



LG Ref: DA/5/2024/87/1
DAP Ref: DAP/24/02698
Enquiries: (08) 6551 9919

Luka Martins
Taylor Burrell Barnett
PO Box 7130, Cloisters Square
PERTH WA 6850

Dear Luka,

REGIONAL DAP - CITY OF BUNBURY - DAP APPLICATION - DA/5/2024/87/1 - DETERMINATION

Property Location:	Lot 260 (No.390) Willinge Drive, Glen Iris
Application Details:	Proposed Warehouse / Storage Facility

Thank you for your Form 1 Development Assessment Panel (DAP) application and plans submitted to the City of Bunbury on 7 May 2024 for the above-mentioned development.

This application was considered by the Regional DAP at its meeting held on 1 August 2024, where in accordance with the provisions of the City of Bunbury Local Planning Scheme No.8, it was resolved to **approve** the application as per the attached notice of determination.

Should the applicant not be satisfied by this decision, an application may be made to amend or cancel this planning approval in accordance with regulation 17 and 17A of the *Planning and Development (Development Assessment Panels) Regulations 2011*.

Please also be advised that there is a right of review by the State Administrative Tribunal in accordance with Part 14 of the *Planning and Development Act 2005*. Such an application must be made within 28 days of the determination, in accordance with the *State Administrative Tribunal Act 2004*.

Should you have any queries with respect to the conditions of approval, please contact Alice Baldock on behalf of the City of Bunbury on 08 9792 7061.

Yours sincerely,

DAP executive director

9 August 2024

Encl. DAP Determination Notice
Approved Plans

Cc: Alice Baldock
City of Bunbury

Planning and Development Act 2005

City of Bunbury Local Planning Scheme No.8

Regional Development Assessment Panel

**Determination on Development Assessment Panel
Application for Planning Approval**

Property Location: Lot 260 (No.390) Willinge Drive, Glen Iris

Application Details: Proposed Warehouse / Storage Facility

In accordance with regulation 8 of the *Planning and Development (Development Assessment Panels) Regulations 2011*, the above application for planning approval was **granted** on 1 August 2024, subject to the following:

1. **Accept** that the DAP Application reference DAP/2024/02698 is appropriate for consideration as a “Warehouse/Storage” land use and compatible with the objectives of the zoning table in accordance with Clause 16 of the City of Bunbury Local Planning Scheme No. 8;
2. **Approve** DAP Application reference DAP/2024/02698 and accompanying plans in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, the provisions of the City of Bunbury Local Planning Scheme No. 8 and Greater Bunbury Region Scheme, subject to the following conditions:

Conditions

1. This decision constitutes planning approval only and is valid for a period of four years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
2. All development shall be in accordance with the approved development plans (attached) which form part of this development approval.
3. All works required to satisfy a condition of this approval are required to be installed / constructed and maintained in accordance with the approved plans and conditions of approval for the life of the development.
4. A Construction Management Plan shall be submitted to and approved by the City prior to issuing a building permit. The management plan shall include details regarding mitigation measures to address impacts associated with construction works and shall be prepared to the specification and satisfaction of the City. The construction works shall be undertaken in accordance with the approved Construction Management Plan.
5. Prior to the occupation of the development the proponent is to undertake landscaping of the northern verge area of the portion of the Avenue which the subject site abuts in accordance with an approved landscape plan and thereafter maintained to the satisfaction of the City of Bunbury.

6. Before the development is occupied, the recommendations of the approved Stormwater Drainage Plan (Dwg No. C350 Rev. D) must be constructed and implemented to the satisfaction of the City of Bunbury.
7. Before the development is occupied, any alterations, relocation, or damage of existing infrastructure within the public road reserve must be completed and reinstated to the specification and satisfaction of the City of Bunbury.
8. At all times, the public road reserve must remain free of development and not be used for any other purpose including parking and storage to the satisfaction of the City of Bunbury.

Advice Notes

1. This is a development approval only. The applicant/owner is advised that it is their responsibility to ensure that the proposed development complies with all other applicable legislation, local laws and/or license requirements that may relate to the development.
2. The development is subject to the Building Act 2011, Building Regulations 2012 and Building Code of Australia. A separate building permit must be granted before the development commences, where offences occur statutory penalties apply. The applicant/owner is advised to liaise further with the City of Bunbury on (08) 9792 7000.4
3. The City of Bunbury advises that the development the subject of this development approval must comply with the Environmental Protection Act 1986 and the Environmental Protection (Noise) Regulations 1997 in relation to noise emissions and the Environmental Protection (Unauthorised Discharge) Regulations 2004 in relation to discharges into the environment.
4. With regards to the landscaping condition, the landscape plan is to identify the quantity and density of plantings and a mixture of ground covers, which are appropriate for the locality and context.

Where an approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) or local government approval under regulation 17A of the *Planning and Development (Development Assessment Panels) Regulations 2011*.

Location Plan



City of Bunbury does not warrant the accuracy of information in this publication and any person using or relying upon such information does so on the basis that COB shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

22/07/2024

1:4000



DEVELOPMENT
ASSESSMENT PANEL

APPROVED
01-Aug-2024

Proposed warehouse location facing west



View from Lot 101 of Rossiter Road facing northwest



DEVELOPMENT
ASSESSMENT PANEL

APPROVED

01-Aug-2024

View of Rossiter Road facing North



Existing verge landscaping along The Avenue facing west



DEVELOPMENT
ASSESSMENT PANEL

APPROVED

01-Aug-2024

Existing verge landscaping along The Avenue facing east



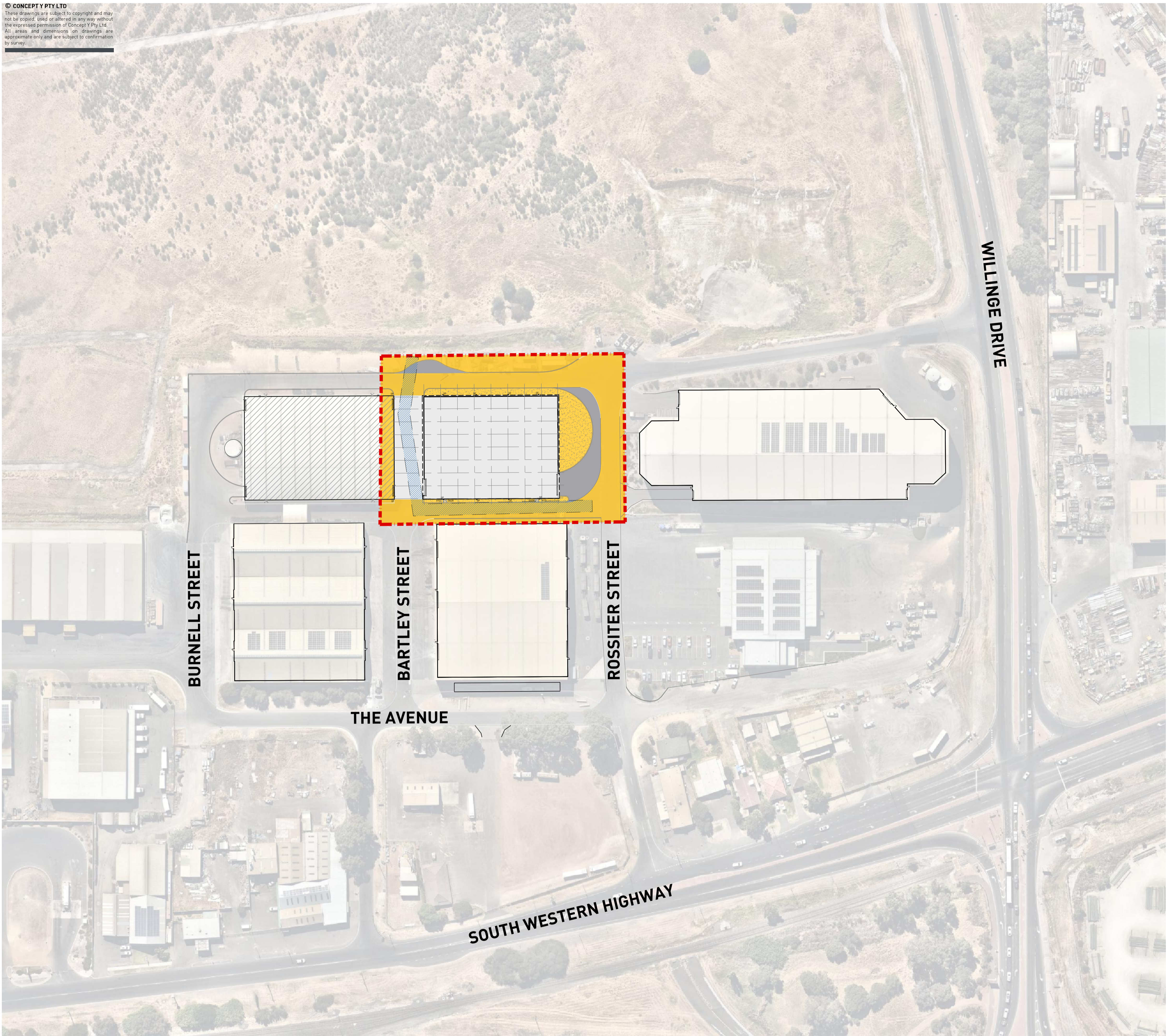
Existing carparking for Qube operations on Lot 101



