28.
Lophostemon confertus
(QLD Brush Box)

Note the poor leaf density across the tree. Given the time of year and recent good rainfall the canopy should be much greater in density.

Photo 8 - Tree 18 is a senescent *Eucalyptus camaldulensis* (River Red Gum) located almost directly under the high voltage power lines – the tree has about 80% stem dysfunction and in the later stages of decline. This tree represents a good example of what can occur to a large tree that is continually subjected to hard pruning and lopping. The tree should be removed as part of the demolition process.

Photo 9 – Tree 10 and sequential trees to right.
Line of mature to over mature trees that as a group form a significant stand of trees which are imposing on the local area and have elevated amenity values specifically with shade. As Australian Native trees they have elevated environmental values.

The trees have attracted significant bird (parrots) chewing in the branch unions that has led to notable decay in many of the branch unions across the line of trees. This has led to quite a number of branch failures over time and there are many branches that have elevated failure potential. Failure potential is indicated as moderate and in some branches high.
It is recommended that structured canopy reductions in the order of 20% are undertaken across the line of trees as part of the development and to prolong the useful life of the trees.
The 20% reduction should be removal of the outer canopy only as per section 7.3.2 – Reduction pruning of *Australian Standard 4373 -2007 – Pruning of Amenity Trees.*
Some canopy lifting may be required around trees 15-17 for work clearances.

Photo 10 and 11. Example of trees 10 to 17

Recently failed branch circled above and High risk failure circled below.
Bark stripping by parrots can be seen, which opens the wood to decay processes.

6. Findings and General Recommendations.

A. Tree Retention or Removal Decisions.

Existing site trees that are of some age, have good structure and longer life expectancy should be considered for retention and protection unless there is a compelling reason to remove them. New trees cannot replace such trees within short space of time. The loss of tree benefits and public amenity is immediate and replacement time frames are in the order of decades for larger trees.

Alternatively trees in poor condition and/or with short useful life expectancy are normally recommended for removal on the basis that the effort and cost of retention through the development is not commensurate with short term amenity value, or risk a tree may pose if it fails. Removal of the tree and establishing a new tree with a long life expectancy is a better option. Additionally the tree in poor condition often has little ability to cope with significant changes in its root zone from the development impact.

Where trees have major impacts to the tree protection zone then removal is likely the best alternative unless the tree is significant and specific measure can be developed to assist the tree through the development.

It should be noted that the calculated tree protection zone (TPZ) is for the most part the minimum space required for the tree to maintain viability and stability, and the actual tree root zone will in most instances extend well past the calculated TPZ; meaning that if the development encroaches up to the TPZ a large amount of roots and root space is still lost for the tree.

The footprint of the project is estimated about 1.1 hectare in area. The current canopy coverage is estimated about 2900 square meters – which represents a canopy coverage of about 25%. The project presents as having significant opportunity to greatly increase the canopy area coverage from new plantings. Specifically shade trees should be considered in the Cobar Climate.

B. Trees 4, 18 and 27 to 35 are recommended for Removal.
C. All other trees are recommended for retention and protection during construction.
D. Tree Protection Measures.
   - Tree Protection measures should form part of the site project demolition and construction plan – **A tree Protection Plan**
     - The Tree protection Plan should be formulated as part of the demolition contract and reviewed as implemented by Council (or other relevant authority) prior to commencement of demolition.
     - It should remain current for the construction phase.

- Trees identified for retention should have effective Tree Protection fencing effected prior to commencement of demolition and construction.
- There should be no parking of vehicles, or plant or storage of any materials within the TPZ of the retained trees.
- Other specific measures outlined in *Australian Standard 4970 -2009 protection of trees on development sites* may be appropriate once final works are determined.
- There should be no trenching or excavation works within the TPZ without prior consultation with Level 5 Arboricultural consultant to evaluate the impacts on the trees. This specifically includes, trenching for services, electricity, water, gas communications sewer or irrigation pipes, general earth works, including landscaping, that disturbs the soil profile.
- Boring of post holes in the order of 150 to 200 mm diameter for the erection of boundary fence posts are identified as an acceptable impact within the TPZ, but not excavation of soil for the laying of strip footings.
- The landscaping plan for the project needs to consider the TPZ of the trees and look to maximise the opportunity for root retention and future root development – which will be important for the longevity of the trees.
    - Alleviating the heavy compaction of the soil around most of the trees should be considered.
- Any specified pruning, or clearance pruning of trees should be conducted before commencement of any works so that an effective tree protection barrier (fence) can be installed and the canopy not damaged by demolition or construction process.
    - Structured pruning of trees 10 to 17 should be considered to prolong the useful life of the trees and reduce risk of harm form limb failure – as noted above.

There is little point in trying to preserve trees through a demolition and construction project if the development does not respect the requirements of the trees.

Terms, Conditions and Limitations that apply.

Obviously, visual tree assessment from the ground has some limitation as every single portion of the tree cannot be observed or inspected. Most or the large majority of defects and tree issues can be observed from the ground. Where aerial inspection or other investigative means should be considered the report or email will recommend or provide those as an additional considerations. The integrity of the root zone of trees can often be difficult to determine from visual inspection – particularly on steep slopes and on shallow soil profiles. Unless there are indicators of some instability then most trees are effectively accessed as stable as part of Visual Tree Assessment.

Trees are a valuable asset and necessary part of both the urban and natural environment. They are the cornerstone of our environment and provide numerous benefits to our social wellbeing, biodiversity and ecology of any area. They provide water balance stability, salinity and erosion control, amenity, cultural, public health and aesthetic benefits; efforts should be made to preserve and plant new trees where possible. As an asset they require appropriate management and resource inputs.

It should be noted that trees cannot be guaranteed 'risk free'. All trees represent some degree of risk. Arboriculture is not an exacting science; rather it is an educated interpretation of the interaction of biotic and environmental circumstances, which change over time. It is not possible to determine or predict all limb or tree failures. This report is such an interpretation at the time of inspection.

Unless Quantified Tree Risk Assessment (QTRA) has been specifically applied and reported, then this report or email does not constitute a risk assessment. The Author does not seek to determine what level of risk any individual or organisation is prepared to accept but serves to provide tree managers with tree condition, hazards and other salient issues associated with the tree or trees; and provide or recommend management options.

21 April 2022
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Associate Member – The Arboriculture Association (UK)

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ASSOCIATION
trees.org.uk AS8205.

Reference.

BOM (2021). *Australian Government Bureau of Meteorology. Monthly rainfall - Cobar MO.* Accessed online 5/8/2021 at:
http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=048027

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Table 1 - Tree Date File - Ward Oval Grandstand Re-Development - 2021-22 (last updated 1/04/2022)

Tree No	Species	General Location	Species Origin	General Size	DBH (m)	Height M	Canopy Ø	Age Class	Defects/Hazards/Issues Present Commentary on tree	Tree Vigour	General Condition	Environmental Rating	Expected Remaining Life	Significant Tree Status	Retention Value	Replacement Time Frame	Recommended Action for Priority	Primary Reason for Recommendation	Secondary Reason for Recommendation	Development Proposed Action	Canopy Area = (M^2)	SRZ	TPZ	Known or Potential Impacts to Tree Final Comments.
1	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb Brenan end	Aus Native	Medium	0.55	11	11	Mature	2 branch failures - evidence of white ants in stem	2 - Good	2 - Good	3 - Medium	15 plus	Not Significant	2 - Good	10-20	Retain	Strong Environmental value	Positive amenity values	Retain - Impacts unlikely	95.1	2.6	6.6	
2	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb	Aus Native	Small	0.53	11	12	Mature		2 - Good	2 - Good	3 - Medium	15 plus	Not Significant	2 - Good	10-20	Retain	Strong Environmental value	Positive amenity values	Retain - Impacts unlikely	113.1	2.5	6.36	
3	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb	Aus Native	Small	0.7	8	15	Mature	Tree roots in conflict with kerbing and potentially water main	2 - Good	2 - Good	3 - Medium	15 plus	Not Significant	1 - Good	10-20	Retain	Strong Environmental value	Positive amenity values	Retain - Impacts unlikely	176.8	2.8	8.4	
4	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb inside gates	Aus Native	Small	0.35	6	11	Mature	Decay in stem at 300mm to 1.2 m stem with 25 degree lean and canopy 80% unbalanced on lean - circling roots white ants	3- Fair	4 - Poor	4 - Low	0 to 5	Not Significant	4 - Poor	5-10	Remove	Poor Condition	Other	Not determined	95.1	2.1	4.2	If any development conflict then remove and replace tree. Tree has poor outlook
5	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb inside gates	Aus Native	Small	0.29	8	8	Mature	Heavy root impacts and root restrictions - road and car park	3- Fair	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	50.3	1.8	3.48	If any development conflict then remove and replace tree. Tree not recommended for removal but has limited retention value
6	*Eucalyptus torquata* (coral gum)	Maidens ave - east kerb inside gates	Aus Native	Small	0.35	7	7	Mature	Heavy root impacts and root restrictions - road and car park	3- Fair	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	38.5	2.1	4.2	If any development conflict then remove and replace tree. Tree not recommended for removal but has limited retention value
7	*Eucalyptus torquata* (coral gum)	Maidens ave -west kerb	Aus Native	Small	0.35	7	10	Mature	Heavy root compaction	3- Fair	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	78.6	2.1	4.2	If any development conflict then remove and replace tree. Tree not recommended for removal but has limited retention value
8	*Eucalyptus torquata* (coral gum)	Maidens ave -west kerb st power pole	Aus Native	Small	0.39	6	8	Mature	lopped for power services - circling roots heavy root compaction	3- Fair	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	50.3	2.2	4.68	If any development conflict then remove and replace tree. Tree not recommended for removal but has limited retention value
9	*Pinus pinaster* (Maritime Pine)	Car park area south of Net Ball courts	Exotic	Medium	0.35	13	5	Mature	Heavy root zone compaction - tree has poor to fair vigour some years	4 - Poor	3 - Fair	5 - Very Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts unlikely	19.6	2.1	4.2	
10	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	North tree in line of 9 - west side access road	Aus Native	Large	0.97	18	16	Over Mature	Stem system sound. Heavy bird chewing in most branch unions - numerous branch failures - 10 or more - past vigour poor to fair - current vigour good after good rainfall - 15 % canopy dieback	3- Fair	3 - Fair	2 - High	15 plus	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	201.1	8.3	11.6	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
11	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.7	14	10	Over Mature	Stem system sound. Heavy bird chewing in most branch unions - numerous branch failures - 10 or more - past vigour poor to fair - current vigour good after good rainfall - 40 % canopy dieback	3- Fair	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	78.6	2.8	8.4	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
12	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.45	14	10	Over Mature	Stem system sound. Heavy bird chewing in most branch unions - numerous branch failures - past vigour poor to fair - current vigour good after good rainfall - 25 % canopy dieback	3- Fair	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	78.6	2.4	5.4	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
13	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.6	15	12	Over Mature	Stem system sound. Heavy bird chewing in most branch unions - 6 branch failures - past vigour poor to fair - current vigour good after good rainfall	2 - Good	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	113.1	2.7	7.2	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
14	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.7	20	14	Over Mature	Stem system sound. Heavy bird chewing in most branch unions - 6 branch failures - past vigour poor to fair - current vigour good after good rainfall	2 - Good	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	154.0	2.8	8.4	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
15	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Medium	0.56	8	16	Mature	Spreading habit - large extended branches very low to ground - tree with notable galls on stem and branches	2 - Good	3 - Fair	3 - Medium	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	201.1	2.6	6.7	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
16	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.71	18	12	Mature	Tree with two stems - partially lopped for power line conflict - decay in north stem - moderate risk of failure. 4 branch failures.	2 - Good	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	113.1	2.9	8.5	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
17	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Large	0.7	15	10	Mature	Tree only 4m from HV power pole - 50% potential canopy removed due to power line conflict. Heavy epicormic shoots from recent clearance pruning Heavy bird chewing across branch unions - decay in some unions 6 or more branch failures - canopy over and on existing shed	2 - Good	3 - Fair	2 - High	5 to 15	Not Significant	3- Fair	20+	Retain	Positive amenity values	Strong Environmental value	Retain - Impacts to Manage	78.6	2.8	8.4	Tree requires some root zone considerations and structured canopy pruning impact from building footprint presents as clearing the TPZ
18	*Eucalyptus camaldulensis* (River Red Gum) (not identified to sub species)	West side access road	Aus Native	Small	0.35	6	7	Senescent	Tree stem almost directly under power line - tree has been continually lopped for clearance and now has extended decay and cambium dieback - only 20% stem function remains.	5 - Very Poor	5 - Very Poor	4 - Low	0 to 5	Not Significant	5 - Very Poor	0-5	Remove Priority	Poor Condition		Not determined	38.5	2.1	4.2	Remove tree - senscent - will not recover
19	*Melia azedarach* White Cedar	West side oval edge - south tree	Aus Native	Small	0.58	8	12	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 75 mm Ø with fair attachment and decay in stubs - bracket fungi present	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts unlikely	113.1	2.6	7.0	
20	*Melia azedarach* White Cedar	West side oval edge	Aus Native	Small	0.38	7	8	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 75 mm Ø with fair attachment and decay in stubs	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts unlikely	50.3	2.2	4.6	
21	*Melia azedarach* White Cedar	West side oval edge	Aus Native	Small	0.45	8	12	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 50 mm Ø with fair attachment. Exposed roots	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	113.1	2.4	5.4	Protect exposed roots during development.
22	*Fraxinus angustifolia* (Desert Ash)	West side oval edge	Exotic	Small	0.2	5	5	Mature	Tree moderately supressed by adjacent trees.	4 - Poor	3 - Fair	5 - Very Low	5 to 15	Not Significant	4 - Poor	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	19.6	1.7	2.4	
23	*Melia azedarach* White Cedar	West side oval edge	Aus Native	Small	0.32	6	9	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 60 mm Ø with fair attachment	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	63.6	2.1	3.8	

