
ATTACHMENT 10



Albany
Broome
Darwin
Perth

23-180.1
18 September 2023

Lester Mulder
Mulder Kapman
Unit 4, 53 Sholl Street
MANDURAH WA 6210

Dear Lester

Lot 192 Hale Road, Wattle Grove – Civil DA Design Certification

We confirm that we have carried out the civil design for the above project for the car parks in accordance with the requirements of the relevant Australian Standards.

The stormwater drainage design for the civil development has been undertaken in accordance with City of Kalamunda design requirements to store a 1:100 ARI stormwater event of critical duration, noting that the Water Corporation have endorsed a pre-development discharge to Woodlupine Brook. Correspondence with the Water Corporation endorsing the pre-development discharge has been included to this submission.

The civil drawings adequately convey the intent of the civil design and are numbered as follows:

Drawing No.	Drawing Title	Rev
23180-C8-DG-01	Civil Development Application Concept	C

Please contact our office should you require further information.

Yours sincerely

JAMIE DE PALMA
Principal - Property
Perth



Albany
Broome
Darwin
Perth

23-180.1
9 August 2023

Lester Mulder
Mulder Kapman
Unit 4, 53 Sholl Street
MANDURAH WA 6210

Dear Lester

Lot 192 Hale Road, Wattle Grove – Civil DA Design Certification

We confirm that we have carried out the civil design for the above project for the car parks in accordance with the requirements of the relevant Australian Standards.

The stormwater drainage design for the civil development has been undertaken in accordance with City of Kalamunda design requirements to store a 1:100 ARI stormwater event of critical duration, noting that the Water Corporation have endorsed a pre-development discharge to Woodlupine Brook. Correspondence with the Water Corporation endorsing the pre-development discharge has been included to this submission.

The civil drawings adequately convey the intent of the civil design and are numbered as follows:

Drawing No.	Drawing Title	Rev
23180-C8-DG-01	Civil Development Application Concept	B

Please contact our office should you require further information.

Yours sincerely

JAMIE DE PALMA
Principal - Property
Perth

Jamie De Palma

From: Tom Foppoli <Tom.Foppoli@watercorporation.com.au>
Sent: Thursday, 22 June 2023 7:42 AM
To: Havish Chittoor
Cc: Jamie De Palma
Subject: [External] SF399558 - Service request: Lot 192 Hale Rd, Wattle groove.
Attachments: Woodlupine Brook BD - Longitudinal Section Fig D4.3.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Good Morning Havish,

Thanks for you email with regards to the above lot.

Please find attached long section as requested.

The property at Lot 192 Hale Road, Wattle Grove can discharge stormwater runoff through the existing DN300mm connection into the Woodlupine Brook Branch Drain. However, the post development flows from the lot should be limited to that of the predevelopment (current) flows. For meeting this requirement, online retention/storage facilities should be designed and installed onsite.

The existing connection should be made to comply with all the Water Corporation Design Standard DS66 including provision of trapped access chamber.

Kind Regards,

Tom Foppoli
 Advisor – Infill Development
 Development Services
 Assets Planning & Delivery Group

E tom.foppoli@watercorporation.com.au

T (08) 9420 3205

P PO Box 100, Leederville, WA 6902



watercorporation.com.au



.....

Please consider the environment before printing this email.

From: Havish Chittoor <havish.chittoor@pfeng.com.au>
Sent: Thursday, 15 June 2023 12:59 PM
To: Land Servicing <Land.Servicing@watercorporation.com.au>
Cc: Jamie De Palma <jamie.d@pfeng.com.au>
Subject: Service request: Lot 192 Hale Rd, Wattle groove.

Good morning Sir/Madam,

On behalf of Mulder Kampman Design Ground, Pritchard Francis have been engaged to undertake the civil consultancy services for the proposed commercial development at Lot 192 Hale Road, Wattle Grove.

As a function of the proposed development, Pritchard Francis shall be contributing towards the Development Application submission to the City of Kalamunda with respect to development levels and stormwater drainage solutions.

Pritchard Francis wish to coordinate with the Water Corporation with respect to the existing open drain titled Woodlupine Brook located between Wimbridge Road and the Woodlupine Brook Compensating Basin.

