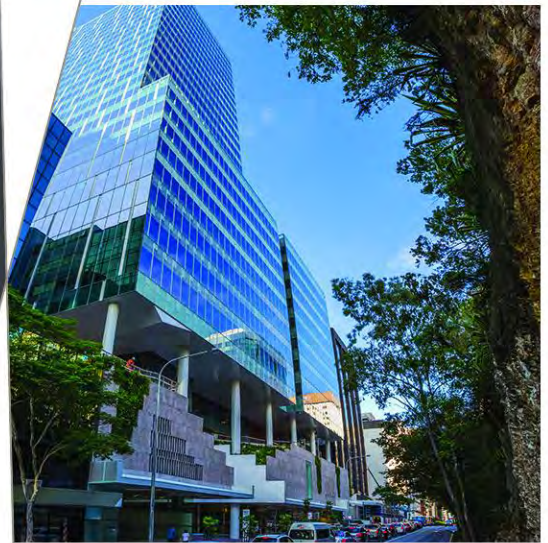


Flood Assessment

146, 154 & 154A O'Riordan Street
Mascot

59919063



Prepared for
Toplace

29 May 2019

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Table of Contents

1	Introduction	1
	1.1 Stormwater Network and Topography	1
2	Available Data	3
	2.1 Council Flood Advice	3
	2.2 MRE Flood Study Model	4
	2.3 Site Inspection	5
3	Development Controls	11
	3.1 Flood Related Development Controls	11
	3.2 Internal Stormwater Drainage	11
	3.3 Recommended Flood Planning Levels	11
	3.4 Sydney Water Requirements	11
4	Proposed Development	13
	4.1 Flood Levels	13
	4.2 Floor Levels	13
	4.3 Flood Impacts	14
	4.4 Trunk Drainage Realignment	14
	4.5 Flood Risk Management Plan	14
5	Summary	15

Appendices

- Appendix A** Bayside Council Flood Advice
- Appendix B** Trunk Drainage Diversion Concept
- Appendix C** Architectural Drawings
- Appendix D** Flood Risk Management Plan Outline

Tables

Table 2-1	Flood Levels from Mascot, Rosebery & Eastlakes Flood Model	5
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Figures

Figure 1-1	Extract from Mascot, Rosebery & Eastlakes Flood Study (WMA Water 2015)	2
Figure 2-1	General Lot Layout (Aerial image source Nearmap)	3
Figure 2-2	MRE Flood Study Configuration	4
Figure 4-1	General Development Layout (Aerial image source Nearmap)	13

1 Introduction

The site, comprising three lots - 146, 154, and 154A O'Riordan Street Mascot; is proposed for redevelopment as residential and retail units in four multi-storey buildings with combined basement carparking. Bayside Council has indicated the properties are flood-affected and have requested details of floodplain management:

- > *The applicant shall acquire flood advice for all lots proposed for the development from council.*
- > *A flood study shall be provided for the development assessing the impacts the development will have (including any proposed stormwater diversions) on the natural flood behaviour of the site in line with Council flood study requirements. Architectural plans are to be amended if necessary to ensure all required flood planning levels are met by the development.*
- > *A flood risk management plan is to be prepared for the development.*

Cardno prepared a preliminary flood advice letter (dated 19 December 2019) which outlined the general flood behaviour, existing stormwater drainage network, and development controls (flood planning levels) for the development. This report is a detailed review of the flooding and proposed development at the site, noting that additional flood modelling and assessment is recommended to refine the estimated extents of the pre- and post-development flood behaviour.

1.1 Stormwater Network and Topography

Figure 1-1 is an extract from the Mascot, Rosebery & Eastlakes Flood Study showing the estimated 1% Annual Exceedance Probability (AEP) peak flood depth and the stormwater infrastructure in the vicinity of the site.

The site is within Sydney Water's West Mascot Catchment Stormwater Network No.63. Figure 1-1 shows both Sydney Water (yellow) and Council (black) stormwater assets in the vicinity of the Site. The main Sydney Water channel runs from east to west adjacent to the southern boundary of the site and the Mascot Park Branch runs from north to south through the middle of site. The catchment area for the Mascot Park Branch includes O'Riordan Street between Coward Street and Bourke Street, Mascot Oval and the subject site.