Tree No	Species	General Location	Species Origin	General Size	DBH (m)	Height M	Canopy Ø	Age Class	Defects/Hazards/Issues Present Commentary on tree	Tree Vigour	General Condition	Environmental Rating	Expected Remaining Life	Significant Tree Status	Retention Value	Replacement Time Frame	Recommended Action for Existing	Primary Reason for Recommendation	Secondary Reason for Recommendation	Development Proposed Action	Canopy Area = (M^2)	SRZ	TPZ	Known or Potential Impacts to Tree Final Comments.
24	*Melia azedarach* White Cedar	West side oval edge	Aus Native	Small	0.47	8	12	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 75 mm Ø with fair attachment and decay in stubs	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	113.1	2.4	3.6	
25	*Melia azedarach* White Cedar	West side oval edge	Aus Native	Small	0.21	5	5	Over Mature	Tree repeatedly lopped at 2m - epicormic attachment fair - 30mm Ø	4 - Poor	4 - Poor	5 - Very Low	0 to 5	Not Significant	4 - Poor	0-5	Remove	Poor Condition		Not determined	19.6	1.7	2.5	
26	*Melia azedarach* White Cedar	West side oval edge - line of west kerb of Maidens ave	Aus Native	Small	0.35	7	8	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 50 mm Ø - with fair attachment and light decay in stubs -	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	50.3	2.1	4.2	
27	*Melia azedarach* White Cedar	West side oval edge - Maidens ave.	Aus Native	Small	0.5	8	9	Mature	tree repeatedly heavily lopped at 3m. Epicormic shoots very congested - 100 mm Ø - with fair attachment and light to moderate decay in stubs -	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Remove	63.6	2.5	6.0	Removal recommended as Impacts inside SRZ - new tree considered a better option
28	*Lophostemon confertus* QLD Brush Box	West Side Grandstand	Aus Native	Small	0.31	8	8	Over Mature	Tree has had mostly poor vigour for some time. Species not well suited to the local environment.	4 - Poor	3 - Fair	4 - Low	0 to 5	Not Significant	4 - Poor	5-10	Remove	Poor Condition	Species not suited to Environment	Remove	50	2.02	3.72	Tree could be retained if no impacts to TPZ - however in scale of development a new tree is likely a better option
29	*Melia azedarach* White Cedar	West Side Grandstand	Aus Native	Small	0.28	5	5	Over Mature	Primary branching structures lopped at 3m some time ago - and several further lopping events. Current epicormic shoots 80mm diameter with fair to good attachment - lopping points with light levels of decay. Primary stem systems with significant levels of decay and new fungal fruiting bodies now produced	3- Fair	4 - Poor	4 - Low	0 to 5	Not Significant	5 - Very Poor	5-10	Remove	Poor Condition	Replaced in short term	Remove	20	1.94	3.36	Species prone to decay - stem system in poor condition - small tree is not worth retaining - can easily be replaced in short term.
30	*Melia azedarach* White Cedar	West Side Grandstand	Aus Native	Small	0.55	10	10	Mature	Primary branching structures lopped at 3m some time ago - and several further lopping events. Current epicormic shoots 80mm diameter with fair to good attachment - lopping points with light levels of decay. Very large exposed roots in lawn	2 - Good	3 - Fair	4 - Low	15 plus	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Remove	79	2.57	6.6	Removal recommended as Impacts inside SRZ - new tree considered a better option
31	*Melia azedarach* White Cedar	West Side Grandstand	Aus Native	Small	0.5	8	8	Mature	Primary branching structures lopped at 3m some time ago - and several further lopping events. Current epicormic shoots 80mm diameter with fair to good attachment - lopping points with light levels of decay. Exposed roots in lawn	2 - Good	3 - Fair	4 - Low	15 plus	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Remove	50	2.47	6	Removal recommended as Impacts inside SRZ - new tree considered a better option
32	*Lophostemon confertus* QLD Brush Box	East End grandstand	Aus Native	Small	0.22	6	7	Mature	Tree has had mostly poor vigour for some time. Species not well suited to the local environment.	3- Fair	4 - Poor	4 - Low	0 to 5	Not Significant	4 - Poor	5-10	Remove	Poor Condition	Species not suited to Environment	Remove	39	1.75	2.64	Development in direct conflict with tree - can not be retained - a new tree is a better option.
33	*Grevillea robusta* Silky Oak	East End grandstand	Aus Native	Medium	0.4	12	10	Mature	Sound tree in good condition. 1 large exposed buttress root	1 - Good	2 - Good	3 - Medium	15 plus	Not Significant	2 - Good	10-20	Retain if possible	Sound tree suited to site	Positive amenity values	Remove	79	2.25	4.8	Removal recommended as Impacts inside SRZ - new tree considered a better option - canopy would also be in conflict with building
34	*Melia azedarach* White Cedar	East End grandstand	Aus Native	Small	0.5	9	9	Mature	Primary branching structures lopped at 3m some time ago - and several further lopping events. Current epicormic shoots 80mm diameter with fair to good attachment - lopping points with light levels of decay. Exposed roots in lawn	2 - Good	3 - Fair	4 - Low	15 plus	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Remove	64	2.47	6	Removal recommended as Impacts inside SRZ - new tree considered a better option - canopy would also be in conflict with building
35	*Grevillea robusta* Silky Oak	East End grandstand	Aus Native	Medium	0.26	9	4	Mature	Tree presents as likely mature - despite species potential for much greater dimensions. Sound tree	3- Fair	2 - Good	3 - Medium	15 plus	Not Significant	3- Fair	10-20	Retain if possible	Sound tree suited to site	Positive amenity values	Retain - Impacts to Manage	13	1.88	3.12	
36	*Fraxinus angustifolia* (Desert Ash)	East Side Grandstand	Exotic	Small	0.3	8	8	Mature	Tree in good condition	2 - Good	2 - Good	5 - Very Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Retain - Impacts to Manage	50.3	2.0	3.6	
37	*Melia azedarach* White Cedar	Existing bar area	Aus Native	Small	0.35	8	9	Mature	Lower stem sound - tree repeatedly lopped at 3-4 m mark. Epicormic shoots fair to poor attachment and very congested	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	63.6	2.1	4.2	Site plan indicates that retention is likely not possible due to major impacts from new car park
38	*Melia azedarach* White Cedar	Existing bar area North of two	Aus Native	Small	0.33	7	8	Mature	Lower stem sound - tree repeatedly lopped at 3-4 m mark. Epicormic shoots fair to poor attachment and very congested.	2 - Good	3 - Fair	4 - Low	5 to 15	Not Significant	3- Fair	5-10	Retain if possible	Positive amenity values		Not determined	50.3	2.1	4.0	Site plan indicates that retention is likely not possible due to major impacts from new car park

Total Approximate canopy coverage 2997.0

Annexure 2 - Assessment and Evaluation criteria - Definitions.

Origin		General Tree Size		Age Class		General Condition - summation of all considerations. Includes Stem/Canopy Structure Defects, Form, Canopy Vigour, Extent of any decay, Past and Disease Influences	ERL estimated remaining life in years under current Situation	Tree Vigour	Retention value	
Endemic	Species is native to this location	Very Large	> 25m	New	Recent Planting - last year or two	1 - Excellent	0	1 - Excellent	1 - Excellent	Interpretation Based on overall tree condition, species performance in local environment, expected remaining life and significance of tree in landscape
Aus Native	Species native to Australia but not this location	Large	18-25m	Young	Sapling, extended growth remaining	2 - Good	0 to 5	2 - Good	2 - Good	
		Medium	10-18m	Semi Mature	Some remaining growth to reach maturity for the site and species	3 - Fair	5 to 15	3- Fair	3- Fair	
Exotic	Species introduced to Australia	Small	< 10m	Mature	Considered mature size for site and species - typically no sign of decline	4 - Poor	15 plus	4 - Poor	4 - Poor	
		Very Small	< 3m	Over Mature	Tree has commenced to decline - obvious signs	5 - Very Poor	40 plus	5 - Very Poor	5 - Very Poor	
				Senescent	Extended signs of decline - recovery not expected					
				Dead	Little or no metabolic function remaining					

Environmental Rating	Environmental Evaluation Considerations/criteria
1 - Very High	Normally Old growth Remnant Tree, multiple hollows important to endangered fauna, replacement would be well in excess of 150 years
2 - High	Mature or semi mature Endemic Tree with or without hollows, plays an important part in local ecology, or Australian Native that has high substitute values as endemic tree replacement would take 50-100 years
3 - Medium	Young or semi mature Endemic tree or Australian native species that has some positive values for local fauna/ecosystems - replacement would take 20 or more years. Large Exotic tree with elevated general values
4 - Low	Normally exotic species, or small, young endemic or native that could be replaced in the short term 5-10 years
5 - Very Low	Listed Weed or nuisance species, or very small value or insignificant to local ecology - could be replaced within 5 years or readily replaced with species of greater value

	Significant Tree value considerations/criteria
Very Significant	Defined as Significant Tree by regulatory or other authority or Environmental rating 1 or Heritage Listed or Very High Cultural or heritage Values
Significant	Environmental rating 2 or Medium or large tree in good/excellent condition, suited to local environment or Imposing within the local landscape with long life expectancy and or strong amenity values or some cultural or heritage links

Recommended Action for DA	Primary Reasons
Retain Priority	Very Significant tree
Retain	Significant Tree
Retain if possible	Sound tree suited to site
Remove	Positive amenity values
Remove Priority	Strong Environmental value
	Poor Condition
	Unsuitable for location
	Species not suited to Environment
	Condition & Safety
	Replaced in short term
	Allow development
	Exempt species
	Exempt height
	Other

Replacement times	Picks	
	1	Very significant
0-5	2	Significant
5-10	3	Not Significant
10-20	4	
20+	5	Yes
50+		No
100+		

Known Development Impact

Remove

Retain - Impacts to Manage

Retain - Impacts unlikely

Not determined

Tree Height and canopy spread is estimated unless otherwise specified.

Tree stem diameter is measured at approximately 1.4m above - or at a point indicative of the tree dimension where abnormal growth occurs at 1.4m above ground. Multi stemmed trees are calculated as per AS 4970

TPZ – Tree Protection Zone - specified area above and below ground and at a given distance from the trunk set aside for the protection of the tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

SRZ - Structural Root Zone – the area around the base of a tree required for the tree's stability in the ground - calculated in meters radially from stem centre.

From *Australian Standard 4970-2009 Protection of Trees on development sites*

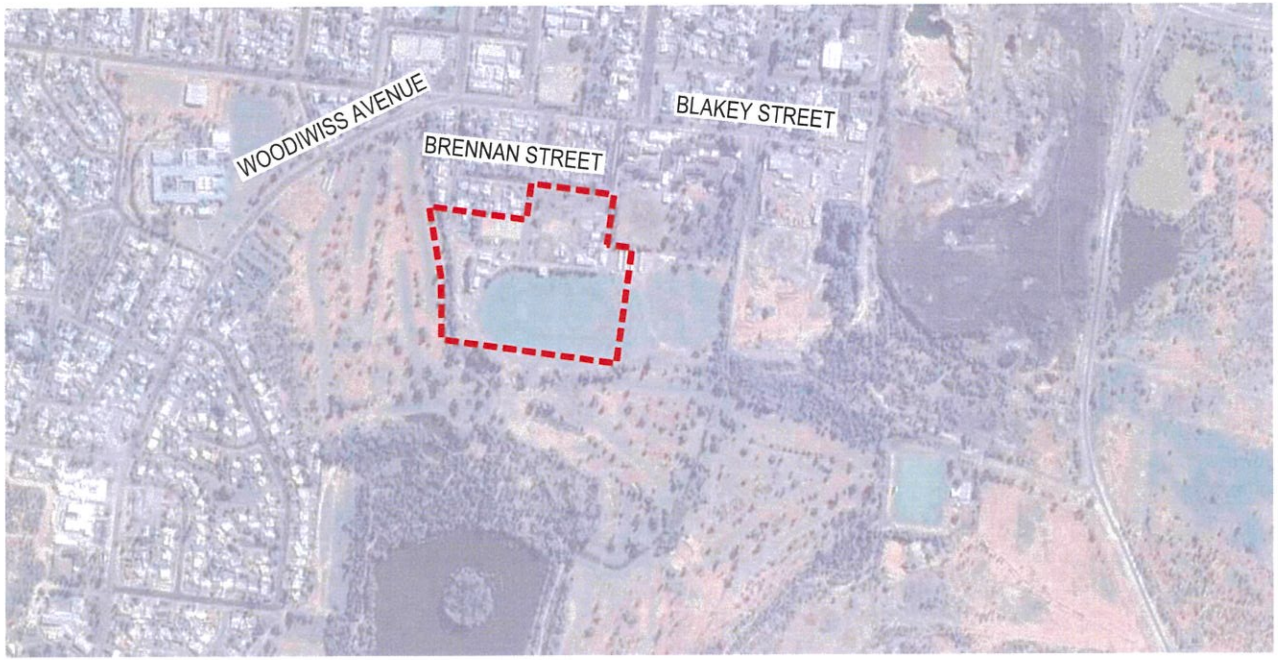
TPZ and SRZ are calculated from AS 4970

Tree canopy area is a calculated area from the diameter of the of the canopy - some actual variation may exist in the calculation if the canopy is not symmetrical.

ITEM 3

Civil Service Drawings (JHA Services)

WARD OVAL PRECINCT
DISCIPLINE: CIVIL SERVICES



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LEGEND

AHD	AUSTRALIAN HEIGHT DATUM
AP	ACCESS PANEL
BG	BOX GUTTER
DP	DOWNPIPE
e	EXISTING
FFL	FINISHED FLOOR LEVEL
GIP	GRATED INLET PIT
HL	HIGH LEVEL IN CEILING
HP	HIGH POINT
IL	INVERT LEVEL
INT	INTERNAL
KIP	KERB INLET PIT
O/F	OVERFLOW
RHS	RECTANGULAR HOLLOW SECTION
RL	RELATIVE LEVEL
RWH	RAINWATER HEAD
RWT	RAINWATER TANK
SRL	SLAB RELATIVE LEVEL
SRZ	STRUCTURAL ROOT ZONE
TBA	TO BE ADVISED
TKL	TOP KERB LEVEL
TRZ	TREE ROOT ZONE
UNO	UNLESS NOTED OTHERWISE

DRAWING LIST

C0000	COVER SHEET
C0001	CONSTRUCTION NOTES
C1000	MULTI-PURPOSE HALL & CAR PARK SITE LOCALITY PLAN
C1010	MULTI-PURPOSE HALL & CAR PARK STORMWATER DRAINAGE LAYOUT
C1100	CARPARK CIVIL LAYOUT SHEET 1 OF 2
C1101	CARPARK CIVIL LAYOUT SHEET 2 OF 2
C1200	CAR PARK DETAILS LAYOUT SHEET 1 OF 2
C1201	CAR PARK DETAILS LAYOUT SHEET 2 OF 2
C1202	CAR PARK DRIVEWAY CROSSING LONGITUDINAL SECTION
C1400	MULTI-PURPOSE HALL & CAR PARK EROSION & SEDIMENT CONTROL PLAN
C1401	MULTI-PURPOSE HALL & CAR PARK EROSION & SEDIMENT CONTROL DETAILS
C2000	OVERFLOW CARPARK SITE LOCALITY PLAN
C2100	OVERFLOW CARPARK CIVIL LAYOUT SHEET 1 OF 2
C2101	OVERFLOW CARPARK CIVIL LAYOUT SHEET 2 OF 2
C2200	OVERFLOW CARPARK DETAILS LAYOUT
C2201	OVERFLOW CARPARK DRIVEWAY CROSSING LONGITUDINAL SECTION
C3000	SPORTS STORAGE SHED SITE LOCALITY PLAN
C3010	SPORTS STORAGE SHED STORMWATER DRAINAGE LAYOUT
C3300	SPORTS STORAGE SHED SWEPT PATH ANALYSIS
C3400	SPORTS STORAGE SHED EROSION & SEDIMENT CONTROL PLAN
C3401	SPORTS STORAGE SHED EROSION & SEDIMENT CONTROL DETAILS
C4000	WESTERN CARPARK & TURNING AREA SITE LOCALITY PLAN
C4100	WESTERN CARPARK & TURNING AREA CIVIL LAYOUT SHEET 1 OF 2
C4300	WESTERN CARPARK & TURNING AREA SWEPT PATH ANALYSIS
C5000	REFURBISHED PAVILLIONS SITE LOCALITY PLAN
C5010	REFURBISHED PAVILLIONS STORMWATER DRAINAGE LAYOUT
C5200	REFURBISHED PAVILLIONS DETAILS LAYOUT
C5400	REFURBISHED PAVILLIONS EROSION & SEDIMENT CONTROL PLAN
C5401	REFURBISHED PAVILLIONS EROSION & SEDIMENT CONTROL DETAILS
C6000	CATTLE YARDS SITE LOCALITY PLAN
C6300	CATTLE YARDS SWEPT PATH ANALYSIS