Flood Plain Levels

Can the Water Corporation please provide the relevant long sections of Woodlupine Brook with associated Top Water Levels such that Pritchard Francis can appropriate define the commercial development levels above the 1% AEP flood levels. From our recent site inspection, we have noted headwall arrangements at regular intervals within the open drain which controls the flow and gradient of the stormwater acting through the Main Drain.

Stormwater Lot Connection

Whilst Pritchard Francis shall design the on-site stormwater detention to the City of Kalamunda requirements, we have also noted via Esinet and during the site inspection that each of the lots (including Lot 192, #326) have been provided with a stormwater lot connection to the Woodlupine Brook, with each lot connection discharging via the concrete headwall structures. For Lot 192 (#326) in particular, a dia 300 RCP at invert 14.55m AHD is located on the southern side of the Main Drain.

We have also liaised with the adjacent developer of Lot 191 (#332) and noted that their commercial development implemented a stormwater detention design which facilitated a pre-development outfall from the commercial precinct to the Water Corporation Main Drain via the existing lot connection.

For the proposed development of Lot 192 (#326), can the Water Corporation please advise if we will be permitted to utilise the existing lot connection at pre-development flow rates. Relevant stormwater drainage calculations would be provided at the relevant time for endorsement.

Should a discharge to the Main Drain be permissible, can the Water Corporation advise if any treatment train or hydrocarbon interceptors would be required?

Please advise us on this, to go ahead to consider the headwall. Feel free to get in touch if you have any concerns or questions.

Thanks,

Havish Chittoor
Engineer – Civil



T (08) 9382 5111 | D (08) 9207 7207
E havish.chittoor@pfeng.com.au | W www.pfeng.com.au
430 Roberts Road, Subiaco WA 6008 | PO Box 2150 Subiaco WA 6904



Water Corporation E-mail – Report any suspicious emails to the WC Cyber Team using our "Report Phishing" button in outlook.

The Water Corporation respects individuals' privacy. Please see our privacy notice at [What about my privacy](#)

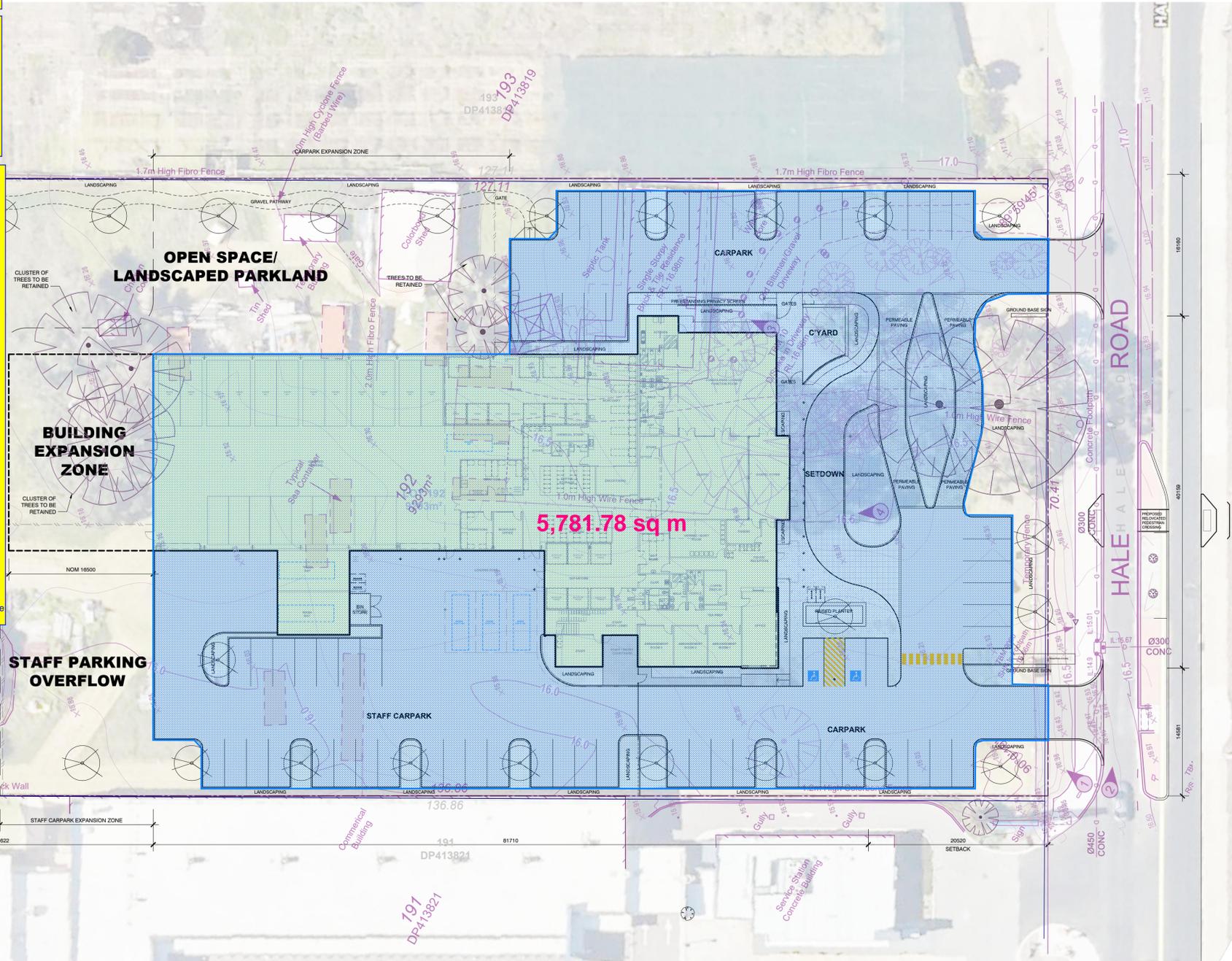
This Electronic Mail Message and its attachments are confidential. If you are not the intended recipient, you may not disclose or use the information contained in it. If you have received this Electronic Mail Message in error, please advise the sender immediately by replying to this email and delete the message and any associated attachments.

