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# **SITE BASED STORMWATER MANAGEMENT PLAN**

## **FOR THE PROPOSED RESIDENTIAL SUBDIVISION & CHILDCARE CENTRE**

LOCATED AT  
66 CROSSACRES STREET, DOOLANDELLA, QLD, 4077

PREPARED FOR  
FALCON PROPERTY GROUP

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A	13/05/2025	Issue for DA Approval	DGT	ML	RG
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## **1. INTRODUCTION**

Bornhorst and Ward has been commissioned to investigate and report on the stormwater requirements pertaining to the proposed reconfiguration of lot located at 66 Crossacres Street, Doolandella (Lot 43 on RP90234). The proposal consists of reconfiguring the site to create a childcare centre in the northern section of the site on the Crossacres Street frontage, and 10 residential lots on the southern section of the site on the Paddington Street frontage. Plans of the proposed development can be seen in Appendix A.

This document reports on the existing and proposed stormwater infrastructure required as part of the proposed development, as well as the stormwater quantity and quality management required for the site. The engineering requirements for this proposal shall be in accordance with Engineering Best Management Practices, Brisbane City Council Planning Scheme (2014), the Queensland Urban Drainage Manual (QUDM 2017) and the State Planning Policy (2017).

This report outlines the preliminary design methodology and calculations in support of a Development Application and should be read in conjunction with other documents issued by the consultant team.

## **2. EXISTING AND PROPOSED SITE CHARACTERISTICS**

### **2.1 LOCATION AND EXISTING FEATURES**

The development site, located at 66 Crossacres Street, Doolandella has the following existing characteristics:

- The site is bound by Crossacres Street to the north, unconstructed Paddington Street road reserve to the south, a residential lot to the west and Crossacres Garden Centre to the east;
- The development site is located on Lot 43 on RP90234 and comprises of a residential lot made up of one house, a garage shed, a small storage shed, along with associated driveways and footpaths;
- The total area of the site is approximately 1.0185 ha;
- The remaining site area consists of grass cover with some light bushland along the southern boundary of the site;
- Vehicle access to the site is via a single driveway connecting to Crossacres Street;
- There are no existing easement parcels located within the development site;
- The nearest minor downstream waterway is a minor ephemeral creek that drains to Blunder Creek, which is approximately 100m south of the site;
- The nearest major downstream waterway to the site is Blunder Creek which is approximately 800m south of the site.

Refer to Figure 1 for locality details.



**Figure 1: Locality Plan**

## 2.2 PROPOSED DEVELOPMENT

The following points outline the extent of works for the proposed development:

- Reconfiguration of 1 residential lot into 10 residential lots and 1 commercial lot for a childcare centre;
- The existing residential house is to be demolished, and 10 residential lots and 1 commercial lot for a childcare centre is to be constructed in its place;
- Paddington Street is to be extended to the south-western extent of the site, and a proposed street is to be built in the southern section of the site to service the 10 residential lots;
- The childcare centre will be accessed via a driveway onto Crossacres Street, and the residential lots will be accessed via the new proposed street which connects to Paddington Street.

Refer to the development drawings in Appendix A for further details of the proposed development.

## 2.3 TOPOGRAPHY AND CATCHMENT CHARACTERISTICS

The existing topography and catchment characteristics are as follows:

- The high point of the existing site is RL 52.5m AHD located in the north-eastern section of the site;
- The northern one-third of the site falls from the high point at an approximate grade of 1% to a low point of RL 51.75m AHD in the north-western corner of the site;

- The southern two-thirds of the site falls from the high point at an approximate grade of 4% to a low point of RL 48m AHD on the southern boundary;
- During storm events, runoff from the northern one-third of the site discharges as overland flow over the north-western corner of the site to Crossacres Street;
- During storm events, runoff from the southern two-thirds of the site discharges as overland flow over the southern boundary of the site to Paddington Street road reserve;
- The site has a developed external catchment, and therefore the existing stormwater infrastructure services the catchment during minor events.

Refer to the contour map located in Appendix A for more information.

## 2.4 EXISTING FLOODING CONDITIONS

A Brisbane City Council FloodWise Report has been obtained for the site and can be provided upon request. This report indicated that there are low risk flood levels where the site is located. The interactive mapping system within Brisbane City Council City Plan (2014) confirms that the development site is not affected by overland flow flooding. As a result of this, it is expected that the site is at a low risk of flood inundation.

Please refer to the Brisbane City Council's FloodWise Property Report in Appendix C and the Flood Overlay Map in Figure 2 below for more details.



**Figure 2: Brisbane City Council Interactive Flood Map**

## 3. EXISTING AND PROPOSED STORMWATER INFRASTRUCTURE

### 3.1 EXISTING INFRASTRUCTURE

A Before You Dig investigation and review of the BCC Utilities ArcGIS mapping have been completed of the site and its surrounding area. The following stormwater infrastructure was noted:

- A swale is located in the Crossacres Street road reserve, and drains north-west at an approximate grade of 1.5%;

- A stormwater gully inlet is located in the Crossacres Street road reserve, 160m to the north-west of the site;
- Runoff from the northern one-third of the site currently overland flows over the north-western corner of the site and into the swale, that outlets into the existing stormwater gully inlet in the Crossacres Street road reserve;
- An existing 525mm stormwater pipe is located south of the site, within the Paddington Street road reserve;
- A stormwater gully inlet is located to the south of the site, in the Paddington Street road reserve;
- Two stormwater gully inlets are located to the south-east of the site, within the Grove Street road reserve;
- Runoff from the southern two-thirds of the site currently overland flows across the southern boundary of the site, into the existing stormwater gully pits to the south of the site, and is conveyed to Blunder Creek;
- There is also a minor ephemeral creek that drains to Blunder Creek, which is approximately 100m south of the site;
- The stormwater infrastructure has been built for a fully developed catchment.

Before You Dig investigation and BCC Utilities ArcGIS mapping of the existing stormwater infrastructure can be found in Appendix C of this report.

### **3.2 PROPOSED STORMWATER DRAINAGE**

The proposed stormwater infrastructure for the development site will consist of:

- As there will be an increase to the impervious area as a result of the development, it is expected that peak stormwater discharge rates will increase from the site. based on this, a stormwater detention basin is required;
- Minor storm events will be captured by the proposed internal stormwater network and treated by a bio-retention basin before discharging to the existing stormwater infrastructure within Grove Street;
- Major storm events from Catchment 1 will bypass the proposed bio-retention basin via overland flow towards Crossacres Street and Major storm events from Catchment 2 will be discharged via overland flow towards Paddington Street;
- A combined bio-retention and detention system will be facilitated on the south-eastern corner of the development site. This system will discharge to the existing stormwater infrastructure in Paddington Street;
- Considering the development works area is greater than 2,500m<sup>2</sup>, stormwater quality measures are required under the Brisbane City Council Planning Scheme (2014), therefore, stormwater quality treatment measures are proposed;
- Surface runoff from the proposed childcare centre carpark for storm events up to 10% AEP (Q10), will be captured by a gully pit and drain towards the proposed bio-detention basin before ultimately discharging to the existing stormwater infrastructure within Grove Street;
- Surface runoff from the proposed childcare centre carpark for storm events above 10% AEP up to 1.0% AEP (Q10-Q100) will be discharged via overland flow towards the northern boundary of the development site towards the existing stormwater infrastructure within Crossacres Street;
- A field inlet will be constructed to replace the existing headwall at the southern verge of the Crossacres Street road reserve, on the frontage of Lot 44 RP90234;
- It is proposed that a new stormwater connection will be constructed to connect the proposed new gully pit at the north-western corner of the development site to the proposed field inlet along the frontage of the development site, ultimately discharging to the existing swale west of the development;
- The new gully pit will be built in the southern verge of the Crossacres Street road reserve and will discharge to the existing grass swale via headwall on the frontage of Lot 42 RP90234;

- Each residential lot will be serviced by a kerb adaptor for roofwater;
- It is proposed that two gully pits will be constructed along the northern verge of the proposed Paddington Street road reserve extension, which will outlet towards the existing stormwater infrastructure within Grove Street;
- It is proposed to reduce the existing northern catchment area to reduce the impacts of peak stormwater discharge towards Crossacres Street and divert stormwater discharge towards the southern catchment.

Refer to the Engineering drawings located in Appendix B.

## **4. STORMWATER QUANTITY ANALYSIS**

Under the Brisbane City Council Guidelines, several design elements were identified in relation to stormwater management issues. Brisbane City Council must be satisfied that:

- The proposed development can be drained;
- The stormwater management system can follow the features and functions of the natural drainage system;
- The volume, timing, velocity and pollutant load of stormwater has no adverse effect on any surrounding properties or receiving waters; and
- Suitable provision is made in the design layout to accommodate for major drainage.

All stormwater discharge will comply with Brisbane City Council's Stormwater Management Code with quantity calculations completed in accordance with the requirements and methods outlined in the Queensland Urban Drainage Manual (QUDM).

### **4.1 PEAK FLOW CALCULATIONS**

Modelling of stormwater runoff quantity has been considered for the existing site conditions and operational phase of the development. The Rational Method as outlined in QUDM was used to determine the peak flow rate corresponding to the minor and major storm events for this development.

Brisbane City Council City Plan Infrastructure Design Planning Scheme Policy Table 7.2.2.3.B "Design Standards for Drainage Systems" was used to identify the design storm events for this development as:

Minor (piped flow)	-	10% AEP (1 in 10 year ARI)
Major (overland flow)	-	1.0% AEP (1 in 100 year ARI)

Flow rates for the developed site have been evaluated as a total discharge from the site.

#### **4.1.1 Rainfall Data**

The IFD data used in the Rational Method calculations was obtained from the Australian Bureau of Meteorology website based on the approximate latitude and longitude of the development site (LAT: 27.613°S, LONG: 152.982°E). This data indicated the 60 minute, 10 year ARI rainfall intensity applicable to the development site is 61.7mm/hr. This rainfall intensity was used in conjunction with the fraction impervious values to determine the coefficients of runoff for the existing and developed phases of the development in accordance with QUDM.

#### **4.1.2 Peak Flow Discharge**

The existing site consists of two catchments; a north catchment and a south catchment. The north catchment consists of the northern one-third of the site, and outlets over the north-western corner of the site to the lawful point of discharge on Crossacres Street. The south catchment consists of the southern two-thirds of the site, and outlets over the southern boundary of the site to the lawful point of discharge on Grove Street. The proposed development and stormwater drainage infrastructure will change the catchment characteristics of the site.

The developed north catchment will be reduced to only include the area of the proposed childcare carpark. Stormwater from the childcare carpark for minor storm events (Q10) will be collected and drained south towards the proposed bio-detention basin whilst major storm events (Q100) will overland flow towards the north-western point of discharge towards Crossacres Street.

The southern catchment will be increased to include the proposed residential development area. All storm events (Q10-Q100) will be captured by the proposed internal drainage system towards the proposed bio detention basin within the south-eastern corner of the development site.

#### **NORTH CATCHMENT (CATCHMENT 1): DISCHARGE TO CROSSACRES STREET**

The existing north catchment will be reduced as a result of the proposed development to ensure there will be no impacts on the downstream infrastructure or properties. The coefficient of runoff was taken to be 0.70 and 0.88 for the existing and proposed scenarios respectively. For the existing and proposed site, this was determined from existing and proposed impervious areas.

The time of concentration for both cases was determined in accordance with QUDM. The existing time of concentration was calculated at 20.7 minutes based on 80m of overland sheet flow over an average grassed surface with a 1% gradient with no natural channel. The existing time of concentration was evaluated from the high point of the site to the north-western corner of the development. The developed time of concentration was adopted as 5 minutes based on the recommended road surfaces and paved areas standard inlet time in accordance with Table 4.6.2 of QUDM.

The following table is a summary of the peak site stormwater discharges for varying storm events, calculated in accordance with the Rational Method as outlined in QUDM, to the lawful point of discharge on Crossacres Street for the existing and developed conditions. The fraction impervious for the development site was estimated based on a review of aerial photography. Detailed calculations are attached in Appendix D for reference and review.

**Table 1: North Catchment – Pre and Post Development Peak Stormwater Discharge to Crossacres Street**

	Parameter	Existing	Developed	Difference
<b>Catchment Details</b>	Area (ha)	0.335	0.132	-0.204
	Fraction Impervious (fi)	13%	81%	+68%
	Coefficient of Runoff ( $C_{10}$ )	0.70	0.88	+0.18
	Time of Concentration (min)	20.7	5.0	-16
	63% AEP (Q1 ARI) Rainfall Intensity (mm/hr)	63	106	+44
	39% AEP (Q2 ARI) Rainfall Intensity (mm/hr)	71	121	+50
	18% AEP (Q5 ARI) Rainfall Intensity (mm/hr)	98	167	+69
	10% AEP (Q10 ARI) Rainfall Intensity (mm/hr)	116	198	+82
	5% AEP (Q20 ARI) Rainfall Intensity (mm/hr)	134	229	+95
	2% AEP (Q50 ARI) Rainfall Intensity (mm/hr)	156	269	+113
	1% AEP (Q100 ARI) Rainfall Intensity (mm/hr)	173	300	+127
<b>Discharge</b>	63% AEP (Q1 ARI) ( $m^3/s$ )	0.033	0.000	-0.033
	39% AEP (Q2 ARI) ( $m^3/s$ )	0.040	0.000	-0.040
	18% AEP (Q5 ARI) ( $m^3/s$ )	0.061	0.000	-0.061
	10% AEP (Q10 ARI) ( $m^3/s$ )	0.076	0.000	-0.076
	5% AEP (Q20 ARI) ( $m^3/s$ )	0.091	0.013	-0.078
	2% AEP (Q50 ARI) ( $m^3/s$ )	0.117	0.034	-0.083
	1% AEP (Q100 ARI) ( $m^3/s$ )	0.135	0.046	-0.089

As indicated in the table above, the peak discharge from the development to Crossacres Street will be decreased for all storm events as a result of the significant reduction in contributing catchment area and the proposed drainage infrastructure to capture and divert minor storm events (Q10) towards the proposed bio detention basin. Therefore, no stormwater quantity detention measures are required for the discharge of stormwater runoff from the development site to Crossacres Street.

### **SOUTH CATCHMENT (CATCHMENT 2): DISCHARGE TO GROVE STREET**

The existing south catchment will be larger as a result of the proposed development to ensure there will be no impacts on the downstream infrastructure or properties. The coefficient of runoff was taken to be 0.70 and 0.87 for the existing and proposed scenarios respectively. For the existing and proposed site, this was determined from existing and proposed impervious areas.

The time of concentration for both cases was determined in accordance with QUDM. The existing time of concentration was calculated at 19.9 minutes based on 100m of overland sheet flow over an average grassed surface with a 4% gradient and 20m of natural channel flow over a fall of 1m. The existing time of concentration was evaluation from the high point of the

site to the southern boundary of the site. The developed time of concentration was adopted as 15 minutes based on the recommended standard inlet times for urban residential areas where average slope at top of catchment is up to 3% in accordance with Table 4.6.2 of QUDM.

The following table is a summary of the peak site stormwater discharges for varying storm events, calculated in accordance with the Rational Method as outlined in QUDM, to the lawful point of discharge on Grove Street for the existing and developed conditions. Detailed calculations are attached in Appendix D for reference and review.