LEGEND

FALL — FALL DIRECTION
OVERLAND FLOW
STORMWATER PIT (GRATED)
STORMWATER PIT (SEALED)
SITE BOUNDARY
COVER SHEET — LEVEL TAG
DOWN PIPE
RWO — RAINWATER OUTLET
TRENCH GRATE
S/S 100Ø — PROPOSED SUBSOIL PIPE
RW 100Ø — PROPOSED RAINWATER PIPE
SEDIMENTARY FENCE
PROPOSED STOCKPILE LOCATION
PROPOSED SITE ACCESS
MESH + GRAVEL INLET FILTER
RWT — ABOVE GROUND RAINWATER HARVESTING
DOWNPIPE SPREADER
CO — CLEAROUT
STEP — STEP DOWN
STW Ø100 — PIPE SIZE — FALL DIRECTION
1 / DWG — SERVICE / SERVICE NUMBER — PIPE SIZE
FOR SECTION VIEW — REFER TO DRAWING
OH — X — REMOVED OVERHEAD ELECTRICAL
eOH — EXISTING OVERHEAD ELECTRICAL
eHV — EXISTING HIGH VOLTAGE
eE — EXISTING ELECTRICAL
eW — EXISTING POTABLE WATER
eC — EXISTING COMMS
eG — EXISTING GAS
eS — EXISTING SEWER
eSW — EXISTING STORMWATER
EXISTING TREE TO BE RETAINED
EXISTING TREE TO BE REMOVED
PROPOSED TREE (INDICATIVE LOCATION)
PROPOSED STORMWATER LINE
EXISTING STORMWATER LINE
NEW FOOTPATH
NEW FOOTPATH - SPEC BY LANDSCAPE ARCHITECT
BLISTER SLAB/PLANTING TO FUTURE DETAIL
NEW ASPHALT INTERNAL CAR PARKING TO COUNCIL SPECIFICATION
NEW GRAVEL PAVEMENT TO COUNCIL SPECIFICATIONS
RE-TURFED NATURE STRIPS
NEW TYPE 'SA' KERB & GUTTER
NEW TYPE 'SF' KERB
NEW TYPE 'SM' KERB
NEW 450 WIDE GUTTER
NEW DRIVEWAY CROSSING AND LAYBACK
NEW DRIVEWAY/MANAGEMENT PARKING
HALF ROAD RECONSTRUCTION
PROPOSED LINEMARKING
PROPOSED WHEELSTOP
EXISTING STREETLIGHTS
NEW STREETLIGHT POLES
PROPOSED STREETSIGN

REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
P1	04.11.21	ISSUE FOR REVIEW	M.B.
P2	19.11.21	DA ISSUE	M.B.
P3	23.11.21	DA ISSUE	M.B.

REVISIONS / AMENDMENTS

Rev	Date	Description	Verified

All dimensions to be verified on site/s prior to commencement of on-site work and/ or off-site prefabrication. Figured dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

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ARCHITECT
DUNN & HILLAM ARCHITECTS

CONSULTANT
JHA

PROJECT
COBAR OVAL MASTERPLAN

TITLE
CIVIL SERVICES
COVER SHEET

DA ISSUE
NOT TO BE USED FOR CONSTRUCTION

DRAWN	J.M.	SCALE @ A1	
CHECKED	M.B.	N.T.S.	
APPROVED	M.B.		
CREATED	OCT 2021		
JOB No.	DRAWING No.	REV	
210365	C0000	P3	

Nov 23, 2021 – 2:36pm S:\JOB No\Job No 20210300–20210399\210365 Cobar Ward Oval Pavilion\Drawings\Civil\210365–C0000.dwg

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COBAR SHIRE COUNCIL

A. GENERAL

1. ALL MATERIALS AND WORKMANSHIP MUST MEET AS/NZS 3500.3:2018 STORMWATER DRAINAGE, BCA AND AUTHORISING LOCAL COUNCIL DEVELOPMENT GUIDELINES, STANDARDS, SPECIFICATIONS, POLICIES, CONSENTS AND REQUIREMENTS AND / OR AS DIRECTED BY THE PRINCIPAL.
2. THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS, TECHNICAL SPECIFICATIONS AND OTHER INSTRUCTIONS THAT ISSUED DURING THE COURSE OF THE COMMISSION. ALL DISCREPANCIES ARE TO BE REFERRED TO THE PRINCIPAL FOR CLARIFICATION PRIOR TO COMMENCING WORK. WORKS SHALL NOT PROCEED WITHOUT CLARIFICATION AND INSTRUCTION FROM THE PRINCIPAL.
3. THE CONTRACTOR SHALL NOT ENTER OR WORK ON ADJOINING PROPERTIES WITHOUT THE WRITTEN CONSENT OF THE PROPERTY OWNERS OR THE RELEVANT AUTHORITIES.
4. THE CONTRACTOR IS TO ENSURE THAT MINIMAL DISTURBANCE IS MADE TO AREAS OUTSIDE OF THE CONSTRUCTION WORKS AREA.
5. ANY SUBSTITUTION OF PRODUCTS OR MATERIALS SHALL BE APPROVED BY THE PRINCIPAL PRIOR TO COMMENCING WORK.
6. ANY CONNECTION TO EXISTING WORKS ARE TO BE MADE GOOD.
7. EXCAVATION WORKS ARE NOT TO IMPACT THE STABILITY OF ANY NEARBY STRUCTURES AND PROPERTIES.
8. SOILS SHOULD BE TESTED FOR ACID SULPHATE SOILS AND/OR CONTAMINATION PRIOR TO EXCAVATION IF THERE IS A POTENTIAL RISK NOTED IN THE ENVIRONMENTAL IMPACT ASSESSMENT OR CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN.
9. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION UPON COMPLETION OF WORK UNLESS DIRECTED OTHERWISE BY THE PRINCIPAL.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE SETTING OUT OF THE WORKS IN ACCORDANCE WITH THE SETOUT DETAILS AND MEASUREMENTS SHOWN ON THE DRAWINGS. ALL SETOUT INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
11. ALL DIMENSIONS AND LEVELS RELEVANT TO SETTING OUT TO BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. THIS INCLUDES EXISTING SERVICES AND/OR OTHER STRUCTURES THAT MAY AFFECT/BE AFFECTED BY THIS DESIGN PRIOR TO CONSTRUCTION.
12. ALL SURVEY INFORMATION AND PROPOSED WORKS OTHER THAN THE PROPOSED STORMWATER DRAINAGE HAVE BEEN OBTAINED FROM DRAWINGS BY OTHER CONSULTANTS.
13. REFER TO HYDRAULIC DRAWINGS AND PAVEMENT DRAWINGS FOR DETAILS OF ROOF AND SUBSOIL DRAINAGE SYSTEMS RESPECTIVELY.
14. THE DRAWINGS SHALL NOT BE SCALED UNLESS OTHERWISE INSTRUCTED IN THE NOTES ON THE DRAWINGS. ALL LEVELS, COORDINATES AND CHAINAGES ARE IN METRES AND DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
15. THE LEVEL DATUM REFERRED TO IN THE DRAWINGS IS THE AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
16. THE CONTRACTOR IS TO INVESTIGATE, IDENTIFY AND ACCURATELY LOCATE ALL EXISTING SERVICES OR OTHER STRUCTURES WHICH MAY AFFECT/BE AFFECTED BY THIS DESIGN AND APPLY FOR "DIAL BEFORE YOU DIG" BEFORE CONSTRUCTION COMMENCES. ALL INFORMATION ON EXISTING SERVICES IS TO BE KEPT UP TO DATE, AND ON SITE AT ALL TIMES.
17. IT IS THE RESPONSIBILITY OF THE BUILDER TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES.
18. THE CONTRACTOR IS TO CONTACT THE RELEVANT UTILITY AUTHORITIES / ASSET OWNERS PRIOR TO COMMENCEMENT OF EXCAVATION WORKS. ANY MODIFICATION OF THE ASSET REQUIRED BY THE CONTRACTOR IS TO BE APPROVED BY THE ASSET OWNER / AUTHORITY.

B. QUALITY, SAFETY AND ENVIRONMENT

1. SCOPE OF WORK FOR THIS DOCUMENT INCLUDES THE DESIGN, MODELLING AND DOCUMENTATION FOR THE FOLLOWING (WHERE APPLICABLE): STORMWATER CONCEPT PLAN WITH OSD (IF REQUIRED) AND WSUD LAYOUT DESIGN, SEDIMENT AND EROSION CONTROL PLAN, CALCULATIONS, STANDARD DETAILS AND MUSIC MODELLING.
2. THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE AUTHORISING COUNCIL'S POLICIES AND REQUIREMENTS, AS 3500:2018 "PLUMBING AND DRAINAGE", BASIX REQUIREMENTS, AUSTRALIAN RAINFALL AND RUNOFF (2016), RELEVANT LEGISLATION, AND NSW MUSIC MODELLING GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN AND OPERATE AND APPROVED QUALITY SYSTEM TO AS/NZS ISO9002-2000.
4. THE CONTRACTOR SHALL PROVIDE INSPECTION AND TEST PLANS TO THE PRINCIPAL FOR THEIR ENDORSEMENT.
5. ALL MATERIALS TESTING SHALL BE UNDERTAKEN BY A NATA ACCREDITED LABORATORY.
6. THE CONTRACTOR SHALL PROVIDE A SAFETY PLAN AND SAFE WORK METHOD STATEMENTS TO THE PRINCIPAL FOR ENDORSEMENT PRIOR TO COMMENCING WORKS.
7. ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH NSW OCCUPATIONAL HEALTH AND SAFETY LAWS AND REGULATIONS.
8. ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH NSW ENVIRONMENTAL LAWS AND REGULATIONS.
9. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN TO THE PRINCIPAL FOR THEIR ENDORSEMENT.

C. EROSION AND SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE NSW ENVIRONMENT PROTECTION AGENCY (EPA), THE OFFICE OF ENVIRONMENT & HERITAGE, AND WATER NSW.
2. THE CONTRACTOR IS TO IMPLEMENT ALL MEASURES OUTLINED IN THE EROSION AND SEDIMENT CONTROL PLAN PRIOR TO CONSTRUCTION COMMENCING AND MAINTAIN THESE MEASURES THROUGHOUT CONSTRUCTION.
3. EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH LANDCOM'S 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
4. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
5. ALL SUB CONTRACTORS SHALL BE INFORMED OF THEIR RESPONSIBILITIES FOR MAINTAINING AND PROVIDING ON-GOING ADJUSTMENTS TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON-GOING ADJUSTMENTS TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION

D. STORMWATER DRAINAGE

1. PIPES UP TO AND INCLUDING 225mm SHALL BE UPVC (DWV) PIPE AND FITTINGS, MANUFACTURED TO AS1260 WITH SOLVENT WELDED JOINTS.
2. PIPES LARGER THAN OR EQUAL TO 300mm TO BE REINFORCED CONCRETE RUBBER RING JOINTED TYPE (CLASS 2) MANUFACTURED TO AS4058 (U.N.O).
3. ALL CONCRETE WORKS ARE TO BE IN ACCORDANCE WITH AS 3600 AND ALL STEEL REINFORCEMENT AND STEEL MESH ARE TO BE IN ACCORDANCE WITH AS 4671. ALL BURIED FLEXIBLE PIPES ARE TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH AS/NZS 2566. ALL BURIED PVC PIPES ARE TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH AS/NZS 2032, AS/NZS 1254 AND AS/NZS 1477. ALL CONCRETE PIPES ARE TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH AS/NZS 3725, AS/NZS 4139 AND AS/NZS 4058.
4. GRATES AND COVERS SHALL CONFORM TO AS3996 AND TO THE AUTHORISING COUNCIL'S REQUIREMENTS.
5. NO PIT GRATE COMPONENT PART SHALL WEIGH MORE THAN 20KG. ALL GRATES SHALL BE HINGED FULLY OPENING GRATES WITH LOCKDOWN DEVICE.
6. ALL STORMWATER PITS AND DETENTION TANKS DEEPER THAN 1.2m IN DEPTH TO BE FITTED WITH RUNG LADDERS IN ACCORDANCE WITH AS/NZS 4198 AND AS/NZS 1657. STEEL LADDERS SHALL BE HOT DIP ZINC GALVANISED AS SPECIFIED IN AS/NZS 4680.
7. ALL INLET/OUTLET PIPES SHALL BE CUT FLUSH WITH PIT WALLS.
8. PRECAST CONCRETE PIPES AND FITTINGS TO BE DOUBLE V-RING JOINTED.
9. EMBEDMENT SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH AS/NZS 2566 FOR FLEXIBLE PIPES, AS/NZS 2032 FOR PVC PIPES, AND AS/NZS 3725 FOR CONCRETE PIPES.
10. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER DRAINAGE, THE CONTRACTOR SHALL PROVIDE ADEQUATE SAFETY MEASURES TO PREVENT WORKER INJURIES ASSOCIATED WITH PITS AND TRENCHES.
11. THE CONTRACTOR SHALL ALLOW FOR DEWATERING AS REQUIRED DURING CONSTRUCTION.
12. ALL STORMWATER DRAINAGE MATERIALS AND PRODUCTS INCLUDING PITS AND PIPES ARE TO BE INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS.
13. DEMOLISH, FILL IN AND REMOVE EXISTING PIPE AND PITS AS DIRECTED BY THE SUPERINTENDENT. REDUNDANT DRAINAGE PIPES MUST BE FILLED WITH STABILISED SAND OR GROUT TO PREVENT STRUCTURAL COLLAPSE IN THE FUTURE. REDUNDANT PITS ARE TO BE DEMOLISHED AND REMOVED UNLESS THEY AFFECT THE STRUCTURAL INTEGRITY OF ADJACENT STRUCTURES, IN WHICH CASE THEY MUST BE FILLED WITH STABILISED SAND OR GROUT.
14. NEW PIPE SYSTEMS ARE TO BE FLUSHED OUT BY THE CONTRACTOR ONCE COMPLETE PRIOR TO CONNECTION INTO EXISTING SYSTEMS.
15. PITS ARE TO BE DESIGNED FOR THE STRENGTH CLASS SPECIFIED IN THE PIT SCHEDULE PROVIDED IN THIS DRAWING SET.
16. FOR CHARGED DRAINAGE SYSTEMS, THE UPVC PIPEWORK MUST BE SUITABLE FOR PRESSURE APPLICATIONS.
17. FOR CHARGED DRAINAGE SYSTEMS, ALL UPVC PIPEWORK AND JOINTS, INCLUDING THE FULL HEIGHT OF THE DOWNPIPE, ARE TO HAVE SEALED AND SOLVENT WELDED JOINTS TO ENABLE WATER STORAGE IN PIPE NETWORK. ALL PIPES ARE TO BE FILLED WITH WATER AND PUT UNDER TEST CONDITIONS PRIOR TO HANDOVER.
18. A CLEANING EYE IS TO BE FITTED AT THE LOWEST POINT OF THE CHARGED DRAINAGE SYSTEM AND EXTEND INTO A STORMWATER PIT, TO ALLOW FOR DRAINING AND CLEAR OUT OF SYSTEM.
19. LEAF GUARDS ARE TO BE FITTED OVER ALL EAVES GUTTERS BEING SERVED BY A CHARGED ROOF DRAINAGE SYSTEM.
20. ALL EAVES GUTTERS SHALL HAVE A LO-FRONT LIP U.N.O. HIGH-FRONT EAVES GUTTERS SHALL BE REJECTED.

E. CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS/NZS 3600
2. FORMWORK SHALL COMPLY WITH AS/NZS 3610
3. PREMIXED CONCRETE SHALL BE MANUFACTURED AND SUPPLIED IN ACCORDANCE WITH AS/NZS 1379.
4. PORTLAND AND BLENDED CEMENT SHALL COMPLY WITH AS/NZS 3972.
5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED BY THE PRINCIPAL. ADMIXTURES SHALL COMPLY WITH AS/NZS 1478.1.
6. AGGREGATE SHALL COMPLY WITH AS/NZS 2758.1
7. WATER SHALL BE CLEAN FRESH WATER IN ACCORDANCE WITH AS/NZS 1379.
8. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CLASSES OF CONCRETE IN ACCORDANCE WITH AS/NZS 1379.
9. CONCRETE EXPOSURE CLASSIFICATION SHALL BE SPECIFIED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

MINIMUM 28 DAY AS/NZS 3600 COMPRESSIVE STRENGTH (fc) OF CONCRETE IS AS FOLLOWS:

- CAST IN SITU ELEMENT:
  40 MPa
- PRE-CAST CONCRETE ELEMENT:
  40 MPa
- BLINDING CONCRETE AND MASS CONCRETE:
  25 MPa

10. STORMWATER PITS AND STRUCTURES SPECIFIED SLUMP 80MM, NOMINAL AGGREGATE SIZE 20mm.
11. BLINDING CONCRETE SHALL BE MINIMUM 50mm THICK.

F. STEEL REINFORCEMENT

1. STEEL REINFORCEMENT SHALL COMPLY WITH AS/NZS 4671. DOWELS SHALL BE ONE-PIECE, STRAIGHT, PLAIN STEEL BAR OR PLATE COMPLYING WITH AS/NZS 4671 OR AS/NZS 3679.1. TIE BARS SHALL BE DEFORMED BARS COMPLYING WITH AS/NZS4671.
2. THE NUMBER FOLLOWING THE FABRIC SYMBOL F IS THE REFERENCE NUMBER FOR FABRIC TO AS/NZS 1304. FABRIC SHALL BE LAPPED WITH TWO TRANSVERSE WIRES AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH AS/NZS 4671
3. LAPS SHALL BE IN ACCORDANCE WITH AS/NZS 3600.
4. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS/NZS 3600.
5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
6. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT APPROVAL FROM THE PRINCIPAL.
7. UNLESS OTHERWISE NOTED, MINIMUM CLEAR DISTANCE BETWEEN BARS OTHER THAN LAPPED BARS SHALL BE THE GREATEST OF:

I) 1.5 X THE DIAMETER OF THE LARGER BAR
II) 1.5 X THE MAXIMUM NORMAL AGGREGATE SIZE
III) 40

JOINTS IN STRUCTURES OR MEMBERS TO BE IN ACCORDANCE WITH AS/NZS 3600.

IMPORTANT

IN ORDER TO GAIN OCCUPATION/FINAL SIGN OFF, REGULAR INSPECTIONS MAY NEED TO BE CARRIED OUT BY A STORMWATER ENGINEER DURING CONSTRUCTION. IT IS RECOMMENDED THAT THE CERTIFYING AUTHORITY CONFIRM THESE REQUIREMENTS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS ON SITE. JHA CAN ONLY CERTIFY THOSE WORKS THAT HAVE BEEN VISUALLY INSPECTED AND CANNOT CERTIFY STORMWATER WORKS WHICH HAVE NOT BEEN VISUALLY INSPECTED PRIOR TO BACKFILL/CAST IN STRUCTURE.

THE CERTIFYING AUTHORITY SHOULD CONFIRM WHETHER ANY STORMWATER WORK-AS-EXECUTED SURVEY IS REQUIRED BY THE CONDITIONS OF CONSENT PRIOR TO COMPLETION OF WORKS.

REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
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P3	23.11.21	DA ISSUE	M.B.

CLIENT: COBAR SHIRE COUNCIL

ARCHITECT: DUNN & HILLAM ARCHITECTS

CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES CONSTRUCTION NOTES

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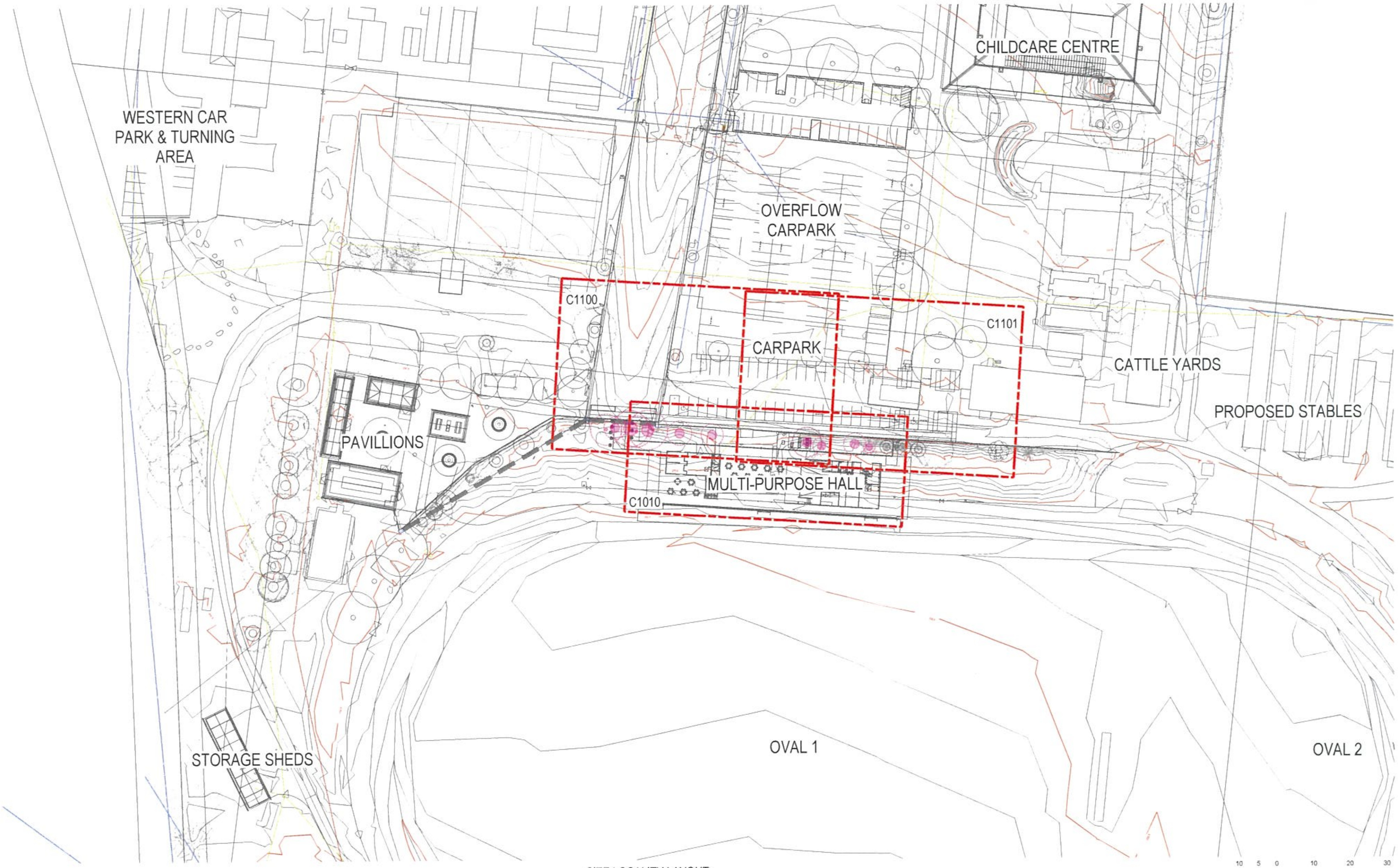
JOB No.	DRAWING No.	REV	
210365	C0001	P3	



SITE LOCALITY LAYOUT
SCALE 1:500

REVISIONS / AMENDMENTS			
Rev	Date	Description	Verified
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CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
MULTI-PURPOSE HALL & CAR PARK
SITE LOCALITY PLAN

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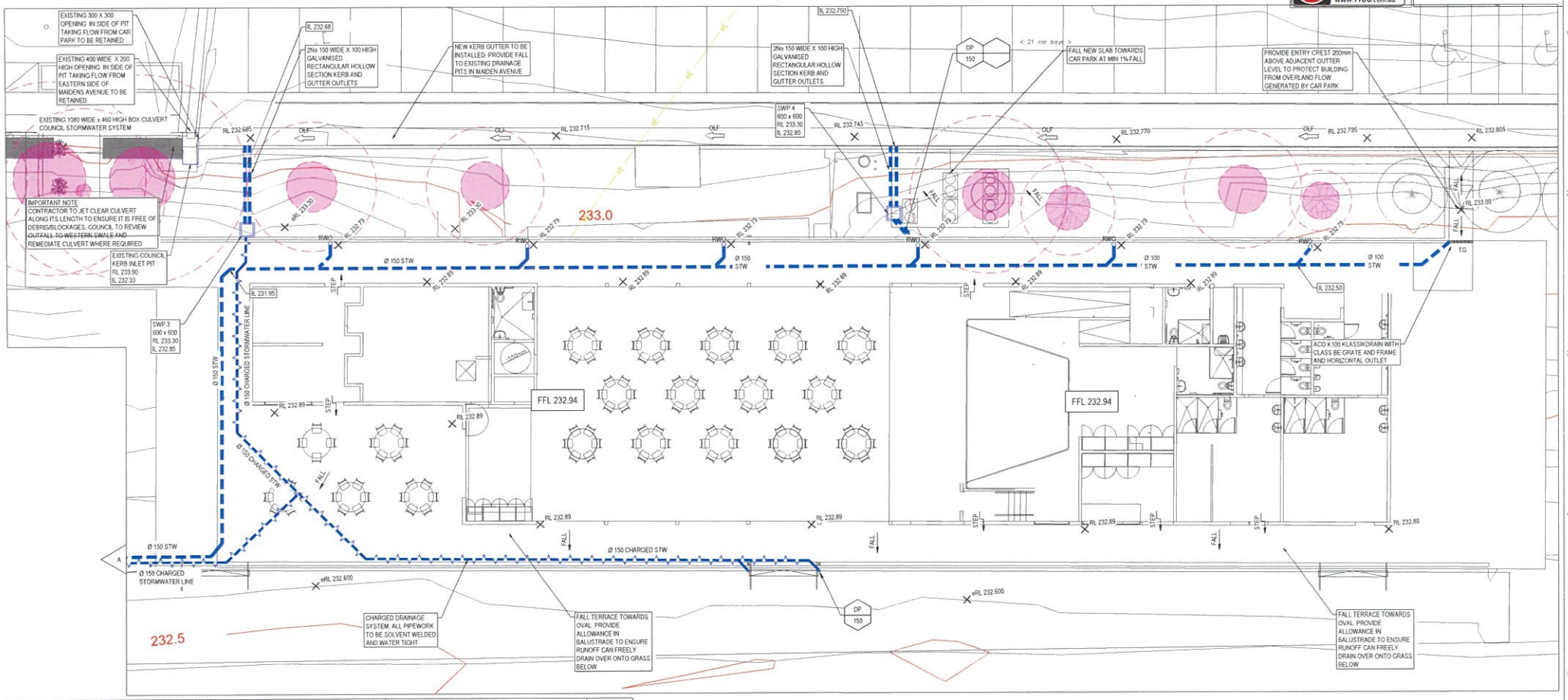

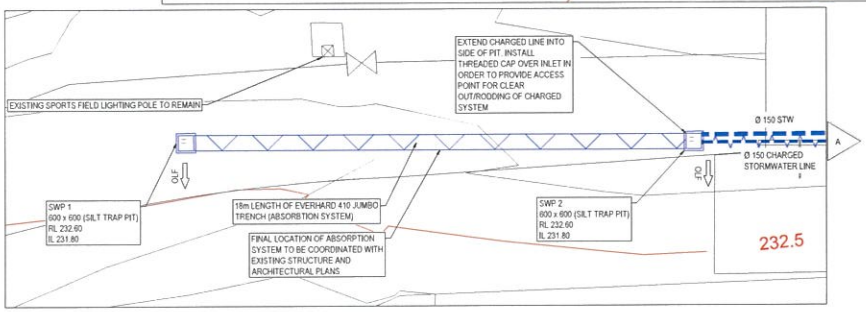

MULTI-PURPOSE HALL STORMWATER DRAINAGE LAYOUT

SCALE 1:100

2 1 0 2 4 6 8 m

1 100-A1 1 200-A3

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PROJECT
COBAR OVAL MASTERPLAN

TITLE
CIVIL SERVICES
MULTI-PURPOSE HALL
& CAR PARK STORMWATER
DRAINAGE LAYOUT

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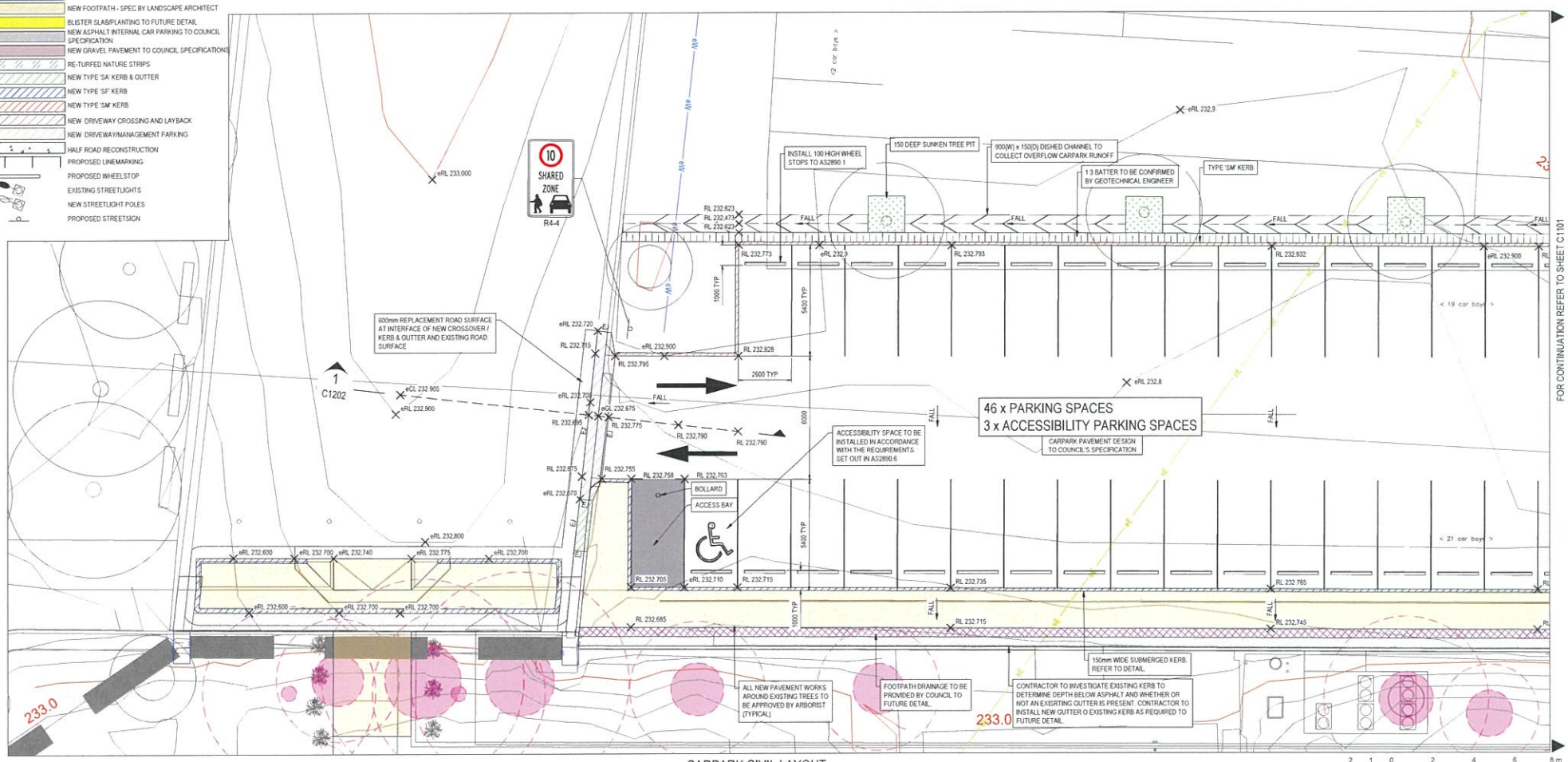
LEGEND