While every care is taken, it is recommended that you scan the attachments for viruses. This message has been scanned for malware by Websense. www.websense.com

Geotechnical Data
 1:50,000 Geological Survey of Western Australia
 S8 SAND
 - typically light grey at surface, yellow at depth, fine to medium grained, well sorted
 - high permeability
 - medium / high bearing capacity
 - Suitable for urbanisation.
 Maximum Ground Water = RL 15.00m AHD

Stormwater Calculations in accordance with Shire of Kalamunda
Pre Development Flow - 5 ARI (20% AEP) of 6 minutes
 Development Area = 5,781 m²
 Permissible Site discharge
 = CIA/3600
 = 0.35 x 93.9 x 5,781 / 3600
 = 52.80 L/s
 Permissible discharge from the development site is 52.80 litres per second under pre-development flow conditions to the Water Corporation Main Drain.

Stormwater Calculations in accordance with Shire of Kalamunda
Post Development Flow - 100 ARI (1% AEP) of critical duration 15 minute storm
Stormwater Generated
 = CIA/3600
 = 0.90 x 104.8 x 5,781 / 3600
 = 151.46 L/s
 = 126.32 m³ over 15 minutes.
Stormwater Discharged via Lot Connection
 = 52.80 L/s x 15 minutes
 = 47.52 m³
Detention Required
 = 126.32 - 47.52
 = 78.80 m³
Provided Storage
 Volume of a dia 1800mm x 900mm deep soakwell = 3.05m³
 Infiltration of a dia 1800mm x 900mm deep soakwell
 = $\pi r^2 \times 2\pi r h \times 25\%$
 = $\pi \times 0.9 \times 0.9 \times 2\pi \times 0.9 \times 1.2 \times 0.25$
 = 2.54 + 1.70
 = 4.24m² of permeability area
 Infiltration achieved for one soakwell
 = 4.24 m² @ 5m/day
 = 0.2208 m³ of infiltration over 15 minutes
Soakwell capacity over 15 minutes
 = volume + infiltration
 = 3.05 + 0.2208 m³
 = 3.2708 m³
No. of Soakwells Required
 = 78.80 m³ / 3.2708m³
 = 24.09
 = therefore 24 soakwells required to service the site providing a storage volume of 73.29 m³, equivalent to 13.69mm per square metre.



