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23/03/2026

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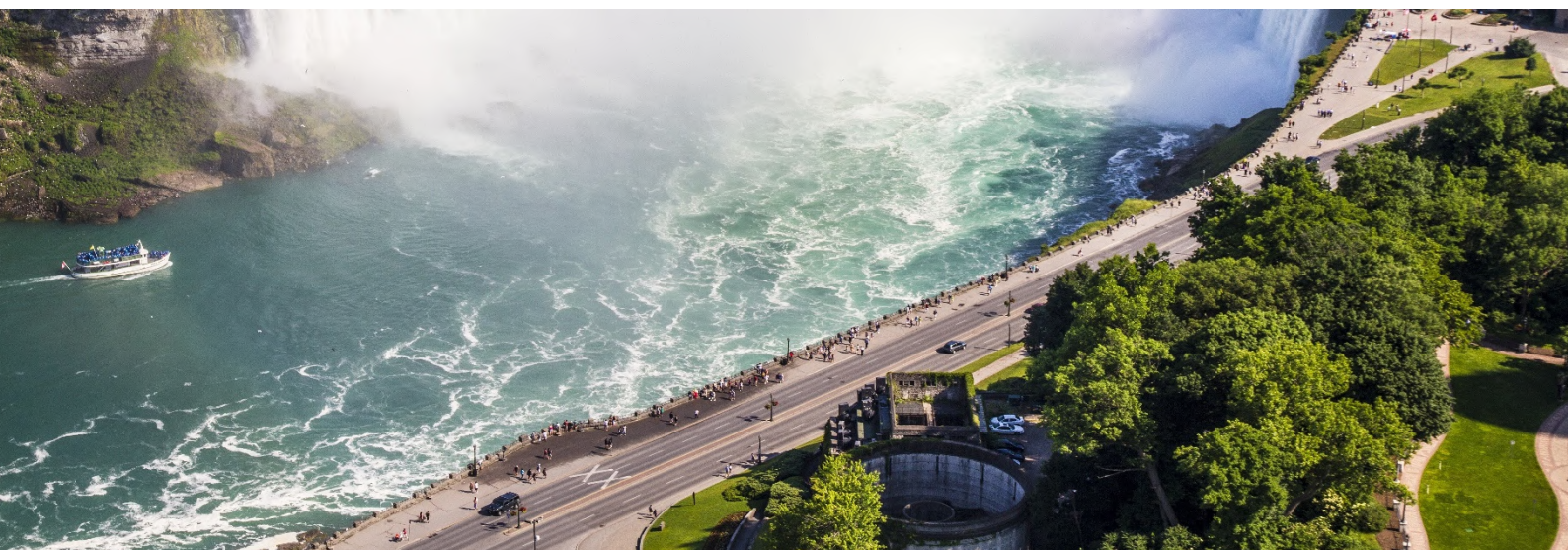


SITE BASED STORMWATER MANAGEMENT PLAN

51 & 53 Birdwood Road, Holland Park West QLD

PREPARED DATE: 19/11/2025

REVISION: 1



DOCUMENT CONTROL

PROJECT INFORMATION	
Site Address	51 & 53 Birdwood Road, Holland Park West QLD
RP Description	Lot 3 & 4 on RP62747
DRW Job Reference	5656
Client	Phoenix Trust Pty Ltd
Council Ref	Brisbane City Council (BCC)
Authorised by	A.K. Sani
Signature	
RPEQ No	10697

Document Register

Revision	Date	Written By	Checked By
0	03/10/2025	A. Naqvi	P. Jacuba
1	19/11/2025	A. Naqvi	P. Jacuba

Distribution

Revision	Date	Issue Purpose	Issued to
0	03/10/2025	For Coordination	Client
1	19/11/2025	For Approval	Council

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1 INTRODUCTION

DRW Consulting Pty. Ltd. (DRW) has been engaged to prepare a Site-based Stormwater Management Plan (SBSMP) for the proposed development at 51 & 53 Birdwood Road, Holland Park West QLD. The land parcels are legally described as Lot 3 & 4 on RP62747 (the subject site) and is located within Brisbane City Council.

This assessment has been prepared generally in accordance with Brisbane City Plan 2014, Queensland Urban Drainage Manual (QUDM, 2016), Australian Rainfall and Runoff (ARR) and Healthy Waterways – Water by Design.

1.1 SCOPE

Specifically, this report details the following:

- Describes the environmental setting of the development site
- Describes the nature of the proposed development as it relates to stormwater quality
- Calculates the peak flows for both pre- and post-development conditions
- Calculates the detention volume required to achieve the pre-development state, if required;
- Establishment of a Lawful Point of Discharge (LPD) for the subject site
- Stormwater Quality – Including an estimate of sediment and nutrient transport from the subject site and assessment against pollutant reduction targets for runoff exiting the site; and
- Stormwater Management Controls - for the construction and operational phases.

1.2 STORMWATER MANAGEMENT OBJECTIVES

The Objectives of this SBSMP is to:

1. Minimise the number of pollutants such as sediment, litter and nutrients entering surrounding waterways and stormwater drainage infrastructure.
2. Achieve no increase in pre-development peak discharge from the subject site up to and including the 1% AEP (100-year ARI) storm event.
3. Ensure stormwater is managed to minimise the impact of flooding; and
4. Minimise environmental nuisance or harm from land-disturbing activities.

These objectives will be achieved through the implementation of:

1. Management strategies designed to minimise water pollution from development of the subject site.
2. Management strategies to maintain pre-development peak discharges at the existing lawful and practical point of discharge.
3. Specific construction phase controls to minimise erosion and control sediment loss, and
4. Specific operational phase controls to minimise sediment and nutrient export from the subject site.

2 EXISTING SITE CHARACTERISTICS

2.1 SITE OVERVIEW

The subject site is located within Brisbane City Council (BCC) and covers a total area of 1,211m² (or 0.121ha). The land use of the existing site includes residential buildings, associated sheds, and concrete pavement areas. The remaining ground surface generally consists of grassed and landscaping areas with small to medium sized trees scattered throughout the site. The total impervious area of the existing site is approximately 218m², which is 18% of the total site area.

Refer to the figure below for the aerial locality plan. Refer to **Appendix A** for the Existing Site Plan.



Figure 1 Site Location

2.2 EXISTING TOPOGRAPHY AND SITE DRAINAGE

The following topography details are in relation to the subject site being 51 & 53 Birdwood Road, Holland Park West QLD;

- The natural fall of the land generally slopes from the eastern (front) boundary of the site to the western (rear) boundary of the site.
- The site levels range from approximately RL: 18.0m AHD at eastern boundary of the site to RL: 16.0m AHD at the western boundary of the site.
- The site has an average grade of 6.7%.
- No easements have been identified within the subject site.
- Data obtained from detail survey and as-constructed information identifies the following existing stormwater infrastructure:
 - No stormwater drainage infrastructure is identified internal to the site.
 - An existing gully pit and associated underground stormwater drainage network located in the Woodford Street kerb and channel at the intersection of Woodford Street and Birdwood Street approximately 20m downstream from the south-eastern corner of the subject site.
 - A 450mm RCP drainage network traversing through the existing driveway of the downstream neighbouring property (being *Lot 0 on GTP2286*) located approximately 25m from the south-western corner of the subject site.
 - One (1) field inlet pit and associated 100mm roofwater drainage network located approximately 4m from the south-western corner of the subject site within the existing driveway of the downstream neighbouring property (being *Lot 0 on GTP2286*).

Refer to **Appendix A** for the Existing Site Plan and **Appendix B** for the as-constructed information obtained from BCC Online Interactive Mapping system.

2.3 EXTERNAL UPSTREAM CATCHMENT ASSESSMENT

A review of the surrounding area has been undertaken to determine the extent of any external upstream catchments, which may flow towards the subject site. Based on the existing site survey and BCC Online Interactive Mapping there appears to be no external upstream catchment which may contribute to overland flow through the site.

2.4 FLOODING ASSESSMENT

Based on an assessment of BCC Online Interactive Mapping, the subject site has not been identified to be within a flood hazard area, therefore the flood hazard overlay code is not triggered for the subject site.

Refer to **Appendix B** for the FloodWise Property Report obtained from BCC Online Interactive Mapping system.

2.5 LAWFUL AND PRACTICAL POINT OF DISCHARGE

In accordance with the Queensland Urban Drainage Manual (QUDM), when proposing a development, it must demonstrate that a lawful point of discharge (LPD) exists.

A lawful point of discharge exists at a particular location when the following two (2) tests can be demonstrated as per QUDM:

- (i) The location of the discharge is under the lawful control of the local government or other statutory authority from whom permission to discharge has been received. This can include a park, drainage or road reserve, stormwater drainage easement; and
- (ii) In discharging to that location, the discharge will not cause an actionable nuisance (i.e. a nuisance for which the current or some future neighbouring proprietor may bring an action or claim for damages arising out of the nuisance), or environmental or property damage.

Surface runoff from the ground areas within the site and roof water runoff from the existing dwellings currently flow to the rear of the subject site and to the driveway of the downstream neighbouring property being *Lot 0 on GTP2286* adjacent to the subject site's western (rear) boundary.

In the post-development scenario, in lieu of downstream neighbour's consent (being *Lot 0 on GTP2286*) not being granted for connection to their existing stormwater network, it is proposed to convey stormwater flows from the development to the Birdwood Road kerb and channel via kerb adaptor. Therefore, the existing Birdwood Road kerb and channel within the Birdwood Road Reserve, adjacent to the site's eastern boundary, will be considered the lawful point of discharge for the subject site.

3 PROPOSED DEVELOPMENT

The proposed development comprises of a Material Change of Use (MCU) Development Application submission to Council, based on the following:

- A two (2) storey residential building complex comprising of ten (10) units.
- Access and egress to the site will be via a single vehicle crossover (VXO) connecting to Birdwood Road.
- Internal circulating driveway and carpark spaces provided in the basement for vehicular manoeuvring and parking.
- Dedicated communal / landscaping areas throughout the development site.
- Footpaths provided for pedestrian movement within the site for access to resident facilities.
- The total development area is 1,211m² (or 0.121ha).

Refer **Appendix C** for the proposed Development Site Plans.

4 STORMWATER QUANTITY ASSESSEMENT

4.1 HYDROLOGIC OBJECTIVES

Hydrologic objectives for the subject site have been set in accordance with the BCC Planning Scheme and the Queensland Urban Drainage Manual (QUDM), Fourth Edition 2016, including but not limited to:

- No increase in pre-development flows, up to and including the 100-year ARI (or 1% AEP);
- No adverse impact on adjoining or downstream properties;
- The proposed development shall ensure that all stormwater is directed to an LPD;
- A Major Design Storm Event of 100-year ARI (or 1% AEP); and
- A Minor Design Storm Event of 10-year ARI (or 10% AEP).