**Table 2: South Catchment - Pre and Post Development Peak Stormwater Discharge to Grove Street**

	Parameter	Existing	Developed	Difference
<b>Catchment Details</b>	Area (ha)	0.684	1.019	+0.335
	Fraction Impervious (fi)	0%	80%	+80%
	Coefficient of Runoff (C <sub>10</sub> )	0.70	0.87	+0.17
	Time of Concentration (min)	19.9	15.0	-5
	63% AEP (Q1 ARI) Rainfall Intensity (mm/hr)	64	74	+10
	39% AEP (Q2 ARI) Rainfall Intensity (mm/hr)	73	84	+11
	18% AEP (Q5 ARI) Rainfall Intensity (mm/hr)	101	116	+15
	10% AEP (Q10 ARI) Rainfall Intensity (mm/hr)	119	137	+18
	5% AEP (Q20 ARI) Rainfall Intensity (mm/hr)	137	157	+20
	2% AEP (Q50 ARI) Rainfall Intensity (mm/hr)	160	183	+23
	1% AEP (Q100 ARI) Rainfall Intensity (mm/hr)	177	203	+26
<b>Discharge</b>	63% AEP (Q1 ARI) (m <sup>3</sup> /s)	0.068	0.146	+0.078
	39% AEP (Q2 ARI) (m <sup>3</sup> /s)	0.083	0.177	+0.094
	18% AEP (Q5 ARI) (m <sup>3</sup> /s)	0.127	0.271	+0.144
	10% AEP (Q10 ARI) (m <sup>3</sup> /s)	0.158	0.337	+0.179
	5% AEP (Q20 ARI) (m <sup>3</sup> /s)	0.191	0.393	+0.202
	2% AEP (Q50 ARI) (m <sup>3</sup> /s)	0.245	0.485	+0.240
	1% AEP (Q100 ARI) (m <sup>3</sup> /s)	0.283	0.529	+0.246

As indicated in the table above, the peak discharge from the south catchment to Grove Street will increase in the developed scenario. To ensure that there will be no impact on the downstream infrastructure or properties as a result of the development the flow increase is to be mitigated by constructing a detention system. The detention system proposed is an open detention basin facilitated within the south-eastern corner of the development site.

### 4.1.3 Detention System

As discussed in the previous section, peak discharges for the development will increase as a result of the proposed development. In order to mitigate these flows a detention system is proposed. An initial detention sizing using the Brisbane City Plan (2014) Simplified Detention Storage Sizing Method has been completed to estimate the required storage size of the system. The detention volume required will be approximately 398m<sup>3</sup>. It is proposed to provide this volume in a bio-retention and detention basin situated at the south-eastern corner of the development site. This detention basin will have 1:4 batters on the southern and western sides of the basin for maintenance access and retaining walls along the northern and eastern sides of the basin.

Summary of the deemed-to-comply solution for stormwater quantity detention can be found attached in Appendix E.

## 5. STORMWATER QUALITY

### 5.1 CONSTRUCTION PHASE

The development works are considered medium risk with respect to the contaminants generated during the construction phase. A comprehensive Erosion and Sediment control plan including the construction process will be prepared during the detailed design. This is to be kept on site during the construction phase and will be in accordance with the State Planning Policy (2017) and Brisbane City Plan (2014).

Refer to the Erosion Hazard Assessment form in Appendix G for further information.

### 5.2 OPERATIONAL PHASE

The following extract from the document describes when a development is considered high risk, under Table 9.4.9.3.A of the Brisbane City Plan (2014):

- a) *A material change of use for an urban purpose which involves greater than 2500m<sup>2</sup> of land that:
 
  - i. *Will result in an impervious area greater than 25% of the net developable area, or*
  - ii. *Will result in 6 or more dwellings.**
- b) *Reconfiguring a lot for urban purposes that involves greater than 2500m<sup>2</sup> of land and will result in 6 or more lots;*
- c) *Operational works for an urban purpose which involves disturbing greater than 2500m<sup>2</sup> of land.*

As the proposed development is for a reconfiguration of a lot. that involves greater than 2500m<sup>2</sup> of land the Brisbane City Plan (2014) requirements for water quality are applicable to the proposed development.

#### 5.2.1 Pollutants of Concern

The key pollutants to be targeted and the minimum reductions in mean annual loads described in the State Planning Policy for the South East Queensland Region area outlined in Table 3.

**Table 3: South East Queensland Water Quality Objectives**

<b>Pollutant</b>	<b>Reduction in Mean Annual Load</b>
Total Suspended Solids (TSS)	80%
Total Phosphorus (TP)	60%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	90%

## 5.2.2 Modelling/Assessment Approach

A quantitative assessment of stormwater runoff quality was considered for the catchments ultimate developed scenario. The predicted reductions in mean annual loads of key pollutants have been identified using the "Model for Urban Stormwater Improvement Conceptualisation" (MUSIC), Version 6 (6.4.0). MUSIC is a stormwater quality modelling program that provides estimates of stormwater pollution generation and the performance of stormwater management measures used in series or parallel to form a 'treatment train'.

## 5.2.3 Meteorological Data

The first step in creating the MUSIC model was to select the appropriate meteorological data set (period and time step) to be used as the basis for the runoff algorithms. Section 3.1 – Meteorological Data and Section 3.2 – Modelling Period and time-step, of the MUSIC Modelling Guidelines details the Rainfall Data and Time Step process requirements of the model, respectively.

The time step used for the MUSIC modelling process was BCC Inala (Latitude: -27.5853; Longitude: 152.9883) - 6 Minutes.

## 5.2.4 Source Nodes

The second step taken in creating the MUSIC models was to define 'Source Nodes' or Sub-Catchments. Source nodes for modelling these catchments were based on the Water by Design reference material: Music Modelling Guidelines. The MUSIC model uses the split catchment approach and consists of residential and commercial source nodes. Catchment areas are outlined below with catchment extents illustrated in Catchment plan in Appendix B.

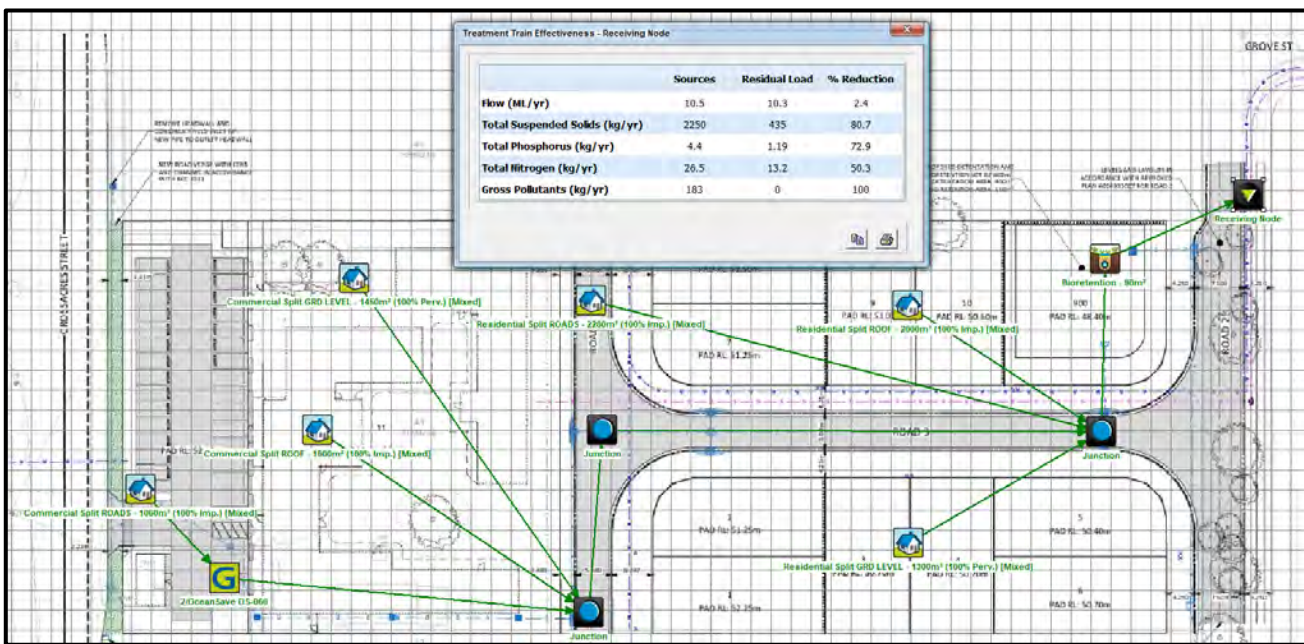
**Table 4: Source Node Information**

Node type	Catchment	Area (ha)	Fraction Impervious
Commercial Road	C1	0.1055	100%
Commercial Roof	C1	0.15	100%
Commercial Ground	C1	0.1445	0%
Residential Road	C2	0.228	100%
Residential Roof	C2	0.20	100%
Residential Ground	C2	0.1305	0%

The input parameters used are listed in Appendix F.

## 5.2.5 Proposed Treatment Train

A 'Treatment Train' was developed to target each of the pollutants of concern to be incorporated into the development site layout. This treatment train is illustrated in Figure 3.



**Figure 3: Proposed Treatment Train**

**5.2.6 Treatment Nodes**

The MUSIC model consisted of a treatment nodes as detailed in Table 5. Treatment node input parameters were based on the Music Modelling Guidelines. Refer to Appendix F for indicative location of these treatment basins.

**Table 5: Selected Stormwater Quality Treatment Devices**

Treatment Device	Discussion
<b>Bio-Retention Systems</b>	<p>A bio-retention system is a combination of vegetation and filter substrate that provides treatment of stormwater through filtration, extended detention and some biological uptake. A bio-retention basin is proposed at the south-eastern corner of the development site.</p> <p>Proposed <b>Bio-retention Area</b> (as modelled):</p> <ul style="list-style-type: none"> <li>• Filter Area = 90m<sup>2</sup></li> <li>• Surface Area = 90.0m<sup>2</sup></li> <li>• Filter Depth = 0.50m</li> <li>• Extended Detention Depth = 0.30m</li> </ul>
<b>Tertiary Treatment Device Ocean Protect OceanSave</b>	<p>The OceanSave is a vortex type engineered stormwater treatment asset designed to remove litter, gross pollutants, sediment and associated pollutants from stormwater runoff.</p> <p><b>2 x Ocean Protect OceanSave OS-060:</b></p> <ul style="list-style-type: none"> <li>• Pipe diameter range = 300 – 750mm</li> <li>• Water quality flow rate = 0.06m<sup>3</sup>/s</li> <li>• Depth below invert = 1.748m</li> <li>• Sump Volume = 1.4m<sup>3</sup></li> <li>• Tank Diameter = 1.5m</li> <li>• Hydraulic Head Loss = 282mm</li> </ul>

Refer to the MUSIC information attached in Appendix F for further details.

### 5.2.7 RESULTS

The pollutant reductions for the ultimate developed phase of the site, with the inclusion of the detailed treatment train, as obtained from the MUSIC model and analysis are summarised in Table 6.

**Table 6: Pollutant Removal Rates Discharge**

<b>Pollutant</b>	<b>TSS (%)</b>	<b>TP (%)</b>	<b>TN (%)</b>	<b>GP (%)</b>
<b>Treatment Train Effectiveness</b>	80.7	72.9	50.3	100.0
<b>WQOs</b>	80.0	60.0	45.0	90.0

As indicated in the table above, the removal rates for the target pollutants; total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN) and gross pollutants (GP) are all above the water quality objectives stipulated in the State Planning Policy (2017). Therefore, the proposed treatment train for these areas will yield satisfactory pollutant removal.

## 6. BRISBANE CITY COUNCIL CODES

The relevant Brisbane City Council Codes with respect to engineering aspects for assessment of the Development Application have been addressed. The codes will assist in assessing operational works requirements. The codes addressed in this report include:

- Stormwater code.

The completed codes can be found attached in Appendix H of this Report.

## 7. SUMMARY

This Engineering Report has demonstrated that the proposed development located at 66 Crossacres Street, Doolandella, can be developed in accordance with Engineering Best Management Practice, Brisbane City Council guidelines, QUDM (2017) and the State Planning Policy (2017). The following points summarise the findings and recommendations:

- The proposed development site has no flood levels or flags for building or development purposes and is expected to be very low risk of flood inundation;
- Minor storm events will be captured by the proposed internal stormwater network and treated by a bio-retention basin before discharging to the existing stormwater infrastructure within Grove Street;
- Major storm events from Catchment 1 will bypass the proposed bio-retention basin via overland flow towards Crossacres Street and Major storm events from Catchment 2 will be discharged via overland flow towards Paddington Street;
- There will be an increase in peak stormwater runoff as a result of the development, it is expected that peak stormwater discharge rates will increase from the site. Based on this, stormwater detention measures are required;
- In accordance with the State Planning Policy and the Brisbane City Council Planning Scheme, stormwater quality treatment measures are applicable to the proposed development on 66 Crossacres Street as the site is more than 2500m<sup>2</sup>. Therefore, stormwater quality improvement treatment will be required for the proposed development.

**APPENDIX A**  
**DEVELOPMENT DRAWINGS**



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# DOOLANDELLA CHILDCARE

**SITE ADDRESS :** 66 Crossacres St, Doolandella, QLD 4077  
**SITE AREA :** 4000.165 sqm  
**ZONING :** Emerging Community  
**BUILDING USE :** Class 9b



SHEET SIZE

A1

PRINT DATE

11-MAY-2026



Imran Ali | BOAQ Reg. #6428  
 Huiqi Huo | BOAQ Reg. #5993  
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REV NO.	DATE	DESCRIPTION
DA-2	24-JUN-2025	GENERAL AMENDMENTS
DA-3	15-JUL-2025	GENERAL AMENDMENTS
DA-4	31-JUL-2025	GENERAL AMENDMENTS
DA-6	13-NOV-2025	GENERAL AMENDMENTS
DA-8	11-MAY-2026	UPDATE ACOUSTIC BARRIERS

<b>PROJECT NAME</b>	DOOLANDELLA CHILDCARE 66 Crossacres St, Doolandella, QLD 4077
<b>CLIENT INFORMATION</b>	KIDS EARLY LEARNING CENTRE Building 8/107 Miles Platting Rd, Eight Mile Plains QLD 4113

<b>SHEET NAME</b>	COVER SHEET
<b>DRAWN BY</b>	HH
<b>PROJECT NO.</b>	P25571
<b>ISSUE</b>	DA-8
<b>CHECKED BY</b>	IA
<b>PROJECT STATUS</b>	DA

<b>SCALE</b>	/ A1
<b>SHEET NO.</b>	DA00-00

# GENERAL NOTES

## 1. GENERAL USE & DOCUMENT CONTROL

- Do not scale from drawings. Use written dimensions only. Do not use data or measurements from on any digital CAD file/s.
- These drawings are issued solely for the specified client, site, and use. No responsibility is accepted by ISA for unauthorised use or reliance without written consent.
- These notes are not exhaustive. They do not replace relevant codes, regulations, or statutory requirements. If uncertain, contact the Building Designer or appropriate consultant before proceeding.
- Drawings must be read with all relevant consultant documents, including but not limited to:
  - Structural, Civil, Hydraulic, Mechanical, Electrical, Energy, Landscaping, and Access reports.

## 2. DRAWING REVISIONS & CONSULTANT COORDINATION

- Only documents signed and dated with a current revision listed in the revision register are valid for use.
- The Head Contractor/Builder and subcontractors must work from the latest issue of all documents.
- No claims will be accepted for works completed using outdated, unauthorised, or conflicting documentation.
- All discrepancies must be clarified in writing by the appropriate consultant before continuing with works.

## 3. SITE VERIFICATION & SURVEY

- The Head Contractor/Builder is responsible for verifying all dimensions, levels, setbacks, and setouts on site before commencing fabrication or works.
- A licensed land surveyor must undertake full setout. A title survey must be completed and submitted in DWG and PDF formats to the Building Designer before commencing site works.

## 4. COMPLIANCE WITH NCC 2022 & AUSTRALIAN STANDARDS

All works must comply with:

- NCC 2022 (Volumes 1–3);
- All applicable Australian Standards.