SITE PLAN
 SCALE 1:250

PRITCHARD FRANCIS CIVIL DA CONCEPT SHALL BE VERIFIED AND CERTIFIED BY PRITCHARD FRANCIS FOR BUILDING PERMIT APPLICATION.

pritchard francis
 civil and structural engineering consultants
 Level 1, 430 Roberts Road
 Subiaco WA 6009
 PO Box 2150
 Subiaco WA 6904
 Telephone: (08) 9382 5111
 admin@pleng.com.au

Client: Mulder Kapman
Project: 326 Hale Road, Wattle Grove
Drawing Set: 23180-C8-DG-01
Revision: C
Date: 18 September 2023

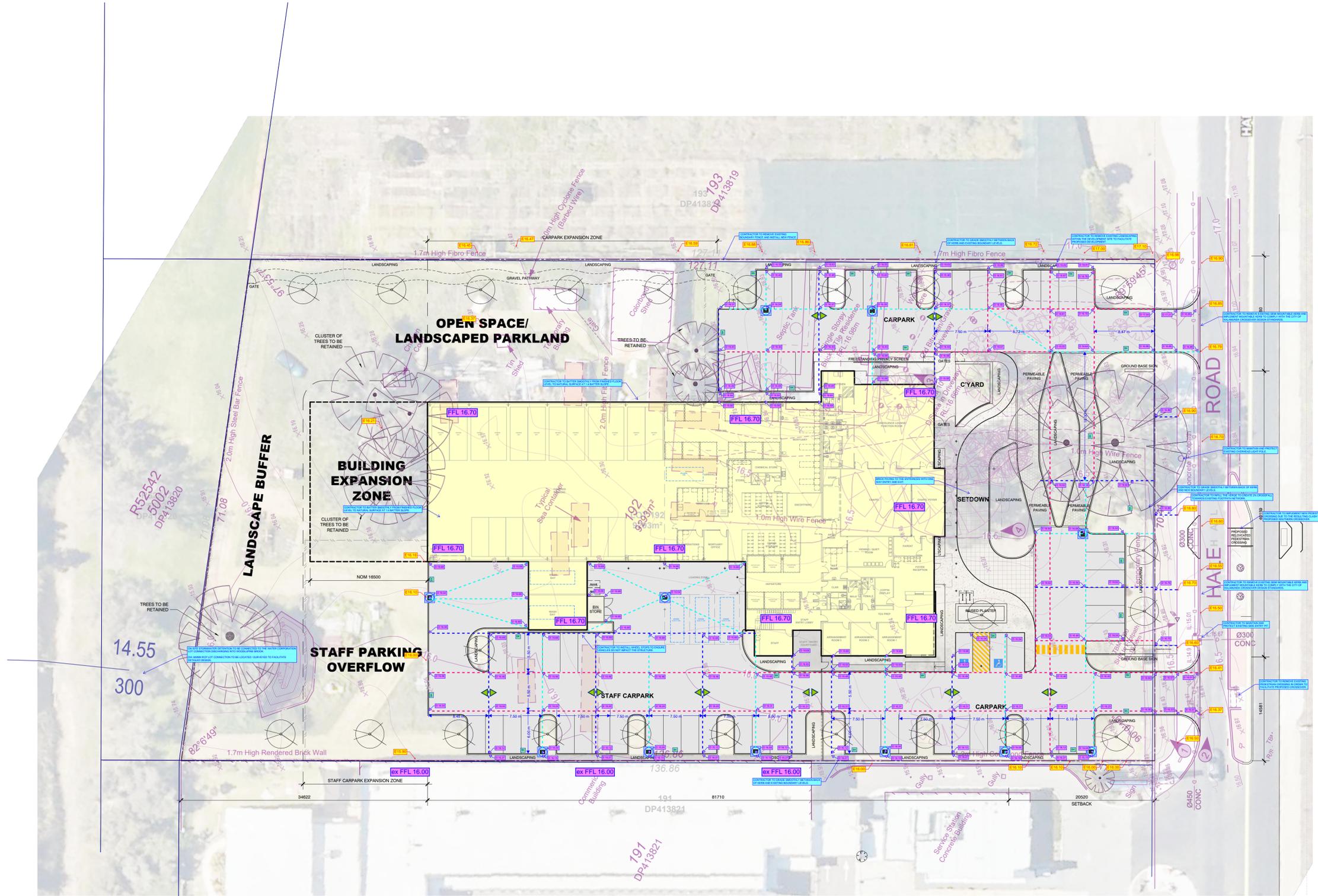


PROPOSED FUNERAL PARLOUR
 SEASONS FUNERALS
 Lot 192 (H326) Hale Road, WATTLE GROVE

REV.	SK07
DRAWING No.	Sheet 3
PROJECT No.	0876
SCALE	1:250 (A1) 1:500 (A3)
DATE	2023.09.08
DRAWN	LM

MULDER KAMPMAN
 DESIGN

P 0400 219 866
 E admin@mulderkampman.com.au
 W www.mulderkampman.com.au
 Unit 4, 53 Sholl St, MANDURAH WA 6210



SITE PLAN
SCALE 1:250

PRITCHARD FRANCIS CIVIL DA CONCEPT SHALL BE VERIFIED AND CERTIFIED BY PRITCHARD FRANCIS FOR BUILDING PERMIT APPLICATION.