4.2 HYDROLOGICAL PARAMETERS

Catchment hydrology has been assessed for the pre- and post-development scenarios and has been calculated using a DRAINS hydrological computer model (ILSAX Method). Calibration of the DRAINS hydrological computer model was achieved by comparing the DRAINS flow rates to the Rational Method calculations in accordance with QUDM (Fourth Edition, 2016), Section 4 and Section 5, and AS3500 – Plumbing and Drainage.

The default hydrological model used for this assessment was the ILSAX Model. The following parameters were established in setting up the model:

- Paved (impervious) area depression storage (mm): 1
- Supplementary area depression storage (mm): 1
- Grassed (pervious) area depression storage (mm): 5
- Soil Type: Normal with antecedent rainfall depth for AMC 3 mm
- Rainfall Zone: Zone 3 – N.E. Coast
- AR&R 2016

4.3 DESIGN RAINFALL

The design rainfall Intensity Frequency Duration (IFD) data for all storm events up to an including 100-year ARI (or 1% AEP) has been obtained for the subject site from the Bureau of Meteorology for nominated ARI's and used in the DRAINS computer model. The design IFD data for the subject site can be seen in Figure 2 below. Rainfall temporal patterns used in the DRAINS hydrological computer model (ILSAX Method) analysis were prepared in accordance with Australian Rainfall and Runoff (AR&R 2016). Rainfall is modelled for the catchment in equal time intervals under each storm event and the subsequent runoff routed through a drainage system. To establish the most likely rain event that would require the greatest volume of detention, design storm durations of 5, 10, 15, 20, 25, 30, 45, 60, 90, 120, 180 and 360 minutes were modelled.

Location

Label: Not provided

Latitude: -27.5163 [Nearest grid cell: 27.5125 (S)]

Longitude: 153.054 [Nearest grid cell: 153.0625 (E)]



IFD Design Rainfall Intensity (mm/h)

Issued: 16 September 2025

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

Table

Chart

Coefficients

Unit:

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	157	178	243	286	328	384	425
2 min	130	148	203	242	280	331	370
3 min	122	139	190	226	261	308	344
4 min	117	132	181	214	247	290	323
5 min	112	127	173	205	235	276	306
10 min	92.1	104	142	167	191	223	246
15 min	78.0	88.4	120	142	162	189	209
20 min	67.8	76.8	105	123	141	165	182
25 min	60.1	68.1	92.9	110	126	147	163
30 min	54.1	61.3	83.8	98.9	114	133	147
45 min	42.1	47.7	65.4	77.4	89.1	105	117
1 hour	34.8	39.4	54.2	64.3	74.2	87.6	97.9
1.5 hour	26.3	29.9	41.2	49.0	56.8	67.4	75.7
2 hour	21.5	24.4	33.7	40.3	46.8	55.8	62.8
3 hour	16.2	18.4	25.5	30.6	35.7	42.7	48.3
4.5 hour	12.3	14.0	19.4	23.3	27.3	32.8	37.3
6 hour	10.1	11.5	16.1	19.3	22.7	27.4	31.1
9 hour	7.75	8.83	12.4	15.0	17.6	21.4	24.4
12 hour	6.43	7.35	10.4	12.6	14.8	18.0	20.6
18 hour	4.96	5.69	8.12	9.89	11.7	14.3	16.4
24 hour	4.12	4.75	6.83	8.35	9.92	12.1	13.9
30 hour	3.56	4.12	5.96	7.31	8.71	10.7	12.3
36 hour	3.15	3.66	5.33	6.55	7.82	9.62	11.1
48 hour	2.59	3.01	4.43	5.47	6.56	8.11	9.37
72 hour	1.93	2.26	3.35	4.16	5.01	6.23	7.23
96 hour	1.55	1.81	2.70	3.36	4.05	5.04	5.87
120 hour	1.29	1.51	2.24	2.79	3.37	4.20	4.90
144 hour	1.11	1.29	1.91	2.37	2.86	3.56	4.16
168 hour	0.969	1.12	1.65	2.04	2.46	3.05	3.57

Figure 2 IFD Data for Holland Park West

4.4 PRE-DEVELOPMENT AND POST-DEVELOPMENT HYDROLOGY

The following parameters have been adopted for the existing pre-development and post-development site conditions assessed in accordance with QUDM Fourth Edition, Section 4:

Pre-Development Parameters:

- Catchment Area (CAT C1) = **0.121 ha**
- Time of Concentration, t_c = **8.8 minutes**
- Fraction Impervious, f_i = **0.18** (18% Impervious)
- Runoff Co-efficient, C_{10} value = **0.71**

Post-Development Parameters:

- Catchment Area (CAT C2 – Captured Area) = **0.097 ha**
- Time of Concentration, t_c = **5.0 minutes**
- Fraction Impervious, f_i = **1.00** (100% Impervious)
- Runoff Co-efficient, C_{10} value = **0.90**

- Catchment Area (CAT C3 – Bypass Area) = **0.024 ha**
- Time of Concentration, t_c = **5.0 minutes**
- Fraction Impervious, f_i = **0.03** (3% Impervious)
- Runoff Co-efficient, C_{10} value = **0.70**

Refer to the **Appendix D** for delineation of the pre and post-development the catchment boundaries.

4.4.1 PRE-DEVELOPMENT DRAINS MODEL PARAMETERS

Table 1 below show the parameters used in the DRAINS Model for the pre-development catchment scenario.

Table 1 – Pre-Development Drains Model Parameters – CAT C1

Pre-Development Catchment (C1)	Paved	Supplementary	Grassed
Percentage of Area (%)	18	0	82
Time of Concentration (minutes)	8.8	0	8.8

4.4.2 POST-DEVELOPMENT DRAINS MODEL PARAMETERS

Tables 2-3 below show the parameters used in the DRAINS Model for the post-development catchment scenario.

Table 2 – Post-Development Drains Model Parameters – CAT C2

Post-Development Catchment (C2)	Paved	Supplementary	Grassed
Percentage of Area (%)	100	0	0
Time of Concentration (minutes)	5.0	0	0

Table 3 – Post-Development Drains Model Parameters – CAT C3

Post-Development Catchment (C3)	Paved	Supplementary	Grassed
Percentage of Area (%)	3	0	97
Time of Concentration (minutes)	5.0	0	5.0

4.4.3 PRE AND POST-DEVELOPMENT MODEL RESULTS

Summaries of the hydrological calculations for the pre- and post-development (unmitigated) scenarios are demonstrated in the Tables 4-7 below. The results show the median temporal pattern stormwater of the critical duration for each design storm event.

Table 4 – Pre-Development Peak Flow – CAT C1

PRE-DEVELOPMENT PEAK DISCHARGE (Q) – CAT C1				
Storm Event (year)	Cy	Iy (mm/hr)	Peak Qy (Rational) (m ³ /s)	Peak Qy (ILSAX) (m ³ /s)
Q2 (39.35% AEP)	0.595	121	0.024	0.026
Q5 (18.13% AEP)	0.665	151	0.034	0.036
Q10 (10% AEP)	0.700	175	0.041	0.044
Q20 (5% AEP)	0.735	200	0.049	0.053
Q50 (2% AEP)	0.805	233	0.063	0.065
Q100 (1% AEP)	0.840	258	0.073	0.074

Table 5 – Post-Development Peak Flow – CAT C2

POST-DEVELOPMENT PEAK DISCHARGE (Q) – CAT C2				
Storm Event (year)	Cy	Iy (mm/hr)	Peak Qy (Rational) (m ³ /s)	Peak Qy (ILSAX) (m ³ /s)
Q2 (39.35% AEP)	0.765	141	0.029	0.035
Q5 (18.13% AEP)	0.855	177	0.041	0.044
Q10 (10% AEP)	0.900	205	0.050	0.052
Q20 (5% AEP)	0.945	235	0.060	0.060
Q50 (2% AEP)	1.000	276	0.075	0.071
Q100 (1% AEP)	1.000	306	0.083	0.080

Table 6 – Post-Development Peak Flow – CAT C3

POST-DEVELOPMENT PEAK DISCHARGE (Q) – CAT C3				
Storm Event (year)	Cy	Iy (mm/hr)	Peak Qy (Rational) (m³/s)	Peak Qy (ILSAX) (m³/s)
Q2 (39.35% AEP)	0.595	141	0.006	0.006
Q5 (18.13% AEP)	0.665	177	0.008	0.008
Q10 (10% AEP)	0.700	205	0.009	0.010
Q20 (5% AEP)	0.735	235	0.011	0.012
Q50 (2% AEP)	0.805	276	0.015	0.014
Q100 (1% AEP)	0.840	306	0.017	0.016

Table 7 – Pre-vs-Post-Development (Unmitigated) Peak Flow Comparison

PRE-VS-POST-DEVELOPMENT (UNMITIGATED) PEAK DISCHARGE (Q)				
Storm Event (year)	Pre-Development Peak Qy (CAT C1) (ILSAX) (m³/s)	Post-Development Unmitigated Peak Qy (CAT C2 + CAT C3) (ILSAX) (m³/s)	Difference (m³/s)	Increase / Decrease (%)
Q2 (39.35% AEP)	0.026	0.041	0.015	+58%
Q5 (18.13% AEP)	0.036	0.052	0.016	+44%
Q10 (10% AEP)	0.044	0.062	0.018	+41%
Q20 (5% AEP)	0.053	0.072	0.019	+36%
Q50 (2% AEP)	0.065	0.085	0.020	+31%
Q100 (1% AEP)	0.074	0.096	0.022	+30%

A comparison of the pre- and post-development peak flow rates for the unmitigated stormwater discharge using DRAINS Model (ILSAX Method) indicates there will be approximately 0.015m³/s (15 L/s) to 0.022m³/s (22 L/s) increase in peak discharge from the subject site for all design storms (Q₂ to Q₁₀₀) as a result of the proposed development.

Therefore, On-site Stormwater Detention (OSD) is required for the proposed development in order to ensure there is no increase in pre-development peak flow rates from the subject site at the LPD.

4.5 ON-SITE DETENTION

To satisfy the objective of no increase in pre-development peak flows, a DRAINS software computer model has been developed to determine the required On-site Stormwater Detention (OSD) device characteristics (volume and outlet arrangement).

The peak discharge from the proposed development for all design storms up to and including the 1% AEP will be mitigated to equal to or less than pre-development flow via the implementation of a 30KL underground detention tank. Refer to the Table 8 below for the above-ground detention tank summary.

Table 8 – On-Site Stormwater Detention Device Details

ON-SITE STORMWATER DETENTION (OSD) DEVICE DETAILS	
OSD Device	Cast-in-situ Detention Tank
External Tank Width (m)	3.20
External Tank Length (m)	6.25
External Tank Height (m)	1.50
Internal Tank Surface Area (m²)	20
Number of Tank Cells	1
Total Internal Tank Volume (m³)	30
Volume Available for Detention (m³)	30
Detention Tank Internal Base Level, IL (m AHD)	IL: 12.84
Detention Tank Soffit Level, RL (m AHD)	RL: 14.34
Surface Level Above Detention Tank (m AHD)	RL: 14.54 (min.)