## 5. FIRE SAFETY & EGRESS

- Exit doors and doors in egress paths must comply with NCC Clause D3D24 – operable from inside, no key required, using a single-handed downward/push action between 900–1100mm above floor, unless otherwise required by a building certifier (eg. for child safety in early childhood centres).
- Emergency lighting and exit signage must comply with NCC Part E4.
- Fire hazard materials must comply with Specification 7 of NCC 2022.
- Fire hydrants and hose reels must comply with AS 2419.1:2021 and AS 2441:2005.
- Portable extinguishers: 2A-20B(E) dry chemical units must be installed at electrical switchboards per NCC Clause E1D14.
- Steel columns requiring FRL must be intumescent-painted to comply with NCC.
- Party walls must be constructed and sealed to comply with NCC fire separation clauses.
- All service risers must achieve NCC-required fire and acoustic ratings.

## 6. ACCESSIBILITY & INCLUSION

- Ensure compliance with NCC D4, AS 1428.1:2021, and AS/NZS 2890.1:2004 + 2890.6:2009.
- PWD amenities must follow AS 1428.1:2021 Clause 15.5.2 (floor falls).
- Accessible parking, stairs, ramps, amenities, doors and accessways must fully comply with relevant NCC & AS regulations and any other legislative requirements.

## 7. INTERNAL CONSTRUCTION & WALL SYSTEMS

- Wall types and insulation must meet NCC J1–J4 and project-specific energy reports.
- Where wall type is not shown, provide construction to match adjacent walls.
- Wet areas to be lined with water-resistant Cemintel Cemiseal or equivalent.
- Waterproofing to comply with AS 3740:2021 and NCC Specification 26.
- Junctions between wall types must maintain all fire, acoustic, and thermal ratings.
- All plasterboard walls to be IP5/Level 5 finish unless noted otherwise in writing.
- Wall tiles to align with floor tile joints where applicable (refer to elevations for full extents).
- All systems must be installed to manufacturer specifications and NCC & AS compliance.

## 8. GENERAL COMPLIANCE

- Finishes and fittings must avoid hazards and meet Department of Education safety standards (where applicable).
- Any non-compliant item must be rectified at the builder's cost without variation.
- All notes and details provided must be adhered to by the Head Contractor/Builder at all times.

## 9. ROOFING & CLADDING

- Roof sheeting over sarking and safety mesh (excl. awnings/translucent sheeting) must be fixed to manufacturer specs.
- Roof covering and wall cladding must comply with AS 1562.1:1992 and NCC Clause F3D2 and F3D5.
- Provide flashings to ensure water tightness (Colorbond finish unless noted).
- Penetrations must be flashed with soakers and upstands.
- Provide bird wire and vermin protection to all openings and ventilation louvres.

# COMPLIANCE NOTES

The Head Contractor/Builder is responsible for ensuring that all building works comply with the most current codes, standards, and regulations in effect at the time of construction. This includes, but is not limited to, the following:

- National Construction Code (NCC) – including all applicable sections of the Building Code of Australia (BCA) across all building classes;
- Australian/New Zealand Standards (AS/NZS) – as relevant to the scope of work;
- All applicable building regulations – local, state, and federal;
- Workplace Health and Safety (WHS) legislation and requirements;
- Local council by-laws and planning conditions;
- Planning permit requirements – including any endorsed plans and conditions of approval;
- Any other relevant construction codes, standards, or regulatory guidelines.

It is the responsibility of the builder to remain up to date with changes to applicable legislation and ensure that all construction practices, materials, and methods are in full compliance throughout the duration of the project.

## 9. ROOFING & CLADDING (CONTINUED)

- Final roof access safety systems to be in place prior to occupation.
- Install R0.2 thermal breaks between steel frame and cladding (NCC Clause J3D6).

## 10. GLAZING, DOORS & HARDWARE

- All glazing must comply with AS 1288:2021, AS 2047:2014, and NCC J4D6.
- All door/frame assemblies to comply with AS 2689:1983.
- Confirm all dimensions on site before ordering or fabrication.
- Hardware to be mounted at 950mm to centreline (or 1500mm above finished floor level in childcare facilities), excluding areas designated for people with disability (PWD) and zones not accessible to children.
- All external doors must be weather-sealed and painted appropriately.
- Glazed aluminium doors based on systems with threshold drains as required.
- Keying (master/grand master) must be coordinated with client, unless otherwise noted in writing.
- Confirm door stop locations per door prior to install.

## 11. STRUCTURAL, CIVIL & DRAINAGE WORKS

- All structural components must be constructed to engineer's specifications.
- Retaining walls, fences, shade structures to follow civil/structural documents.
- Stormwater must discharge to legal point of discharge.
- Tundishes and condensate lines to be vermin-proofed.
- Subterranean walls must be waterproofed and drained to engineer's spec and NCC F2D2.
- External levels, drainage pits, and falls per civil drawings.
- Carpark line marking and pedestrian routes per civil documents.
- Refer to roof plans and hydraulic drawings for downpipes, gutters, and sumps.

## 12. JOINERY, FIXTURES & FITTINGS

- All cabinetry must be modular and shop-drawn for approval by the Building Designer.
- Wall fixings must be framed before lining installation.
- Refer to Finishes & Fixtures Schedule for all internal and external finishes.
- Tile finishes in wet areas are additional to base wall type finishes (see elevations).
- Any timber used in Childcare cannot be CCA. Alternatives that can be used are LOSP or ACQ - Contractor to check compliance with legislation or regulations. Rework appropriately to protect the Designer and Client. Also, add this general note for all childcare projects - "CCA treated timber are not to be used in childcare centres. There are several timber treatments that form as alternatives to CCA that do not contain arsenic or chromium. These include, but are not limited to, LOSP (suitable only when timber is not in contact with the ground) and ACQ (suitable whether timber is in contact with the ground or not). Selection of the correct product should be made with consideration to how/where the product can be used, including but not limited to, the 'H' hazard class, NCC compliance and Department of Education regulations.

## 13. SITE CLEANLINESS & RESPONSIBILITIES

- Maintain a clean, hazard-free site throughout works.
- Provide bins and dispose of general waste regularly.
- Clean-up by all trades is mandatory.
- Head Contractor/Builder must make good all damage to surfaces.
- Site must be delivered clean and safe. All weatherproofing must be intact prior to handover.

# CONDITIONS OF USE

These drawings form part of a formal agreement between ISA and the Client/Principal. Use of this documentation confirms acceptance of all terms herein and within the signed agreement, including all related disclaimers and obligations. No construction or fabrication may proceed until all relevant approvals are obtained and written authorisation or certification is issued by ISA. ISA is a QBCC registered building design practice and does not provide architectural services as defined under the Architects Act 2002 (QLD). Reliance on these documents requires certification by a registered building certifier and town planner confirming full regulatory and planning compliance. All users jointly and severally indemnify and release ISA against any claims, costs, damages, or liabilities arising from unauthorised use, non-compliance, errors, or misinterpretation. If any discrepancy, ambiguity, or error is identified, work must cease immediately and written clarification must be obtained from ISA before proceeding. Use is strictly conditional on acceptance of these terms.

# APPLICABLE CODES

## CLASS 1

### ACCESS & MOBILITY

- AS 4299:1995 – Adaptable housing (*referenced in Livable Housing Design Guidelines, not NCC directly*)

### ACOUSTIC

*(NCC Volume 2 references performance-based criteria, not ISO standards directly. These are typically used in assessments.)*

- AS/NZS ISO 717.1:2004
- AS/NZS ISO 717.2:2004

### DEMOLITION & STRUCTURAL

- AS 1684.2 – Timber-framed construction – Non-cyclonic areas
- AS 1684.3 – Timber-framed construction – Cyclonic areas

### DOORS, GLAZING & CLADDING

- AS 1288:2021 – Glass in buildings
- AS 2047:2014 – Windows, external glazed doors
- AS 2689:1983 – Installation of door sets
- AS 1562.1:1992 – Metal roof and wall cladding

### ENERGY EFFICIENCY

- AS/NZS 4859.1:2018 – Thermal insulation

### FIRE SAFETY

- AS 3959:2018 – Bushfire-prone areas
- AS 3786:2014 – Smoke alarms

### PARKING

- AS/NZS 2890.1:2004 – Off-street car parking
- AS/NZS 2890.6:2009 – Accessible parking

### PLUMBING & DRAINAGE

- AS/NZS 3500.0 – Glossary of terms
- AS/NZS 3500.1 – Water services
- AS/NZS 3500.2 – Sanitary plumbing and drainage
- AS/NZS 3500.3 – Stormwater drainage
- AS/NZS 3500.4 – Heated water services

### SERVICES & INSTALLATIONS

- AS 3660.1:2014 – Termite management
- AS 3958.1:2007 – Ceramic tiles – Installation guide

### STRUCTURAL DESIGN ACTIONS

- AS/NZS 1170.0
- AS/NZS 1170.1
- AS/NZS 1170.2
- AS/NZS 1170.4

### WATERPROOFING

- AS 3740:2021 – Wet area waterproofing

## CLASS 2–9

### ACCESS & MOBILITY

- AS 1428.1:2021 – Access and mobility (mandatory)
- AS 1428.4.1:2009 – Tactile indicators
- AS 4299:1995 – Adaptable housing (*sometimes referenced in Class 2*)

## CLASS 2–9 (CONTINUED)

### ACOUSTIC

- AS/NZS ISO 717.1:2004 – Airborne sound insulation
- AS/NZS ISO 717.2:2004 – Impact sound insulation

### DEMOLITION & STRUCTURAL

- AS 2601:2001 – Demolition
- AS 3700:2018 – Masonry structures
- AS 3600:2018 – Concrete structures
- AS 4100:2020 – Steel structures
- AS 1720.1:2010 – Timber structures – Design

### DOORS, GLAZING & CLADDING

- AS 1288:2021 – Glazing
- AS 2047:2014 – Windows
- AS 1562.1:1992 – Cladding
- AS 3958.1:2007 – Ceramic tiles

### ENERGY EFFICIENCY

- AS/NZS 4859.1:2018 – Thermal insulation (*used in JV3 and DTS pathway*)

### FIRE SAFETY

- AS 1530.1 – Combustibility
- AS 1530.2 – Flammability
- AS 1530.4 – Fire resistance
- AS 2419.1:2021 – Fire hydrants
- AS 2441:2005 – Hose reels
- AS 2293.1:2018 – Emergency lighting
- AS 3786:2014 – Smoke alarms (*some Class 2 dwellings*)

### LIFTS & VERTICAL TRANSPORT

- AS 1735.1 – General
- AS 1735.12 – Access for persons with disabilities

### PARKING

- AS/NZS 2890.1:2004 – Off-street car parking
- AS/NZS 2890.6:2009 – Accessible parking

### PLUMBING & DRAINAGE

- AS/NZS 3500.0 – Glossary
- AS/NZS 3500.1 – Water services
- AS/NZS 3500.2 – Sanitary drainage
- AS/NZS 3500.3 – Stormwater
- AS/NZS 3500.4 – Heated water

### SERVICES & INSTALLATIONS

- AS 5601.1:2022 – Gas installations
- AS 3660.1:2014 – Termite protection
- AS 3958.1:2007 – Tiling
- AS 3786:2014 – Smoke alarms

### STRUCTURAL DESIGN ACTIONS

- AS/NZS 1170.0 – General principles
- AS/NZS 1170.1 – Dead/live loads
- AS/NZS 1170.2 – Wind actions
- AS/NZS 1170.4 – Earthquake actions