DEVELOPMENT
ASSESSMENT PANEL

APPROVED

01-Aug-2024



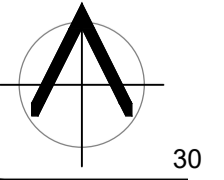
DEVELOPMENT ASSESSMENT PANEL
APPROVED
 01-Aug-2024

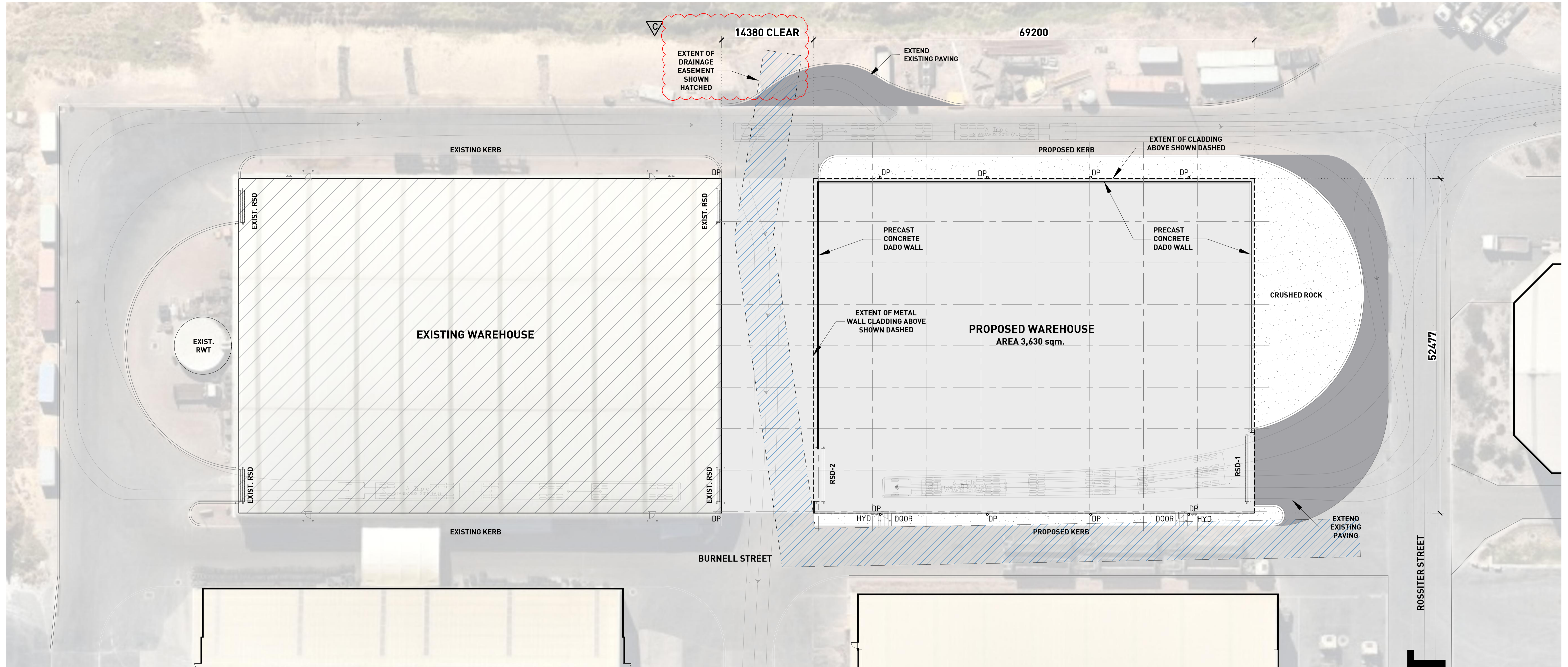
 **AREA OF WORKS**

 **EXTENT OF DRAINAGE EASEMENT**

- NOTE:**
- This concept plan is intended for Development Application purposes only. All setbacks, site coverage, car parking numbers, landscape areas and the like are subject to statutory approval.
 - No assurance is given as to the features, attributes, feasibility or accuracy of anything shown on or disclosed in this plan.
 - All existing & proposed features, dimensions, areas and boundaries are approximate only and subject to verification via detailed site survey by licensed surveyor.




CLIENT: _____





DEVELOPMENT SUMMARY

SITE AREA	90,290	sqm. approx.
Proposed Warehouse	3,630	sqm.
Proposed Asphalt Paving Area	670	sqm. approx.

-  EXTENT OF ASPHALT PAVING AREA
-  EXTENT OF CRUSHED ROCK
-  EXTENT OF DRAINAGE EASEMENT

- RSD-1 ROLLER SHUTTER DOOR 10mW x 5mH
- RSD-2 ROLLER SHUTTER DOOR 8mW x 5mH

DEVELOPMENT ASSESSMENT PANEL
 APPROVED
 01-Aug-2024

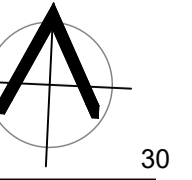
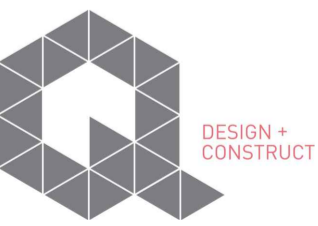
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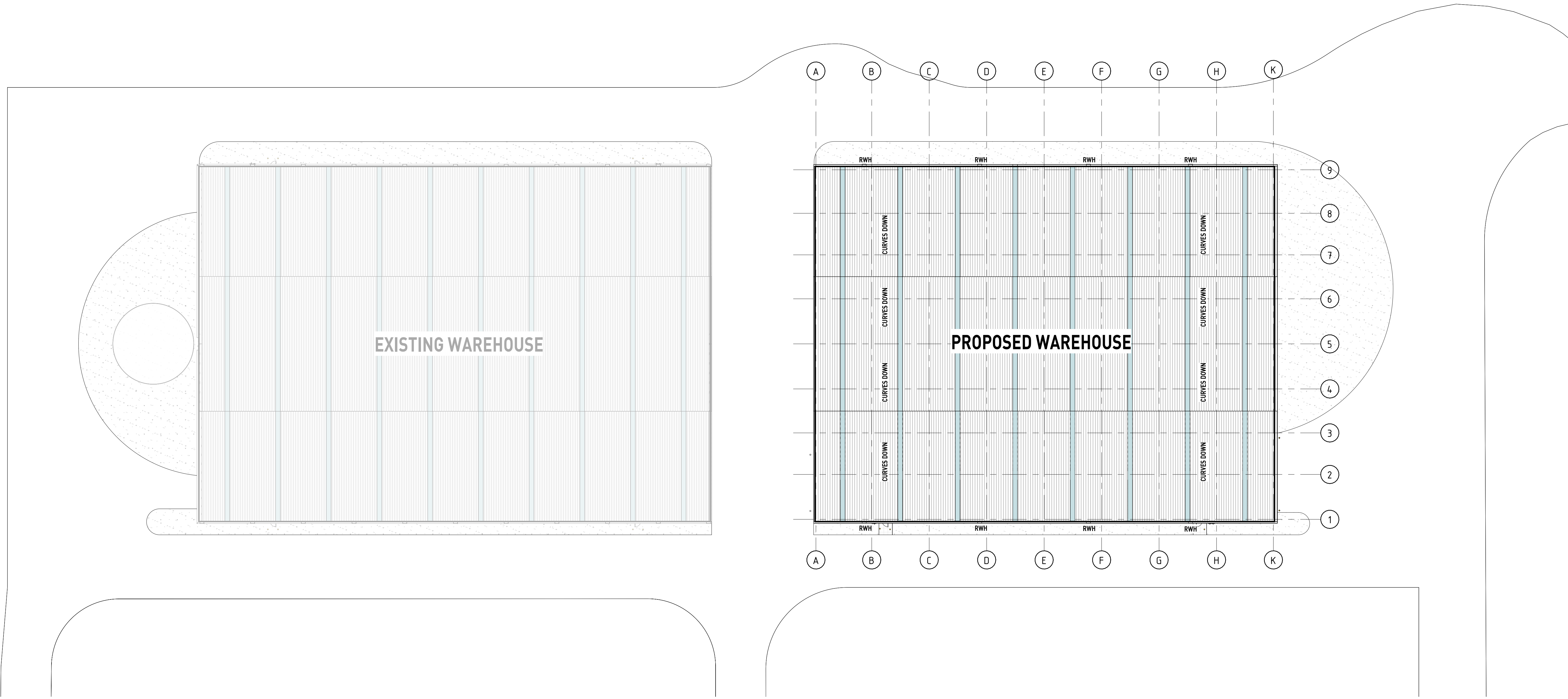
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REVISION NOTES