It is proposed to discharge all stormwater runoff from the roof area of the proposed building and internal driveway (CAT C2) to the underground detention tank, located under the proposed basement. The remaining landscaping areas (CAT C3) will bypass to Lawful Point of Discharge (LPD) as unmitigated flow. Stormwater from the detention tank will discharge via a pump system at a mitigated rate to a discharge pit internal to the site from where stormwater gravity flows to the Lawful Point of Discharge (LPD).

Refer to **Appendix D** for the Stormwater Management Drawings which shows the location and details of the proposed underground detention tank.

It is proposed to install a submersible hydraulic pump (design and configuration by a suitably qualified hydraulic consultant) to restrict the outflows from the detention tank. This will ensure that peak flows from the proposed development are discharged at pre-development conditions or less at the LPD. Stormwater from the underground detention tank will be pumped to a discharge drainage structure at a mitigated rate of 18L/s for the first 560mm of detention depth then to a mitigated rate of 30L/s from where discharge flows will be directed to the Lawful Point of Discharge (LPD).

Table 9 below provides a summary of the DRAINS model results for the post development mitigated site scenario (with the implementation of the detention tank within the DRAINS model). The results show the

outflow from the detention tank (total tank outflow), the water depth within the detention tank (tank water depth) and the volume reached within the detention tank (tank detention volume) to ensure that pre-development flow conditions for all storms are achieved.

Table 9 – DRAINS Post-Development (Mitigated) Detention Tank Summary

POST-DEVELOPMENT (MITIGATED) DETENTION TANK SUMMARY						
Storm Event (year)	Pump Outflow (m ³ /s)	High-Flow Outflow (m ³ /s)	Total Tank Outflow (m ³ /s)	Tank Water Depth (m)	Freeboard Within Tank (m)	Detention Volume (m ³)
Q2 (39.35% AEP)	0.018	n/a	0.018	0.300	1.200	6.29
Q5 (18.13% AEP)	0.018	n/a	0.018	0.560	0.940	11.59
Q10 (10% AEP)	0.030	n/a	0.030	0.620	0.880	12.78
Q20 (5% AEP)	0.030	n/a	0.030	0.790	0.710	16.15
Q50 (2% AEP)	0.030	n/a	0.030	1.010	0.490	20.64
Q100 (1% AEP)	0.030	n/a	0.030	1.250	0.250	25.46

4.6 POST DEVELOPMENT MITIGATED DISCHARGE RESULTS

Table 10 provides a comparison of the pre-development peak flow rates from the subject site to the post-development mitigated peak discharge rates from the subject site at the LPD with the implementation of the underground detention tank within the DRAINS model.

Table 10 – Comparison of Pre- vs. Post-Development Mitigated Discharge

PRE VS POST DEVELOPMENT MITIGATED PEAK DISCHARGE (Q)					
Storm Event (year)	Pre-Dev (CAT C1) Qy (m ³ /s)	Post-Dev Mitigated (CAT C2) Qy (m ³ /s)	Post-Dev Unmitigated (CAT C3) Qy (m ³ /s)	Difference (m ³ /s)	Reduction Y/N
Q2 (39.35% AEP)	0.026	0.018	0.006	-0.002	Y
Q5 (18.13% AEP)	0.036	0.018	0.008	-0.010	Y
Q10 (10% AEP)	0.044	0.030	0.010	-0.004	Y
Q20 (5% AEP)	0.053	0.030	0.012	-0.011	Y
Q50 (2% AEP)	0.065	0.030	0.014	-0.021	Y
Q100 (1% AEP)	0.074	0.030	0.016	-0.028	Y

The above table demonstrates that the underground detention tank will ensure that pre-development peak flow rates (or less) will be achieved at the LPD for the subject site in the post-development state.

Refer to **Appendix D** for the Stormwater Management Plans and details.

4.7 PROPOSED DRAINAGE WORKS

As shown on the stormwater management plans (**Appendix D**) all roof water runoff from the proposed building and internal driveway (CAT C2) will be directed via downpipes to the underground detention tank located under the basement area. The underground detention tank has been designed to mitigate stormwater to allow surface runoff from the ground and landscaping areas (CAT C3) to bypass the detention tank and discharge to the as unmitigated flow. Stormwater runoff from the detention tank will discharge at less than pre-development flow rates to the internal discharge pit at the site's frontage from where discharge flows will be directed as gravity flow to the LPD, being the existing Birdwood Road kerb and channel within the Birdwood Road Reserve. As stated in Section 2.5 the Birdwood Road kerb and channel is the only practical LPD in lieu of downstream neighbour's consent (being *Lot 0 on GTP2286*) not being granted for connection to their existing stormwater network.

The detention tank will be formed into the basement slab and will be structurally designed and certified.

Refer to **Appendix D** for the Stormwater Management Drawings which shows the location and details of the proposed underground detention tank.

4.7.1 Pump Emergency Storage

The configuration of the primary pump system and standby pump system will be designed by suitably qualified hydraulic consultant. In emergency scenarios where the primary and standby pump system fail, it is proposed surcharge flows from the detention tank (via the tank's grated access pit) disperse across the basement's car park/driveway area which covers a footprint of approximately 685m². As per Brisbane City Plan 2014, *SC:6.16 Infrastructure Design Planning Scheme Policy – Chapter 7 Stormwater Drainage*, Section 7.6.6.2 initial calculations determines an emergency storage volume of 92.53kL in this scenario hence resulting in a maximum flooding depth of 135mm across the basement in the critical event scenario which is understood to be within reasonable limits.

5 STORMWATER QUALITY ASSESSMENT

5.1 DEVELOPMENT TRIGGERS FOR STORMWATER QUALITY MANAGEMENT

The proposed development has been assessed against the latest State Planning Policy 2017 (SPP 2017), summarised in Table 11 below.

Table 11 – Assessment Benchmarks – Water Quality SPP (2017)

State Planning Policy Criteria	Application to Development
(1) A material change of use for an urban purpose that involves premises 2500 m ² or greater in size and: (a) will result in six or more dwellings; or (b) an impervious area greater than 25 per cent of the net developable area.	The development site is 1,211m² , which is less than 2500m ² .
(2) Reconfiguring a Lot for urban purposes that involves premises 2500 m ² or greater in size AND will result in six or more Lots; or	Not Applicable
(3) Operational works for an urban purpose that involves disturbing a land area 2500 m ² or greater in size.	Not applicable

Consequently, the proposed development does not trigger the State Planning Policy (SPP) 2017 assessment benchmarks for stormwater quality and as such stormwater quality design objectives against Council's Infrastructure Design Code is not required.

6 EROSION AND SEDIMENT MANAGEMENT

6.1 EROSION AND SEDIMENT MANAGEMENT

6.1.1 PRE-DEVELOPMENT

Prior to construction commencing, the following sediment and erosion control measures will be implemented to minimise disturbance and ensure water quality is maintained:

- Designation of transport routes to ensure minimal vegetation disturbance. Transport routes will have construction exits in accordance with IEAust Guidelines;
- Maximise vegetated open space areas to reduce soil disturbance and provide filter strip treatment for runoff;
- Construction entry/exit to be installed and will comprise of a designed gravel pad or placement of hardwood logs in accordance with the IEAust Guidelines;
- Install sediment fences around the proposed bulk earthworks site (along toe of batter alignment); and
- Install dust control fences adjacent to the proposed bulk earthworks site (along property boundary).

6.1.2 BULK EARTHWORKS

Filling during the bulk earthworks phase is to occur so as to direct runoff towards sediment and erosion controls measures. The following measures will be implemented.

- Construct chutes to control runoff over earthworks batters;
- Construction of temporary bund at the top of all earthworks batters to ensure runoff is directed to chutes and away from exposed batters;
- Drainage structure sediment barriers will be installed at all field inlets and gully inlets;
- Vehicle shake down area will be constructed at all vehicle entry/exist points to and from the site;
- Sediment fences will be installed at all downstream developable area boundaries and down slope areas of material stockpile bases; and
- All batters to be top-soiled and seeded immediately upon reaching finished earthworks levels.

6.1.3 CONSTRUCTION

The following measures will be undertaken to mitigate water quality impacts during construction phase:

- Sediment fences to be erected at the downstream site boundaries and at the base of all batters and stockpiles to prevent sediment transportation off site;
- Grass filter strips to be placed along all road verges;
- Re-vegetation of all disturbed areas within two weeks of completion; and
- All sediment control structures to be maintained in an effective manner and inspected after each storm event. No structure is to accumulate sediment above 40% of its capacity.

7 MONITORING AND MAINTENANCE

7.1 GENERAL

The following monitoring and maintenance procedures are to be undertaken by the site supervisor during all phases of the development:

- Inspections of Stormwater, Sediment and Erosion Controls are to be conducted at the end of each construction day and after each rainfall event (>25mm).
- If any validated complaints or evidence of water quality deterioration is reported downstream of the site, the following actions are to be taken:
 - Locate source of water quality deterioration
 - Construct temporary controls to prevent continuing short-term deterioration.
 - Repair existing controls, modify procedures or construct additional controls to prevent further deterioration.

The general requirement of monitoring during the construction phase will be:

- Work activities are restricted to designated construction areas;
- Earthworks and site clearing are undertaken in accordance with the Erosion and Sediment Control Plans;
- Erosion and sediment control devices are to be constructed/installed in accordance with the approved Erosion and Sediment Control Plans;
- Inspection of sediment fences and erosion and sediment control structures/devices on a weekly basis as well as after any rain event exceeding 25mm in 24hrs;
- Stormwater discharges from the site do not have any diverse effect on the downstream environment;
- Monitoring and recording of the performance of the drainage control devices including water quality testing where required;
- Any failure in the stormwater system shall be immediately rectified to prevent uncontrolled discharge from the disturbed area of the site; and
- Any failure to the stormwater system causing damage to surroundings should implement immediate remedial work to the damaged areas.

7.2 RESPONSIBILITY AND REPORTING

- The contractor shall be responsible for monitoring the performance of all drainage control and erosion and sediment control devices;
- Records of any failures to devices should be kept and reported to the Construction Manager;
- Regular inspections of the devices shall be reported to the Construction Manager; and
- Inspections of the devices after heavy rainfall shall be reported to the Construction Manager.

8 CONCLUSIONS

This report has assessed the hydrology and hydraulics of the proposed development at 51 & 53 Birdwood Road, Holland Park West QLD for the pre-development and post-development scenarios.

Based on this stormwater management strategy the following conclusions have been drawn:

- In the post-development scenario, the existing Birdwood Road kerb and channel within the Birdwood Road Reserve, adjacent to the site's eastern boundary, will be considered the lawful point of discharge for the subject site.
- Peak stormwater discharge from the proposed development for all design storms up to and including the Q_{100} ARI (1% AEP) critical storm will be mitigated to equal to or less than pre-development flow rates via the implementation of an underground detention tank that provides 30kL of stormwater detention for the proposed development.
- The development does not trigger requirements for stormwater quality management in accordance with State Planning Policy 2017, therefore stormwater quality treatment is not required for the development site.
- In accordance with BCC Online Interactive Mapping, the subject site has not been identified to be within a flood hazard area, therefore the flood hazard overlay code is not triggered for the subject site.