Level 1, 430 Roberts Road
Subiaco WA 6009
PO Box 2150
Subiaco WA 6904
Telephone: (08) 9382 5111
admin@pleng.com.au

Client: Mulder Kapman
Project: 326 Hale Road, Wattle Grove
Drawing Set: 23180-C8-DG-01
Revision: C
Date: 18 September 2023

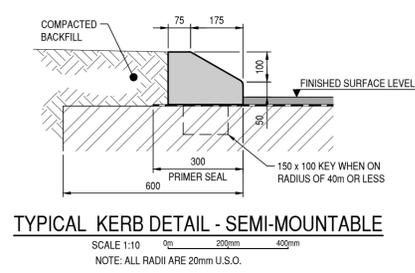


MULDER KAMPMAN
DESIGN

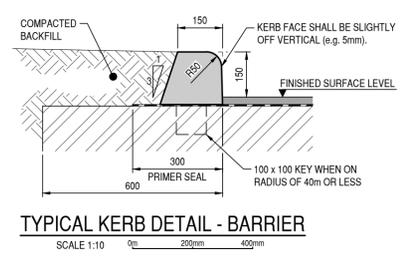
P 0400 219 866
E admin@mulderkampman.com.au
W www.mulderkampman.com.au
Unit 4, 53 Sholl St, MANDURAH WA 6210

PROPOSED FUNERAL PARLOUR
SEASONS FUNERALS
Lot 192 (H326) Hale Road, WATTLE GROVE

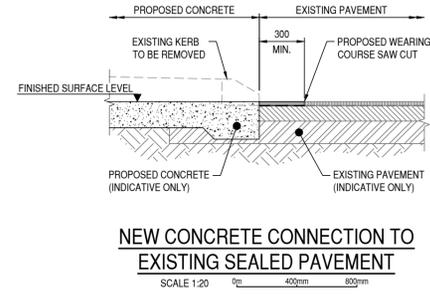
DRAWN: LM
DATE: 2023.09.08
SCALE: 1:250 (A1), 1:500 (A3)
PROJECT No: 0876
DRAWING No: Sheet 3
REV: SK07



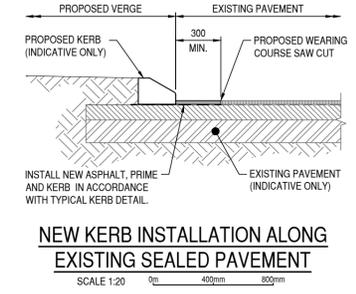
TYPICAL KERB DETAIL - SEMI-MOUNTABLE
SCALE 1:10
NOTE: ALL RADII ARE 20mm U.S.D.



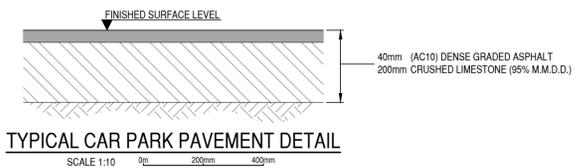
TYPICAL KERB DETAIL - BARRIER
SCALE 1:10