The Mascot Park Branch is a significant constraint both hydraulically and to the architectural footprint of the proposed development. The easements for the Mascot Park Branch are indicated by (C), (G) and (H) on the site survey by Ramsey & Co. Surveyors. The data from the MRE Flood Study indicates that this branch consists of a $\phi 900\text{mm}$ pipe and a $\phi 1050\text{mm}$ pipe.

The site also has an internal stormwater network. This consists of the following:

- > Roof gutters and downpipes connected to underground drainage pipes;
- > Surface inlet pits. The site survey identifies a total of 12 grated inlet pits. It was observed at the site inspection that some of these pits were quite deep.
- > An underground pipe network connecting the above elements to the SWC drainage infrastructure. Cardno does not have any details of the underground pipes.

The site is on a ridge between the main West Mascot stormwater channel to the south and two trapped sag points, the O'Riordan Street sag and Lionel Bowen Park, to the north. A Council stormwater line runs from the O'Riordan Street sag to the Mascot Park Branch. However there are no surface inlet pits near the south west corner of Lionel Bowen Park. Runoff in the park would pond to a depth of about 0.3m before it can flow overland into the O'Riordan Street Sag.

RMS is undertaking road widening works on O'Riordan St which includes new stormwater infrastructure. These works might reduce flooding in the O'Riordan Street sag but are unlikely to have any flooding at the site. Details of proposed stormwater have been requested from RMS and John Holland but no reply has been provided to date.

Figure 1-1 also shows that the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS) is located at the south west corner of the site. Although unrelated to flooding and stormwater, it is likely to be a constraint to the footprint of the proposed development. The site survey indicates that where this sewer is partially exposed it has a soffit level of at least 8.77m AHD.