- REMOVED OVERHEAD ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING HIGH VOLTAGE
- EXISTING ELECTRICAL
- EXISTING POTABLE WATER
- EXISTING COMMS
- EXISTING GAS
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PROPOSED TREE (INDICATIVE LOCATION)
- PROPOSED STORMWATER LINE
- EXISTING STORMWATER LINE
- NEW FOOTPATH
- NEW FOOTPATH - SPEC BY LANDSCAPE ARCHITECT
- BLISTER SLAB/PLANTING TO FUTURE DETAIL
- NEW ASPHALT INTERNAL CAR PARKING TO COUNCIL SPECIFICATION
- NEW GRAVEL PAVEMENT TO COUNCIL SPECIFICATIONS
- RE-TURFED NATURE STRIPS
- NEW TYPE 'SA' KERB & GUTTER
- NEW TYPE 'SF' KERB
- NEW TYPE 'SM' KERB
- NEW DRIVEWAY CROSSING AND LAYBACK
- NEW DRIVEWAY/MANAGEMENT PARKING
- HALF ROAD RECONSTRUCTION
- PROPOSED LINEMARKING
- PROPOSED WHEELSTOP
- EXISTING STREETLIGHTS
- NEW STREETLIGHT POLES
- PROPOSED STREETSIGN



CARPARK CIVIL LAYOUT

SCALE 1:100

1 100-A1 1 200-A3

REVISIONS / AMENDMENTS			
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P1	04.11.21	ISSUE FOR REVIEW	M.B.
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CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
CARPARK CIVIL LAYOUT
SHEET 1 OF 2

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210365	C1100	P3

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LEGEND

- OH — x — REMOVED OVERHEAD ELECTRICAL
- eOH — EXISTING OVERHEAD ELECTRICAL
- eHV — EXISTING HIGH VOLTAGE
- eE — EXISTING ELECTRICAL
- eW — EXISTING POTABLE WATER
- eC — EXISTING COMMS
- eG — EXISTING GAS
- eS — EXISTING SEWER
- eSW — EXISTING STORMWATER
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PROPOSED TREE (INDICATIVE LOCATION)
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- NEW STREETLIGHT POLES
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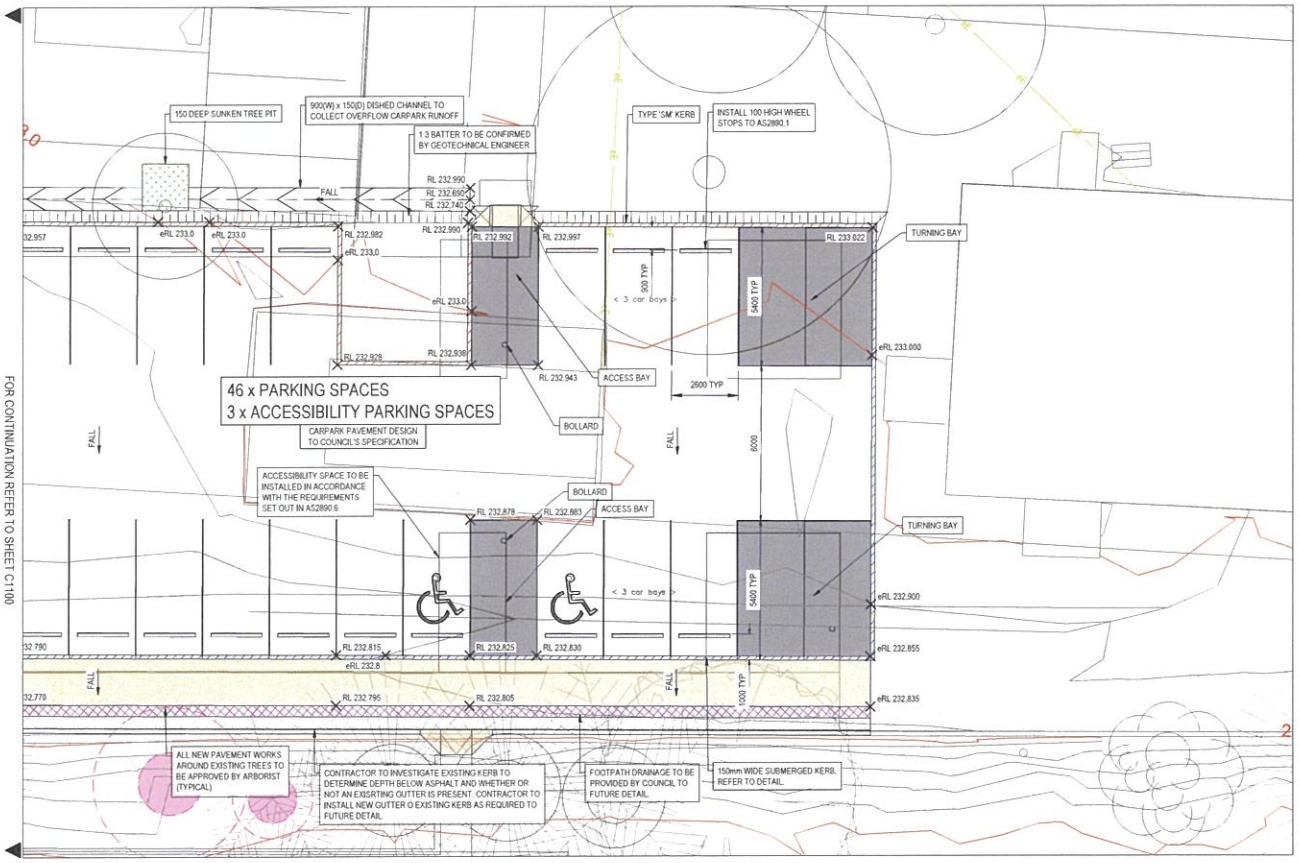

CARPARK CIVIL LAYOUT

SCALE 1:100

2 1 0 2 4 6 8 m

1 100-A1 1 200-A3

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Rev	Date	Description	Verified
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PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
CARPARK CIVIL LAYOUT
SHEET 2 OF 2

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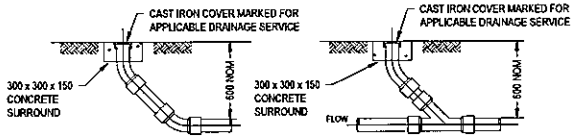
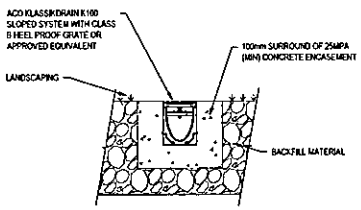


HIGH END RISER
N.T.S

INTERMEDIATE RISER
N.T.S

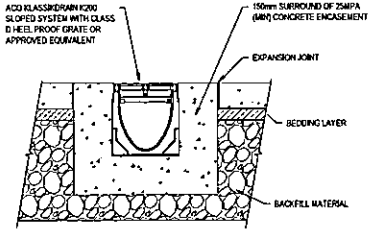
PROVIDE CLEAR OUTS INSTALLED IN ACCORDANCE WITH A.S. 3500 AT LOCATIONS WHERE NOTED CO ON PLAN

TYPICAL DRAINAGE CLEAR OUT (INSPECTION OPENING)
N.T.S



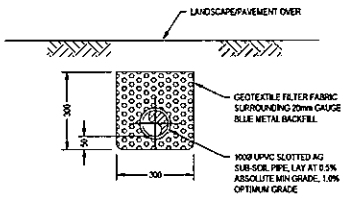
SECTION VIEW

TRENCH GRATE (100mm WIDE) CLASS B
N.T.S



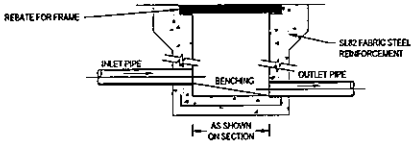
SECTION VIEW

TRENCH GRATE (200mm WIDE) CLASS D
N.T.S

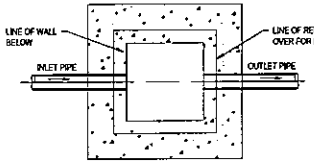


SECTION VIEW

TYPICAL SUB-SOIL DRAINAGE TRENCH
N.T.S

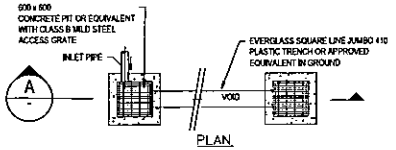


SECTION



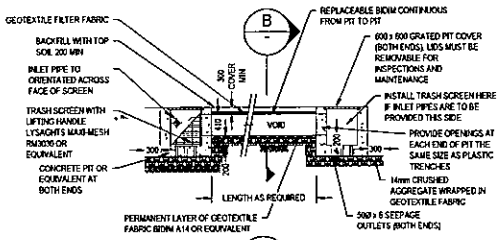
PLAN WITHOUT GRATE

TYPICAL GRATED INLET PIT
N.T.S



PLAN

TRENCHES ARE NOT TO BE INSTALLED UNDER VEHICLE TRAFFICABLE AREAS.



SECTION A
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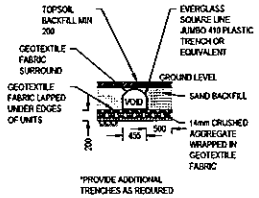
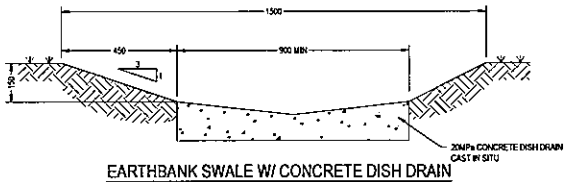


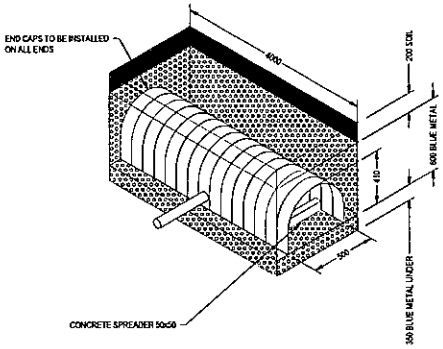
SECTION B
N.T.S.

(DETAIL SHOWN IS FOR LANDSCAPED AREA ONLY

ABSORPTION TRENCH TYPICAL AREA ONLY
N.T.S



EARTHBANK SWALE W/ CONCRETE DISH DRAIN
N.T.S



ABSORPTION TRENCH
N.T.S

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P1	04.11.21	ISSUE FOR REVIEW	M.B.
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ARCHITECT: DUNN & HILLAM ARCHITECTS

CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
CAR PARK DETAILS LAYOUT
SHEET 1 OF 2

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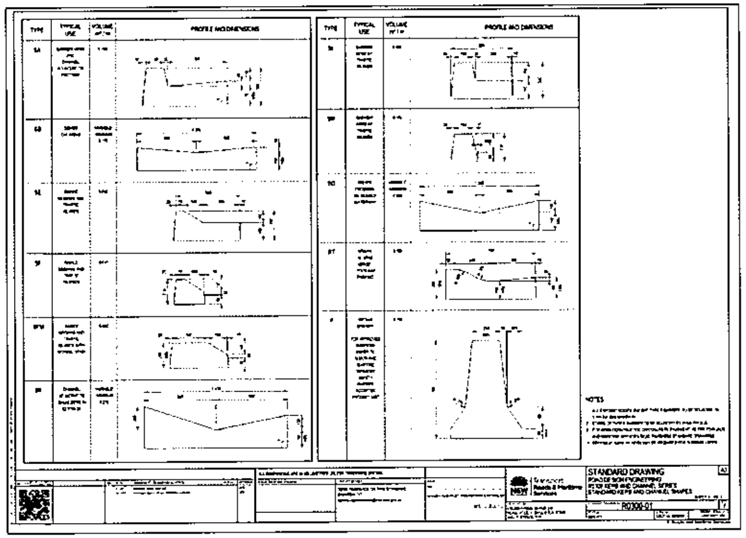
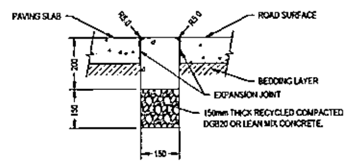
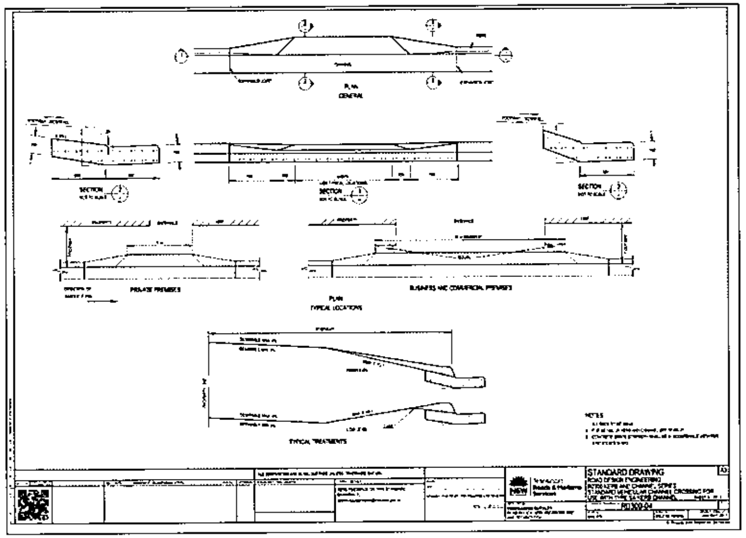
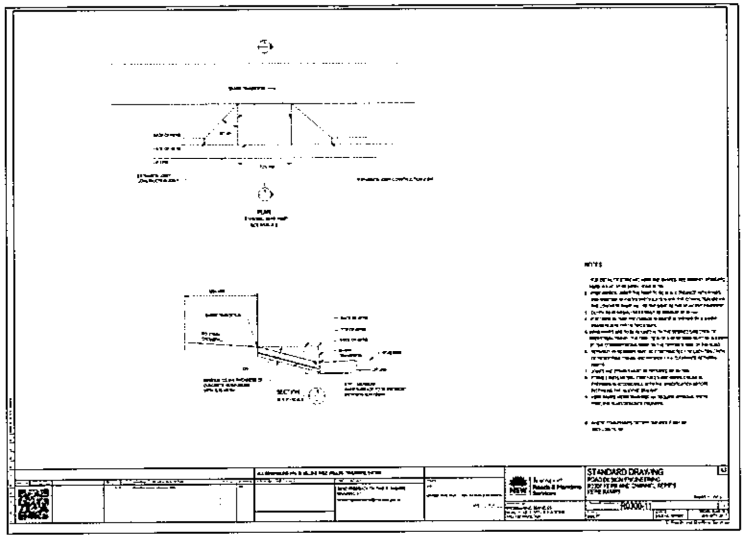