B	08/07/2024	Breezeway Deleted
C	09/07/2024	Building relocated to avoid easement

CLIENT:





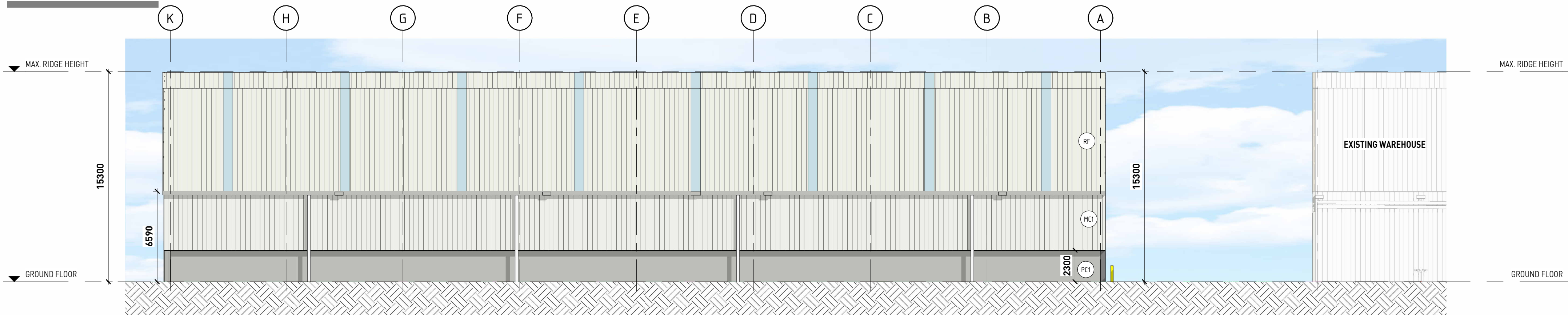
DEVELOPMENT ASSESSMENT PANEL
APPROVED
 01-Aug-2024

TRANSLUCENT ROOF SHEETING TO APPROX. 10% OF TOTAL WAREHOUSE ROOF AREA

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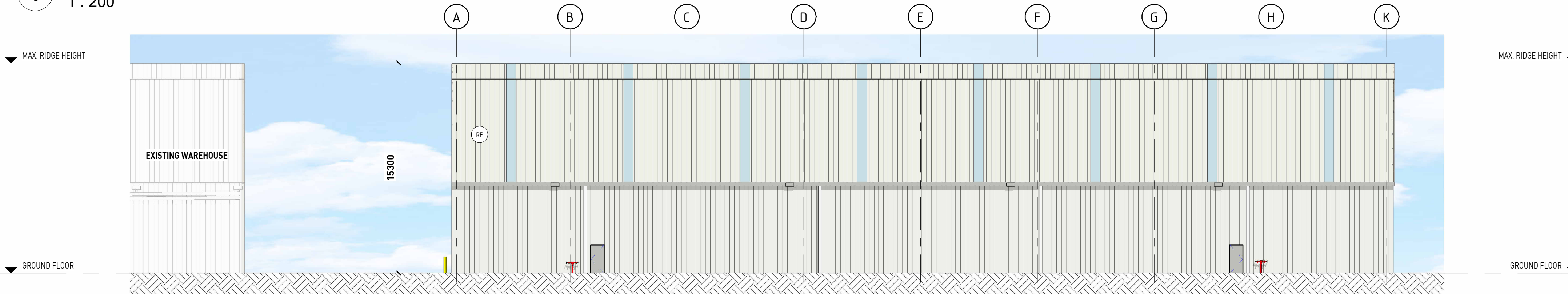
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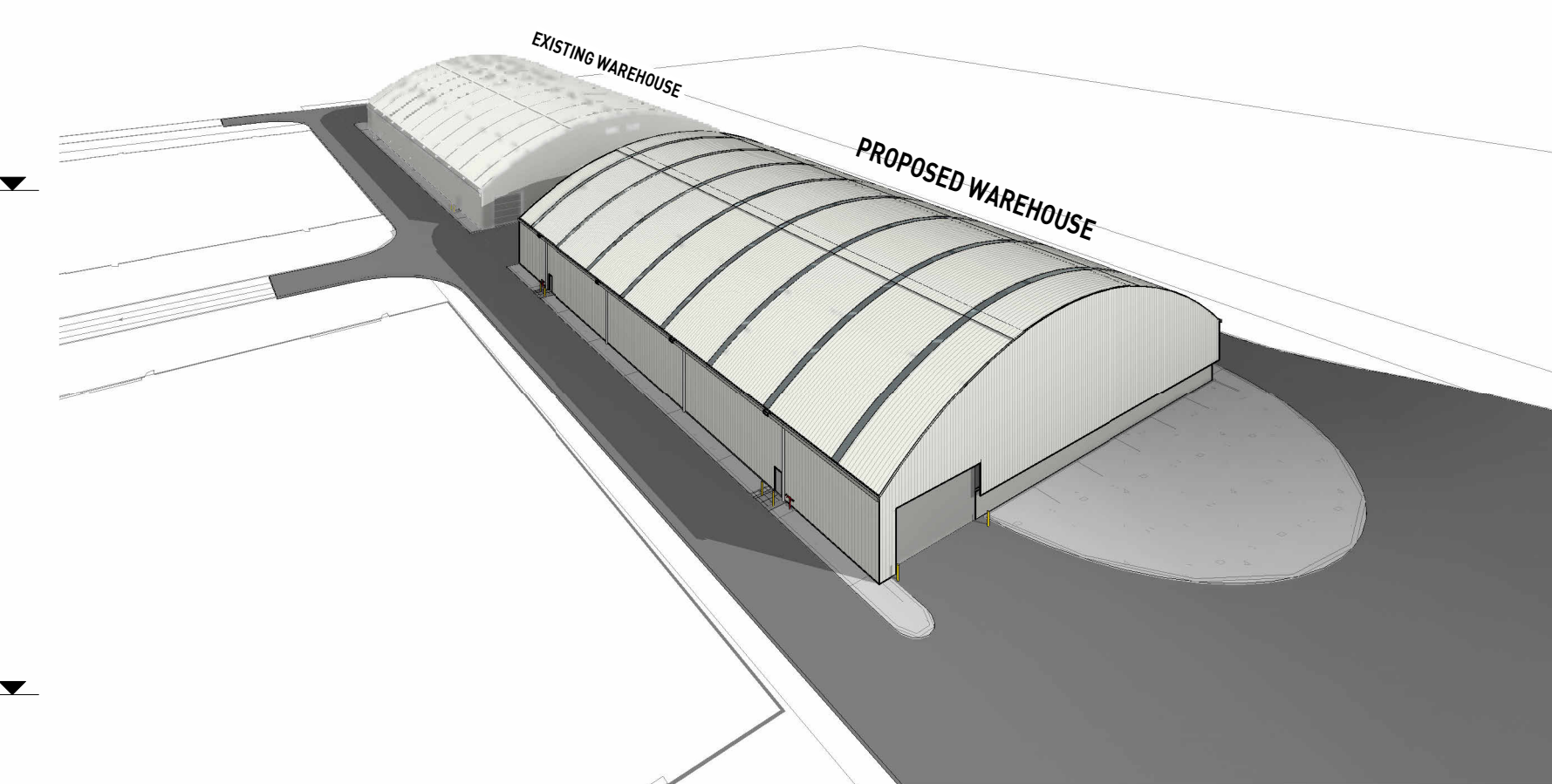


1 NORTH WAREHOUSE ELEVATION
 1 : 200

MATERIAL AND COLOUR SCHEDULE			
Material Code	ITEM/ LOCATION	MATERIAL DESCRIPTION	FINISHES
DP1	DOWNPIPES AND GUTTERS	WAREHOUSE DOWNPIPES AND GUTTERS IN COLORBOND 'SHALE GREY' FINISH OR EQUIVALENT TO MATCH EXISTING WAREHOUSE	
MC1	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'SURFMIST' FINISH OR EQUIVALENT TO MATCH EXISTING WAREHOUSE	
PC1	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN PAINT FINISH TO MATCH COLORBOND 'SHALE GREY' OR EQUIVALENT.	
RF	METALLIC ROOF SHEETING	IN 'SURFMIST' WITH TRANSLUCENT ROOF SHEETING TO APPROX. 10% OF ROOF AREA	
RSD	ROLLER SHUTTER DOOR	METAL ROLLER SHUTTER DOORS IN GALVANISED FINISH.	