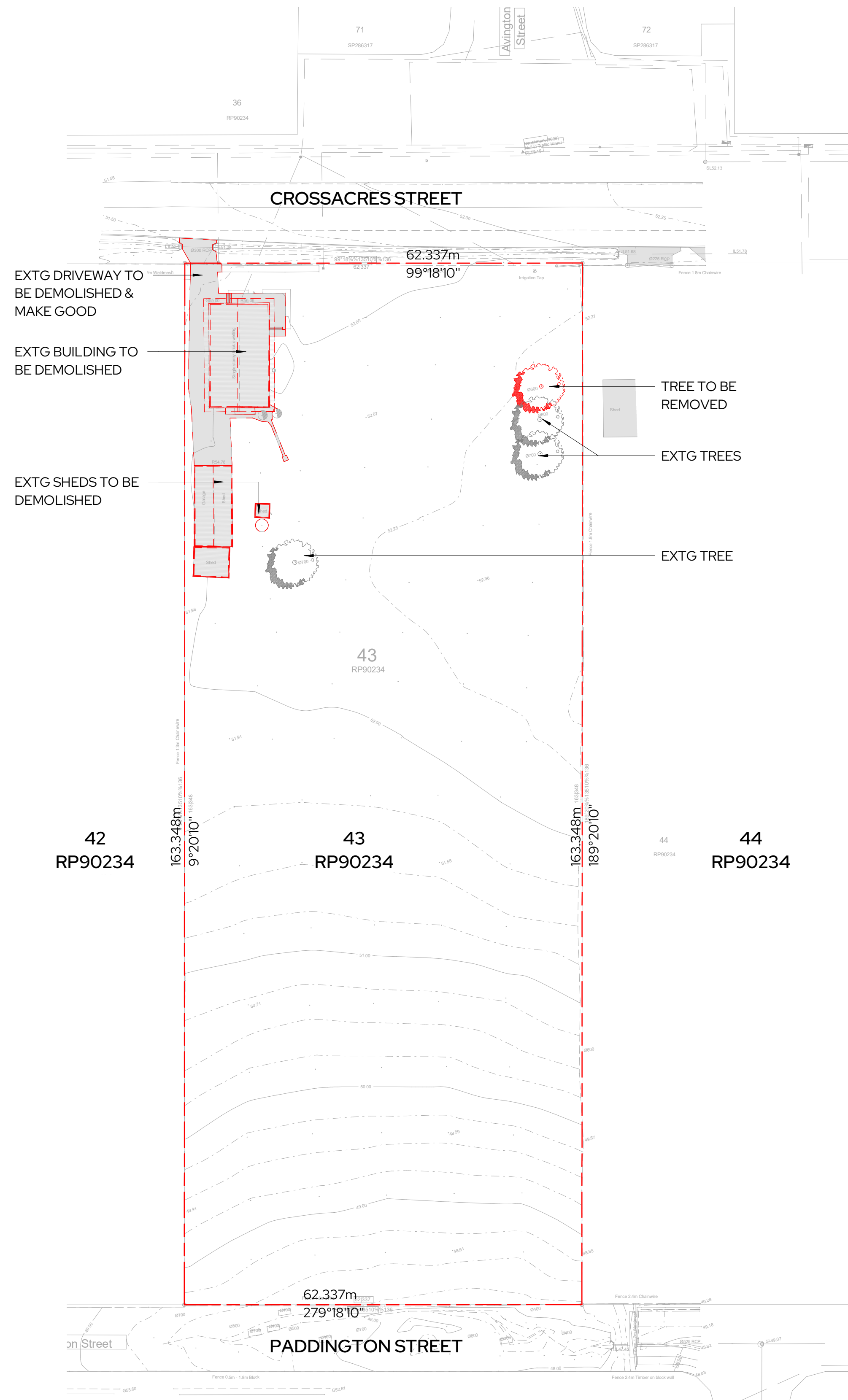
### EXTERNAL & SITE ELEMENTS

- AS/NZS 1158 – Lighting for roads and public spaces

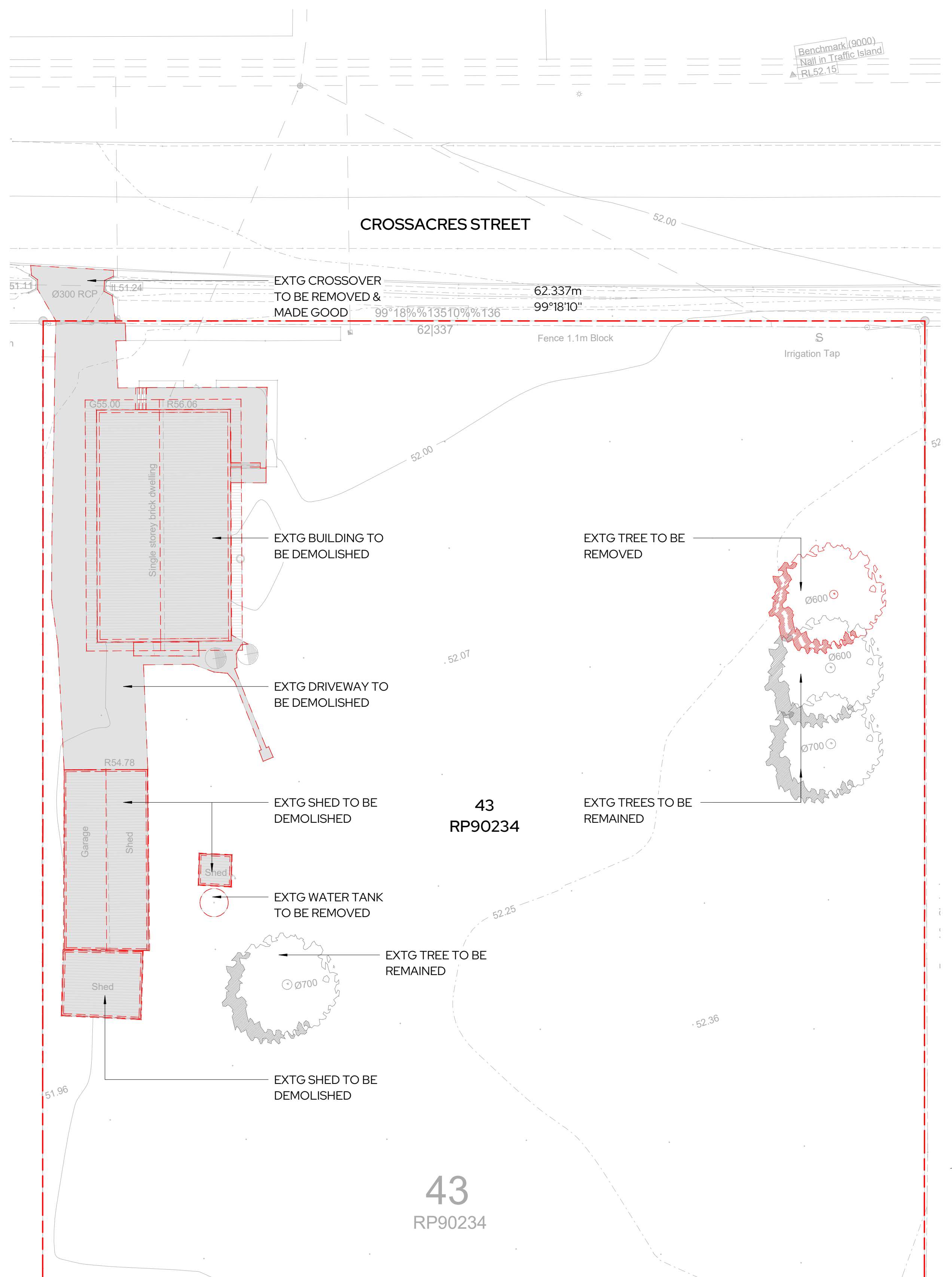
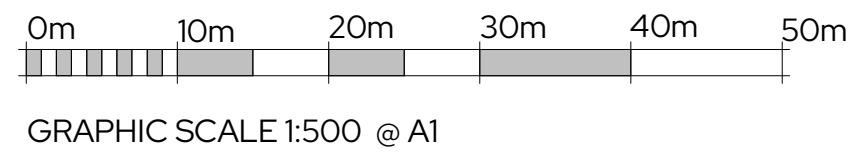
SHEET SIZE	DOCUMENT DISCLAIMER			REV. NO.	DATE	DESCRIPTION	PROJECT NAME	SHEET NAME	SCALE		
A1	 <b>ISA</b> Member Institute of Architects	Imran Ali   BOAQ Reg. #6428	<small>ISA™ acknowledges the Traditional Custodians of Country throughout Australia and their continuing connection to land, waters, and community. We pay our respects to Elders past and present and extend that respect to all First Nations Peoples. All works must comply with the current National Construction Code (including the BCA and NCC) relevant Australian Standards, Local Authority legislation, awarded contract documents, technical specifications, consultant documentation, and any other applicable regulations in force at the time of construction. These drawings are to be read in conjunction with all current consultant documentation, authority approvals, authority conditions, and written instructions issued during the course of the works. No construction is to commence until all relevant development and building approvals have been obtained, and a formal written instruction or design certification to proceed has been issued by ISA™. It is the sole responsibility of the head Contractor to ensure only the most current version of each document is used, as indicated in the relevant Document Transmittal Register. Access to these documents does not constitute permission to begin construction or fabrication. Prior to relying on any documentation or advice provided by ISA™, it is the Client's responsibility to ensure all documentation have been independently reviewed and certified in writing by a registered and suitably qualified building certifier to confirm compliance with applicable building codes and regulations. By using any documentation, drawings, or advice provided by ISA™ in any form, the Client, Consultant's, and Contractor jointly and severally agree to indemnify and release ISA™ from all risks, liabilities, damages, costs, claims, and responsibilities, including those arising from non-compliance, construction errors, unauthorised use, or misinterpretation. All intellectual property, copyright, and moral rights associated with these documents remain the exclusive property of ISA™, unless a written licence has been granted, all outstanding fees have been paid and all contractual obligations have been fulfilled. Should any discrepancy, ambiguity, or error be discovered, all related work must cease immediately. The contractor must seek written clarification or direction from ISA™ before proceeding. Unauthorised use is strictly prohibited. Use of these documents is strictly conditional on acceptance of all terms outlined above.</small>	DA-2	24-JUN-2025	GENERAL AMENDMENTS	DOOLANDELLA CHILDCARE	GENERAL INFORMATION		/ A1	
		admin@isacollective.com.au www.isacollective.com.au		DA-3	15-JUL-2025	GENERAL AMENDMENTS					
		Architecture & Construction		DA-4	31-JUL-2025	GENERAL AMENDMENTS	66 Crosssacres St, Doolandella, QLD 4077	CLIENT INFORMATION	DA-8		DA00-01
		Design to Inspire, Built to Last		DA-6	13-NOV-2025	GENERAL AMENDMENTS	KIDS EARLY LEARNING CENTRE	CHECKED BY	DA		
PRINT DATE				DA-8	11-MAY-2026	UPDATE ACOUSTIC BARRIERS	Building 8/107 Miles Platting Rd, Eight Mile Plains QLD 4113				

**LEGEND:**

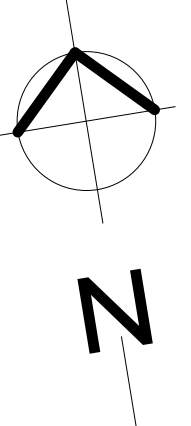
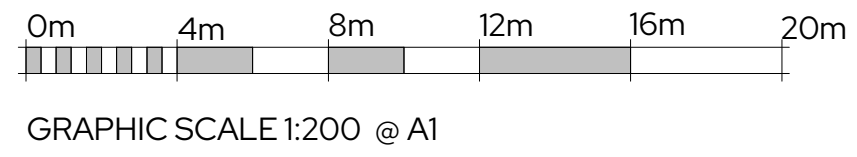
 TO BE DEMOLISHED/  
REMOVED



**1 SITE PLAN - OVERALL EXISTING/ DEMO**  
1:500



**2 SITE PLAN - EXISTING/ DEMO**  
1:200



SHEET SIZE <b>A1</b>	 <p>Imran Ali   BOAQ Reg. #6428 Huiqi Huo   BOAQ Reg. #5993</p> <p>(07) 3096 0472 admin@isacollective.com.au www.isacollective.com.au Architecture &amp; Construction Design to Inspire, Built to Last</p>	<p><b>DOCUMENT DISCLAIMER</b></p> <p>ISA acknowledges the Traditional Custodians of Country throughout Australia and their continuing connection to land, waters, and community. We pay our respects to Elders past and present and extend that respect to all First Nations Peoples. All works must comply with the current National Construction Code (including the BCA and PCA) relevant Australian Standards, Local Authority legislation, executed contract documents, technical specifications, consultant documentation, and any other applicable regulations in force at the time of construction. These drawings are to be read in conjunction with all current consultant documentation, authority approvals, authority conditions, and written instructions issued during the course of the works. No construction is to commence until all relevant development and building approvals have been obtained, and a formal written instruction or design certification to proceed has been issued by ISA. It is the sole responsibility of the head Contractor to ensure only the most current version of each document is used, as indicated in the relevant Document Transmittal Register. Access to these documents does not constitute permission to begin construction or fabrication. Prior to relying on any documentation or advice provided by ISA, it is the Client's responsibility to ensure all documentation has been independently reviewed and certified in writing by a registered and suitably qualified building certifier to confirm compliance with applicable building codes and regulations. By using any documentation, drawings, or advice provided by ISA in any form, the Client, Consultant's, and Contractor jointly and severally agree to indemnify and release ISA from all risks, liabilities, damages, costs, claims, and responsibilities, including those arising from non-compliance, construction errors, unauthorised use, or misrepresentation. All intellectual property, copyright, and moral rights associated with these documents remain the exclusive property of ISA, unless a written licence has been granted, all outstanding fees have been paid and all contractual obligations have been fulfilled. Should any discrepancy, ambiguity, or error be discovered, all related work must cease immediately. The contractor must seek written clarification or direction from ISA before proceeding. Unauthorised use is strictly prohibited. Use of these documents is strictly conditional on acceptance of all terms outlined above.</p>	<p>REV NO. DATE DESCRIPTION</p> <p>DA-2 24-JUN-2025 GENERAL AMENDMENTS</p> <p>DA-3 15-JUL-2025 GENERAL AMENDMENTS</p> <p>DA-4 31-JUL-2025 GENERAL AMENDMENTS</p> <p>DA-6 13-NOV-2025 GENERAL AMENDMENTS</p> <p>DA-8 11-MAY-2026 UPDATE ACOUSTIC BARRIERS</p>	<p>PROJECT NAME</p> <p><b>DOOLANDELLA CHILDCARE</b> 66 Crossacres St, Doolandella, QLD 4077</p> <p>CLIENT INFORMATION</p> <p><b>KIDS EARLY LEARNING CENTRE</b> Building 8/107 Miles Platting Rd, Eight Mile Plains QLD 4113</p>	<p>SHEET NAME</p> <p><b>EXTG SITE PLANS</b></p> <p>DRAWN BY PROJECT NO. ISSUE</p> <p>HH P25571 DA-8</p> <p>CHECKED BY PROJECT STATUS</p> <p>IA DA</p>	<p>SCALE</p> <p>As indicated / A1</p> <p>SHEET NO.</p> <p><b>DA01-01</b></p>
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**APPENDIX B**  
**ENGINEERING DRAWINGS**





## Northern Catchment

Northern Catchment Area = 3,350 m<sup>2</sup>

Impervious Area = 425 m<sup>2</sup>

Fraction Impervious = 13%  
(QUDM Table 4.5.4 – Assume C10 value of 0.70)

Overland Sheet Flow Length = 80m  
Site Slope = 1%  
Average Grassed Surface: n = 0.045

Total Time of Concentration = 20.7 minutes

AEP 10% Runoff Rate = 0.076 m<sup>3</sup>/s  
AEP 5% Runoff Rate = 0.091 m<sup>3</sup>/s  
AEP 2% Runoff Rate = 0.117 m<sup>3</sup>/s  
AEP 1% Runoff Rate = 0.135 m<sup>3</sup>/s

## Southern Catchment

Northern Catchment Area = 6,835 m<sup>2</sup>

Impervious Area = 0 m<sup>2</sup>

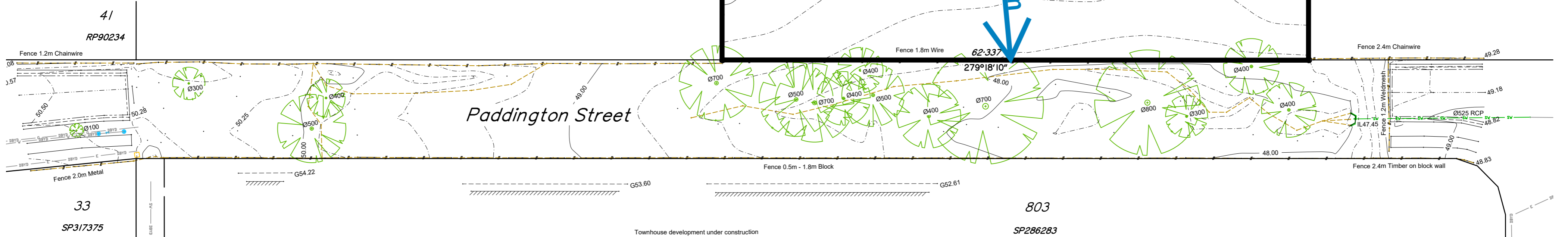
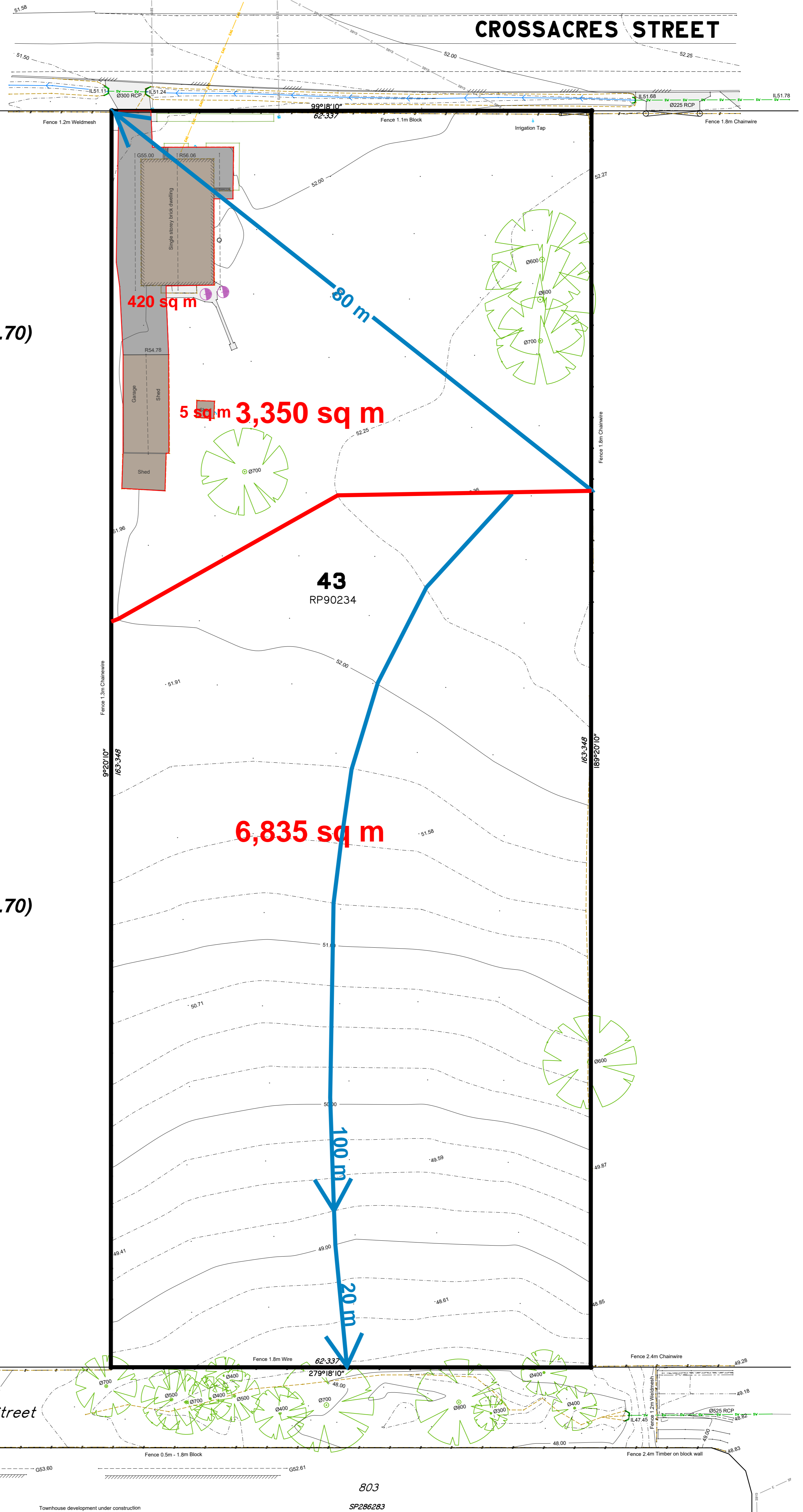
Fraction Impervious = 0%  
(QUDM Table 4.5.4 – Assume C10 value of 0.70)