NEW CONCRETE CONNECTION TO EXISTING SEALED PAVEMENT
SCALE 1:20

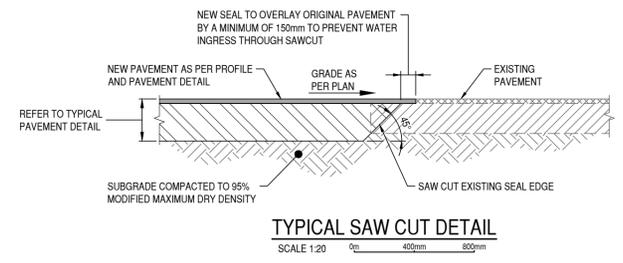


NEW KERB INSTALLATION ALONG EXISTING SEALED PAVEMENT
SCALE 1:20

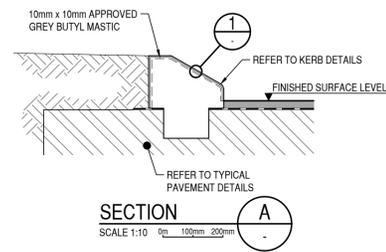


TYPICAL CAR PARK PAVEMENT DETAIL
SCALE 1:10

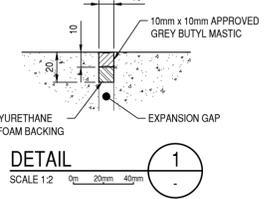
NOTE: THE CONTRACTOR SHALL CONSTRUCT PAVEMENT IN ACCORDANCE WITH AS2150 AND CIVIL SPECIFICATIONS AND DETAILS



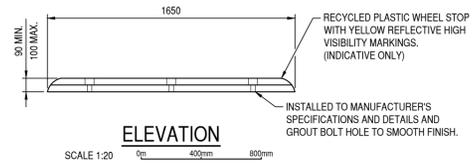
TYPICAL SAW CUT DETAIL
SCALE 1:20



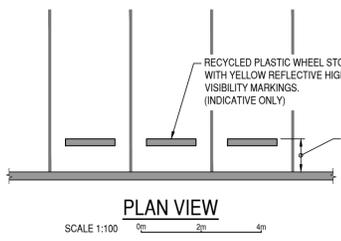
SECTION A
SCALE 1:10



DETAIL 1
SCALE 1:2



ELEVATION
SCALE 1:20

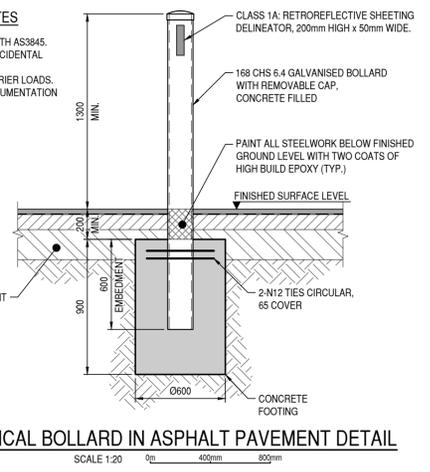


PLAN VIEW
SCALE 1:100

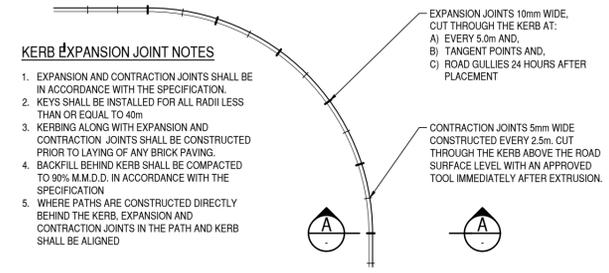
TYPICAL WHEEL STOP DETAIL - RECYCLED PLASTIC

BOLLARD IN ASPHALT NOTES

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



TYPICAL BOLLARD IN ASPHALT PAVEMENT DETAIL
SCALE 1:20



KERB EXPANSION JOINT AND CRACK CONTROL DETAILS
SCALE 1:200

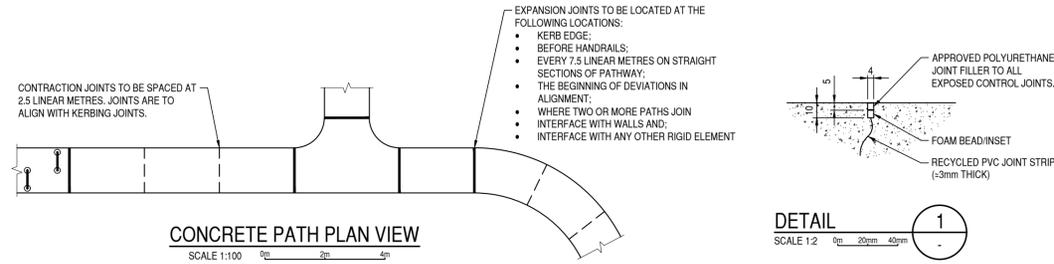
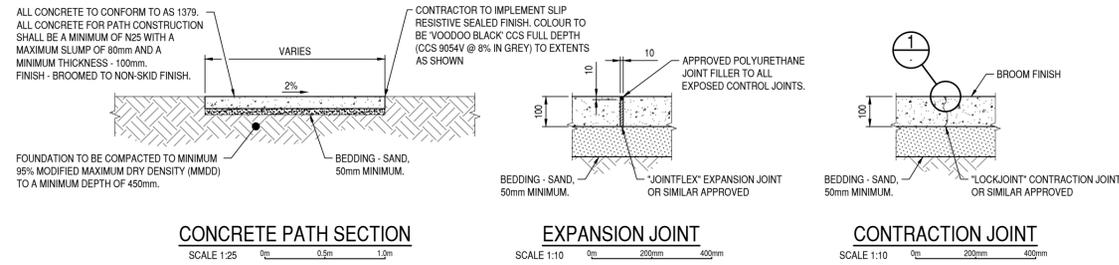