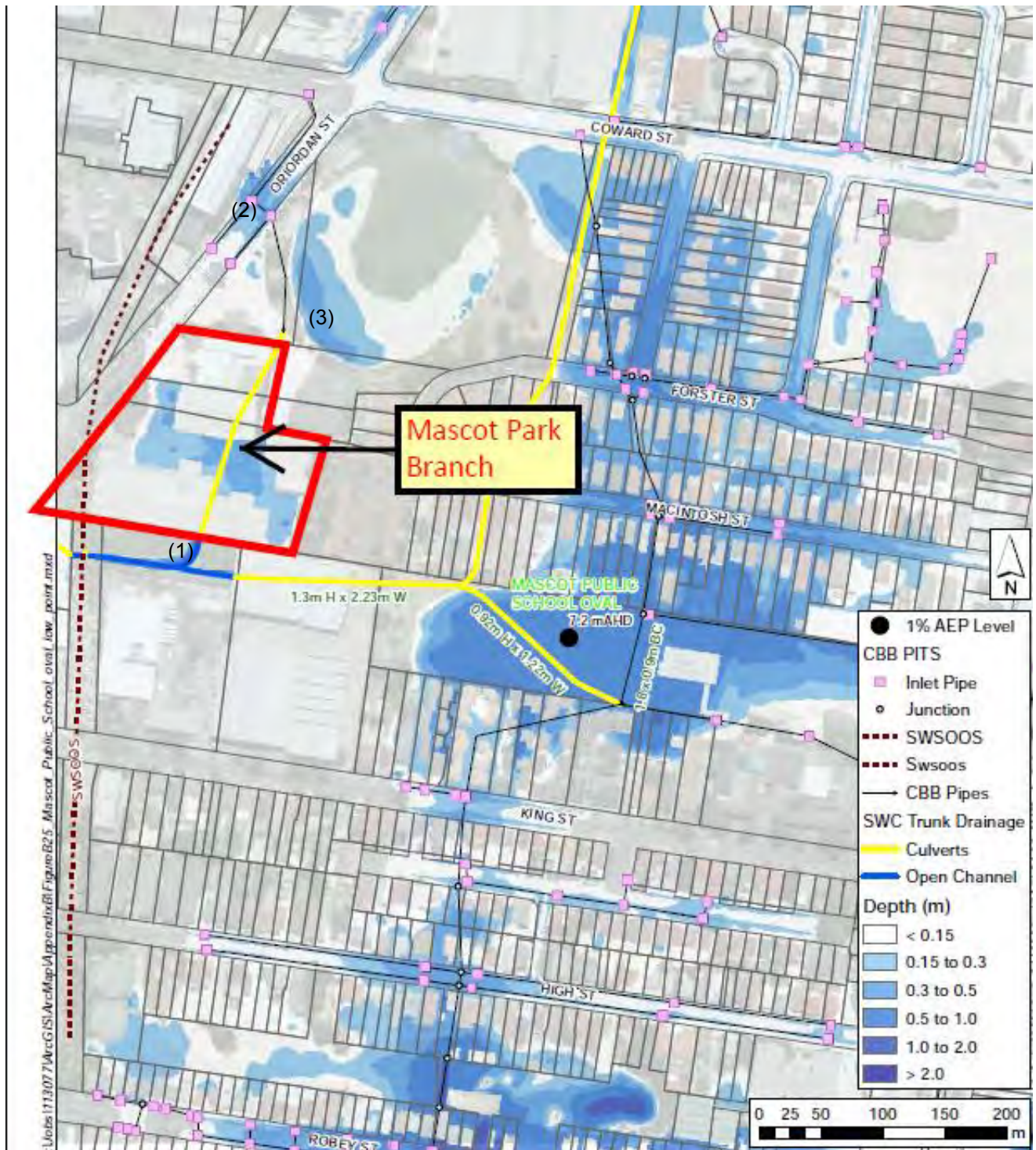


Figure 1-1 Extract from Mascot, Rosebery & Eastlakes Flood Study (WMA Water 2015)

2 Available Data

This flood assessment has been based on available data of the site, proposed development, flood estimation, and development controls, including:

- > Bayside Council flood advice letters:
 - FA-2019/2 dated 21 January 2019 for 146 O'Riordan Street Mascot; and
 - FA-2019/30 dated 11 April 2019 for 154 & 154A O'Riordan Street Mascot.
- > Mascot, Rosebery & Eastlakes Flood Study (WMA Water 2015);
- > Site inspection;
- > Survey Drawing No.8216 of the site by Ramsay & Co. Surveyors dated 7 November 2018 (attached in Appendix C);
- > DA Drawings by PTW Architects dated 10 January 2019;
- > Mascot, Rosebery and Eastlakes Floodplain Risk Management Study & Plan (Royal HaskoningDHV, Draft May 2017);
- > Council of Botany Bay Development Control Plan (2013);
- > Building over and adjacent to Sydney Water stormwater assets (Guideline by Sydney Water, 2015);
- > Alexandra Canal Mascot Station Precinct Stormwater Study (AWT 2001);
- > Work-As-Executed Drawings for Government Contract 64-33-34.

Additional flood modelling is recommended to refine the estimated extents of the pre- and post-development flood behaviour.

2.1 Council Flood Advice

Bayside Council's flood advice letters (attached as Appendix A) summarise peak flood levels based on the Mascot, Rosebery & Eastlakes (MRE) Flood Study of 2015 and development controls for the sites. Figure 2-1 shows the general layout of the lots.



Figure 2-1 General Lot Layout (Aerial image source Nearmap)

Properties 154 and 154A O'Riordan Street are noted as affected by the 1% AEP and Number 146 is noted as being affected by the PMF but not the 1% AEP event. Peak flood levels advised for both sites are 8.49m and approximately 8.6m for the 1% AEP and PMF events respectively. These levels are consistent with the results of the MRE TUFLOW model. However as noted in Section 2.2, the MRE hydraulic model may overestimate the flood level within the site as it is a broadscale catchment model.

Properties 154 & 154A O'Riordan are noted as being subject to overland flooding. The site is generally higher than the surrounding area thus runoff on the site results from contributing areas on the site, not flow from external subcatchments.

The Flood Advice Letter for 154 & 154A O'Riordan Street specifies a minimum habitable floor level for new development of 8.99m AHD and minimum level of 8.79m for non-habitable buildings and structures. However, final FPL's for the site may differ as the flood behaviour of the post-development scenario would be altered due to the revised site grading and building layout. Key considerations are the freeboards specified and the requirement for the development to not increase the water level or hazard on adjoining properties.