SUBMERGED KERB (EDGE STRIP) DETAIL

SCALE 1:10





200 100 0 200 400 500 800 mm

1 : 10-A1 1 : 20-A3

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CONSULTANT
JHA

PROJECT
COBAR OVAL MASTERPLAN

TITLE
CIVIL SERVICES
CAR PARK DETAILS LAYOUT
SHEET 2 OF 2

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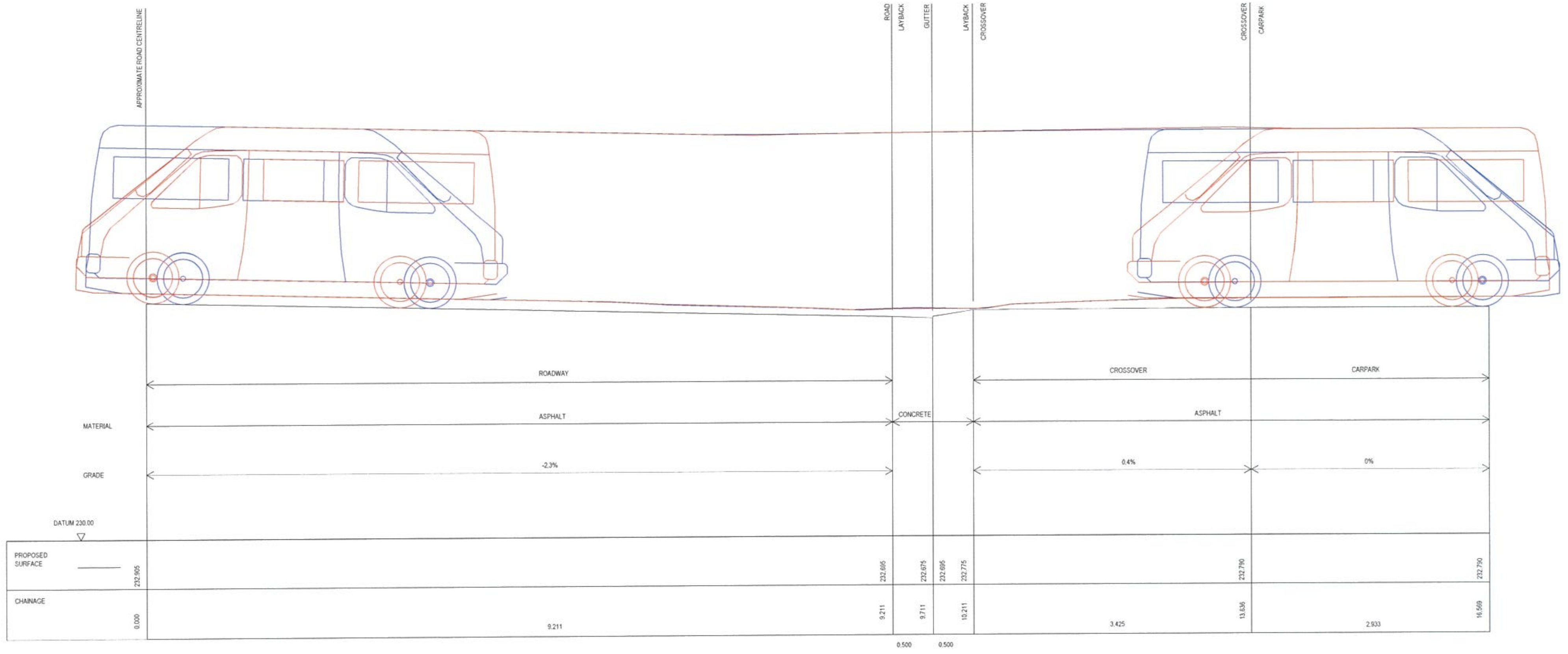

2 1 0 2 4 6 8 m
1 : 100-A1 1 : 200-A3

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PROJECT
COBAR OVAL MASTERPLAN

TITLE
CIVIL SERVICES
CAR PARK
DRIVEWAY CROSSING
LONGITUDINAL SECTION

DA ISSUE
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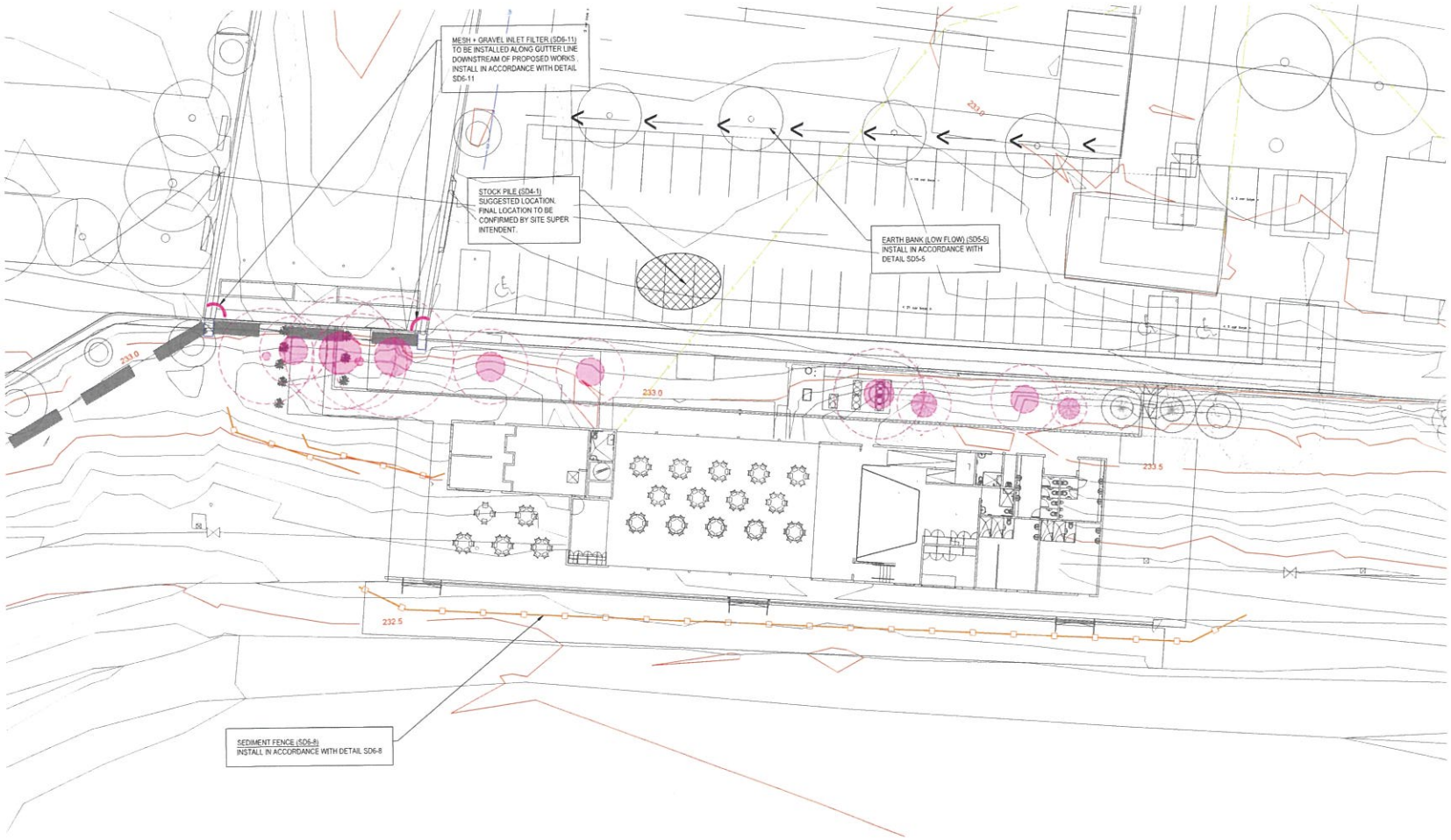

EROSION AND SEDIMENT CONTROL PLAN

SCALE 1:200

SWMP LEGEND

- SITE BOUNDARY
- SEDIMENTARY FENCE
- PROPOSED STOCKPILE LOCATION
- PROPOSED SITE ACCESS
- BOUNDARY FENCE
- R3.5m — TREE PROTECTION ZONE
- MESH + GRAVEL INLET FILTER
- SANDBAGS
- EARTH BANK

EROSION AND SEDIMENT CONTROL PLAN

1. MEASURE PROVIDED WILL BE TO THE SATISFACTION OF THE PRINCIPAL'S REPRESENTATIVE IN ACCORDANCE WITH THE LOCAL AND STATUTORY REQUIREMENTS UNLESS NOTED OTHERWISE. ALL WORKS SHALL BE ERECTED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION "BLUE BOOK", VOLUME 1 BY LANDCOM.
2. ALL EXCAVATION WORKS ARE TO BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, IF AVAILABLE, AND THE STRUCTURAL ENGINEER'S DRAWINGS.
3. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.
4. MESH AND GRAVEL INLET FILTERS TO BE INSTALLED UPSTREAM OF PROPOSED STORMWATER PITS AS WELL AS EXISTING STORMWATER PITS DOWNSTREAM OF DISTURBED AREAS.
5. TOP SOIL WILL BE STRIPPED AND STOCKPILED FOR ALTER USE IN LANDSCAPING.
6. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
7. TOP SOIL WILL BE RE SPREAD AND ALL DISTURBED AREAS WILL BE REHABILITATED WITHIN 20 WORKING DAYS OF THE COMPLETION OF WORKS.
8. ALL SEDIMENT TO BE STORED AND COLLECTED BY A LIQUID WASTE COMPANY FOR DISPOSAL AT A LICENSED TREATMENT FACILITY.
9. ROADS AND FOOTWAYS TO BE SWEPT AT THE END OF THE DAY.
10. NO WATER CONTAINING OIL, FOAM, GREASE, SCUM OR LITTER WILL BE DISCHARGED TO THE STORMWATER DRAINAGE SYSTEM FROM THE SITE.
11. ALL STORED WASTES ARE KEPT IN DESIGNATED AREAS OR COVERED CONTAINERS THAT PREVENT ESCAPE INTO THE STORMWATER SYSTEM.
12. THE AMOUNT OF MUD, DIRT, SAND, SOIL, CLAY OR STONES DEPOSITED BY VEHICLES ON THE ABUTTING ROADS IS MINIMISED WHEN VEHICLES ARE LEAVING SITE.
13. NO MUD, DIRT, SAND, SOIL, CLAY OR STONES ARE WASHED INTO, OR ARE ALLOWED TO ENTER THE STORMWATER DRAINAGE SYSTEM.
14. THE SITE IS DEVELOPED AND MANAGED TO MINIMISE THE RISKS OF STORMWATER POLLUTION THROUGH THE CONTAMINATION OF RUN-OFF BY CHEMICALS, SEDIMENTS, ANIMAL WASTES OR GROSS POLLUTANTS IN ACCORDANCE WITH CURRENTLY ACCEPTED BEST PRACTICE.
15. ALL EROSION AND SEDIMENT CONTROLS WILL BE CHECKED AT LEAST WEEKLY AND AFTER RAINFALL EVENTS TO MAKE SURE THEY ARE MAINTAINED TO A FULLY FUNCTIONAL CONDITION.

10 5 0 10 m

1 200-A1 1 400-A3

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PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
MULTI-PURPOSE HALL
& CAR PARK
EROSION & SEDIMENT CONTROL PLAN

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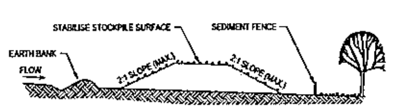
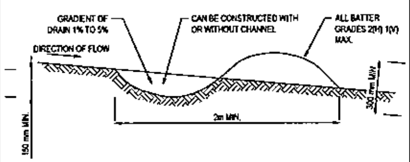


CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

STOCKPILES | SD 4-1

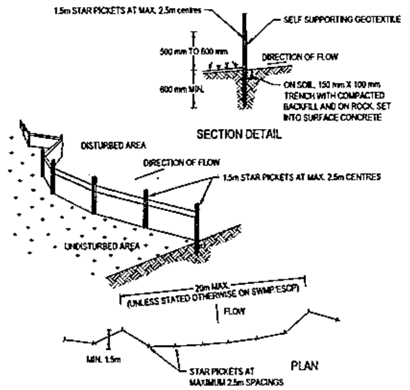


NOTE. ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

CONSTRUCTION NOTES:

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

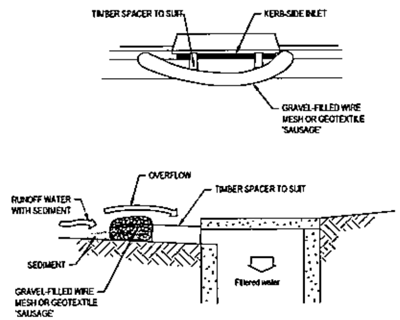
EARTH BANK (LOW FLOW) | SD 5-5



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150-MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH, ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150-MM OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE | SD 6-8

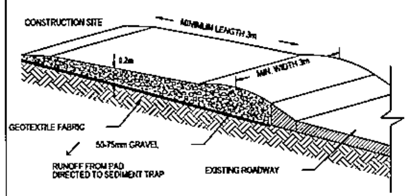


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES:

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL WITH 25MM TO 50MM GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150 HIGH AND 400MM WIDE.
4. PLACE THE FILTER AT THE OPENING LEVEL AT LEAST A 100MM SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN BE SUBSTITUTE A MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT LADEN WATERS CANNOT PASS BETWEEN

MESH AND GRAVEL INLET FILTER | SD 6-11



CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200 MM THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30 MM AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS | SD 6-14

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CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES
MULTI-PURPOSE HALL
& CAR PARK
EROSION & SEDIMENT CONTROL
DETAILS