NOMINATED DETAILS LIKELY TO APPLY TO THE PROJECT, HOWEVER TO BE CONFIRMED DURING DETAILED DESIGN PRIOR TO BUILDING PERMIT APPLICATION.



430 Roberts Road
Subiaco WA 6008
PO Box 2150
Subiaco WA 6904
Telephone: (08) 9382 5111
admin@pfeng.com.au

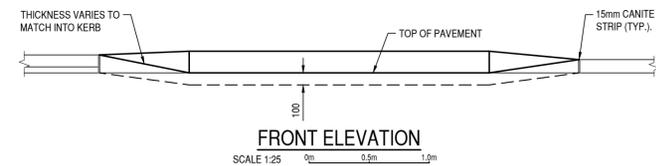
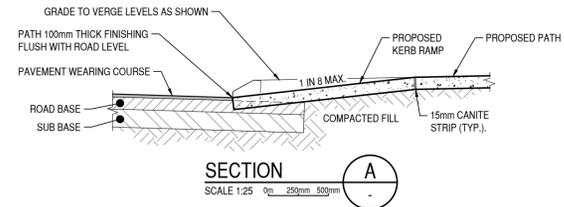
Client: Mulder Kapman
Project: 326 Hale Road, Wattle Grove
Drawing Set: 23180-C8-DG-01
Revision: C
Date: 18 September 2023



TYPICAL CONCRETE PATH DETAILS

KERB RAMP NOTES

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



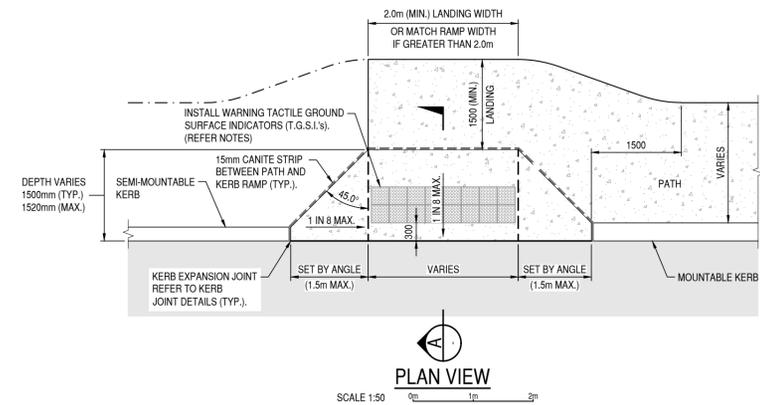
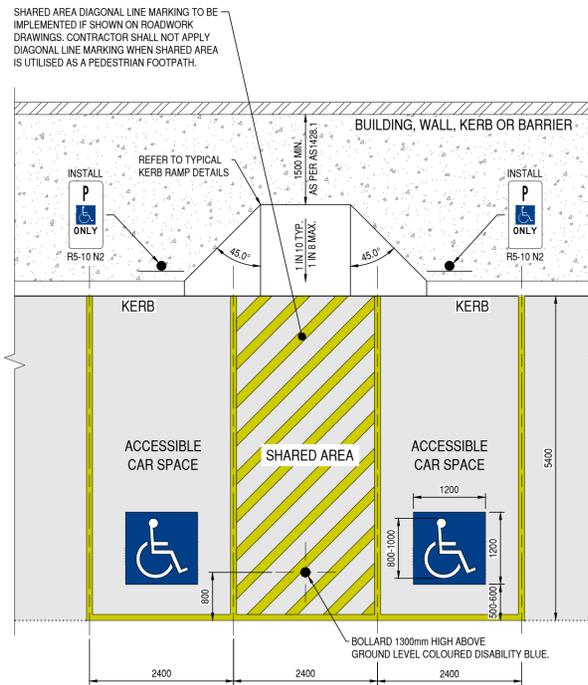
ACCESIBLE PARKING SPACE NOTES