This report has demonstrated that the proposed development provides an acceptable solution for stormwater management and has been designed to comply accordance with Brisbane City Plan 2014, Queensland Urban Drainage Manual (QUDM, 2016), Australian Rainfall and Runoff (ARR) and Healthy Waterways – Water by Design.

9 APPENDICES

Appendix A: EXISTING SITE PLAN








Appendix B: BCC AS-CONSTRUCTED MAPPING AND FLOODWISE PROPERTY REPORT

Appendix C: DEVELOPMENT SITE PLANS

Appendix D: STORMWATER MANAGEMENT DRAWINGS

APPENDIX A EXISTING SITE PLAN

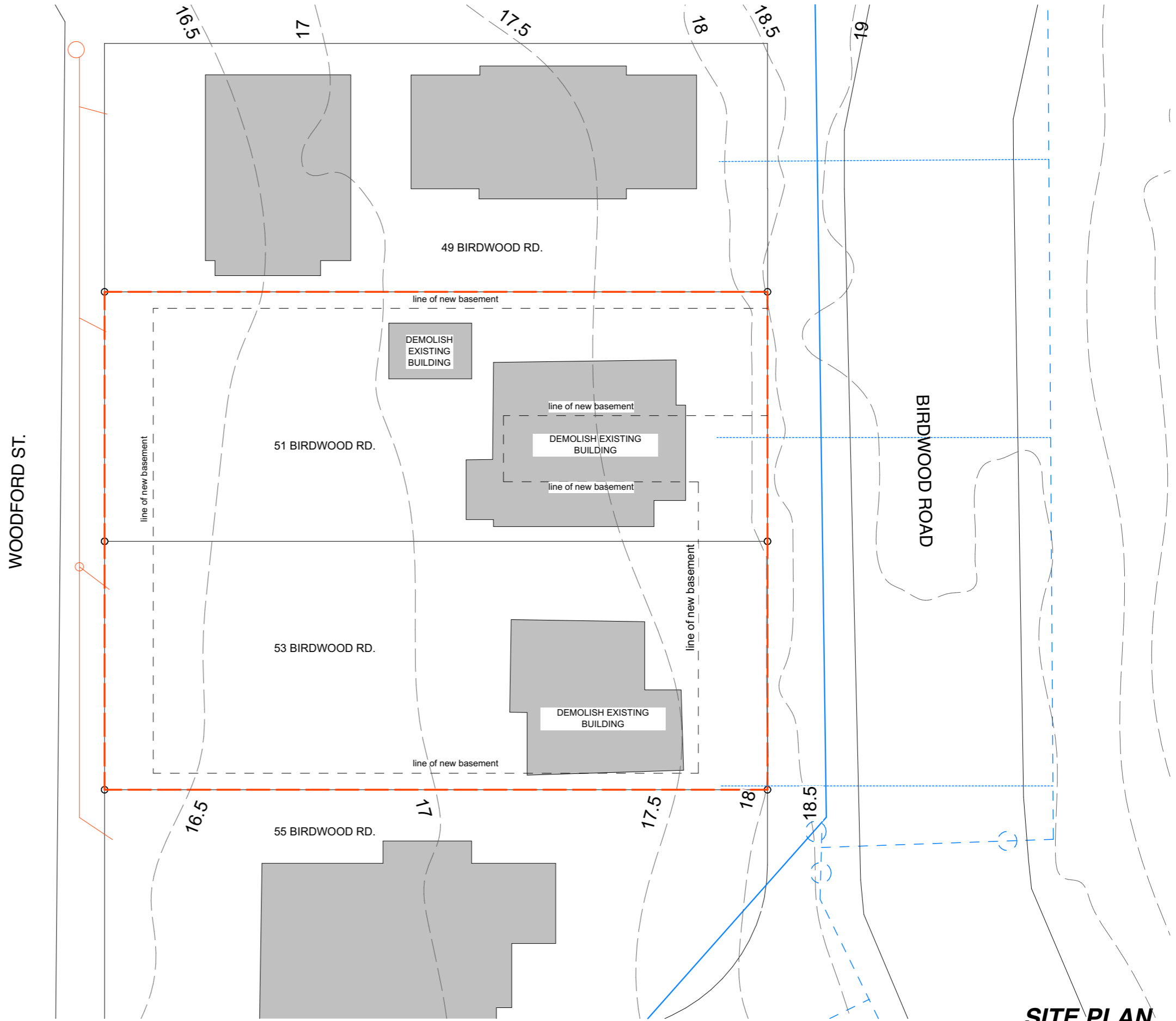
5'

- LEGEND:**
- Sewer line 
 - Water trunk main 
 - Water main 
 - Water services 
 - Target Site 
 - Line of new basement 
 - Contour 



EXISTING SITE PLAN

1:250



SITE PLAN
DRAWING SCALED ON A3



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51&53 Birdwood Rd.
Holland Park West
Qld 4121

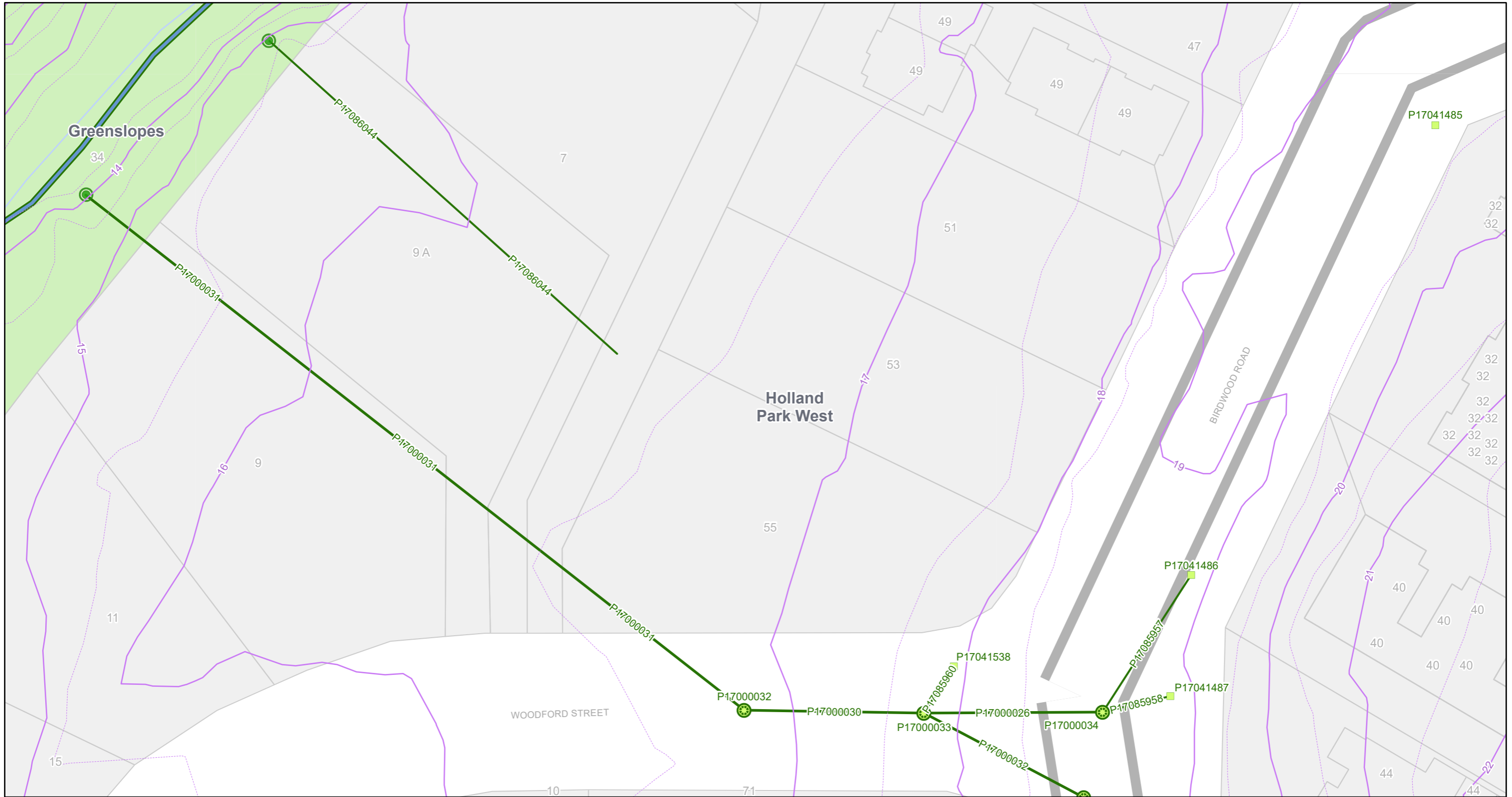
PROJ. NAME: 51&53 Birdwood Rd. Units
STAGE: Development Application
CLIENT: Marius Ferns
PROJ. COORDINATOR: AMS

Project no.: 01790
BA - 02.1 B
 Print date: 2/9/2025

/Users/antonstadler/Library/CloudStorage/GoogleDrive-informdesignstudio@gmail.com/My Drive/1. WORK/1. inFORM design studio/1. Projects/01790 51&53 Birdwood Rd. Units AmoDrawings/DA/01790 250829 DA.pln

**APPENDIX B BCC AS-CONSTRUCTED MAPPING AND
FLOODWISE PROPERTY REPORT**

Community Maps



02/10/2025, 11:59:47

Contours — 2002

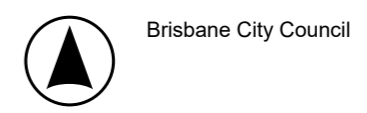
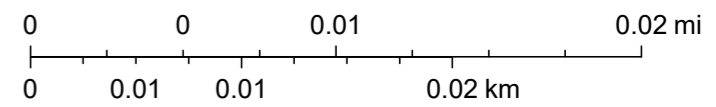
- Intermediate - 1m Contour
- - - Supplementary - 0.5m Contour

End Structure

- Pipe End Outlet

- Gully
- ⊗ Stormwater Manhole
- DRAIN
- GULLY CONNECT
- Surface Drain
- Property Parcel