Overland Sheet Flow Length = 100m  
Overland Channel Flow Length = 20m  
Site Slope = 4%  
Average Grassed Surface: n = 0.045

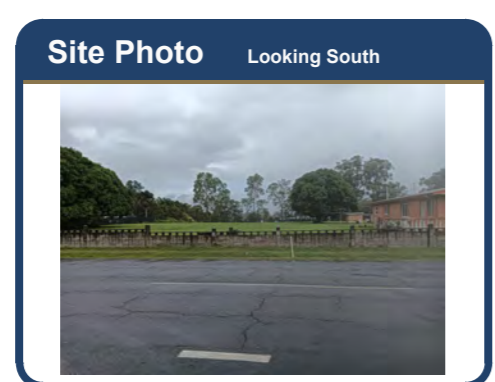
Overland Channel Flow Length = 20m  
Fall = 1m

Total Time of Concentration = 19.9 minutes

AEP 10% Runoff Rate = 0.158 m<sup>3</sup>/s  
AEP 5% Runoff Rate = 0.191 m<sup>3</sup>/s  
AEP 2% Runoff Rate = 0.245 m<sup>3</sup>/s  
AEP 1% Runoff Rate = 0.283 m<sup>3</sup>/s



**Notes**  
This plan may not be copied unless this note is included.  
DWG Info:  
SD Tm in layer "TM GROUND".  
For further information on any point in this survey, double click the point cross.



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Only valid features of underground services are shown. Features, pipes and conduits may not be shown and are not to be used for design or construction. Contact relevant authorities before any excavation.  
This plan may not be copied unless this note is included.

Locality: Brisbane City  
Local Government: City of Brisbane  
Lot: 43 of RP90234  
Scale: 1:1000 @ A1 (Before Reduction)  
Date of Survey: 24/03/21  
Level Datum: GDA2020  
Horizontal Datum: GDA2020  
Horizontal Origin: 9008 - Not in Traffic Island  
Customer Reference: S-3606-001-A

**Detail Survey of 66 Crossacres St Doolandella**  
Sheet 1 of 1  
Drawn: PM  
Surveyed: PM  
Checked: JM  
Approved:  
Drawing Number: S-3606-001-A

## Car Park Drainage

Car Park Catchment Area = 1,315 m<sup>2</sup>

Impervious Area = 1,070 m<sup>2</sup>

Fraction Impervious = 81%

C10 = 0.88  
(BCC City Plan – Table 7.3.3.1.A)

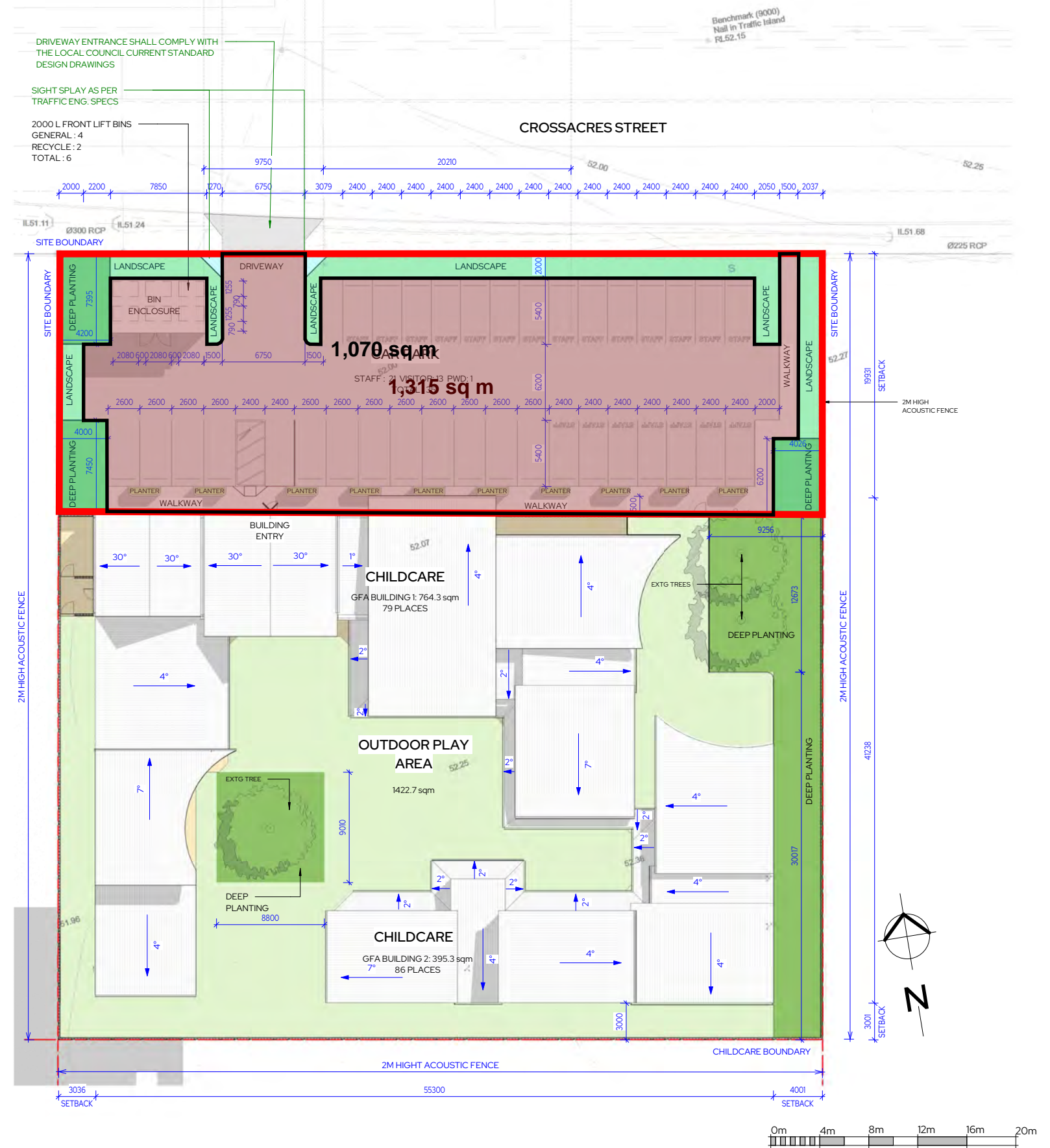
Standard Inlet Time = 5 minutes  
(QUDM – Table 4.6.2)

AEP 10% Runoff Rate = 0.064 m<sup>3</sup>/s

AEP 5% Runoff Rate = 0.077 m<sup>3</sup>/s

AEP 2% Runoff Rate = 0.098 m<sup>3</sup>/s

AEP 1% Runoff Rate = 0.110 m<sup>3</sup>/s



SHEET SIZE <b>A1</b>	 Imran Ali   BOAQ Reg. #6428 Huiqi Huo   BOAQ Reg. #5993 (07) 3096 0472 admin@isacollective.com.au www.isacollective.com.au Architecture & Construction Design to Inspire, Built to Last	<b>DOCUMENT DISCLAIMER</b>			REV NO.	DATE	DESCRIPTION	PROJECT NAME	SHEET NAME		SCALE
		<small>ISA acknowledges the Traditional Custodians of Country throughout Australia and their continuing connection to land, waters, and community. We pay our respects to Elders past and present and extend that respect to all First Nations Peoples. All works must comply with the current National Construction Code (including the BCA and NCC), relevant Australian Standards, Local Authority legislation, awarded contract documents, technical specifications, consultant documentation, and any other applicable regulations in force at the time of construction. These drawings are to be read in conjunction with all current consultant documentation, authority approvals, authority conditions, and written instructions issued during the course of the works. No construction is to commence until all relevant development and building approvals have been obtained, and a formal written instruction or design certification to proceed has been issued by ISA. It is the sole responsibility of the head contractor to ensure only the most current version of each document is used, as indicated in the relevant Document Transmittal Register. Access to these documents does not constitute permission to begin construction or fabrication. Prior to relying on any documentation or advice provided by ISA, it is the Client's responsibility to ensure all documentation has been independently reviewed and certified in writing by a registered and suitably qualified building certifier to confirm compliance with applicable building codes and regulations. By using any documentation, drawings, or advice provided by ISA in any form, the Client, Consultant's, and Contractor jointly and severally agree to indemnify and release ISA from all risks, liabilities, damages, costs, claims, and responsibilities, including those arising from non-compliance, construction errors, unauthorised use, or misrepresentation. All intellectual property, copyright, and moral rights associated with these documents remain the exclusive property of ISA. Unless a written licence has been granted, all outstanding fees have been paid and all contractual obligations have been fulfilled. Should any discrepancy, ambiguity, or error be discovered, all related work must cease immediately. The contractor must seek written clarification or direction from ISA before proceeding. Unauthorised use is strictly prohibited. Use of these documents is strictly conditional on acceptance of all terms outlined above.</small>			DA-1	06-JUN-2025	INITIAL ISSUE	DOOLANDELLA CHILDCARE	PROP. SITE PLANS		As indicated / A1
PRINT DATE 24-JUN-2025				DA-2	24-JUN-2025	GENERAL AMENDMENTS	66 Crossacres St, Doolandella, QLD 4077	DRAWN BY HH	PROJECT NO. P25571	ISSUE DA-2	SHEET NO. DA02-01
							CLIENT INFORMATION	CHECKED BY IA	PROJECT STATUS DA		
							KIDS EARLY LEARNING CENTRE Building 8/107 Miles Platting Rd, Eight Mile Plains QLD 4113				

**APPENDIX C**

**EXISTING SITE INFORMATION**


## THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report provides technical flood planning information including estimated flood levels, habitable floor level requirements and more. This report uses the adopted flood planning information in Brisbane City Plan 2014, that guides how land in Brisbane is used and developed for the future. Find out more about [planning and building](#). To understand how to be resilient and prepare for floods, visit Council's [Be Prepared](#) webpage. Find more information about [how to read a FloodWise Property Report](#).

### This property has no flood levels

Brisbane City Council has not assigned flood level information for this property however it may be affected by one or more flood or property development flags. Please refer to the Flood Planning and Development Information below for details. The property may have 0.2% AEP flood level which will appear on the Flood Planning Information table if applicable. For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

Visit the [Be Prepared](#) page to find more information on how to prepare your home or business for potential flooding.

 **Combined** 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014. Read more about [Brisbane City Plan 2014](#).



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## Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at [brisbane.qld.gov.au/beprepared](https://brisbane.qld.gov.au/beprepared)
- Visit [bom.gov.au](https://bom.gov.au) for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies  
**000** Police/fire/ambulance  
(mobiles **000** and **112**)

State Emergency Service (SES) **132 500**  
Energex **13 19 62**  
Brisbane City Council **3403 8888**

### Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about [planning and building](#) in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

## Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

### Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in [Council's planning scheme](#).

Flood planning areas (FPA)		
River	Creek / waterway	Overland flow
		Not Applicable

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review [Council's Flood Planning Provisions](#).

### Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's [planning scheme](#).

Coastal hazard overlay sub-categories
There are currently no Coastal hazard overlay sub-categories that apply to this property.

Note: Where land is identified within one or more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

### Property development flags

**Large allotment** - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site.

For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

## Useful Flood Information Definitions

**Australian Height Datum (AHD)** - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

**Annual Exceedance Probability (AEP)** - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

### Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

**Defined Flood Level (DFL)** - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m/s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

**Flood planning area (FPA)** - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. [Find more information here.](#)

**Maximum and minimum ground level** - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

**Minimum habitable floor level (dwelling house)** - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

**Indicative existing floor level** - The approximate level in metres AHD of the lowest habitable floor in the existing building (excluding apartments). The data is sourced from a range of sources with varying accuracy levels.

**Property** - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

**Residential flood level (RFL)** - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit [Brisbane City Council's Flood Information Hub](#)

## Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes include:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit [brisbane.qld.gov.au/planning-building](https://brisbane.qld.gov.au/planning-building)

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

### Disclaimer

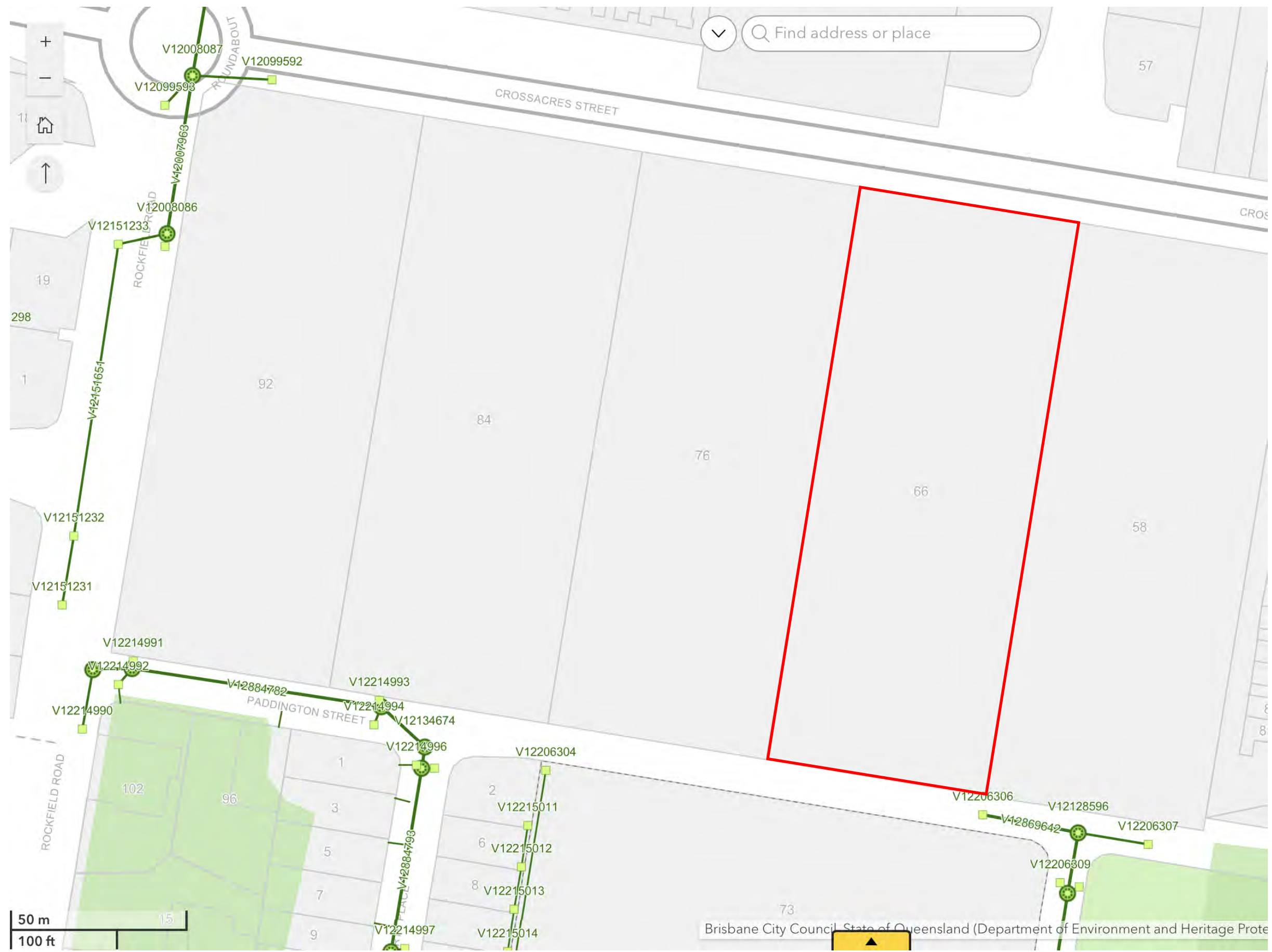
1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disdaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.



### Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit [brisbane.qld.gov.au/planning-building](https://brisbane.qld.gov.au/planning-building)

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.



**BORNHORST  
+WARD**

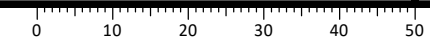
+61 (7) 3013 4699 www.bornhorstward.com.au

PROJECT

SUBJECT

PROJECT No.

DRAWING No. REVISION



ORIGINAL SIZE A3

Brisbane City Council, State of Queensland (Department of Environment and Heritage Protection)



Job # 50060842  
 Seq # 254270983  
 Provider: Brisbane City Council  
 Telephone: (07) 3403 8888



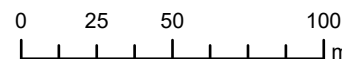
**Legend**

- BYDA Enquiry
- Detailed map page
- No dig site assets

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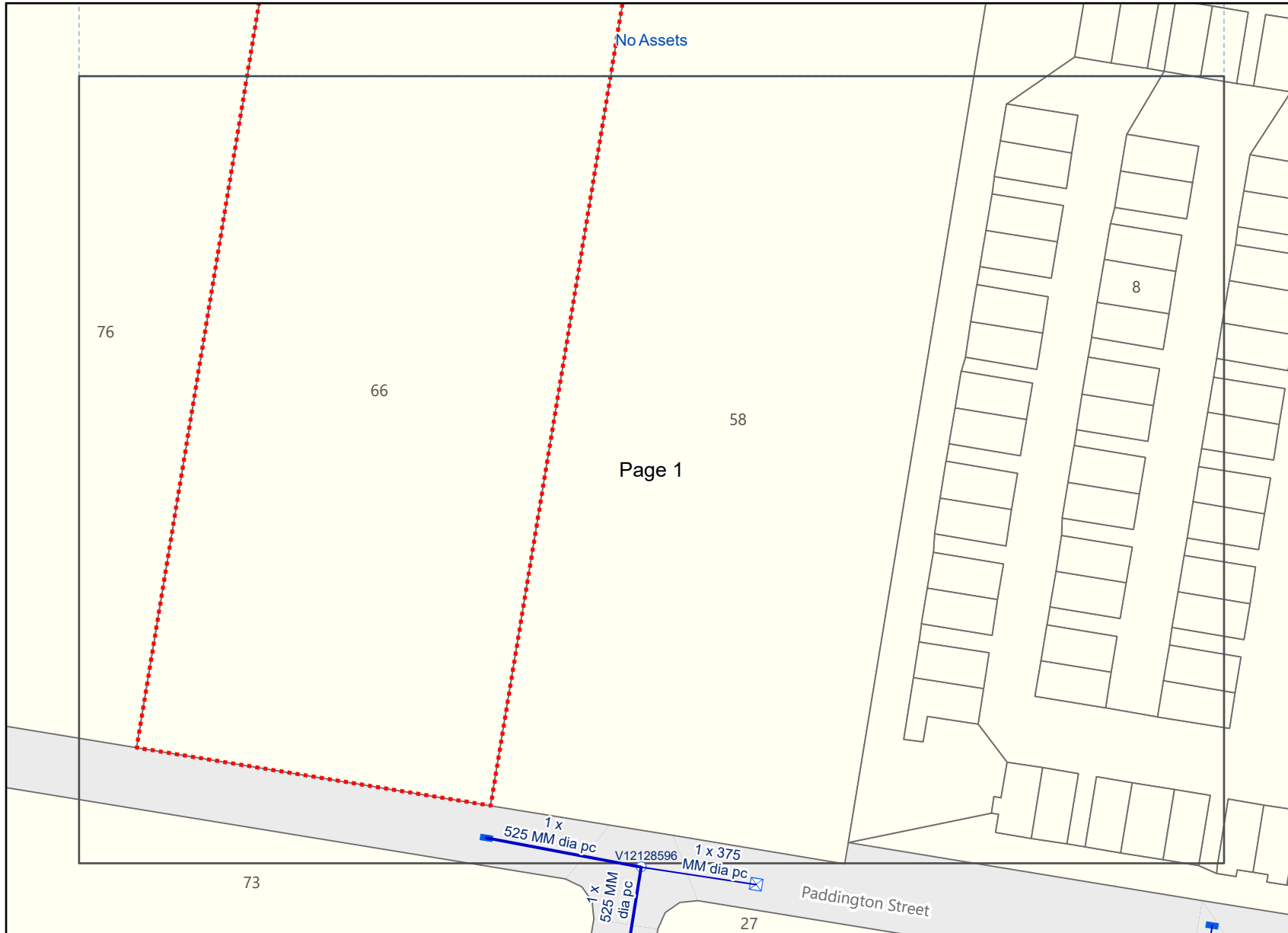
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 Cadastre and Street Names © 2020 State of Queensland (Department of Natural Resources, Mines and Energy)

Caution: This map may contain the locations of abandoned underground asbestos pipes. Council gives no warranty to the completeness or accuracy of these records. Appropriate care needs to be taken in all cases.





Job # 50060842  
 Seq # 254270983  
 Provider: Brisbane City Council  
 Telephone: (07) 3403 8888



**Legend**

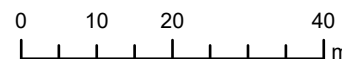
- BYDA Enquiry
- Stormwater Network**
- Stormwater Drain
- Stormwater Gully / Roofwater Connection
- Stormwater Maintenance Hole
- Stormwater Gully Pit
- ☒ Stormwater Field Inlet

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Copyright of data is as follows:  
 Cadastre and Street Names © 2020 State of Queensland (Department of Natural Resources, Mines and Energy)

Caution: This map may contain the locations of abandoned underground asbestos pipes. Council gives no warranty to the completeness or accuracy of these records. Appropriate care needs to be taken in all cases.

In an emergency contact Brisbane City Council on 07 3403 8888  
 29/04/25 (valid for 30 days)



Scale 1:1,000



Plans generated by SmarterWX™ Automate

**APPENDIX D**

**RATIONAL METHOD CALCULATIONS**

# North Catchment – Pre and Post Development Peak Stormwater Discharge to Crossacres Street

## INITIAL PEAK FLOW ESTIMATE

Written by BB 31/10/08  
Updated by DJK 25/05/20



Job Number: **25111**  
Job Name: **66 Crossacres Street  
Doolandella**

Designed: **ML**  
Checked: **RG**

IFD Location: **-27.6125  
152.9875**

TOTAL RUNOFF COEFF.								
No.	Sub Catchment Area (Ha)		Fraction Impervious		Runoff Coefficients		Calculated C10	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
1	0.3350	0.1315	13%	81%	0.70	0.88		
2	0.0000	0.0000	0%	0%	0.00	0.00		
3	0.0000	0.0000	0%	0%	0.00	0.00		
4	0.0000	0.0000	0%	0%	0.00	0.00		
5	0.0000	0.0000	0%	0%	0.00	0.00		
	<b>0.335</b>	<b>0.1315</b>					<b>0.70</b>	<b>0.88</b>

Raw IFD data has been obtained from the Bureau of Meteorology (BOM) website.

EXISTING TIME OF CONCENTRATION		
SHEET FLOW	Std Inlet Time	0
	Site Slope (%)	1
	Flow Length (m)	80
	Horton's "n"	0.045
CHANNEL/PIP E FLOW	Travel Time (min)	20.75
	Travel Length (m)	0
	Fall (m)	0
	Travel Time (min)	0
	Multiplier	0
	Travel Time (min)	0
	<b>Total Time (Tc)</b>	<b>20.7</b>

DEVELOPED TIME OF CONCENTRATION		
SHEET FLOW	Std Inlet Time	5
	Site Slope (%)	0
	Flow Length (m)	0
	Horton's "n"	0
CHANNEL/PIP E FLOW	Travel Time (min)	0.00
	Travel Length (m)	0
	Fall (m)	0
	Travel Time (min)	0
	Multiplier	0
	Travel Time (min)	0
	<b>Total Time (Tc)</b>	<b>5.0</b>

PEAK RUNOFF CALCULATIONS							
AEP Event %	ARI Event yr	Rainfall Intensity (mm/hr)		Coefficient of Runoff		Peak Runoff Rates (m <sup>3</sup> /s)	
		Existing	Proposed	Existing	Proposed	Existing	Proposed
63%	1	63	106	0.56	0.70	<b>0.033</b>	<b>0.000</b>
39%	2	71	121	0.60	0.75	<b>0.040</b>	<b>0.000</b>
18%	5	98	167	0.67	0.84	<b>0.061</b>	<b>0.000</b>
10%	10	116	198	0.70	0.88	<b>0.076</b>	<b>0.000</b>
5%	20	134	229	0.74	0.92	<b>0.091</b>	<b>0.013</b>
2%	50	156	269	0.81	1.00	<b>0.117</b>	<b>0.034</b>
1%	100	173	300	0.84	1.00	<b>0.135</b>	<b>0.046</b>

PEAK FLOWS FOR FREQUENT EVENTS			
ARI Event yr	% of Q1	Peak discharge (m <sup>3</sup> /s)	
		Existing	Proposed
1mth	25%	<b>0.008</b>	<b>0.000</b>
2mth	40%	<b>0.013</b>	<b>0.000</b>
3mth	50%	<b>0.016</b>	<b>0.000</b>
4mth	60%	<b>0.020</b>	<b>0.000</b>
6mth	75%	<b>0.025</b>	<b>0.000</b>
9mth	90%	<b>0.029</b>	<b>0.000</b>
12mth	100%	<b>0.033</b>	<b>0.000</b>

# South Catchment – Pre and Post Development Peak Stormwater Discharge to Grove Street

## INITIAL PEAK FLOW ESTIMATE

Written by BB 31/10/08  
Updated by DJK 25/05/20



Job Number: **25111**  
Job Name: **66 Crossacres Street Doolandella**

Designed: **ML**  
Checked: **RG**

IFD Location: **-27.6125**  
**152.9875**

TOTAL RUNOFF COEFF.								
No.	Sub Catchment Area (Ha)		Fraction Impervious		Runoff Coefficients		Calculated C10	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
1	0.6835	1.0185	0%	80%	0.70	0.87		
2	0.0000	0.0000	0%	0%	0.00	0.00		
3	0.0000	0.0000	0%	0%	0.00	0.00		
4	0.0000	0.0000	0%	0%	0.00	0.00		
5	0.0000	0.0000	0%	0%	0.00	0.00		
	<b>0.6835</b>	<b>1.0185</b>					<b>0.70</b>	<b>0.87</b>

Raw IFD data has been obtained from the Bureau of Meteorology (BOM) website.

EXISTING TIME OF CONCENTRATION		
SHEET FLOW	Std Inlet Time	0
	Site Slope (%)	4
	Flow Length (m)	100
	Horton's "n"	0.045
CHANNEL/PIP E FLOW	Travel Time (min)	16.94
	Travel Length (m)	20
	Fall (m)	1
	Travel Time (min)	1
	Multiplier	3
	Travel Time (min)	3
	<b>Total Time (Tc)</b>	<b>19.9</b>

DEVELOPED TIME OF CONCENTRATION		
SHEET FLOW	Std Inlet Time	15
	Site Slope (%)	0
	Flow Length (m)	0
	Horton's "n"	0
CHANNEL/PIP E FLOW	Travel Time (min)	0.00
	Travel Length (m)	0
	Fall (m)	0
	Travel Time (min)	0
	Multiplier	0
	Travel Time (min)	0
	<b>Total Time (Tc)</b>	<b>15.0</b>

PEAK RUNOFF CALCULATIONS							
AEP Event %	ARI Event yr	Rainfall Intensity (mm/hr)		Coefficient of Runoff		Peak Runoff Rates (m <sup>3</sup> /s)	
		Existing	Proposed	Existing	Proposed	Existing	Proposed
63%	1	64	74	0.56	0.70	<b>0.068</b>	<b>0.146</b>
39%	2	73	84	0.60	0.74	<b>0.083</b>	<b>0.177</b>
18%	5	101	116	0.67	0.83	<b>0.127</b>	<b>0.271</b>
10%	10	119	137	0.70	0.87	<b>0.158</b>	<b>0.337</b>
5%	20	137	157	0.74	0.91	<b>0.191</b>	<b>0.393</b>
2%	50	160	183	0.81	1.00	<b>0.245</b>	<b>0.485</b>
1%	100	177	203	0.84	1.00	<b>0.283</b>	<b>0.529</b>

PEAK FLOWS FOR FREQUENT EVENTS			
ARI Event yr	% of Q1	Peak discharge (m <sup>3</sup> /s)	
		Existing	Proposed
1mth	25%	<b>0.017</b>	<b>0.036</b>
2mth	40%	<b>0.027</b>	<b>0.058</b>
3mth	50%	<b>0.034</b>	<b>0.073</b>
4mth	60%	<b>0.041</b>	<b>0.088</b>
6mth	75%	<b>0.051</b>	<b>0.109</b>
9mth	90%	<b>0.062</b>	<b>0.131</b>
12mth	100%	<b>0.068</b>	<b>0.146</b>

**APPENDIX E**

**BCC SIMPLIFIED DETENTION STORAGE SIZING METHOD**

# BCC Simplified Detention Storage Sizing Method (Deemed-to-Comply) Childcare Lot Development

BCC City Plan 2014 > Schedule 6 Planning scheme policies > SC6.16 Infrastructure design planning scheme policy > Chapter 7 Stormwater drainage

## 1. Find if the simplified detention sizing method can be used for the site:

If site area > 2 ha: more complex hydrological modelling will be required

If site area < 2 ha: proceed with simplified detention sizing method

The site area is 0.40 ha which less than 2 ha;

therefore, we can **proceed with simplified detention sizing method**

## 2. Find the Category D:

If existing impervious area < 10%: Category D1

If existing impervious area > 10% but < 40%: Category D2

If existing impervious area > 40% but < 60%: Category D3

If existing impervious area > 60%: stormwater detention generally not required

The existing impervious area is 11% which is greater than 10% but less than 40%;

therefore, the site is **Category D2**

## 3. Find the development site storage requirement per unit area (m<sup>3</sup>/ha):

Table 7.5.5.A—Site storage requirements (SSR) — Deemed-to-comply solution

Proposed impervious percentage	Development site storage requirement		
	Category D1 (m <sup>3</sup> /ha)	Category D2 (m <sup>3</sup> /ha)	Category D3 (m <sup>3</sup> /ha)
70 or less	320	150	n/a
82	335	165	110
86	340	170	115
88	345	170	115
90	345	175	120
95 or greater	350	180	125