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

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

PAVEMENT MARKINGS SHALL BE PROVIDED AS FOLLOWS:

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



TYPICAL KERB RAMP DETAIL



ACCESSIBLE CAR PARKING SPACES IN ACCORDANCE WITH AS2890.6

NOMINATED DETAILS LIKELY TO APPLY TO THE PROJECT, HOWEVER TO BE CONFIRMED DURING DETAILED DESIGN PRIOR TO BUILDING PERMIT APPLICATION.



430 Roberts Road
Subiaco WA 6008
PO Box 2150
Subiaco WA 6904
Telephone: (08) 9382 5111
admin@pfeng.com.au

Client: Mulder Kapman
Project: 326 Hale Road, Wattle Grove
Drawing Set: 23180-C8-DG-01
Revision: C
Date: 18 September 2023

TYPICAL BURIED LID DETAIL (BSW)
SCALE 1:20

TYPICAL INVERTED GULLY GRATE LID DETAIL (GSW) WITH ASPHALT PAVEMENT
SCALE 1:20

TYPICAL GRAF ECOBLOC INSPECT FLEX STORMWATER CELL
SCALE 1:50

TYPICAL INVERTED GULLY GRATE LID DETAIL (GSW) WITH CONCRETE PAVEMENT
SCALE 1:20

TRENCH DETAIL NOTES

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

DRY CONDITIONS

WET CONDITIONS

TYPICAL CONCRETE PIPE TRENCH DETAILS (SUPPORT TYPE "U")
SCALE 1:20

STORMWATER PIT NOTES

- ALL INSITU CONCRETE SHALL BE CLASS N32 IN ACCORDANCE WITH A1379.
- ALL INSITU CONCRETE CORNERS SHALL HAVE A 20mm CHAMFER UNLESS OTHERWISE NOTED.
- CEMENT MORTAR SHALL CONSIST OF ONE PART CEMENT AND THREE PARTS SAND.
- S181 REINFORCEMENT SHALL CONFORM WITH HARD DRAWN FABRIC TO AS4671.
- MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 50mm.
- THE LINER SHALL BE REINFORCED CONCRETE MANUFACTURED TO AS4056.
- THE MAXIMUM INLET/OUTLET PIPE OUTSIDE DIAMETER SHALL BE LESS THAN 60% OF THE LINER INTERNAL DIAMETER.
- MINIMUM OF 40% OF LINER SHALL REMAIN IN ANY HORIZONTAL PLANE.
- MINIMUM INTERNAL LINER SPACE OF 200mm BETWEEN PUNCHED/CUT HOLES.
- HOLES TO BE CUT/PUNCHED ON ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.
- THE LINER SHALL HAVE EQUIVALENT PROPERTIES AND REINFORCEMENT OF CLASS 2 R.C.P. EXCEPT THAT THE REINFORCEMENT SHALL BE CIRCULAR.
- COVERS SHALL BE CLASS 'D' TO AS3996.

TABLE B
DRAINAGE PIT BASE SOAKAGE HOLE SIZE

LINER SIZE MIN. (mm)	SOAKHOLE DIAMETER (mm)
1050	600
1200	600
1500	900
1800	1200

TYPICAL SUBSOIL DRAINAGE TRENCH DETAIL - PERVIOUS
SCALE 1:10

TYPICAL SUBSOIL INSPECTION OPENING DETAIL
SCALE 1:20

TYPICAL INTERCONNECTED SOAKWELL DETAIL
SCALE 1:20

NOMINATED DETAILS LIKELY TO APPLY TO THE PROJECT, HOWEVER TO BE CONFIRMED DURING DETAILED DESIGN PRIOR TO BUILDING PERMIT APPLICATION.

430 Roberts Road
Subiaco WA 6008
PO Box 2150
Subiaco WA 6904
Telephone: (08) 9382 5111
admin@pfrng.com.au

Client: Mulder Kapman
Project: 326 Hale Road, Wattle Grove
Drawing Set: 23180-C8-DG-01
Revision: C
Date: 18 September 2023

City of Kalamunda

56