1:358



FloodWise Property Report

51 BIRDWOOD RD, HOLLAND PARK WEST 4121
 Lot 3 on RP62747

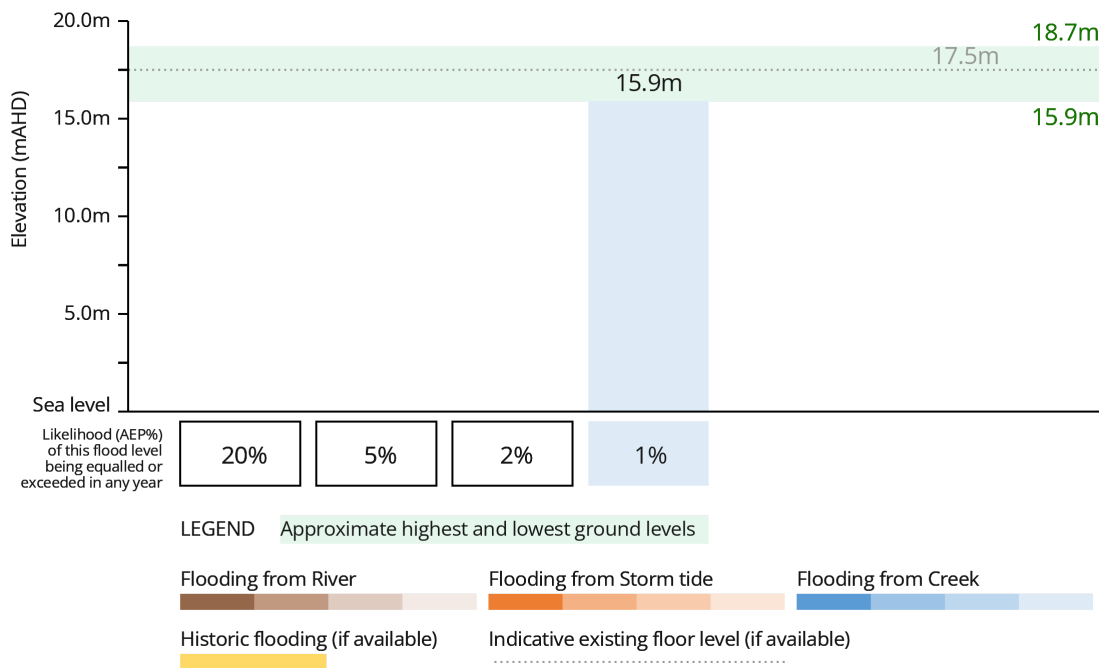


Dedicated to a better Brisbane

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](#).

Graph showing only the highest source/type of flooding for 1%, 2%, 5% and 20% likelihoods. Also shows historic flood levels. Other flood types and levels may be present and will be listed in the Flood Planning Information table below. This graph does not include overland flow flooding. If applicable, overland flow information is shown in the Planning and Development Information section below.
NOTE: See Useful Definitions section to explain terminology.



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
- Visit 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.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	15.9	C
Maximum ground level	18.7	C
Indicative existing floor level	17.5	C
Source of highest flooding	Creek/Waterway	

Flood Planning Information

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning and Development Information section below for further information.

Note this table does not include overland flow. If overland flow is applicable to this property, refer to the Flood Planning and Development section below for further information.

Likelihood / Description	Level (mAHD)	Source
20%	N/A	
5%	N/A	
2%	N/A	
1%	15.9	Creek/Waterway (Norman Creek)
0.2%	N/A	
Minimum Habitable Floor Level (dwelling house)	16.4	

* Council may not have this data available. Customers are recommended to engage a Registered Professional Engineer of QLD (RPEQ) for further advice. For information on seeking Planning Advice, please visit www.brisbane.qld.gov.au/planning-and-building.

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
	FPA5	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.

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.

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Brisbane City Council's Online Flood Tools

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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

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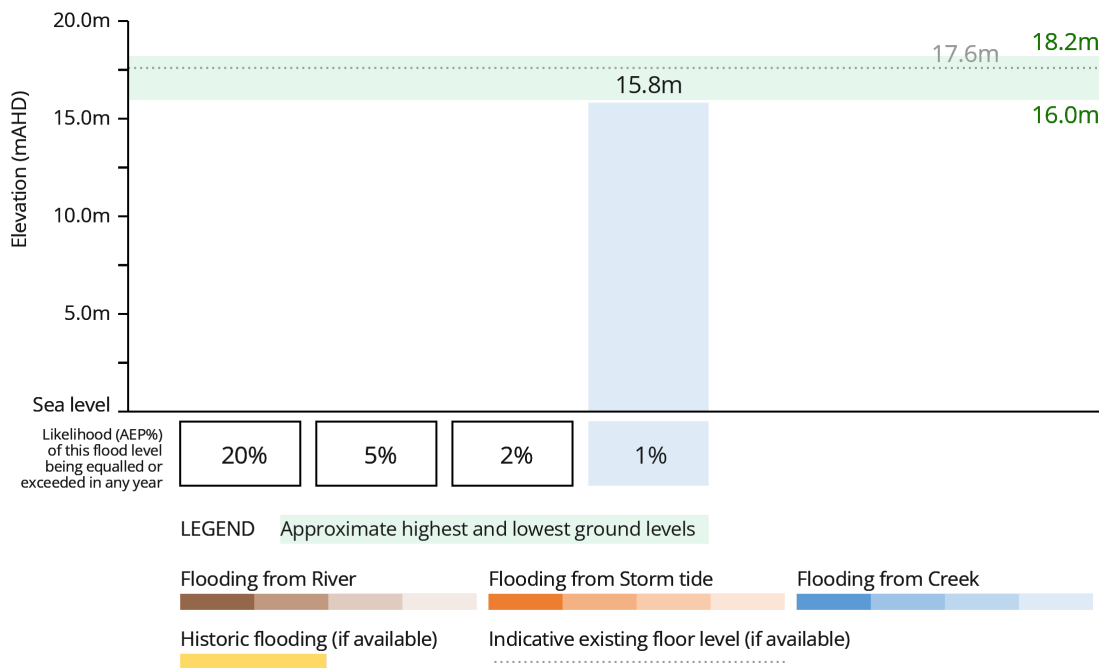
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Property Information Summary

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Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	16.0	C
Maximum ground level	18.2	C
Indicative existing floor level	17.6	C
Source of highest flooding	Creek/Waterway	

Flood Planning Information

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20%	N/A	
5%	N/A	
2%	N/A	
1%	15.8	Creek/Waterway (Norman Creek)
0.2%	N/A	
Minimum Habitable Floor Level (dwelling house)	16.3	

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APPENDIX C DEVELOPMENT SITE PLANS

APPENDIX D STORMWATER MANAGEMENT DRAWINGS

PROPOSED DEVELOPMENT

51 & 53 BIRDWOOD RD, HOLLAND PARK

DO NOT SCALE
CONFIRM ALL DIMENSIONS ON SITE.
DIMENSIONS SHOWN ARE IN METRES U.N.O.

REV.	AMENDMENT	BY	DATE
PA	PRELIMINARY ISSUE	RM	02.10.25
PB	PRELIMINARY ISSUE	RM	19.11.25

GENERAL NOTES

- THE CONTRACTOR MUST COMPLY WITH ALL LOCAL AUTHORITY CONDITIONS RELEVANT TO THIS DEVELOPMENT. THE CONTRACTOR MUST OBTAIN ALL NECESSARY PERMITS & APPROVALS & APPROVED 'FOR CONSTRUCTION' DRAWINGS PRIOR TO COMMENCEMENT OF WORK. THESE DOCUMENTS MUST BE KEPT ON SITE FOR INSPECTION AS REQUIRED.
- THE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE DEVELOPMENT APPROVAL CONDITIONS. CONSTRUCTION MUST NOT COMMENCE UNTIL FINAL OPERATIONAL WORKS APPROVAL OR OTHER RELEVANT COUNCIL APPROVAL TO COMMENCE WORK IS PROVIDED.
- ALL LEVELS ARE TO A.H.D
- ALL SETOUT IS TO THE INVERT OF KERB & CHANNEL OR FACE OF KERB.
- ALL DIMENSIONS ARE TO BE CHECKED ON-SITE BEFORE WORK COMMENCES.
- DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWING.
- ALL WORKMANSHIP & MATERIALS SHALL BE IN ACCORDANCE WITH S.A.A. CODES & RELEVANT STANDARDS.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH CURRENT LOCAL GOVERNMENT BY-LAWS, STANDARDS, DRAWINGS & SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RELEVANT AUTHORITIES & PAYING ALL FEES, SEEKING ANY REQUIRED WORK APPROVALS NECESSARY BEFORE COMMENCING WORK, FOR LOCATING ALL EXISTING SERVICES & FOR REPAIR OF ANY SERVICES DAMAGED AS A RESULT OF THE WORKS.
- THE CLIENTS SURVEYOR SHALL PEG PIT LOCATION & STAKE RP BOUNDARIES PRIOR TO CONSTRUCTION.
- DAMAGED FOOTPATHS & PRIVATE PROPERTY SHALL BE REINSTATED NO WORSE THAN THE ORIGINAL CONDITION.
- CONTRACTOR TO VERIFY ALL INVERT LEVELS, SURFACE LEVELS, COVER OVER DRAINAGE LINES, & MINIMUM FALLS ARE CORRECT & OBTAINABLE PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR SHALL VERIFY DIMENSIONS, BENCH MARK LEVELS & ADVISE DRW CONSULTING OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL ENSURE ALL EXISTING SERVICES & STRUCTURES ARE TO BE MAINTAINED & IN GOOD ORDER FOR THE DURATION OF THE CONTRACT. ANY COST ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
- ALL ENVIRONMENTAL PROTECTION MEASURES SHOULD BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORK, INCLUDING CLEARING & COMMENCING.

SAFETY - GENERAL

- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING DIAL BEFORE YOU DIG (DBYD) DOCUMENTATION & KEEP ON SITE PRIOR CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE WHS ACT 2011 (QLD)
- A SAFE WORK MANAGEMENT PLAN IS REQUIRED TO COMPLY WITH THE ACT THAT INCLUDES THE TRAINING COMPETENCIES & LICENSES REQUIRED TO UNDERTAKE THE WORK.
- DRW CONSULTING WILL NOT UNDERTAKE INSPECTIONS WHERE THERE IS A SAFETY NON COMPLIANCE EVIDENT.
- ADVISED RISKS: THE DESIGNER ADVISES OF THE FOLLOWING RISKS THAT ARE PARTICULAR TO THIS PROJECT & WARRANT PARTICULAR MENTION:
 - TRENCHING IN EXCESS OF 1.5m IS A HIGH RISK ACTIVITY.
 - AS CONSTRUCTED INFORMATION MAY NOT BE CORRECT, ACCORDINGLY CHECK FOR THE EXISTENCE OF ASBESTOS IN PIPES.
 - LOCATION OF EXISTING UNDERGROUND SERVICES MAY NOT BE AS SHOWN ON DRAWINGS
 - RISK ASSOCIATED WITH WORK IN CONFINED SPACES
 - RISK ASSOCIATED WITH HIGH PRESSURE WATER & COLLAPSE OF TRENCHES
 - PARTICULAR RISKS: LOW PRESSURE GAS SERVICE IN ROAD VERGE