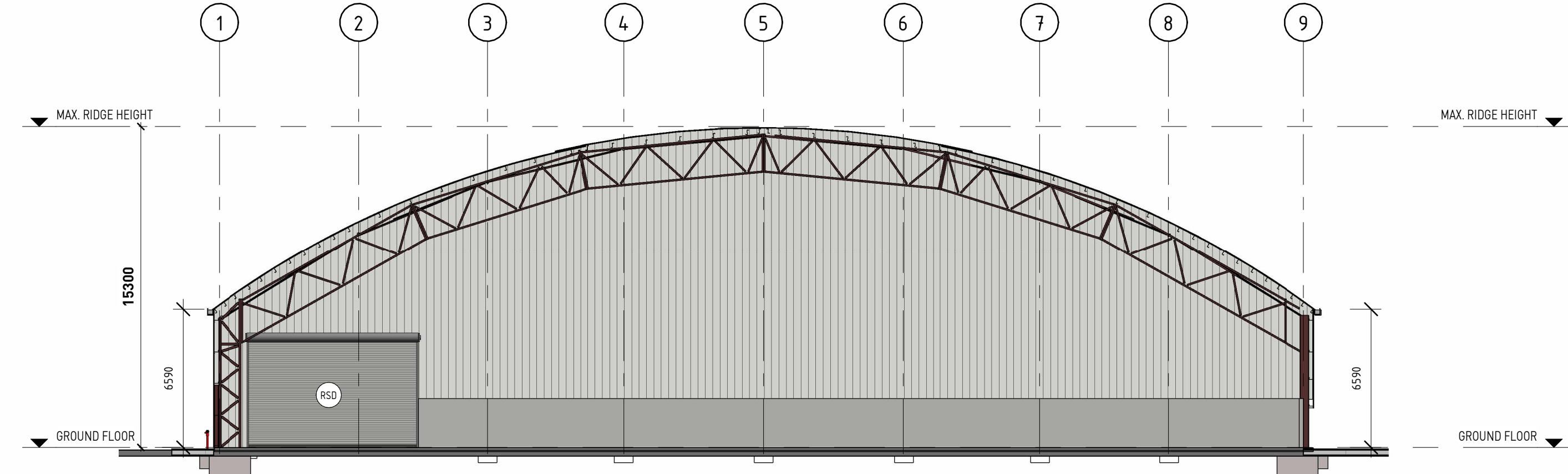
2 WAREHOUSE SOUTH ELEVATION
 1 : 200



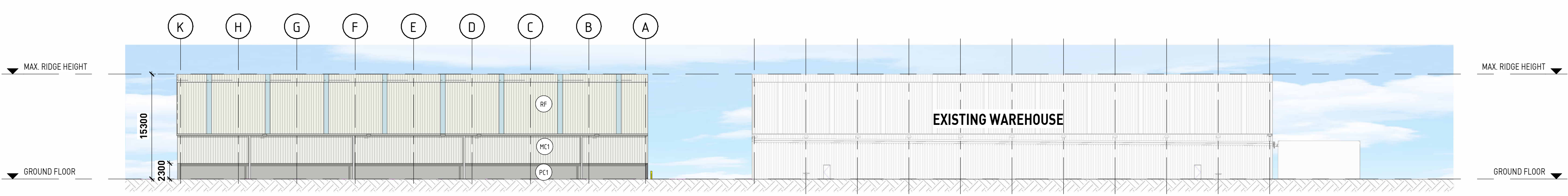
6 WAREHOUSE INDICATIVE AERIAL



3 EAST WAREHOUSE ELEVATION
 1 : 200



4 TYPICAL WAREHOUSE SECTION
 1 : 200



5 NORTH OVERALL WAREHOUSE ELEVATION
 1 : 400

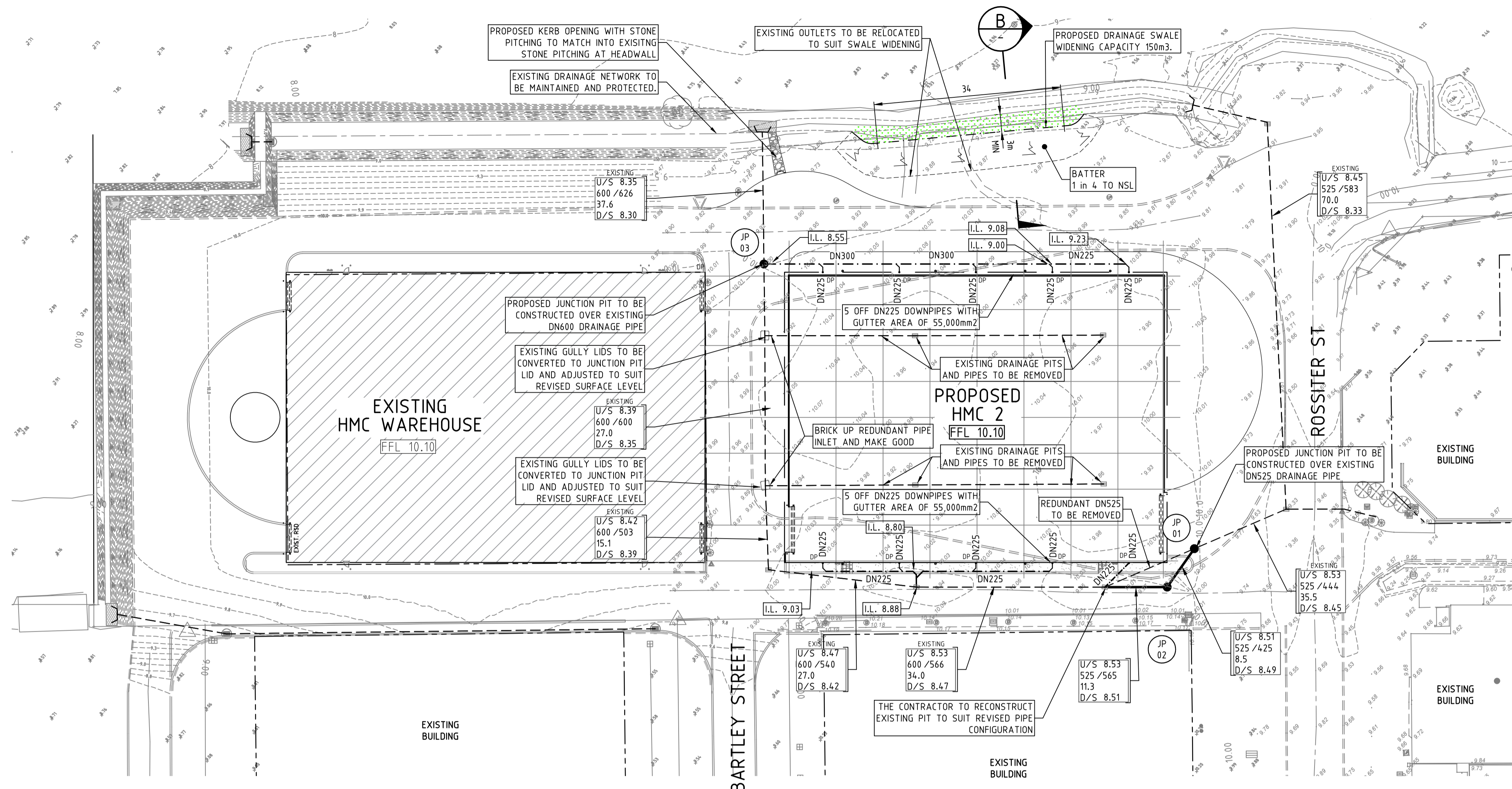
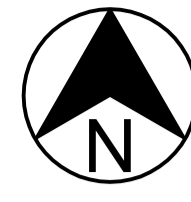


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- No assurance is given as to the features, attributes, feasibility or accuracy of anything shown on or disclosed in this plan.
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CLIENT:





PLAN
SCALE 1:500

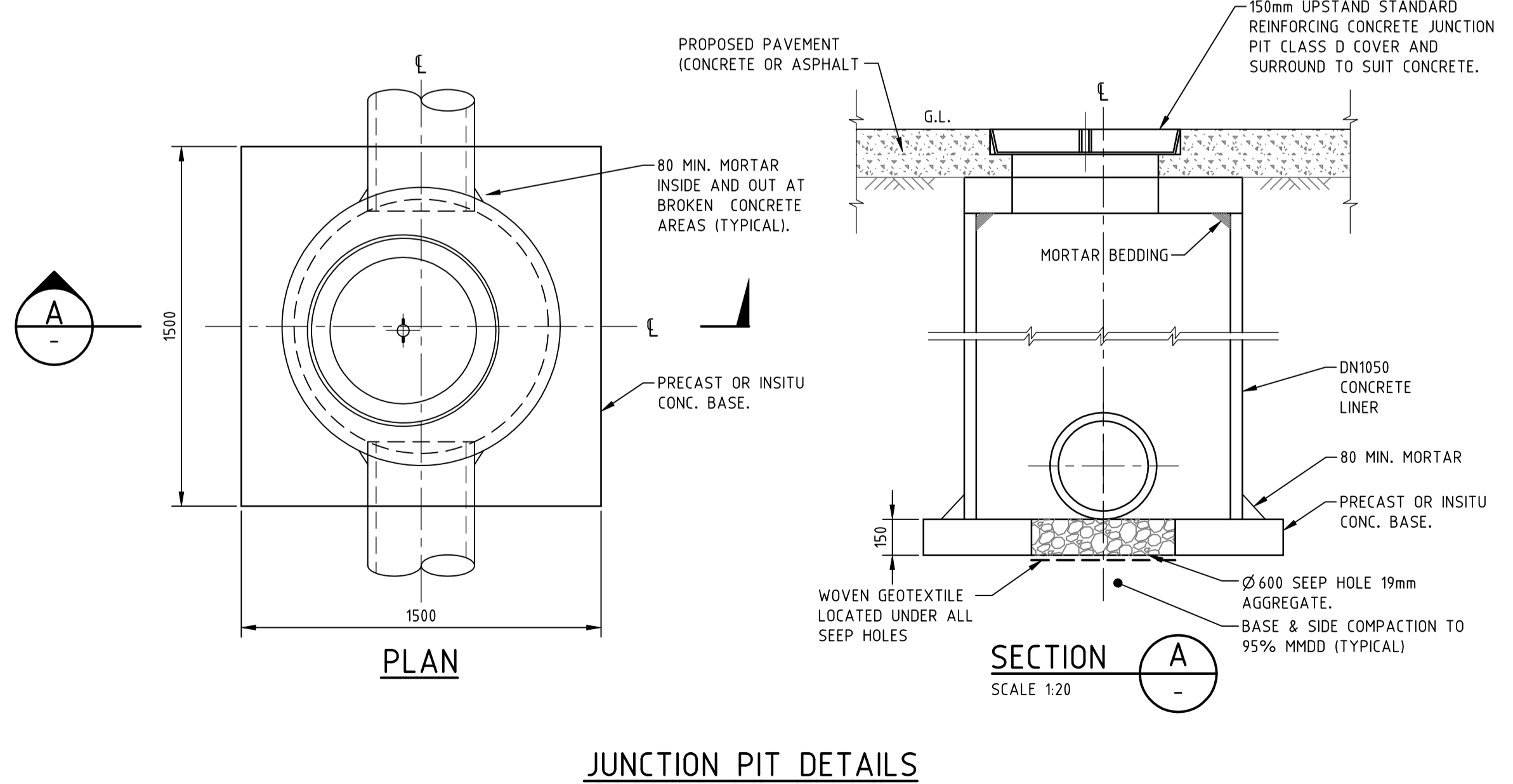
- ### NOTES
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL UR0779 DRAWINGS, SPECIFICATION
 - THE CONTRACTOR SHALL LOCATE ALL EXISTING SERVICES WITHIN THE CONTRACT AREA PRIOR TO THE COMMENCEMENT OF WORK. WHERE EXISTING AND PROPOSED WORKS INTERSECT, LEVELS ARE TO BE TAKEN AND SUPPLIED TO THE SUPERINTENDENT.
 - ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
 - THE CONTRACTOR SHALL LOCATE ALL LEVELS FROM ESTABLISHED BENCH MARKS.
 - ALL BENCH MARKS ARE TO BE PROTECTED AND PRESERVED.
 - ALL STORMWATER DRAINAGE PIPES ARE TO BE RC CLASS 2 INSTALLED TO MANUFACTURES SPECIFICATIONS, UNLESS OTHERWISE NOTED.
 - ALL STORMWATER DOWNPIPES SHALL BE PVC WITH MIN STIFFNESS SN8.
 - ALL TRENCHING, PIPE BEDDING AND BACKFILLING SHALL BE IN ACCORDANCE WITH AS3725.
 - STORMWATER PIPE ALIGNMENT SHALL BE AS INDICATED ON THE PLANS AND LIAISON WITH STRUCTURAL ON FOOTING LOCATIONS.
 - ALL JUNCTION PITS AND ENTRY PITS SHALL BE LOCATED AS SHOWN IRRESPECTIVE OF PIPE LENGTHS SHOWN ON THE DRAWINGS.
 - AT LOW POINTS THE ENTRY PITS SHALL BE LOCATED AT THE LOW POINT OF THE PAVEMENT.
 - THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DISCREPANCY OR CLASH WITH OTHER SERVICES TO THE SUPERINTENDENT.

- ### LEGEND
- PROPOSED JUNCTION PIT
 - EXISTING DRAINAGE NETWORK
 - PROPOSED GULLY / BUBBLE UP PIT
 - GP - GULLY PIT
 - BU - BUBBLE UP PIT
 - PS - PUMP PIT
 - JP - JUNCTION PIT
 - HW - HEADWALL
 - BU 7 DENOTES PIT REFERENCE NUMBER
 - IL 8.53 DENOTES INVERT LEVEL
 - DN225 DENOTES DOWNPIPE COLLECTION NETWORK & SIZE
 - DN225 DENOTES DOWNPIPE LOCATION & SIZE
 - 13.0 DENOTES EXISTING SURFACE CONTOURS
 - 13.0 DENOTES EXISTING SURFACE SPOT LEVEL
 - DENOTES EXISTING ROADWAY KERB / EDGE
 - DENOTES EXISTING BUILDINGS
 - U/S 8.53
525 /444
35.5
D/S 8.45 DENOTES UPSTREAM INVERT LEVEL
DENOTES PIPE DIA / PIPE GRADE
DENOTES PIPE LENGTH
DENOTES DOWNSTREAM INVERT LEVEL

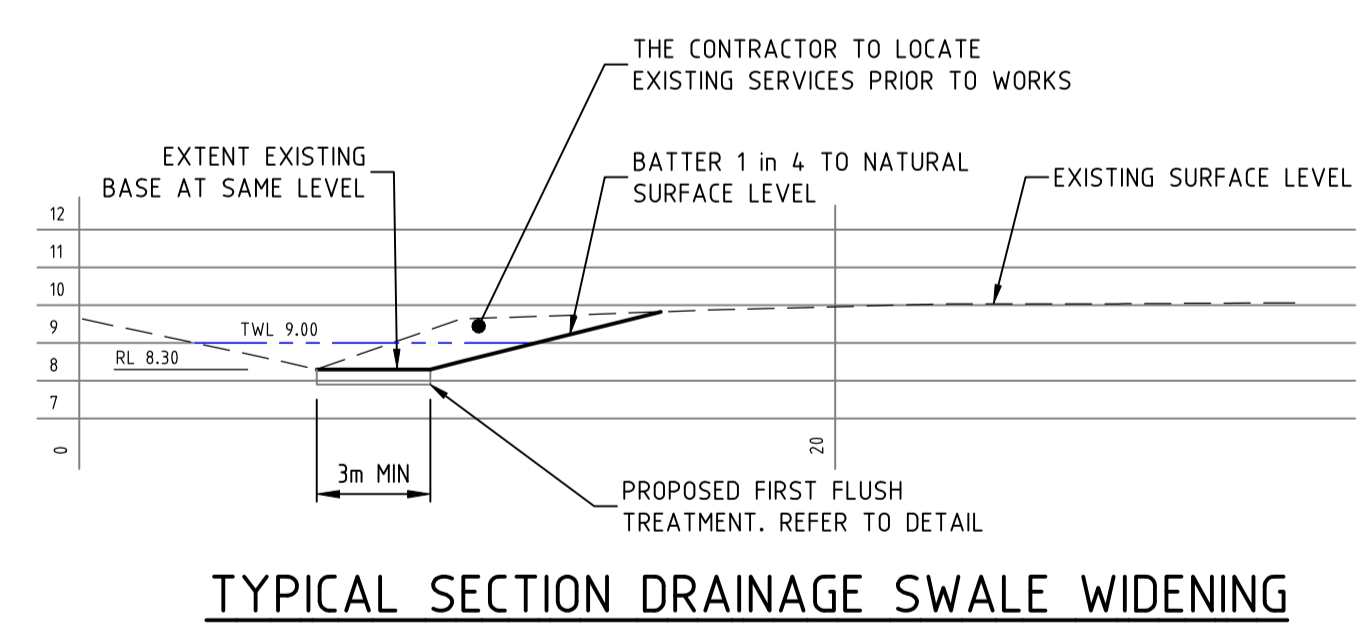
- ### DRAINAGE DESIGN CONSIDERATION
- SITE DEVELOPMENT AREA :- HMC2 BUILDING FOOTPRINT 4072m²
 - THIS DEVELOPMENT IS LOCATED OVER EXISTING ASPHALTED AREA AND UNSEALED AREA DOES NOT INCREASE THE CATCHMENT AREA
 - IMPERVIOUS AREA HAS BEEN INCREASED BASED ON DIFFERENCE BETWEEN IMPERVIOUS FACTORS USED FOR DIFFERENT SURFACE FINISHES BY PREVIOUS DESIGN CONSULTANT. REFER TO TABLE 1 FOR SUMMARY OF DIFFERENCE AND TOTAL ADDITIONAL IMPERVIOUS AREA FOR THE PROJECT.