BCC City Plan 2014 > SC6.16 Infrastructure Design Planning Scheme Policy – Chapter 7: Table 7.3.3.1A

for industrial uses and other commercial uses → **C10 = 0.88**

QUDM > 4.5 Coefficient of discharge – Table 4.5.3: Table of C10 values

for C10 = 0.88, I<sub>10</sub> = 62 mm/hr → **Fraction Impervious = 93%**

The proposed impervious percentage is 93% and the development site is Category D2;

therefore, the development site storage requirement is **178 m<sup>3</sup>/ha**

#### 4. Find the development site storage requirement (m<sup>3</sup>):

- If the site storage is a high early discharge (HED) detention system, and an above-ground basin is NOT used, and the detention basin does NOT provide a water quality treatment or ecological function:

$$\text{Development site storage requirement per unit area (m}^3\text{/ha)} \times \text{Site area (ha)} = \text{Development site storage requirement (m}^3\text{)}$$

- If the site storage is a non-high early discharge (HED) detention system, OR an above-ground basin is used, OR the detention basin additionally provides a water quality treatment or ecological function — the site storage requirements volumes must be increased by 15%:

$$\text{Development site storage requirement per unit area (m}^3\text{/ha)} \times \text{Site area (ha)} \times 1.15 = \text{Development site storage requirement (m}^3\text{)}$$

The site storage is a detention basin that provides a water quality treatment or ecological function; therefore, **the site storage requirements volume must be increased by 15%**

$$\begin{aligned} \text{Detention site storage requirement (m}^3\text{)} &= 178 \text{ m}^3\text{/ha} \times 0.40 \text{ ha} \times 1.15 \\ &= \mathbf{82 \text{ m}^3} \end{aligned}$$

# BCC Simplified Detention Storage Sizing Method (Deemed-to-Comply) Residential Development

BCC City Plan 2014 > Schedule 6 Planning scheme policies > SC6.16 Infrastructure design planning scheme policy > Chapter 7 Stormwater drainage

## 1. Find if the simplified detention sizing method can be used for the site:

If site area > 2 ha: more complex hydrological modelling will be required

If site area < 2 ha: proceed with simplified detention sizing method

The site area is 0.6185 ha which less than 2 ha;

therefore, we can **proceed with simplified detention sizing method**

## 2. Find the Category D:

If existing impervious area < 10%: Category D1

If existing impervious area > 10% but < 40%: Category D2

If existing impervious area > 40% but < 60%: Category D3

If existing impervious area > 60%: stormwater detention generally not required

The existing impervious area is 0% which is less than 10%;

therefore, the site is **Category D1**

## 3. Find the development site storage requirement per unit area (m<sup>3</sup>/ha):

Table 7.5.5.A—Site storage requirements (SSR) — Deemed-to-comply solution

Proposed impervious percentage	Development site storage requirement		
	Category D1 (m <sup>3</sup> /ha)	Category D2 (m <sup>3</sup> /ha)	Category D3 (m <sup>3</sup> /ha)
70 or less	320	150	n/a
82	335	165	110
86	340	170	115
88	345	170	115
90	345	175	120
95 or greater	350	180	125

BCC City Plan 2014 > SC6.16 Infrastructure Design Planning Scheme Policy – Chapter 7: Table 7.3.3.1A

for low density residential area (including roads), average lot < 450m<sup>2</sup> → **C10 = 0.87**

QUDM > 4.5 Coefficient of discharge – Table 4.5.3: Table of C10 values

for C10 = 0.87, I<sub>10</sub> = 62 mm/hr → **Fraction Impervious = 90%**

The proposed impervious percentage is 90% and the development site is Category D1;  
therefore, the development site storage requirement is **345 m<sup>3</sup>/ha**

#### 4. Find the development site storage requirement (m<sup>3</sup>):

- If the site storage is a high early discharge (HED) detention system, and an above-ground basin is NOT used, and the detention basin does NOT provide a water quality treatment or ecological function:

$$\text{Development site storage requirement per unit area (m}^3\text{/ha)} \times \text{Site area (ha)} = \text{Development site storage requirement (m}^3\text{)}$$

- If the site storage is a non-high early discharge (HED) detention system, OR an above-ground basin is used, OR the detention basin additionally provides a water quality treatment or ecological function — the site storage requirements volumes must be increased by 15%:

$$\text{Development site storage requirement per unit area (m}^3\text{/ha)} \times \text{Site area (ha)} \times 1.15 = \text{Development site storage requirement (m}^3\text{)}$$

The site storage is a detention basin that provides a water quality treatment or ecological function; therefore, **the site storage requirements volume must be increased by 15%**

$$\begin{aligned} \text{Detention site storage requirement (m}^3\text{)} &= 345 \text{ m}^3\text{/ha} \times 0.6185 \text{ ha} \times 1.15 \\ &= \mathbf{245 \text{ m}^3} \end{aligned}$$

## **BCC Simplified Detention Storage Sizing Method (Deemed-to-Comply) Development Site Storage Requirement**

A bio-detention basin will be facilitated on the south-east corner of the developed site, and will service the entire site for minor storm events up to AEP 10%.

$$\begin{aligned} \text{Size of bio-detention basin storage required} &= \text{Childcare Lot Storage} + \text{Residential Development Storage} \\ &= 82 \text{ m}^3 + 245 \text{ m}^3 \\ &= \mathbf{327 \text{ m}^3} \end{aligned}$$

Therefore, the development site will require 327 m<sup>3</sup> of storage.

## SIMPLIFIED DETENTION STORAGE SIZING

Written by ML 08/01/24

Updated by

Job Number: **25111**  
 Job Name: **66 Crossacres Street**  
 Designed: **ML**  
 Checked: **RG**



No.	Development Site Area (Ha)		Fraction Impervious		The site storage is a non-high early discharge (HED) detention system, OR an above-ground basin is used, OR the detention basin provides a water quality treatment or ecological function	Calculated Development Site Storage Requirement (m <sup>3</sup> )	Calculated Permissible Site Discharge (L/s)	
	Existing	Proposed	Existing	Proposed			2 year ARI (39% AEP)	100 year ARI (1% AEP)
1	0.4000	0.4000	11.00%	93.00%	Yes	81.88	120.00	284.00
2	0.6185	0.6185	0.00%	90.00%	Yes	245.39	111.33	330.90
3	0.0000	0.0000	0.00%	0.00%	Yes or No	N/A	0.00	0.00
4	0.0000	0.0000	0.00%	0.00%	Yes or No	N/A	0.00	0.00
5	0.0000	0.0000	0.00%	0.00%	Yes or No	N/A	0.00	0.00
	<b>1.0185</b>	<b>1.0185</b>				<b>327.27</b>	<b>231.33</b>	<b>614.90</b>

No.	Category	Development site storage requirement per unit area (m <sup>3</sup> /ha)	Permissible site discharge per unit area (L/s/ha)	
			2 year ARI (39% AEP)	100 year ARI (1% AEP)
1	D2	178.00	300.00	710.00
2	D1	345.00	180.00	535.00
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A

**APPENDIX F**

**MUSIC MODELLING DATA**

Wizard - Page 1 of 5

Location: Commercial Split GRD LEVEL - 1450m<sup>2</sup> (100% Perv.)

Areas

Total Area (ha): 0.145      Zoning/Surface Type: Mixed

A bar chart with a vertical axis from 0% to 100% in 10% increments. A single green bar extends from the 0% mark to the 100% mark. A label 'Impervious 0 %' is positioned near the bottom of the bar.

Import Flow      Fluxes...      Notes...

Cancel      Back      Next

Wizard - Page 1 of 5

Location: Commercial Split ROOF - 1500m<sup>2</sup> (100% Imp.)

Areas

Total Area (ha): 0.150      Zoning/Surface Type: Mixed

A bar chart with a vertical axis from 0% to 100% in 10% increments. A single black bar extends from the 0% mark to the 100% mark. A label 'Pervious 0 %' is positioned near the bottom of the bar.

Import Flow      Fluxes...      Notes...

Cancel      Back      Next

Wizard - Page 1 of 5

Location: Commercial Split ROADS - 1060m<sup>2</sup> (100% Imp.)

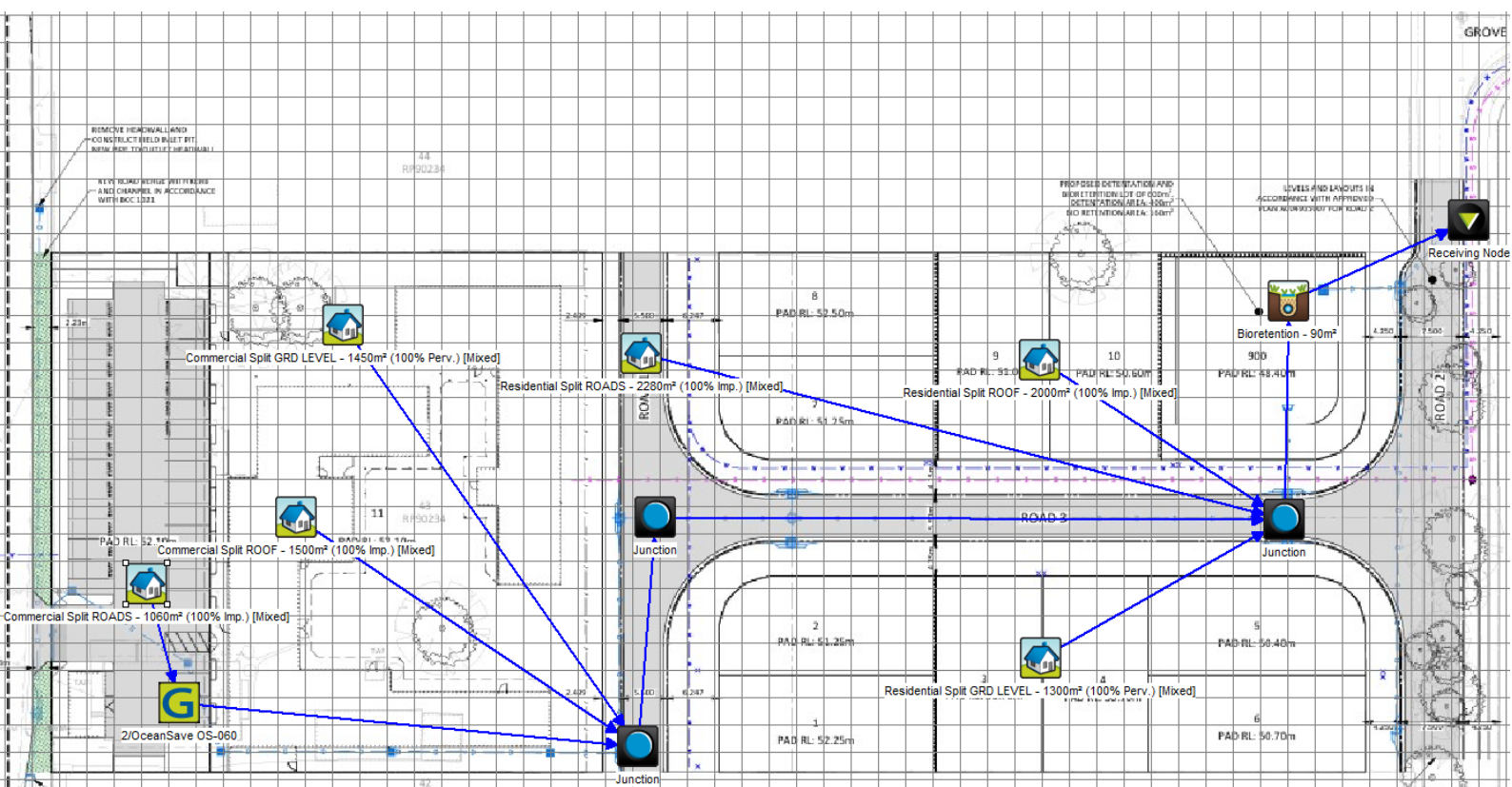
Areas

Total Area (ha): 0.106      Zoning/Surface Type: Mixed

A bar chart with a vertical axis from 0% to 100% in 10% increments. A single black bar extends from the 0% mark to the 100% mark. A label 'Pervious 0 %' is positioned near the bottom of the bar.

Import Flow      Fluxes...      Notes...

Cancel      Back      Next



**Properties of Bioretention - 90m<sup>2</sup>**

Location: Bioretention - 90m<sup>2</sup>

**Inlet Properties**

Low Flow By-pass (cubic metres per sec) [0.000]

High Flow By-pass (cubic metres per sec) [100.000]

**Storage Properties**

Extended Detention Depth (metres) [0.30]

Surface Area (square metres) [90.00]

**Filter and Media Properties**

Filter Area (square metres) [90.00]

Unlined Filter Media Perimeter (metres) [0.01]

Saturated Hydraulic Conductivity (mm/hour) [200.00]

Filter Depth (metres) [0.50]

TN Content of Filter Media (mg/kg) [400]

Orthophosphate Content of Filter Media (mg/kg) [30.0]

**Infiltration Properties**

Exfiltration Rate (mm/hr) [0.00]

**Lining Properties**

Is Base Lined?  Yes  No

**Vegetation Properties**

Vegetated with Effective Nutrient Removal Plants

Vegetated with Ineffective Nutrient Removal Plants

Unvegetated

**Outlet Properties**

Overflow Weir Width (metres) [2.00]

Underdrain Present?  Yes  No

Submerged Zone With Carbon Present?  Yes  No

Depth (metres) [0.45]

Buttons: Fluxes..., Notes..., More

Buttons: Cancel, Back, Finish

**Properties of 2/OceanSave OS-060**

Location: 2/OceanSave OS-060

**Inlet Properties**

Low Flow By-pass (cubic metres per sec) [0.00000]

High Flow By-pass (cubic metres per sec) [0.12000]

**Target Element**

Flow (cubic metres per sec)

Total Phosphorus (mg/L)

Gross Pollutants (kg/ML)

Total Nitrogen (mg/L)

Total Suspended Solids (mg/L)

**Flow (cubic metres per sec)**

**Transfer Functions**

Concentration Based Capture Efficiency

Flow Based Capture Efficiency

Both

**Concentration Based Capture Efficiency**

Inflow	Outflow
0.0000	0.0000
10.0000	10.0000

**Flow Based Capture Efficiency**

Inflow (m <sup>3</sup> /s)	% Capture
----------------------------	-----------

Buttons: Fluxes..., Notes...

Buttons: Cancel, Back, Finish

**APPENDIX G**

**EROSION HAZARD ASSESSMENT FORM**



# Erosion Hazard Assessment - June 2014

Brisbane City Council (BCC), *Erosion Hazard Assessment* form must be read in conjunction with the *Erosion Hazard Assessment- Supporting Technical Notes* (June 2014 or later version) for explanatory terms and Certification information.

### What is an Erosion Hazard Assessment?

Soil erosion and sediment from urban development, particularly during construction activities, is a significant source of sediment pollution in Brisbane's waterways. The Erosion Hazard Assessment determines whether the risk of soil erosion and sediment pollution to the environment is 'low', 'medium' or 'high'.

### When is the EHA required?

An *Erosion Hazard Assessment* form must be completed and lodged with BCC for any Development Application (ie MCU or ROL) that will result in soil disturbance OR Operational Works or Compliance Assessment Application for 'Filling' or Excavation.

**Failure to submit this form during lodgement of an application may result in assessment delays or refusal of the application.**

### Privacy Statement

The personal information collected on this form will be used by Brisbane City Council for the purposes of fulfilling your request and undertaking associated Council functions and services. Your personal information will not be disclosed to any third party without your consent, unless this is required or permitted by law.