SAFETY - TRENCHING

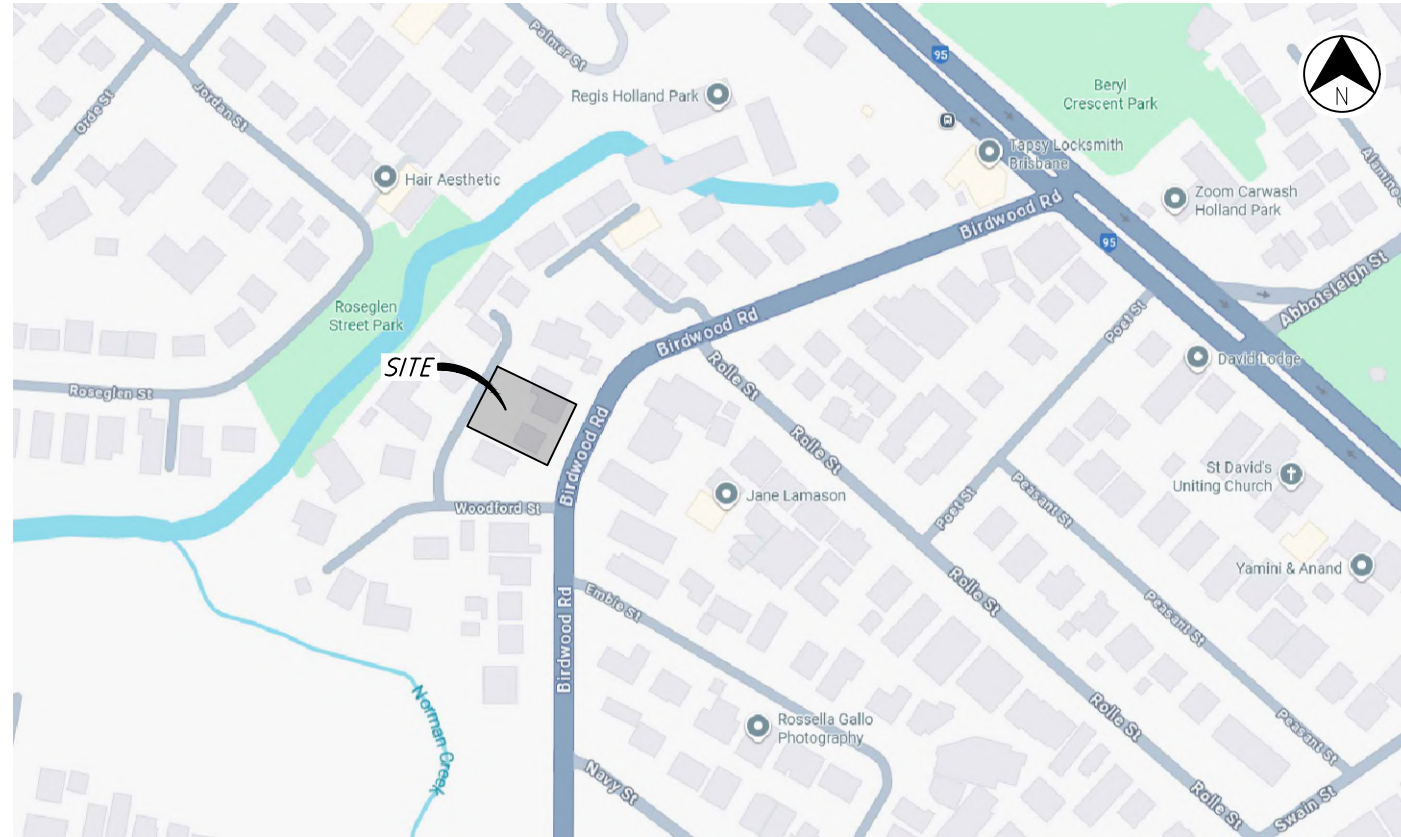
- ALL EXCAVATIONS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT REQUIREMENTS OF THE WORK HEALTH & SAFETY ACT 2011 & SUBSEQUENT AMENDMENTS.
- EXCAVATION WORK SHOULD BE CAREFULLY PLANNED BEFORE WORK STARTS SO IT CAN BE CARRIED OUT SAFELY.
- REFER TO WORKPLACE HEALTH & SAFETY QLD; EXCAVATION WORK - CODE OF PRACTICE.
- IF THE EXCAVATION WORK IS OR INVOLVES HIGH-RISK CONSTRUCTION WORK, A PERSON CONDUCTING A BUSINESS OR UNDERTAKING MUST PREPARE A SWMS BEFORE THE HIGH-RISK CONSTRUCTION WORK START.
- HIGH-RISK CONSTRUCTION WORK INCLUDES A TRENCH WITH AN EXCAVATED DEPTH GREATER THAN 1.5 METRES. THIS REQUIRES THAT ALL SIDES OF THE TRENCH ARE ADEQUATELY SUPPORTED BY ONE OR MORE OF THE FOLLOWING: SHORING, BENCHING, BATTERING.

OTHER CONSULTANTS

- FOR DETAILS OF ROOF & HOUSE DRAINAGE REFER TO HYDRAULIC CONSULTANTS PLANS.
- FOR DETAILS OF ELECTRICAL & TELECOM SERVICES REFER TO ELECTRICAL CONSULTANTS PLANS
- FOR DETAILS OF DRIVEWAY FINISH REFER TO ARCHITECTS PLANS
- FOR DETAILS OF INTERNAL WATER SERVICE REFER TO HYDRAULIC CONSULTANTS PLANS.
- FOR DETAILS OF RETAINING WALLS & ANY OTHER STRUCTURES REFER TO STRUCTURAL ENGINEERS PLANS.

ENVIRONMENTAL NOTES

- VEGETATION PROTECTION**
- CONTRACTORS TO DETERMINE TREE PROTECTIONS ZONE (TPZ) & STRUCTURAL ROOT ZONE (SRZ) & COMPLY WITH AS 4970-2009 PROTECTION OF TREES ON DEVELOPMENT SITES.
 - WHERE POSSIBLE TREE ROOTS SHOULD BE TUNNELED UNDER RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHOULD BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT COUNCIL ARBORIST FOR FURTHER ADVICE.
 - ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY COUNCIL.
- TOPSOIL**
- TOPSOIL & SUBSOIL SHOULD BE STOCKPILED SEPARATELY.
- REHABILITATION**
- PRE-DISTURBANCE SOIL PROFILES & COMPACTION LEVELS ARE TO BE REINSTATED.
 - PRE-DISTURBANCE VEGETATION PATTERNS SHOULD BE RESTORED. FOR FURTHER INFORMATION CONTACT LOCAL GOVERNMENT COUNCIL.



LOCALITY PLAN

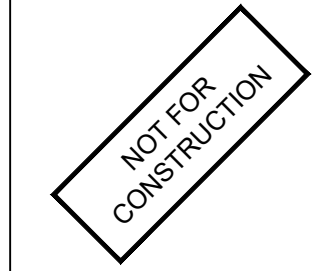
N.T.S.

DRAWING INDEX

DRAWING No.	DESCRIPTION
SM00	LOCALITY PLAN, DRAWING INDEX & NOTES
SM01	PRE & POST DEVELOPMENT STORMWATER ASSESSMENT LAYOUT
SM02	CONCEPTUAL STORMWATER DRAINAGE LAYOUT & DETAILS
SM03	STORMWATER DETENTION TANK LAYOUT & DETAILS

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SURVEY INFORMATION

SURVEYOR:

URE

DRAWING No.:

BA - 02.1 B

VERTICAL DATUM:

AHD

REAL PROPERTY DESCRIPTION:

LOT 3 & LOT 4

ON RP62747

SERVICES ALSO PLOTTED FROM:



THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH BEFORE YOU DIG DOCUMENTATION & LOCATION OF SERVICES CONFIRMED PRIOR TO ON-SITE CONSTRUCTION OR EXCAVATION COMMENCES.

PRELIMINARY

PROJECT

PROPOSED DEVELOPMENT
51 & 53 BIRDWOOD RD,
HOLLAND PARK

CLIENT

PHOENIX TRUST PTY LTD

TITLE

LOCALITY PLAN,
DRAWING INDEX &
NOTES

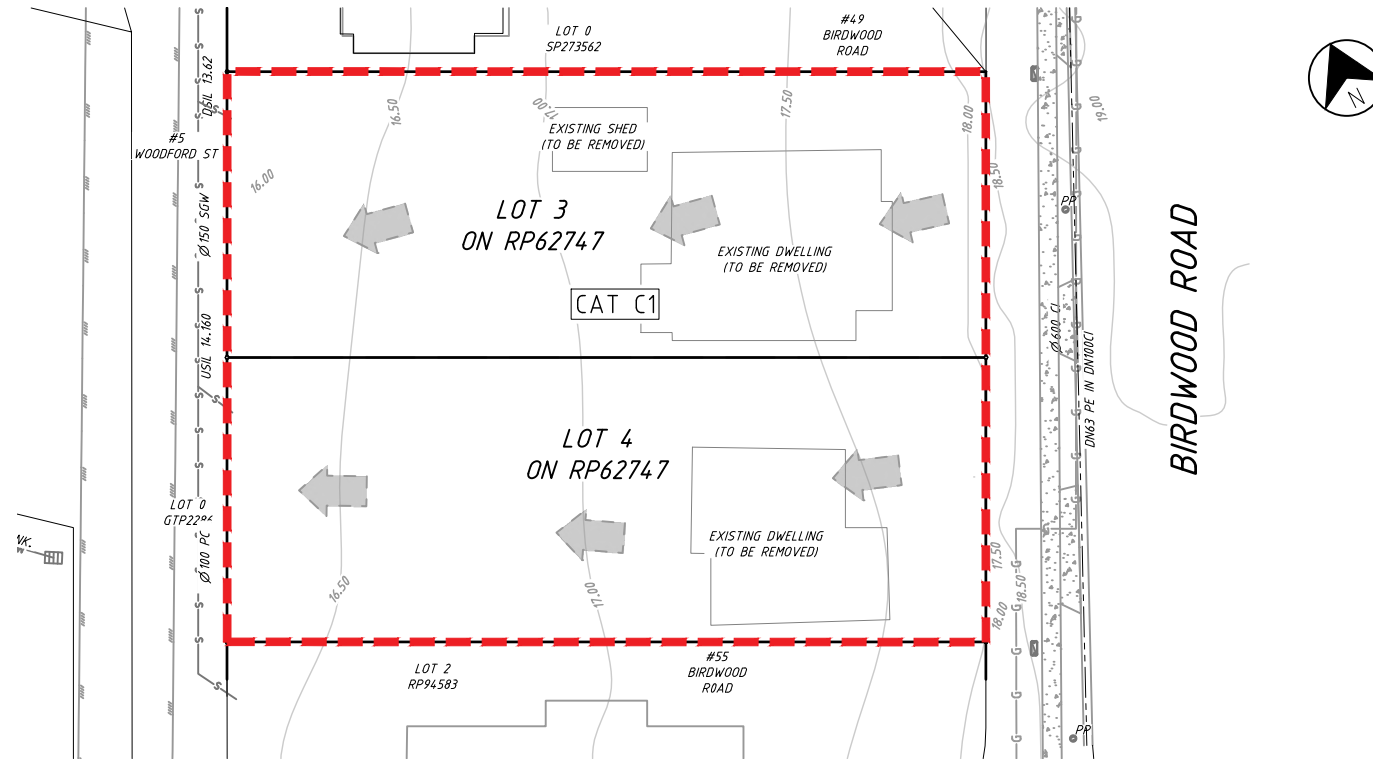


Designed	Drawn	Date
RM	AM	09.09.2025
Checked	Final Check	Scale
		AS SHOWN

Drawing No.	Rev.
5656-SM00	PB

RATIONAL METHOD CALCULATION TABLE

PRE-DEVELOPMENT - CAT C1	
TOTAL SITE AREA (Ha)	0.121
IMPERVIOUS AREA (m ²)	218
FRACTION IMPERVIOUS (fi)	0.18
TIME OF CONCENTRATION, T _c (MIN.)	8.8
RUNOFF COEFFICIENT, C ₁₀	0.70
MINOR STORM PEAK FLOW RATE, Q ₁₀ (m ³ /s)	0.041
MAJOR STORM PEAK FLOW RATE, Q ₁₀₀ (m ³ /s)	0.073