TABLE 1: DRAINAGE CALCULATIONS

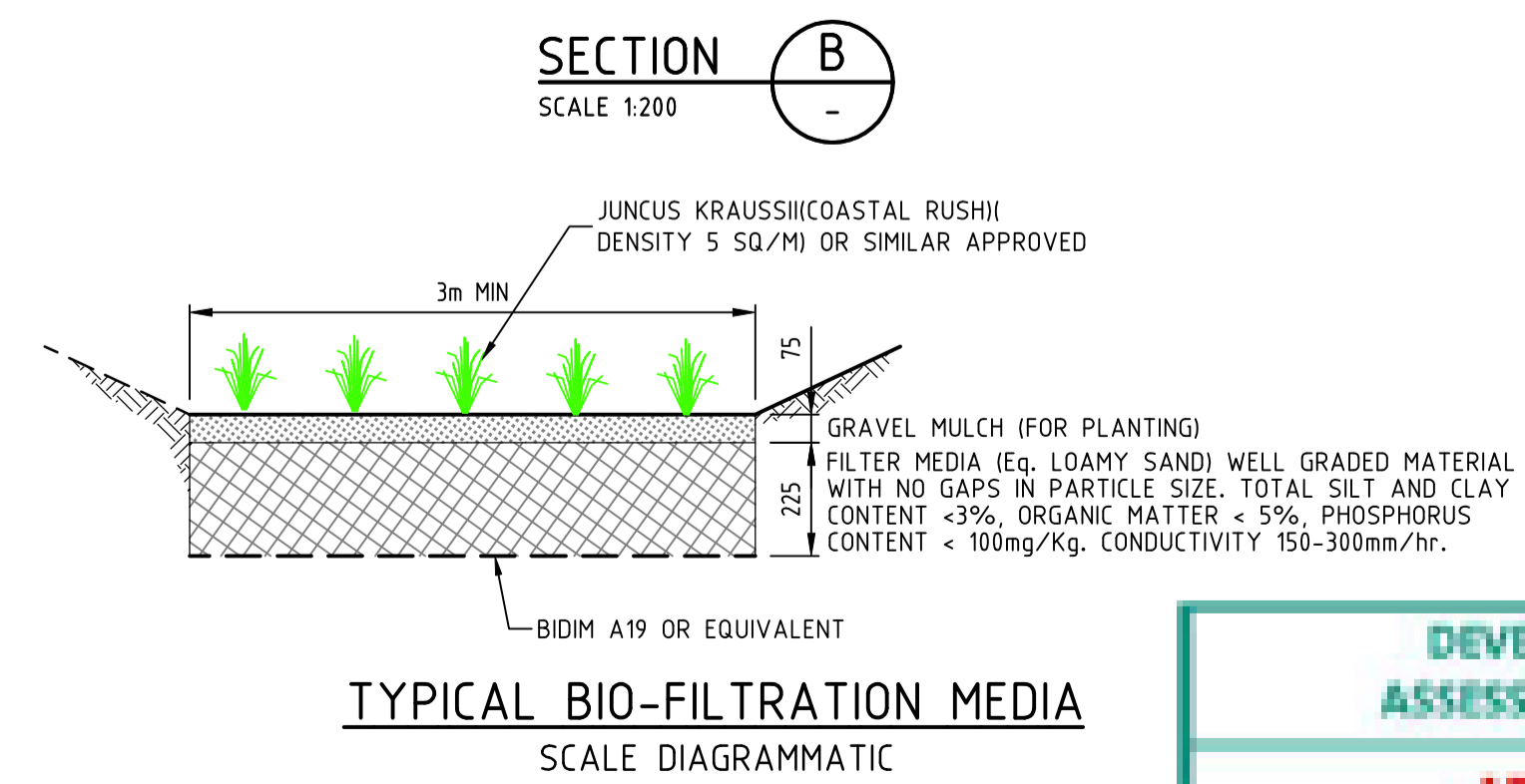
Ref#	Catchment Area	Original Imp Factor	Revised Imp Factor	Difference	Additional Impervious Area	units
A1	538.7	Gravel 0.7	Pavement 0.9	0.2	107.7	m ²
A2	680.9	Gravel 0.7	Pavement 0.9	0.2	136.2	m ²
A3	77.7	Pavement 0.9	Sheet Roofing 1	0.1	7.8	m ²
A4	3314.4	Gravel 0.7	Sheet Roofing 1	0.3	994.3	m ²
A5	238.5	Gravel 0.9	Sheet Roofing 1	0.1	23.9	m ²
A6	227.0	Gravel 0.7	Pavement 0.9	0.2	45.4	m ²
A7	137.2	Natural Surface 0.35	Pavement 0.9	0.55	75.5	m ²
Total Additional Impervious Area					1391	m²
15mm additional storage Allowance					20.9	m³
Additional 1% AEP Storage Required					77.2	m³
Storage Available					100.0	m³



JUNCTION PIT DETAILS



TYPICAL SECTION DRAINAGE SWALE WIDENING



TYPICAL BIO-FILTRATION MEDIA
SCALE DIAGRAMMATIC

BEFORE YOU DIG
www.byda.com.au

THE LOCATION OF ALL EXISTING SERVICES SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY.

NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN ON THIS PLAN AND THE CONTRACTOR SHALL ENSURE THEY HAVE OBTAINED THE CURRENT BEFORE YOU DIG AUSTRALIA INFORMATION PRIOR TO COMMENCEMENT OF ALL BELOW GROUND WORKS.

ISSUED FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DEVELOPMENT ASSESSMENT PANEL

APPROVED

01-Aug-2024

REV	DATE	BY	REVIEW	AMENDMENT DESCRIPTION	
D	09/07/24	PA	FL	PA	DESIGN AMENDED TO SUIT REVISED BUILDING LOCATION
C	04/07/24	PA	FL	PA	DESIGN AMENDED AS PER DWER COMMENTS & UPDATED ARCH LAYOUT
B	19/04/22	PA	PA	PA	NOTES ADDED
A	12/04/24	PA	FL	PA	ISSUED FOR REVIEW