## Assessment Details

1 Please turn over and complete the erosion hazard assessment.

2 Based on the erosion hazard assessment overleaf, is the site:

**A 'low' risk site**

*Best practice erosion and sediment control (ESC) must be implemented but no erosion and sediment control plans need to be submitted with the development application. Factsheets outlining best practice ESC can be found at <http://www.waterbydesign.com.au/factsheets>*

**A 'medium' risk site**

*If the development is approved, the applicant will need to engage a Registered Professional Engineer (RPEQ) or Certified Professional in Erosion and Sediment Control (CPESC) to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy.*

**A 'high' risk site**

*If the development is approved, the applicant will need to engage a RPEQ and CPESC to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy. The plans and program will need to be certified by a CPESC.*

### 3 Site Information and Certification

Application number (if known)

Site address

**66 Crossacres Street,  
Doolandella, QLD**

Postcode **4077**

I certify that:

- I have made all relevant enquiries and am satisfied no matters of significance have been withheld from the assessment manager.
- I am a person with suitable qualifications and/or experience in erosion and sediment control.
- The Erosion Hazard Assessment was completed in accordance with the Erosion Hazard Assessment Supporting Technical Notes and the BCC Infrastructure Design Planning Scheme Policy.
- The Erosion Hazard Assessment accurately reflects the site's overall risk of soil erosion and sediment pollution to the environment.
- I acknowledge and accept that the BCC, as assessment manager, relies, in good faith, on this certification as part of its development assessment process and the provision of false or misleading information to the BCC constitutes an offence for which BCC may take punitive steps/ action against me/ enforcement action against me.

Certified by *Print name*

ROB GRAY

Certifier's signature

Date

14 / 05 / 2025

## Assessment Table

**Table 1: Low Risk Test**

		Yes	No
1.1	is the area of land disturbance > 1000 m <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2	does any land disturbance occur in a BCC mapped waterway corridor	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 5%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.4	does any land disturbance occur below 5 m AHD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.5	does development involve endorsement of a staging plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.6	is there an upstream catchment passing through the site > 1 hectare	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Have you answered 'yes' to any of the questions in Table 1?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is low risk with respect to erosion and sediment control

If 'Yes' then proceed to Table 2

**Table 2: Medium Risk Test**

		Yes	No
2.1	is the area of land disturbance > 1 hectare	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is medium risk with respect to erosion and sediment control

If 'Yes' then proceed to Table 3

**Table 3: High Risk Test**

3.1	is there an upstream catchment passing through the site > 1 hectare	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2	does any land disturbance occurs in a BCC mapped waterway corridor	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 15%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Have you answered 'yes' to any of the questions in Table 3?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>

If 'No' then site is medium risk with respect to erosion and sediment control

If 'Yes' then site is high risk with respect to erosion and sediment control

**APPENDIX H**

**BRISBANE CITY COUNCIL CODES**

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES	SOLUTIONS <sup>1</sup>	COMMENTS	COUNCIL USE ONLY
<p><b>Section A - If for a material change of use, reconfiguring a lot, operational work or building work</b></p>				
<p>Note—Compliance with the performance outcomes and acceptable outcomes in this section should be demonstrated by the submission of a site-based stormwater management plan for high risk development only</p>				
<p><b>PO1</b> Development provides a stormwater management system which achieves the integrated management of stormwater to:</p> <p>(a) minimise flooding; (b) protect environmental values of receiving waters; (c) maximise the use of water sensitive urban design; (d) minimise safety risk to all persons; (e) maximise the use of natural waterway corridors and natural channel design principles.</p> <p><i>Editor’s note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.</i></p>	<p><b>A01</b> Development provides a stormwater management system designed in compliance with the Infrastructure design planning scheme policy.</p>	<p>✓</p>	<p>The proposal complies with the Infrastructure Design Planning Scheme Policy.</p>	

1. Solution: ✓ = Acceptable Solution  
 A/S = Alternative Solution  
 N/A = Not applicable to this proposal

**STORMWATER CODE**

**Job Ref No.: 25111**

***Performance Outcomes and Acceptable Solution***

<p><b>P02</b> Development ensures that the stormwater management system and site work does not adversely impact flooding or drainage characteristics of premises which are up slope, down slope or adjacent to the site.</p>	<p><b>AO2.1</b> Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises.</p> <p><b>AO2.2</b> Development provides a stormwater management system which is designed in compliance with the standards in the <b>Infrastructure design planning scheme policy.</b></p>	<p>✓</p> <p>✓</p>	<p>The proposal meets the requirements of Council's Infrastructure design planning scheme policy and does not result in an increase in flood level or flood duration on upstream, downstream or adjacent properties.</p>	
<p><b>P03</b> Development ensures that the stormwater management system does not direct stormwater run-off through existing or proposed lots and property where it is likely to adversely affect the safety of, or cause nuisance to properties.</p>	<p><b>AO3.1</b> Development ensures that the location of the stormwater drainage system is contained within a road reserve, drainage reserve, public pathway, park or waterway corridor.</p> <p><b>AO3.2</b> Development provides a stormwater management system which is designed in compliance with the standards in the <b>Infrastructure design planning scheme policy.</b></p> <p><b>AO3.3</b> Development obtains a lawful point of discharge in compliance with the standards in the <b>Infrastructure design planning scheme policy.</b></p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>The design demonstrates that a drainage network will be provided that will comply with Council's <b>Infrastructure design planning scheme policy.</b> Conceptual drainage requirements for the proposal are identified in the SBSMP.</p>	

1. Solution: ✓ = Acceptable Solution  
 A/S = Alternative Solution  
 N/A = Not applicable to this proposal

**STORMWATER CODE**

Job Ref No.: 25111

**Performance Outcomes and Acceptable Solution**

	<p><b>AO3.4</b> Where on private land, all underground stormwater infrastructure is secured by a drainage easement.</p>	N/A		
<p><b>PO4</b> Development provides a stormwater management system which has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments.</p>	<p><b>AO4.1</b> Development provides a stormwater conveyance system which is designed to safely convey flows in compliance with the standards in the <b>Infrastructure design planning scheme policy</b>.</p> <p><b>AO4.2</b> Development provides sufficient area to convey run-off which will comply with the standards in the <b>Infrastructure design planning scheme policy</b>.</p>	<p>✓</p> <p>✓</p>	<p>The design demonstrates that a drainage network will be provided that will comply with Council's <b>Infrastructure design planning scheme policy</b> which safely conveys runoff considering increased runoff and flooding in local catchments.</p>	
<p><b>PO5</b> Development designs stormwater channels, creek modification works, bridges, culverts and major drains to protect and enhance the value of the waterway corridor or drainage path for fauna movement.</p>	<p><b>AO5</b> Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.</p>	N/A	<p>The proposed development does not have any channel, creek modification, bridge, culvert or major drain works.</p>	

1. Solution: ✓ = Acceptable Solution  
A/S = Alternative Solution  
N/A = Not applicable to this proposal

**66 Crossacres Street, Doolandella**

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**STORMWATER CODE**

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<p><b>PO6</b> Development ensures that location and design of stormwater detention and water quality treatment:</p> <p>(a) minimises risk to people and property; (b) provides for safe access and maintenance; (c) minimises ecological impacts to creeks and waterways.</p>	<p><b>AO6.1</b> Development locates stormwater detention and water quality treatment:</p> <p>(a) outside of a waterway corridor; (b) offline to any catchment not contained within the development.</p>	<p><b>N/A</b></p>	<p>The proposed development requires stormwater detention and water quality treatment in accordance with the <b>Infrastructure design planning scheme policy</b>.</p>	
<p><b>PO7</b> Development is designed, including any car parking areas and channel works to:</p> <p>(a) reduce property damage; (b) provide safe access to the site during the defined flood event.</p>	<p><b>AO7.1</b> Development (including any ancillary structures and car parking areas) is located above minimum flood immunity levels in Table 9.4.9.3.B, Table 9.4.9.3.C, Table 9.4.9.3.D, Table 9.4.9.3.E and Table 9.4.9.3.F.</p> <p><i>Note—Compliance with this acceptable outcome can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a site-based stormwater management plan).</i></p> <p><b>AO7.2</b> Development including the road network provides a stormwater management system that provides safe pedestrian and</p>	<p><b>N/A</b></p> <p>✓</p>	<p>The proposed development design provides flood immunity levels in accordance with the <b>Infrastructure design planning scheme policy</b>. A SBSMP has been prepared and demonstrates this.</p> <p>The proposed development design provides a stormwater management system that ensures the safe pedestrian and vehicle access in accordance with the <b>Infrastructure design planning scheme policy</b>.</p>	

1. Solution: ✓ = Acceptable Solution  
A/S = Alternative Solution  
N/A = Not applicable to this proposal

**STORMWATER CODE**

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***Performance Outcomes and Acceptable Solution***

	vehicle access in accordance with the standards in the <b>Infrastructure design planning scheme policy</b> .			
<b>PO8</b> Development designs stormwater channels, creek modification works and the drainage network to protect and enhance the environmental values of the waterway corridor or drainage path.	<p><b>AO8.1</b> Development ensures natural waterway corridors and drainage paths are retained.</p> <p><b>AO8.2</b> Development provides the required hydraulic conveyance of the drainage channel and floodway, while maximising its potential to maximise environmental benefits and minimise scour. Editor’s note—Guidance on natural channel design principles can be found in the Council’s publication <b>Natural channel design guidelines</b>.</p> <p><b>AO8.3</b> Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in compliance with the standards in the <b>Infrastructure design planning scheme policy</b>.</p> <p><b>AO8.4</b> Development ensures that the design of modifications to the existing design of new stormwater channels, creeks and major drains is in compliance with the standards in the <b>Infrastructure design planning scheme policy</b>.</p>	<p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>	<p>The proposed development stormwater designs are in accordance with the <b>Infrastructure design planning scheme policy</b>.</p> <p>The proposed development does not include any channel or creek modification works.</p>	

1. Solution: ✓ = Acceptable Solution  
A/S = Alternative Solution  
N/A = Not applicable to this proposal

**STORMWATER CODE**

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<p><b>PO9</b> Development is designed to manage run-off and peak flows by minimising large areas of impervious material and maximising opportunities for capture and re-use.</p>	<p><b>AO9</b> No acceptable outcome is prescribed.</p>	<p><b>N/A</b></p>		
<p><b>PO10</b> Development ensures that there is sufficient site area to accommodate an effective stormwater management system.</p> <p><i>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</i></p>	<p><b>AO10</b> No acceptable outcome is prescribed.</p>	<p><b>A/S</b></p>	<p>The proposed development ensures there is sufficient site area to accommodate an effective stormwater management system. This is demonstrated in the SBSMP.</p>	
<p><b>PO11</b> Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the:</p> <p>(a) existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades;</p> <p>(b) safe management of stormwater discharge from existing and future up-slope development;</p>	<p><b>AO11.1</b> Development with up-slope external catchment areas provides a drainage connection sized for ultimate catchment conditions that is directed to a lawful point of discharge.</p> <p><b>AO11.2</b> Development ensures that existing stormwater infrastructure that is undersized is upgraded in compliance</p>	<p>✓</p> <p>✓</p>	<p>Up-slope external catchments have been diverted to appropriate lawful points of discharge by the surrounding network.</p> <p>Additional flows not initially accounted for within the stormwater infrastructure have been used to determine any required pipe upgrades.</p>	

1. Solution: ✓ = Acceptable Solution  
A/S = Alternative Solution  
N/A = Not applicable to this proposal

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***Performance Outcomes and Acceptable Solution***

(c) implication for adjacent and down-slope development.	with the <b>Priority infrastructure plan</b> and the standards in the <b>Infrastructure design planning scheme policy</b> .			
<p><b>PO12</b> Development provides stormwater infrastructure which:</p> <p>(a) remains fit for purpose for the life of the development and maintains full functionality in the design flood event;</p> <p>(b) can be safely accessed and maintained cost effectively;</p> <p>(c) ensures no structural damage to existing stormwater infrastructure.</p>	<p><b>AO12.1</b> The stormwater management system is designed in compliance with the <b>Infrastructure design planning scheme policy</b>.</p> <p><b>AO12.2</b> Development provides a clear area with a minimum of 2m radius from the centre of an existing manhole cover and with a minimum height clearance of 2.5m.</p>	<p>✓</p> <p>N/A</p>	<p>The proposed development stormwater designs are in accordance with the <b>Infrastructure design planning scheme policy</b>.</p>	
<p><b>PO13</b> Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect:</p> <p>(a) the environmental values and water quality objectives of waters;</p> <p>(b) waterway hydrology;</p> <p>(c) the maintenance and serviceability of</p>	<p><b>AO13</b> No acceptable outcome is prescribed.</p>	<p>A/S</p>	<p>Appropriate erosion sediment control plans will be prepared at the operational works stage in accordance with the infrastructure design planning scheme policy.</p>	

1. Solution: ✓ = Acceptable Solution  
A/S = Alternative Solution  
N/A = Not applicable to this proposal

**66 Crossacres Street, Doolandella**

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**STORMWATER CODE**

**Job Ref No.: 25111**

***Performance Outcomes and Acceptable Solution***

<p>stormwater infrastructure.</p> <p><i>Note—The Infrastructure design planning scheme policy outlines the appropriate measures to be taken into account to achieve the performance outcome.</i></p>				
<p><b>PO14</b></p> <p>Development ensures that:</p> <p>(a) unnecessary disturbance to soil, waterways or drainage channels is avoided;</p> <p>(b) all soil surfaces remain effectively stabilised against erosion in the short and long term.</p>	<p><b>AO14</b></p> <p>No acceptable outcome is prescribed</p>	<p><b>A/S</b></p>	<p>A detailed Erosion Sediment Control Plan will be prepared in accordance with Brisbane City Council Guidelines.</p> <p>The ESCP shall be prepared during the Operational Works phase of the development.</p>	
<p><b>PO15</b></p> <p>Development does not increase:</p> <p>(a) the concentration of total suspended solids or other contaminants in stormwater flows during site construction;</p> <p>(b) run-off which causes erosion either on site or off site.</p>	<p><b>AO15</b></p> <p>No acceptable outcome is prescribed</p>	<p><b>A/S</b></p>	<p>A detailed Erosion Sediment Control Plan will be prepared in accordance with Brisbane City Council Guidelines.</p> <p>The ESCP shall be prepared during the Operational Works phase of the development.</p>	

1. Solution: ✓ = Acceptable Solution  
 A/S = Alternative Solution  
 N/A = Not applicable to this proposal

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<p><b>Section B—Additional criteria which apply to high-risk development, being one or more of the following:</b>                  (a) a material change of use for an urban purpose which involves greater than 2,500m<sup>2</sup> of land that:                  (i) will result in an impervious area greater than 25% of the net developable area; or                  (ii) will result in 6 or more dwellings.                  (b) reconfiguring a lot for an urban purpose that involves greater than 2,500m<sup>2</sup> of land and will result in 6 or more lots;                  (c) operational work for an urban purpose which involves disturbing greater than 2,500m<sup>2</sup> of land.</p>				
<p><b>PO16</b>                  Development ensures that the entry and transport of contaminants into stormwater is avoided or minimised to protect receiving water environmental values.</p> <p><i>Note—Prescribed water contaminants are defined in the <b>Environmental Protection Act 1994</b>.</i></p> <p><i>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</i></p>	<p><b>AO16</b>                  Development provides a stormwater management system which is designed in compliance with the standards in the <b>Infrastructure design planning scheme policy</b>.</p>	<p><b>N/A</b></p>		
<p><b>PO17</b>                  Development ensures that:                  (a) the discharge of wastewater to a waterway or external to the site is avoided; or                  (b) if the discharge cannot practicably be avoided, the development minimises wastewater discharge through re-use, recycling, recovery and</p>	<p><b>AO17</b>                  No acceptable outcome is prescribed.</p>	<p><b>N/A</b></p>		

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<p>treatment.</p> <p><i>Note—The preparation of a wastewater management plan can assist in demonstrating achievement of this performance outcome.</i></p> <p><i>Editor’s note—This code does not deal with sewerage which is the subject of the <a href="#">Wastewater code</a>.</i></p>				
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