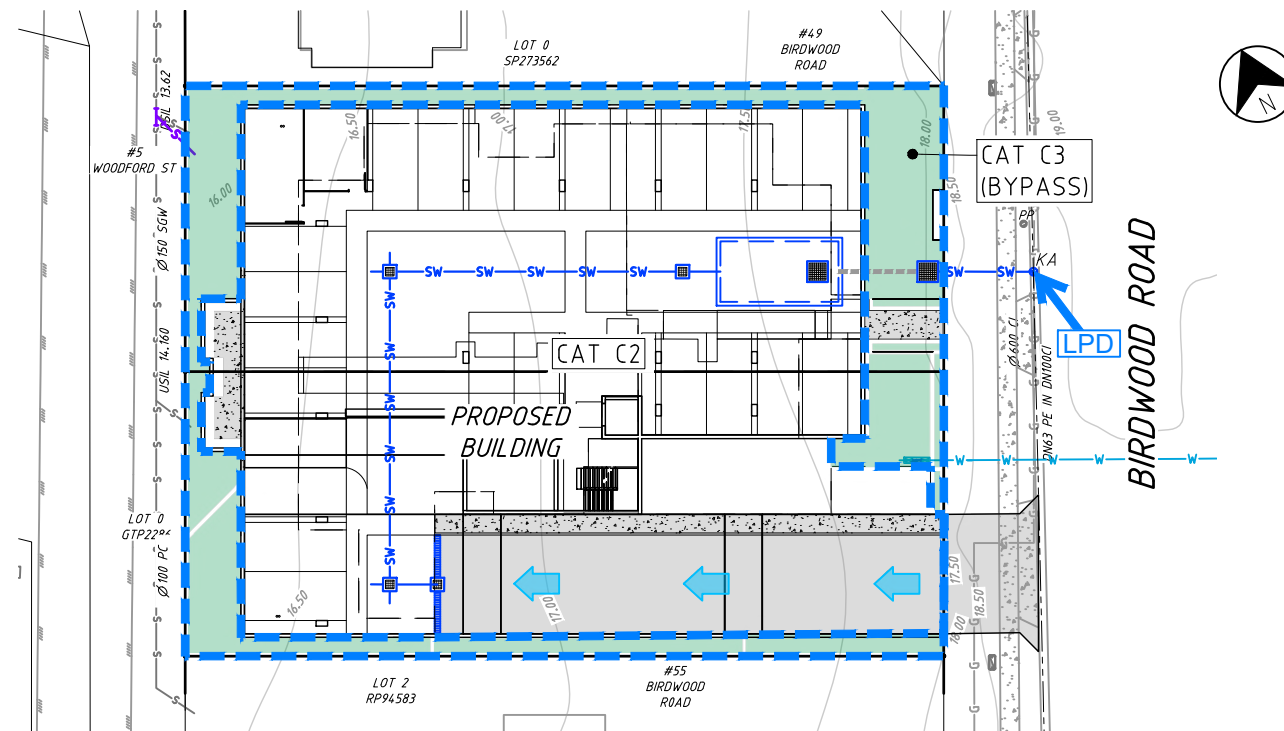


PRE-DEVELOPMENT LAYOUT

SCALE 1:200

RATIONAL METHOD CALCULATION TABLE

POST-DEVELOPMENT	CAT C2	CAT C3 (BYPASS)
TOTAL SITE AREA (Ha)	0.097	0.024
IMPERVIOUS AREA (m ²)	974	8
FRACTION IMPERVIOUS (fi)	1.00	0.03
TIME OF CONCENTRATION, T _c (MIN.)	5.0	5.0
RUNOFF COEFFICIENT, C ₁₀	0.90	0.70
MINOR STORM PEAK FLOW RATE, Q ₁₀ (m ³ /s)	0.050	0.009
MAJOR STORM PEAK FLOW RATE, Q ₁₀₀ (m ³ /s)	0.083	0.017



POST-DEVELOPMENT LAYOUT

SCALE 1:200

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WARNING!
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DO NOT SCALE
CONFIRM ALL DIMENSIONS ON SITE.
DIMENSIONS SHOWN ARE IN METRES U.N.O.

REV.	AMENDMENT	BY	DATE
PA	PRELIMINARY ISSUE	RM	02.10.25
PB	PRELIMINARY ISSUE	RM	19.11.25

LEGEND

- EXISTING WATER
- EXISTING STORMWATER
- EXISTING GAS
- EXISTING OH ELECTRICITY
- EXISTING CONCRETE
- EXISTING CONTOURS
- DESIGN CONTOURS
- PROPOSED SWALE DRAIN
- PROPOSED DRIVEWAY
- PROPOSED STORMWATER
- PROPOSED TOP OF BATTER
- PROPOSED BOTTOM OF BATTER
- DESIGN EDGE OF ROAD KERB
- DESIGN FOOTPATH
- PROPOSED SEWER
- PROPOSED WATER MAIN
- PROPOSED WATER SERVICE
- PROPOSED WATER METER
- PROPOSED EASEMENT OTHER (SEE LABEL)
- PROPOSED EASEMENT STORMWATER
- PROPOSED RETAINING WALL
- PROPOSED BUILDING WALL (OTHERS)
- PRE-DEVELOPMENT OVERLAND FLOW DIRECTION
- PRE-DEVELOPMENT CATCHMENT
- PRE-DEVELOPMENT LAWFUL POINT OF DISCHARGE (LPD)
- POST-DEVELOPMENT OVERLAND FLOW DIRECTION
- POST-DEVELOPMENT CATCHMENT
- POST-DEVELOPMENT LAWFUL POINT OF DISCHARGE (LPD)
- EXTERNAL CATCHMENT
- EXTERNAL CATCHMENT OVERLAND FLOW DIRECTION

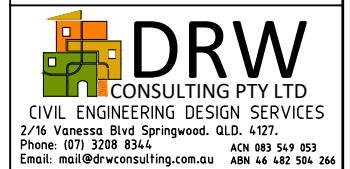
PRELIMINARY

NOT FOR CONSTRUCTION

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PROJECT
PROPOSED DEVELOPMENT
51 & 53 BIRDWOOD RD,
HOLLAND PARK
CLIENT
PHOENIX TRUST PTY LTD

TITLE
PRE & POST DEVELOPMENT
STORMWATER
ASSESSMENT LAYOUT



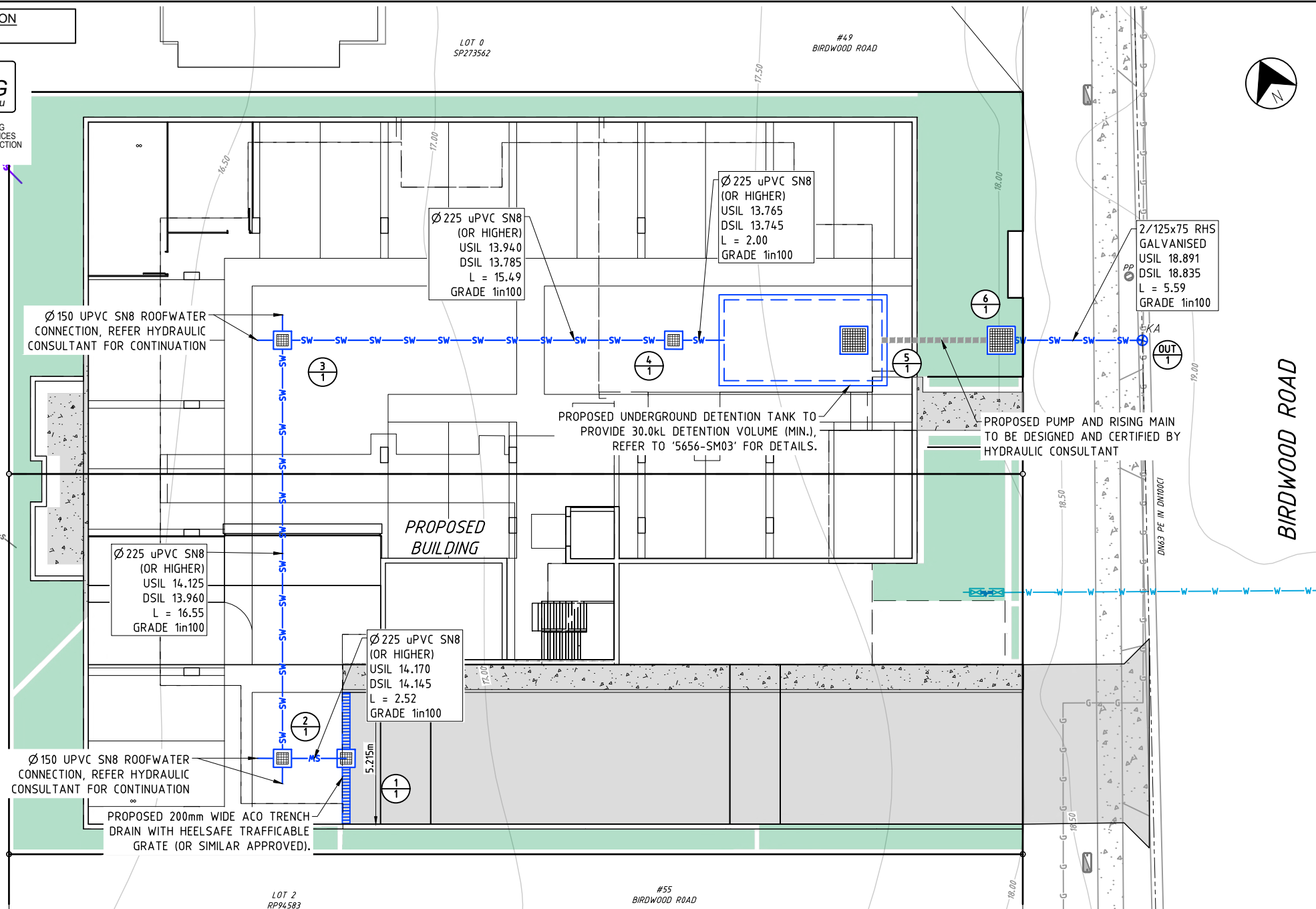
Designed	Drawn	Date
RM	AM	09.09.2025
Checked	Final Check	Scale
AS SHOWN	AS SHOWN	AS SHOWN
Drawing No.	Rev.	
5656-SM01	PB	

SCALE 1:250 (A1) 0 5 10 15 20 25m
5 4 3 2 1

REAL PROPERTY DESCRIPTION
LOT 3 & LOT 4 ON RP62747



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WARNING!
SUBSURFACE UTILITY INVESTIGATION SHOULD BE UNDERTAKEN TO DETERMINE DETAILS OF WATER, SEWER & OTHER SERVICES. ACCURACY OF FINAL DESIGN WILL DEPEND ON THIS BEING UNDERTAKEN.