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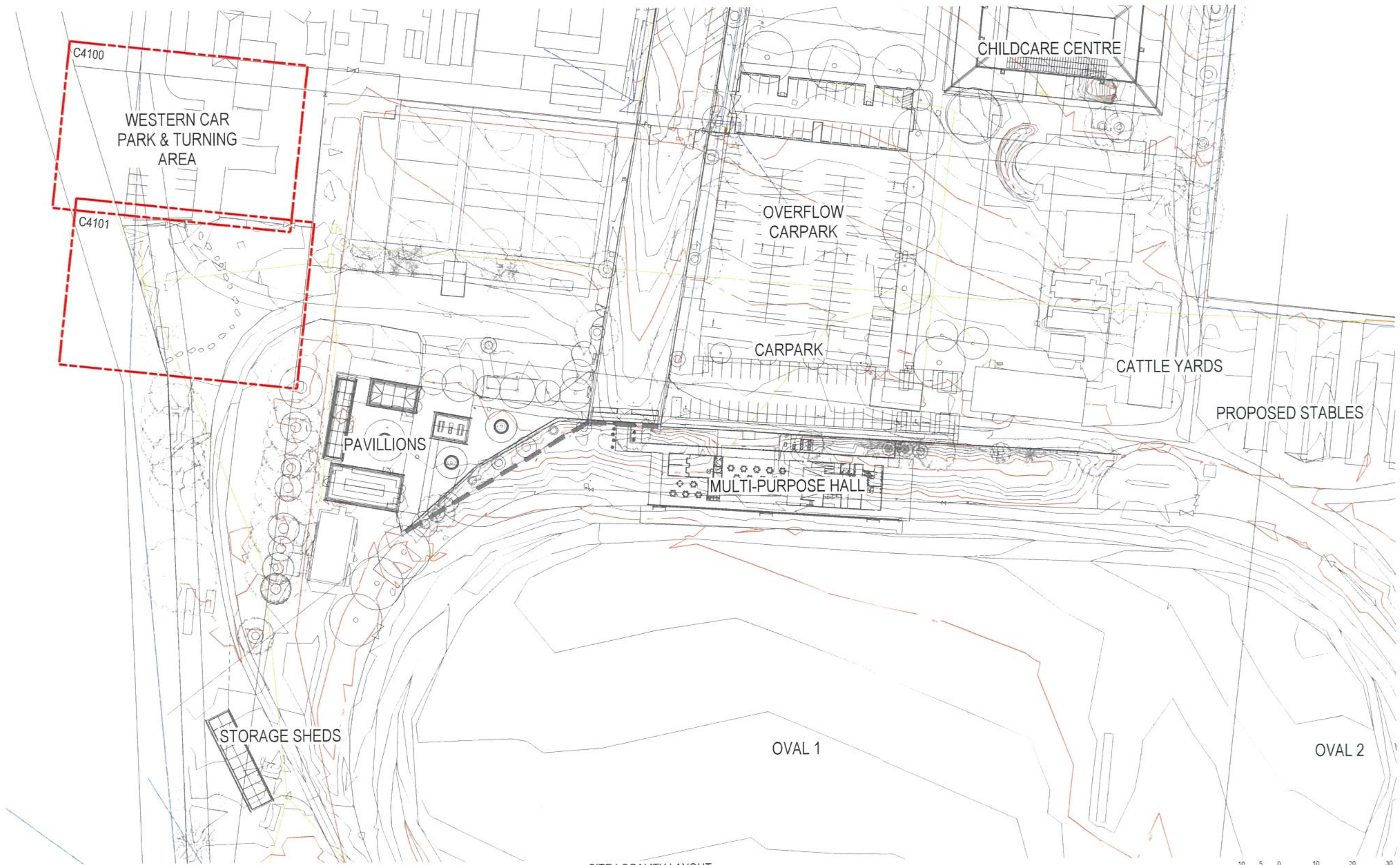

SITE LOCALITY LAYOUT
SCALE 1 500

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TITLE
CIVIL SERVICES
WESTERN CARPARK & TURNING AREA SITE LOCALITY PLAN

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FOR CONTINUATION REFER TO SHEET C4101

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LEGEND

- OH — X — REMOVED OVERHEAD ELECTRICAL
- eOH — EXISTING OVERHEAD ELECTRICAL
- eHV — EXISTING HIGH VOLTAGE
- eE — EXISTING ELECTRICAL
- eW — EXISTING POTABLE WATER
- eC — EXISTING COMMS
- eG — EXISTING GAS
- eS — EXISTING SEWER
- eSW — EXISTING STORMWATER
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED
- PROPOSED TREE (INDICATIVE LOCATION)
- PROPOSED STORMWATER LINE
- EXISTING STORMWATER LINE
- NEW FOOTPATH
- NEW FOOTPATH - SPEC BY LANDSCAPE ARCHITECT
- BLISTER SLAB/PLANTING TO FUTURE DETAIL
- NEW ASPHALT INTERNAL CAR PARKING TO COUNCIL SPECIFICATION
- NEW GRAVEL PAVEMENT TO COUNCIL SPECIFICATIONS
- RE-TURFED NATURE STRIPS
- NEW TYPE 'SA' KERB & GUTTER
- NEW TYPE 'SF' KERB
- NEW TYPE 'SM' KERB
- NEW DRIVEWAY CROSSING AND LAYBACK
- NEW DRIVEWAY/MANAGEMENT PARKING
- HALF ROAD RECONSTRUCTION
- PROPOSED LINEMARKING
- PROPOSED WHEELSTOP
- EXISTING STREETLIGHTS
- NEW STREETLIGHT POLES
- PROPOSED STREETSIGN

2 1 0 2 4 6 8 m

1 100-A1 1 200-A3

WESTERN CARPARK & TURNING AREA CIVIL LAYOUT

SCALE 1:100

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TITLE: CIVIL SERVICES
WESTERN CARPARK & TURNING AREA CIVIL LAYOUT SHEET 1 OF 2

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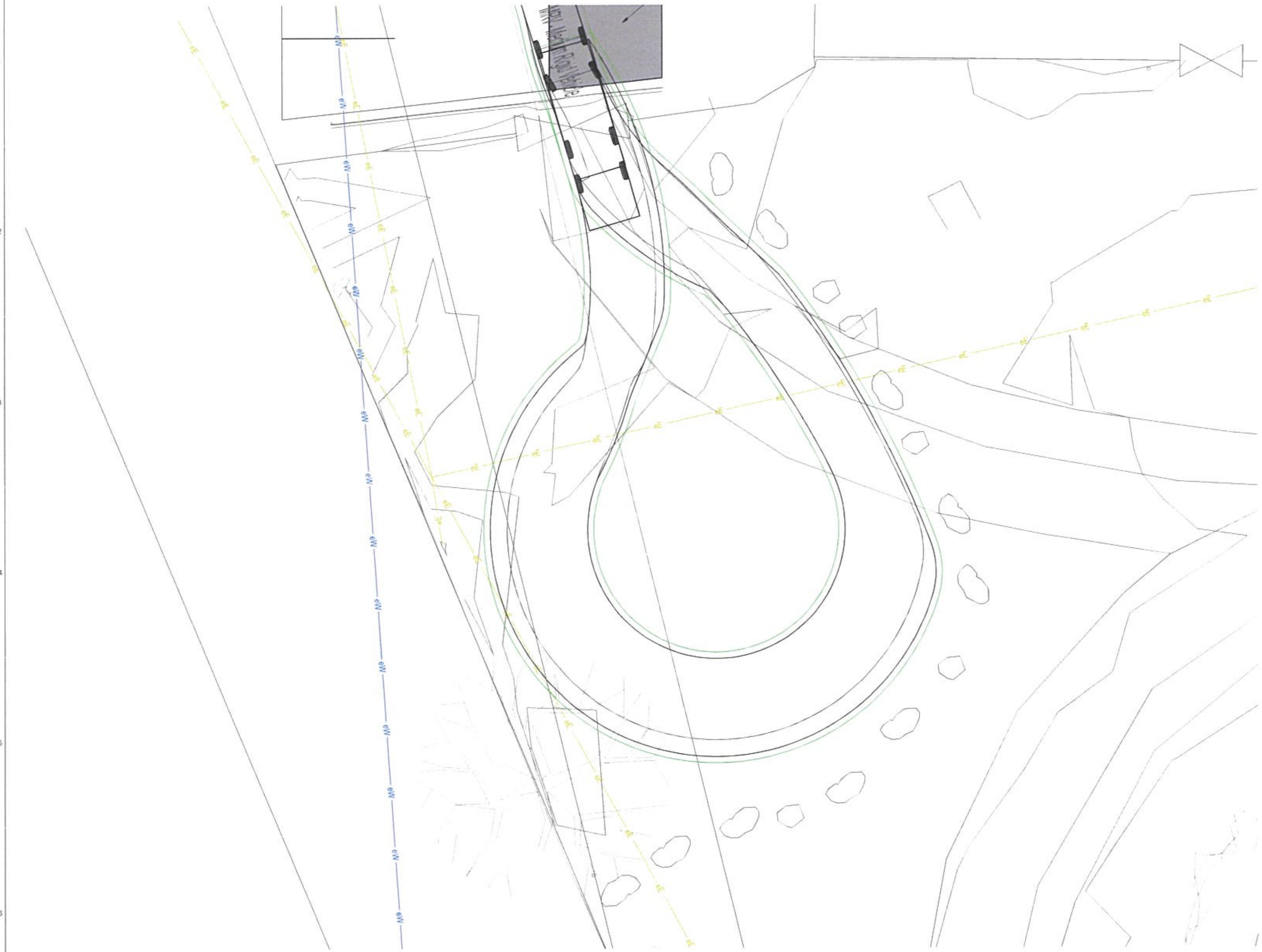

TURING AREA SWEPT PATH
SCALE 1:100

B99 VEHICLE TEMPLATE
SCALE 1:100

2 1 0 2 4 6 8 m
1 100-A1 1 200-A3

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WESTERN CARPARK & TURNING AREA SWEPT PATH ANALYSIS

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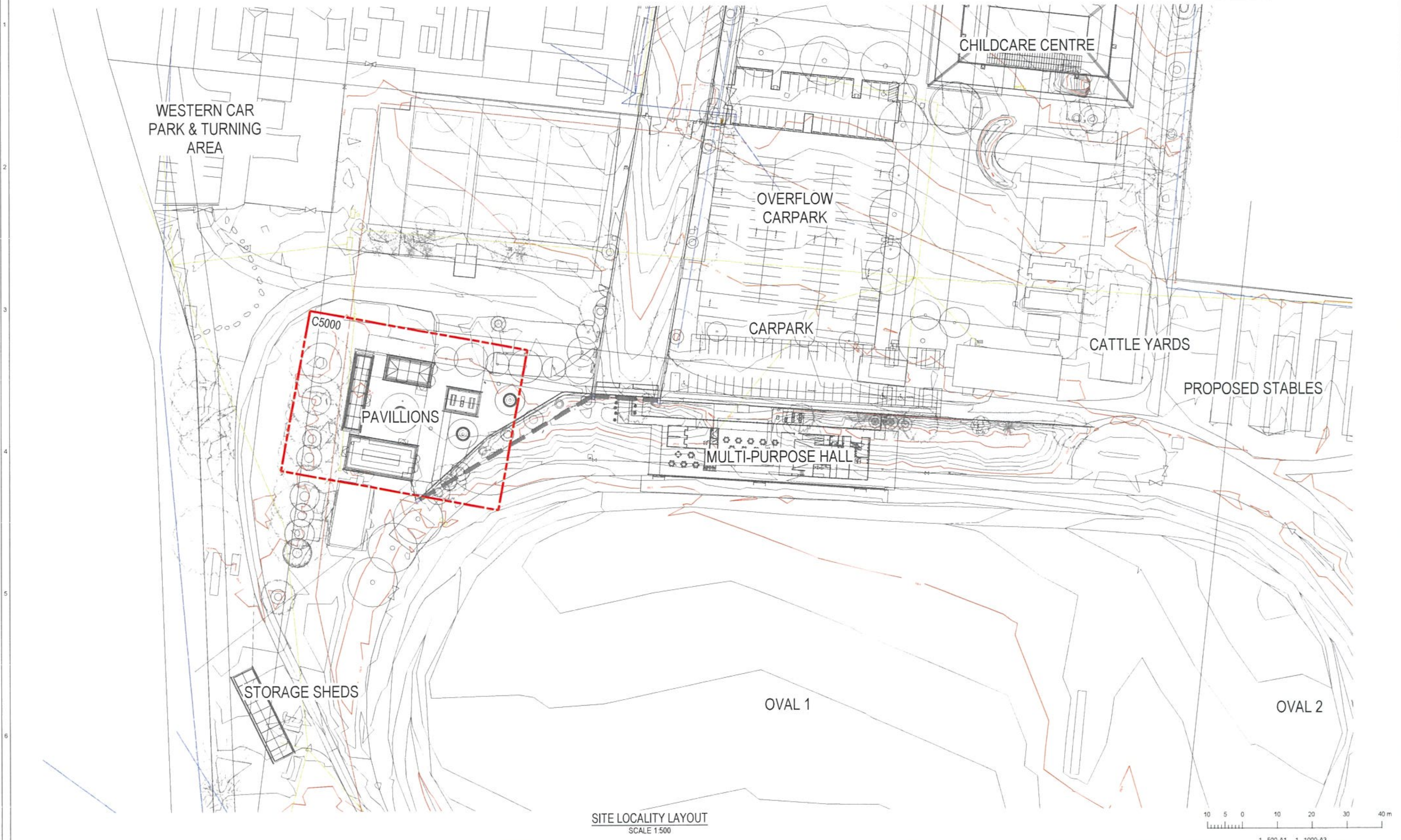

SITE LOCALITY LAYOUT
SCALE 1:500

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CIVIL SERVICES
REFURBISHED PAVILLIONS
SITE LOCALITY PLAN

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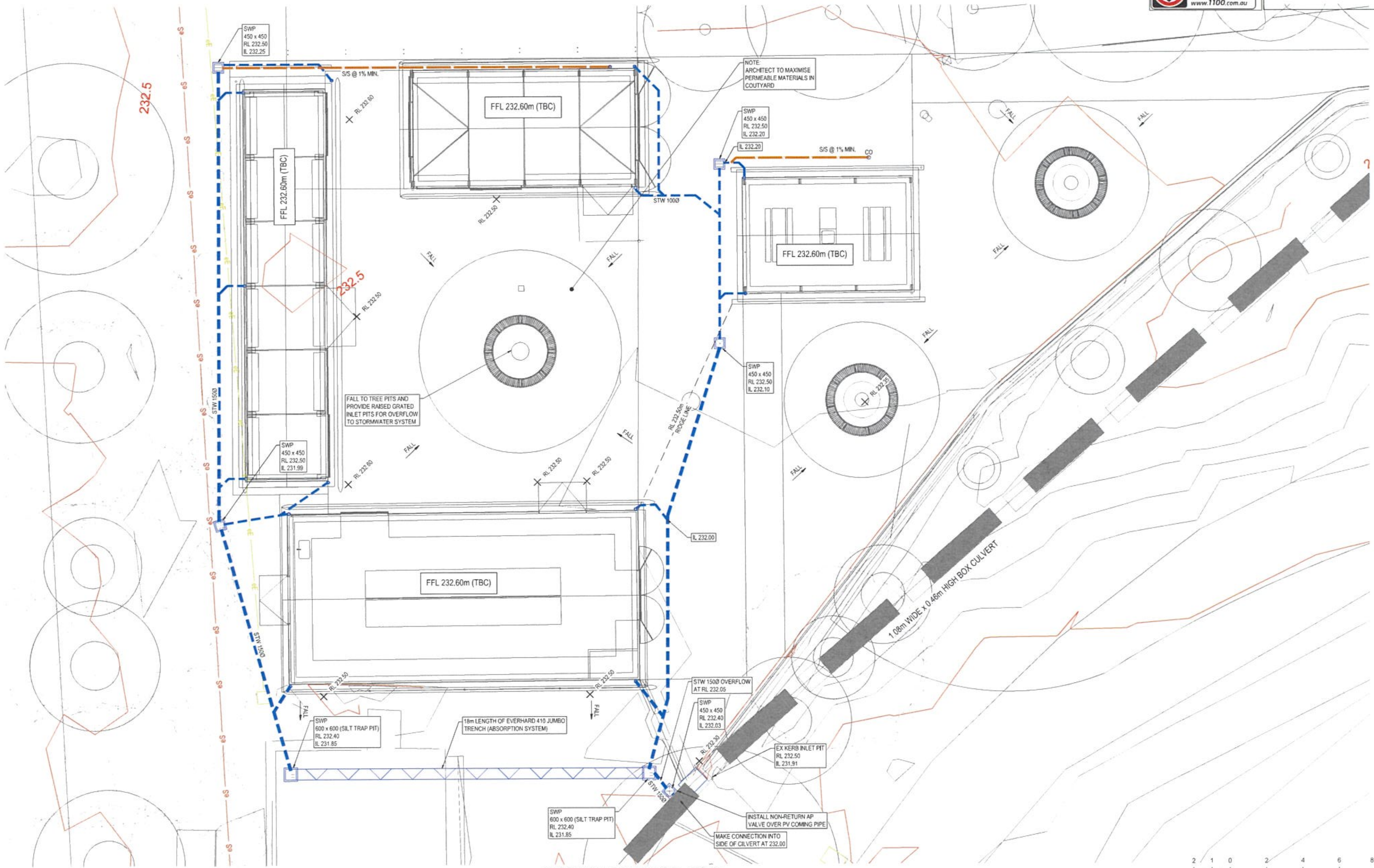