Perth
Westpoint Centre
207 / 396 Scarborough Beach Road
Osborne Park WA 6017

Margaret River
Wave Court
7 / 30 Fernu Ave
Margaret River WA 6285

CLIENT
QDC

PROJECT
QUBE HMC2 SHED, 15 THE AVENUE PICTON, WA 6229

TITLE
STORMWATER DRAINAGE PLAN

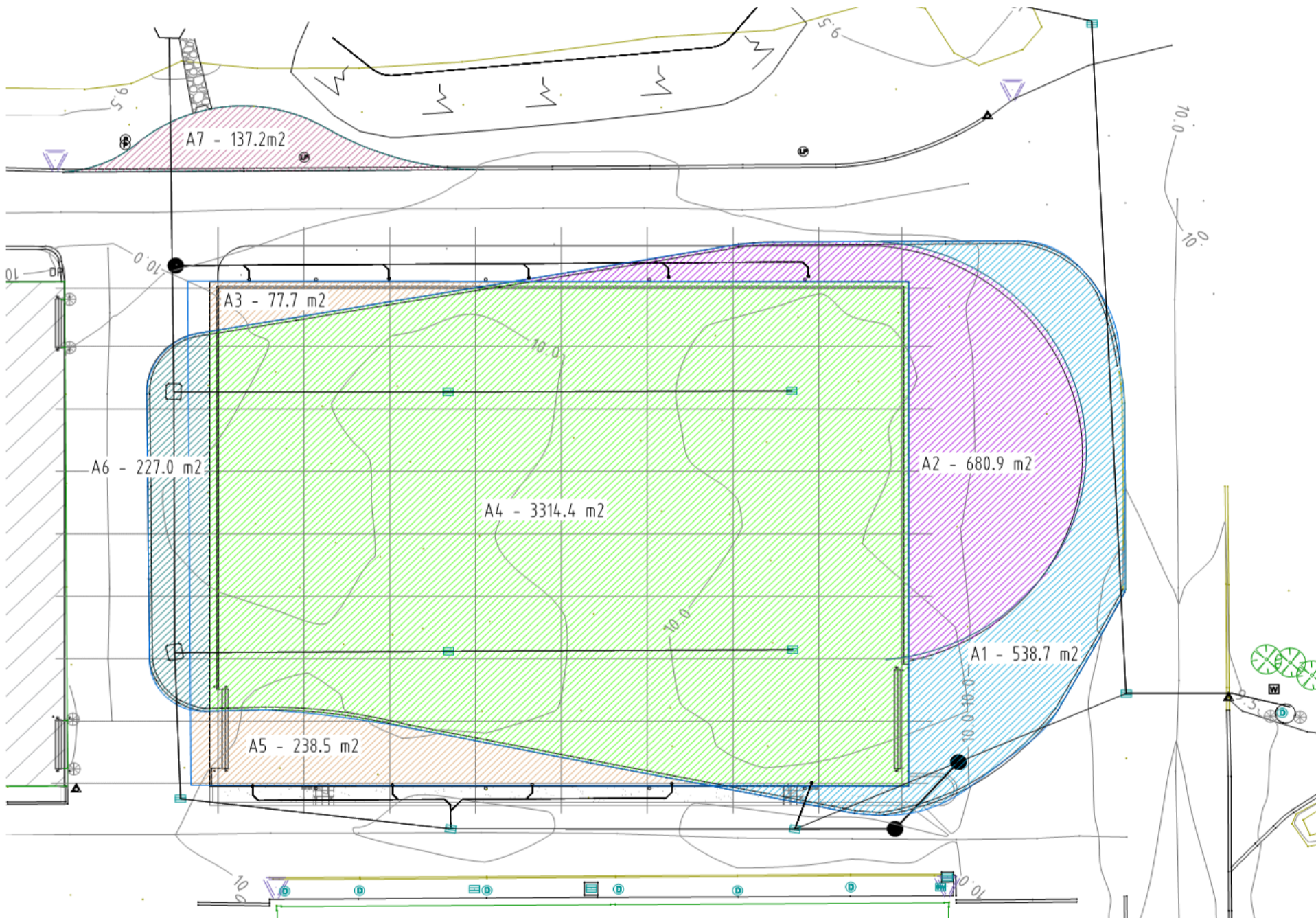
DRAFTER P.ALEBAKIS	DESIGNED P.ALEBAKIS	APPROVED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
DATUM AHD	SCALE 1:500	PROJECT No. URB0779	DRAWING No. C350
GRID NONE	WAPC No. N/A		REV D

C:\Users\PeterAlebakis\URBANISE WA PTY LTD\URB0779 - QUB HMC2 Shed - Picton - General\Deliverables\DWG\URB0779-C350 - Stormwater Drainage Plan 9/07/2024 4:43:45 PM PeterAlebakis

STORMWATER CATCHMENT ASSESSMENT

Date: 3/07/2024
 Project : QUB HMC2 Shed, Picton
 Project No: URB0779
 Client: Q Design + Construct
 File Ref# 0779-Cal-DR-001 Sht 1 of 2
 Revision: B

Ref#	Catchment Area	Original Imp Factor			Revised Imp Factor			Difference	Additional Impervious Area	units
A1	538.7	Gravel	0.7	377.1	Pavement	0.9	484.8	0.2	107.7	m2
A2	680.9	Gravel	0.7	476.6	Pavement	0.9	612.8	0.2	136.2	m2
A3	77.7	Pavement	0.9	70.0	Sheet Roofing	1	77.7	0.1	7.8	m2
A4	3314.4	Gravel	0.7	2320.1	Sheet Roofing	1	3314.4	0.3	994.3	m2
A5	238.5	Pavement	0.9	214.7	Sheet Roofing	1	238.5	0.1	23.9	m2
A6	227.0	Gravel	0.7	158.9	Pavement	0.9	204.3	0.2	45.4	m2
A7	137.2	Natural Surface	0.35	48.0	Pavement	0.9	123.5	0.55	75.5	m2
Total Additional Impervious Area									1391	m2
15mm additional storage Allowance									20.9	m3
Additional 1% AEP Storage Required									77.2	m3
Storage Available									100.0	m3



**DEVELOPMENT
ASSESSMENT PANEL**
APPROVED
 01-Aug-2024

STORMWATER DRAINAGE PEAK DETENTION CALCULATIONS

Date: 5/07/2024
 Project : QUB HMC2 Shed, Picton
 Project No: URB0779
 Client: Q Design + Construct
 File Ref# 0779-Cal-DR-001 Sht 2 of 2
 Revision: B

Design Parameters :	
539	
681	1391 m ²
77.75	1.00
3314.37	1391 m ²
238.52	1.00 m
227	2.00 m/day
Design pipe Outflow	20%AEP 0.0
	1%AEP 0.0
Storage Capacity	70.0 m ³
Infiltration Area	100.0 m ²

Time		1EY					20%					10%					5%					1%				
		Soakage Outflow m ³	Pipe Outflow (m ³)	I mm/hr	Vol m ³	Net m ³	Soakage Outflow m ³	Pipe Outflow (m ³)	I mm/hr	Vol m ³	Net m ³	Soakage Outflow m ³	Pipe Outflow (m ³)	I mm/hr	Vol m ³	Net m ³	Soakage Outflow m ³	Pipe Outflow (m ³)	I mm/hr	Vol m ³	Net m ³	Soakage Outflow m ³	Pipe Outflow (m ³)	I mm/hr	Vol m ³	Net m ³
6	0.10	0.8	0	70.5	9.8	9	0.8	0	101.3	14.1	13	0.8	0	119.2	16.6	16	0.8	0	137.2	19.1	18	0.8	0	184.6	25.7	25
10	0.17	1.4	0	54.1	12.5	11	1.4	0	78.4	18.2	17	1.4	0	92.0	21.3	20	1.4	0	106.0	24.6	23	1.4	0	143.0	33.1	32
17	0.28	2.4	0	40.7	16.0	14	2.4	0	58.9	23.2	21	2.4	0	69.2	27.3	25	2.4	0	79.8	31.5	29	2.4	0	107.7	42.4	40
20	0.33	2.8	0	36.7	17.0	14	2.8	0	53.0	24.6	22	2.8	0	62.2	28.8	26	2.8	0	71.8	33.3	31	2.8	0	96.7	44.8	42
30	0.50	4.2	0	28.6	19.9	16	4.2	0	41.2	28.6	24	4.2	0	48.3	33.6	29	4.2	0	55.7	38.7	35	4.2	0	75.1	52.2	48
45	0.75	6.3	0	22.0	22.9	17	6.3	0	31.7	33.1	27	6.3	0	37.1	38.7	32	6.3	0	42.8	44.6	38	6.3	0	57.7	60.2	54
60	1.00	8.3	0	18.3	25.5	17	8.3	0	26.2	36.4	28	8.3	0	30.7	42.7	34	8.3	0	35.5	49.4	41	8.3	0	47.8	66.5	58
90	1.50	12.5	0	14.0	29.2	17	12.5	0	20.1	41.9	29	12.5	0	23.5	49.0	37	12.5	0	27.2	56.7	44	12.5	0	36.6	76.4	64
120	2.00	16.7	0	11.6	32.3	16	16.7	0	16.6	46.2	30	16.7	0	19.5	54.2	38	16.7	0	22.5	62.6	46	16.7	0	30.4	84.6	68
180	3.00	25.0	0	8.9	36.9	12	25.0	0	12.8	53.4	28	25.0	0	15.0	62.6	38	25.0	0	17.3	72.2	47	25.0	0	23.4	97.6	73
240	4.00	33.3	0	7.5	41.6	8	33.3	0	10.8	60.1	27	33.3	0	12.7	70.5	37	33.3	0	14.7	81.8	48	33.3	0	19.9	110.5	77
360	6.00	50.0	0	5.6	46.9	-	50.0	0	8.2	68.0	18	50.0	0	9.6	80.1	30	50.0	0	11.1	92.6	43	50.0	0	15.0	125.2	75
540	9.00	75.0	0	4.3	53.9	-	75.0	0	6.3	78.4	3	75.0	0	7.4	92.4	17	75.0	0	8.5	106.9	32	75.0	0	11.6	145.2	70
600	10.00	83.3	0	4.1	56.5	-	83.3	0	5.9	82.1	-	83.3	0	7.0	96.7	13	83.3	0	8.0	111.9	29	83.3	0	10.9	151.9	69
720	12.0	100.0	0	3.6	59.4	-	100.0	0	5.2	86.4	-	100.0	0	6.1	101.8	2	100.0	0	7.1	117.7	18	100.0	0	9.6	159.5	60
1080	18.0	150.0	0	2.7	68.3	-	150.0	0	3.9	98.6	-	150.0	0	4.6	115.7	-	150.0	0	5.3	133.4	-	150.0	0	7.2	181.0	31
1440	24.0	200.0	0	2.3	75.1	-	200.0	0	3.2	107.5	-	200.0	0	3.8	125.8	-	200.0	0	4.3	144.5	-	200.0	0	5.9	195.9	-
1800	30.0	250.0	0	1.9	80.5	-	250.0	0	2.8	114.7	-	250.0	0	3.2	133.5	-	250.0	0	3.7	153.1	-	250.0	0	5.0	206.9	-
2160	36.0	300.0	0	1.7	85.6	-	300.0	0	2.4	120.7	-	300.0	0	2.8	140.2	-	300.0	0	3.2	159.7	-	300.0	0	4.3	215.3	-
2520	42.0	350.0	0	1.6	90.8	-	350.0	0	2.2	127.3	-	350.0	0	2.5	147.5	-	350.0	0	2.9	167.6	-	350.0	0	3.9	225.2	-
2880	48.0	400.0	0	1.4	93.5	-	400.0	0	2.0	130.2	-	400.0	0	2.3	150.2	-	400.0	0	2.6	170.2	-	400.0	0	3.4	227.6	-
3600	60.0	500.0	0	1.2	103.1	-	500.0	0	1.7	141.4	-	500.0	0	2.0	162.7	-	500.0	0	2.2	183.6	-	500.0	0	2.9	243.7	-
4320	72.0	600.0	0	1.1	107.1	-	600.0	0	1.4	144.2	-	600.0	0	1.7	165.2	-	600.0	0	1.9	185.2	-	600.0	0	2.4	243.3	-
STORAGE REQUIRED m³		17					30					38					48					77				
		OK					OK					OK					OK					Not Sufficient				