MAXIMUM DEPTH FOR ROOFWATER PITS

MAXIMUM DEPTH	RECTANGULAR PIT SIZES / CIRCULAR MH DIAMETERS
<750	450x450
>750 <900	600x600
>900 <1200	600x900 / 1050Ø [AS3500.3]
>1200 <1500	900x900 [AS3500.3]
>1500	1050Ø [AS3500.3]

BRISBANE CITY COUNCIL (REFER TO STD DRG BSD-8000 SERIES)

IF PIT DEPTHS DIFFER ONSITE TO LEVELS & DEPTHS SHOWN ON DESIGN, THE CONTRACTOR IS TO CONTACT DRW CONSULTING FOR CONFIRMATION OF CORRECTED SIZES. PITS ARE **NOT** TO EXCEED MAXIMUM DEPTHS SPECIFIED

SURVEY REQUIREMENTS:
THE CONTRACTOR IS TO ORGANIZE A REGISTERED SURVEYOR TO CARRY OUT MGA SURVEY OF ALL INSTALLED STORMWATER, SEWER & WATER PIPES (REQUIRING COUNCIL APPROVAL) PRIOR TO BACKFILLING. IF TRENCHES HAVE BEEN BACKFILLED PRIOR TO SURVEY, ALL TRENCHES WILL HAVE TO BE EXCAVATED TO EXPOSE THE PIPES FOR SURVEY.

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DIMENSIONS SHOWN ARE IN METRES U.N.O.

REV.	AMENDMENT	BY	DATE
PA	PRELIMINARY ISSUE	RM	02.10.25
PB	PRELIMINARY ISSUE	RM	19.11.25

LEGEND

- EXISTING SEWER LINE & MANHOLE
- EXISTING TELSTRA / OPTIC FIBRE & PIT
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING GAS
- EXISTING OH ELECTRICITY
- EXISTING UG ELECTRICITY
- EXISTING CONCRETE
- EXISTING STORMWATER MANHOLE / PIT
- EXISTING SPOT LEVEL
- EXISTING CONTOURS
- DESIGN CONTOURS
- PROPOSED SWALE DRAIN
- PROPOSED DRIVEWAY
- PROPOSED STORMWATER
- PROPOSED CATCHMENT
- PROPOSED CATCHMENT ID
- PROPOSED STORMWATER MANHOLE / PIT
- PROPOSED SEWER
- PROPOSED WATER MAIN
- PROPOSED WATER SERVICE
- PROPOSED WATER METER
- PROPOSED EASEMENT OTHER (SEE LABEL)
- PROPOSED EASEMENT STORMWATER
- PROPOSED RETAINING WALL
- PROPOSED BUILDING WALL (OTHERS)
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION

STORMWATER DRAINAGE NOTES

- ALL DRAINAGE EXCAVATION & CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3500 PLUMBING & DRAINAGE CODE & THE APPLICABLE LOCAL AUTHORITY SPECIFICATIONS & STANDARD DETAILS.
- MINIMUM COVER SHALL BE 300MM IN ALL PRIVATE PROPERTY UNO.
- ALL UPVC PIPES SHALL BE MINIMUM CLASS "SN8" UNLESS NOTED OTHERWISE (UNO). ALL RCP PIPES SHALL BE CLASS "2" UNO. ALL FRC PIPES SHALL BE CLASS "2" UNO.
- PIPES SHALL BE LAID AT MIN. 1% GRADE UNO.
- CONTRACTOR MUST VERIFY THAT ALL PIPE LEVELS & GRADES CAN BE ACHIEVED PRIOR TO CONSTRUCTION. ANY CONFLICT SHALL BE REFERRED TO DRW CONSULTING FOR ANY NECESSARY ALTERATIONS PRIOR TO ANY CONSTRUCTION OF CONNECTING PIPEWORK.
- WHERE PIPES ARE TO BE LAID WITHIN THE ZONE OF INFLUENCE OF STRUCTURAL LOADINGS (E.G. BUILDING FOOTINGS, RETAINING WALLS ETC.) THE CONTRACTOR SHALL CONSULT WITH THE STRUCTURAL ENGINEER OR SUPERINTENDENT & PROVIDE ADEQUATE BRIDGING / PROTECTION WHERE ANY DOUBT MAY EXIST.
- BENCHING OF PIT STRUCTURES SHALL HAVE A SMOOTH FINISHED SURFACE, & PIPES SHALL NOT PROJECT INSIDE THE SHAFT OF THE PIT.
- WHERE RECTANGULAR PIT STRUCTURES ARE USED, PIPES MUST NOT CONNECT TO THE PIT AT CORNERS.
- A REGISTERED SURVEYOR SHALL BE ENGAGED TO CARRY OUT MGA SURVEY OF ALL INSTALLED STORMWATER PIPES (REQUIRING COUNCIL APPROVAL) PRIOR TO BACKFILLING. IF TRENCHES HAVE BEEN BACKFILLED PRIOR TO SURVEY, ALL TRENCHES WILL HAVE TO BE EXCAVATED TO EXPOSE THE PIPES FOR SURVEY.
- SWALE DRAINS ARE TO BE TURFED & MAINTAINED UNTIL ESTABLISHED.
- ALL ROOFWATER INSPECTION MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL GOVERNMENTS ROOFWATER INSPECTION MANHOLE DRAWINGS OR SIMILAR IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- WHERE MORE THAN ONE RHS IS REQUIRED, EACH IS PLACED NOT LESS THAN 25MM APART & WELDED TOGETHER, USING A STEEL SPACER BETWEEN THE SECTIONS. THE WHOLE ITEM SHALL BE GALVANIZED AFTER FABRICATION. USE KERB ADAPTORS WHEN DISCHARGING TO KERB & CHANNEL AS PER LOCAL COUNCIL STANDARDS.
- PIPECLASS & TRENCH DETAIL HAS BEEN CHECKED USING AN APPROPRIATE METHOD CONFIRMING TO AS/NZS 3725:2007 SUCH AS CONCRETE PIPE ASSOCIATION OF AUSTRALASIA PROGRAM 'PIPECLASS' V2.0 (OR LATER). CONSTRUCTION LOADS APPLIED WERE:
 - SCRAPER - CAT621F (53.8T)
 - EXCAVATOR - CAT325B (25.9T)
 - COMPACTOR - CAT185F (20.9T)
 - EXCAVATOR WITH 580mm WIDE ROLLER (25.0T)
 IF THE CONTRACTOR USED DIFFERENT OR HEAVIER EQUIPMENT THAN SHOWN ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO DETERMINE IF THE CLASS OF PIPE FOR THIS PROJECT IS ADEQUATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED AS A RESULT. ADOPTED MINIMUM FILL DEPTH OF 700mm DURING CONSTRUCTION.

STORMWATER DRAINAGE LAYOUT - BASEMENT

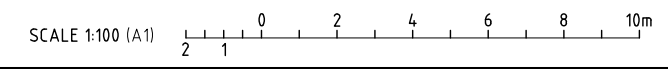
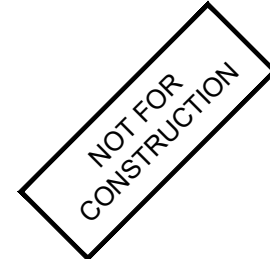
SCALE 1:100

STORMWATER STRUCTURES TABLE

NAME	SIZE/TYPE	TRAFFICABLE
1/1	200mm WIDE TRENCH DRAIN WITH IN-LINE PIT	YES
2/1	600 x 600 GRATED PIT	YES
3/1	600 x 600 GRATED PIT	YES
4/1	600 x 600 GRATED PIT	YES
5/1	900 x 900 GRATED ACCESS PIT	YES
6/1	900 x 900 GRATED DISCHARGE PIT	YES
OUT/1	2/ 125x75 RHS	YES

*** APPROVED MATERIALS NOTE:** (BCC ONLY)

- STEEL REINFORCED (SRCP/RCP - CLASS AS PER MIN STATED IN CH7 OF THE PSP)
- FIBRE REINFORCED (FRC - CLASS AS PER MIN STATED IN CH7 OF THE PSP)
- UPVC AND RHS FOR INTERALLOTMENT (SN8 OR CLASS AS PER MIN STATED IN CH7 OF THE PSP)
- BLACKMAX (IPLEX - SUBJECT TO OVALITY TESTING AND INSTALLATION IN ACCORDANCE WITH AS2566.2 AND MANUFACTURER'S SPECIFICATIONS - TESTING TO OCCUR AT HOLD POINT, PRIOR TO BACKFILL)
- STORMPRO (VINIDEX - SUBJECT TO OVALITY TESTING AND INSTALLATION IN ACCORDANCE WITH AS2566.2 AND MANUFACTURER'S SPECIFICATIONS - TESTING TO OCCUR AT HOLD POINT, PRIOR TO BACKFILL)
- ENVIROPIPES STORMWATER (SUBJECT TO OVALITY TESTING AND INSTALLATION IN ACCORDANCE WITH AS2566.2 AND MANUFACTURER'S SPECIFICATIONS - TESTING TO OCCUR AT HOLD POINT, PRIOR TO BACKFILL)



PRELIMINARY

PROJECT
**PROPOSED DEVELOPMENT
51 & 53 BIRDWOOD RD,
HOLLAND PARK**

CLIENT
PHOENIX TRUST PTY LTD

TITLE
**CONCEPTUAL
STORMWATER DRAINAGE
LAYOUT & DETAILS**

DRW
CONSULTING PTY LTD
CIVIL ENGINEERING DESIGN SERVICES
2/16 Vanessa Blvd Springwood, QLD, 4127.
Phone: (07) 3208 8344 ACN 083 549 053
Email: mail@drwconsulting.com.au ABN 46 482 504 266

Designed	Drawn	Date
RM	AM	09.09.2025
Checked	Final Check	Scale
		AS SHOWN

Drawing No. **5656-SM02** Rev. **PB**