STORMWATER DRAINAGE LAYOUT
SCALE 1:100

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REFURBISHED PAVILLIONS
STORMWATER DRAINAGE LAYOUT

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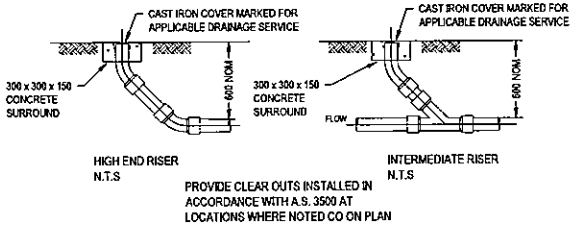
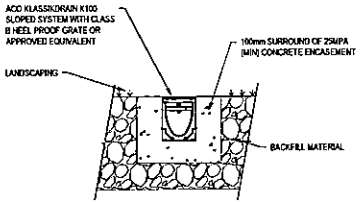
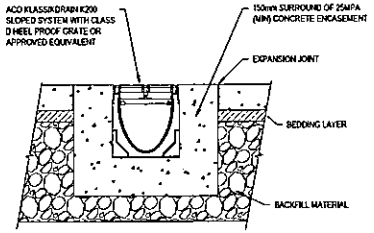


TYPICAL DRAINAGE CLEAR OUT (INSPECTION OPENING)
N.T.S



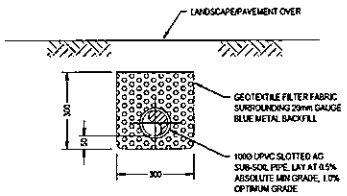
SECTION VIEW

TRENCH GRATE (100mm WIDE) CLASS B
N.T.S



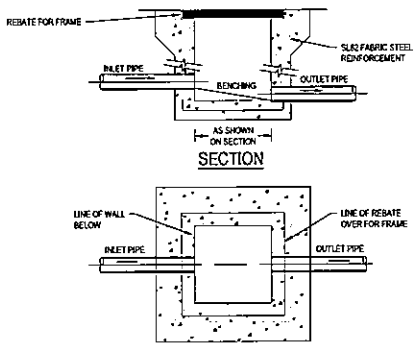
SECTION VIEW

TRENCH GRATE (200mm WIDE) CLASS D
N.T.S



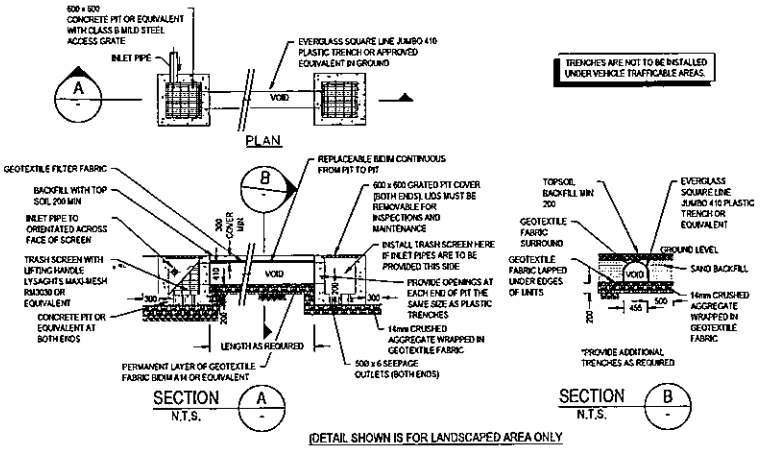
SECTION VIEW

TYPICAL SUB-SOIL DRAINAGE TRENCH
N.T.S



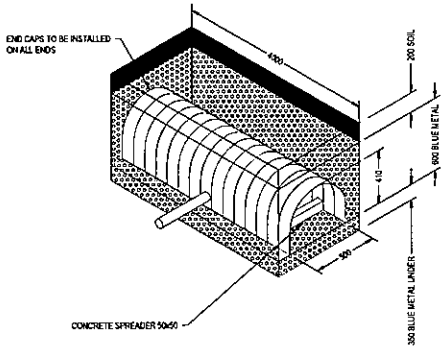
PLAN WITHOUT GRATE

TYPICAL GRATED INLET PIT
N.T.S



(DETAIL SHOWN IS FOR LANDSCAPED AREA ONLY

ABSORPTION TRENCH TYPICAL AREA ONLY
N.T.S



ABSORPTION TRENCH
N.T.S

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CLIENT: COBAR SHIRE COUNCIL

ARCHITECT: DUNN & HILLAM ARCHITECTS

CONSULTANT: JHA

PROJECT: COBAR OVAL MASTERPLAN

TITLE: CIVIL SERVICES REFURBISHED PAVILLIONS DETAILS LAYOUT

DA ISSUE
NOT TO BE USED FOR CONSTRUCTION

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CREATED	OCT 2021	
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210365	C5200	P3

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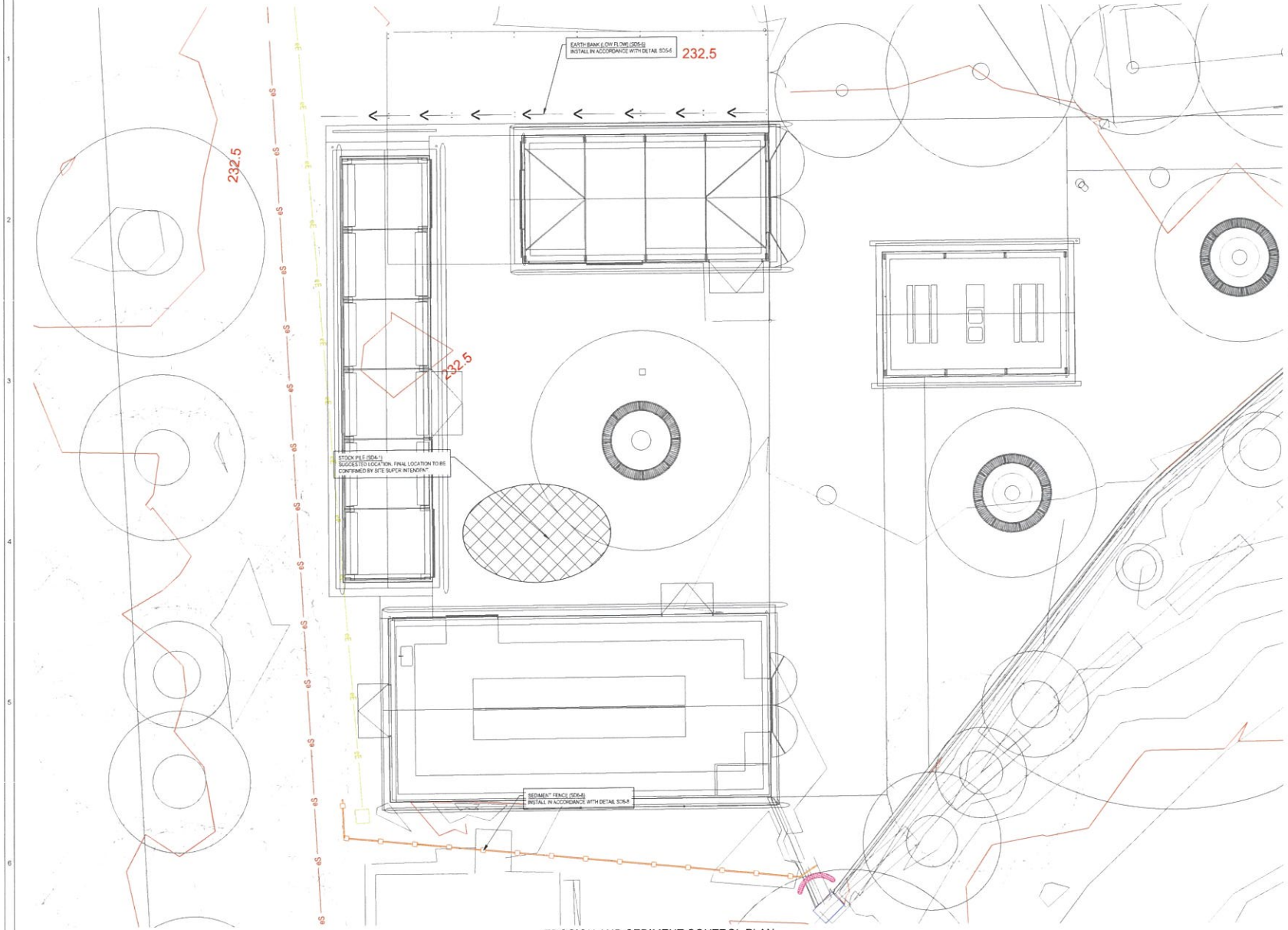

EROSION AND SEDIMENT CONTROL PLAN
SCALE 1:100

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COBAR SHIRE COUNCIL

SWMP LEGEND

- SITE BOUNDARY
- SEDIMENTARY FENCE
- PROPOSED STOCKPILE LOCATION
- PROPOSED SITE ACCESS
- BOUNDARY FENCE
- R3.5m — TREE PROTECTION ZONE
- MESH + GRAVEL INLET FILTER
- SANDBAGS
- EARTH BANK

EROSION AND SEDIMENT CONTROL PLAN

1. MEASURE PROVIDED WILL BE TO THE SATISFACTION OF THE PRINCIPAL'S REPRESENTATIVE IN ACCORDANCE WITH THE LOCAL AND STATUTORY REQUIREMENTS UNLESS NOTED OTHERWISE. ALL WORKS SHALL BE ERECTED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION "BLUE BOOK", VOLUME 1 BY LANDCOM
2. ALL EXCAVATION WORKS ARE TO BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, IF AVAILABLE, AND THE STRUCTURAL ENGINEER'S DRAWINGS.
3. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.
4. MESH AND GRAVEL INLET FILTERS TO BE INSTALLED UPSTREAM OF PROPOSED STORMWATER PITS AS WELL AS EXISTING STORMWATER PITS DOWNSTREAM OF DISTURBED AREAS.
5. TOP SOIL WILL BE STRIPPED AND STOCKPILED FOR ALTER USE IN LANDSCAPING.
6. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
7. TOP SOIL WILL BE RE SPREAD AND ALL DISTURBED AREAS WILL BE REHABILITATED WITHIN 20 WORKING DAYS OF THE COMPLETION OF WORKS.
8. ALL SEDIMENT TO BE STORED AND COLLECTED BY A LIQUID WASTE COMPANY FOR DISPOSAL AT A LICENSED TREATMENT FACILITY.
9. ROADS AND FOOTWAYS TO BE SWEPT AT THE END OF THE DAY.
10. NO WATER CONTAINING OIL, FOAM, GREASE, SCUM OR LITTER WILL BE DISCHARGED TO THE STORMWATER DRAINAGE SYSTEM FROM THE SITE.
11. ALL STORED WASTES ARE KEPT IN DESIGNATED AREAS OR COVERED CONTAINERS THAT PREVENT ESCAPE INTO THE STORMWATER SYSTEM.
12. THE AMOUNT OF MUD, DIRT, SAND, SOIL, CLAY OR STONES DEPOSITED BY VEHICLES ON THE ABUTTING ROADS IS MINIMISED WHEN VEHICLES ARE LEAVING SITE.
13. NO MUD, DIRT, SAND, SOIL, CLAY OR STONES ARE WASHED INTO, OR ARE ALLOWED TO ENTER THE STORMWATER DRAINAGE SYSTEM.
14. THE SITE IS DEVELOPED AND MANAGED TO MINIMISE THE RISKS OF STORMWATER POLLUTION THROUGH THE CONTAMINATION OF RUN-OFF BY CHEMICALS, SEDIMENTS, ANIMAL WASTES OR GROSS POLLUTANTS IN ACCORDANCE WITH CURRENTLY ACCEPTED BEST PRACTICE.
15. ALL EROSION AND SEDIMENT CONTROLS WILL BE CHECKED AT LEAST WEEKLY AND AFTER RAINFALL EVENTS TO MAKE SURE THEY ARE MAINTAINED TO A FULLY FUNCTIONAL CONDITION.

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1 200-A1 1 400-A3

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PROJECT
COBAR OVAL MASTERPLAN

TITLE
CIVIL SERVICES
REFURBISHED PAVILLIONS
EROSION & SEDIMENT CONTROL PLAN

DA ISSUE
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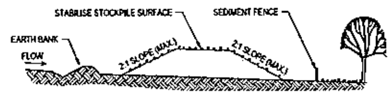
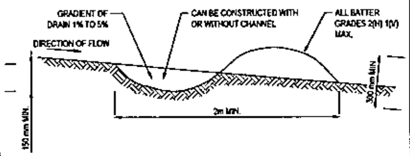


CONSTRUCTION NOTES:
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

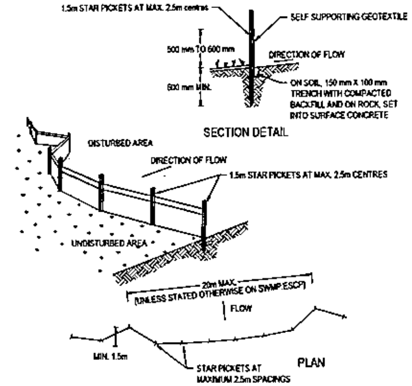
STOCKPILES SD 4-1



NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

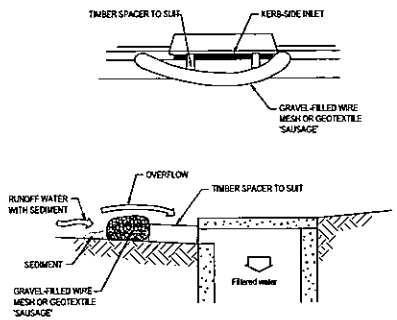
CONSTRUCTION NOTES:
1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

EARTH BANK (LOW FLOW) SD 5-5



CONSTRUCTION NOTES:
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150-MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150-MM OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

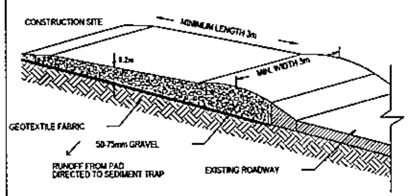
SEDIMENT FENCE SD 6-8



NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES:
1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL WITH 25MM TO 50MM GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150 HIGH AND 400MM WIDE.
4. PLACE THE FILTER AT THE OPENING LEVEL AT LEAST A 100MM SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN BE SUBSTITUTE A MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT LADEN WATERS CANNOT PASS BETWEEN

MESH AND GRAVEL INLET FILTER SD 6-11



CONSTRUCTION NOTES:
1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200 MM THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30 MM AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS SD 6-14

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EROSION & SEDIMENT CONTROL DETAILS

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