Picton

2016 IFD Design Rainfall Depth (mm)

Rainfall depth for Durations and Annual Exceedance Probabilities (AEP).

Duration	Annual Exceedance Probability (AEP)						
	1EY	50%	20%	10%	5%	2%	1%
1 min	1.95	2.15	2.82	3.31	3.82	4.54	5.14
2 min	3.36	3.69	4.77	5.57	6.4	7.6	8.58
3 min	4.49	4.93	6.4	7.49	8.62	10.2	11.6
4 min	5.43	5.97	7.78	9.11	10.5	12.5	14.1
5 min	6.22	6.85	8.95	10.5	12.1	14.4	16.2
10 min	9.01	9.95	13.1	15.3	17.7	21.1	23.8
15 min	10.8	12	15.7	18.4	21.3	25.3	28.6
20 min	12.2	13.5	17.7	20.7	23.9	28.5	32.2
25 min	13.3	14.7	19.2	22.6	26.1	31	35.1
30 min	14.3	15.7	20.6	24.2	27.9	33.2	37.5
45 min	16.5	18.2	23.7	27.9	32.1	38.3	43.3
1 hour	18.3	20.1	26.2	30.7	35.5	42.2	47.8
1.5 hour	21	23.1	30.1	35.3	40.7	48.5	54.9
2 hour	23.1	25.4	33.2	39	45	53.6	60.7
3 hour	26.5	29.2	38.3	45	52	61.9	70.2
4.5 hour	30.5	33.6	44.2	52	60.1	71.7	81.3
6 hour	33.7	37.2	48.9	57.6	66.7	79.6	90.2
9 hour	38.8	42.8	56.4	66.4	76.9	91.8	104
12 hour	42.8	47.2	62.2	73.2	84.6	101	115
18 hour	49.1	54.1	70.9	83.2	96	115	130
24 hour	54	59.4	77.4	90.5	104	124	141
30 hour	58	63.7	82.5	96.1	110	131	149
36 hour	61.5	67.4	86.7	101	115	137	155
48 hour	67.4	73.5	93.6	108	123	145	164
72 hour	76.7	83.2	104	119	133	156	175
96 hour	84.3	91.1	113	127	142	164	183
120 hour	91.2	98.3	121	136	150	172	189
144 hour	97.6	105	129	144	159	180	196
168 hour	104	112	137	153	168	188	202

2016 IFD Design Rainfall Depth (mm/hr)

Rainfall intensity mm/hr for Durations and Annual Exceedance Probabilities (AEP).

Duration	EY	Annual Exceedance Probability (AEP)					
	1EY	50%	20%	10%	5%	2%	1%
1 min	117	129	169	199	229	273	308
2 min	101	111	143	167	192	228	257
3 min	89.8	98.6	128	150	172	205	231
4 min	81.4	89.5	117	137	157	187	211
5 min	74.6	82.2	107	126	145	172	195
10 min	54.1	59.7	78.4	92	106	126	143
15 min	43.4	47.9	62.8	73.8	85.2	101	115
20 min	36.7	40.4	53	62.2	71.8	85.5	96.7
25 min	32	35.3	46.2	54.2	62.6	74.5	84.3
30 min	28.6	31.5	41.2	48.3	55.7	66.4	75.1

45 min	22	24.3	31.7	37.1	42.8	51	57.7
1 hour	18.3	20.1	26.2	30.7	35.5	42.2	47.8
1.5 hour	14	15.4	20.1	23.5	27.2	32.3	36.6
2 hour	11.6	12.7	16.6	19.5	22.5	26.8	30.4
3 hour	8.85	9.74	12.8	15	17.3	20.6	23.4
4.5 hour	6.78	7.47	9.81	11.5	13.4	15.9	18.1
6 hour	5.62	6.2	8.15	9.6	11.1	13.3	15
9 hour	4.31	4.76	6.26	7.38	8.54	10.2	11.6
12 hour	3.56	3.94	5.18	6.1	7.05	8.43	9.56
18 hour	2.73	3.01	3.94	4.62	5.33	6.37	7.23
24 hour	2.25	2.47	3.22	3.77	4.33	5.17	5.87
30 hour	1.93	2.12	2.75	3.2	3.67	4.37	4.96
36 hour	1.71	1.87	2.41	2.8	3.19	3.8	4.3
48 hour	1.4	1.53	1.95	2.25	2.55	3.02	3.41
72 hour	1.07	1.15	1.44	1.65	1.85	2.17	2.43
96 hour	0.878	0.949	1.17	1.33	1.48	1.71	1.9
120 hour	0.76	0.819	1	1.13	1.25	1.43	1.58
144 hour	0.678	0.731	0.893	1	1.1	1.25	1.36
168 hour	0.618	0.667	0.814	0.909	0.998	1.12	1.2

Table 1. EY, AEP, ARI preferred usage

Frequency Descriptor	EY	AEP (%)	AEP (1 in x)	ARI	Uses in Engineering Design
Very frequent	6	99.75	1.002	0.17	Water sensitive urban design
	4	98.17	1.02	0.25	
	3	95.02	1.05	0.33	
	2	86.47	1.16	0.5	
Frequent	1	63.21	1.58	1	Stormwater/pit and pipe design
	0.69	50	2	1.44	
	0.5	39.35	2.54	2	
	0.22	20	5	4.48	
	0.2	18.13	5.52	5	
Infrequent	0.11	10	10	10	Floodplain management and waterway design
	0.05	5	20	20	
	0.02	2	50	49.5	
	0.01	1	100	100	
Rare	0.01	0.5	200	200	Design of high consequence infrastructure (eg major dams)
	0.002	0.2	500	500	
	0.001	0.1	1000	1000	
	0.0005	0.05	2000	2000	
Extremely Rare	0.0002	0.02	5000	5000	Design of high consequence infrastructure (eg major dams)
Extreme			PMP		

**DEVELOPMENT
ASSESSMENT PANEL**

APPROVED
01-Aug-2024