2.2 MRE Flood Study Model

Flood behaviour estimated in the Mascot, Rosebery & Eastlakes Flood Study used a DRAINS hydrologic model and a 2-dimensional TUFLOW hydraulic model of pipe, channel and overland flows. The TUFLOW model elevations adopt a 2m x 2m grid size based on LiDAR data collected in 2007-2008. It includes pit and pipe data provided by Council and Sydney Water. Features that significantly influence flood behaviour such as flow paths, buildings, kerbs and gutters, road embankments, the drainage network, fences and bridges were also represented in the hydraulic model. However, as a broadscale catchment model it has limitations for flood estimation at a site-specific context as internal drainage systems, elevations, and discrete contributing catchments cannot be defined.

Figure 2-2 shows some general components of the TUFLOW model:

- > Subcatchment for hydrologic calculations shown in red;
- > Hydrologic inflows applied to the TUFLOW model at locations shown in green;
- > Buildings obstructions shown in orange hatch;
- > 1% AEP flood extents shown as white-blue-black shading.

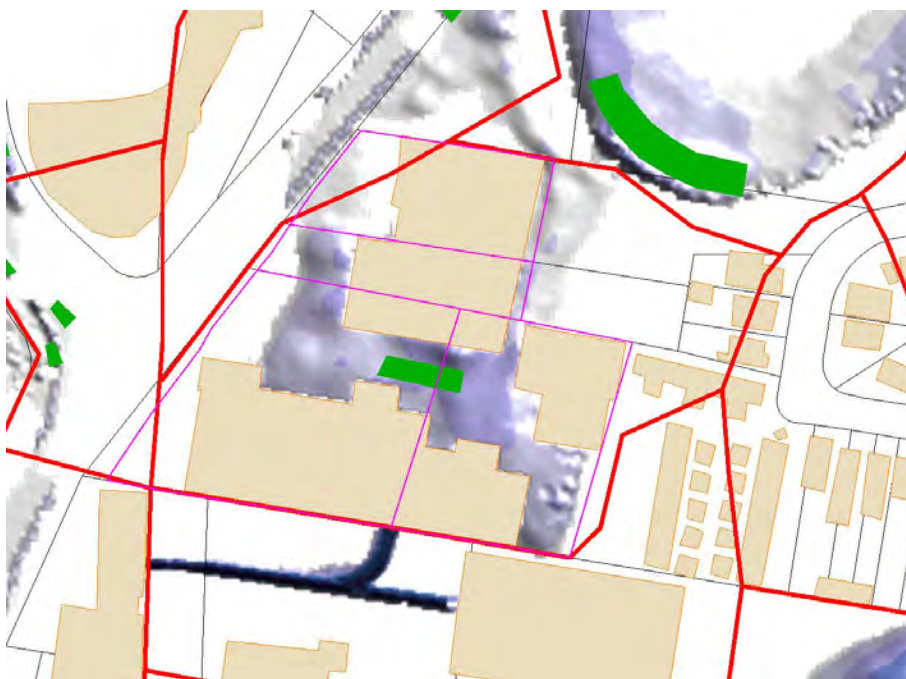


Figure 2-2 MRE Flood Study Configuration

Generally, the TUFLOW modelling shows runoff ponds within the site (due to existing lowpoints and retaining walls) and spills to the north. The TUFLOW model results suggest that runoff within the site will pond to up to 0.3-0.5m depth in a 1% AEP event, before flowing overland towards the O’Riordan Street sag. Flooding in the channel adjacent to the southern boundary is estimated as confined to a narrow overbank area and does not extend into the site in the 1% AEP nor the Probable Maximum Flood (PMF). Trapped sag points are located to the north of the site in O’Riordan Street and Mascot Oval. Peak flood levels from the Study are summarised in Table 2-1. Existing ground levels on the site are above the estimated 1% AEP flood levels at these locations.

Table 2-1 Flood Levels from Mascot, Rosebery & Eastlakes Flood Model

Location (refer Figure 1-1)	1% AEP	PMF
(1) Channel adjacent to southern boundary	6.0m AHD	7.2m AHD
(2) O’Riordan Street sag	7.5m AHD	8.2m AHD
(3) Mascot Oval	7.6 m AHD	8.2m AHD

The model results are considered conservative as:

- > The Mascot Oval carpark is not contributing to the site inundation as it falls to the north;
- > Internal pits and pipes are not modelled (pipes less than 450mm diameter are modelled as 100% blocked);
- > A narrow overland flowpath from the site towards the south is not represented in the TUFLOW model (due to the model grid cell size).

Therefore it is recommended to undertake additional TUFLOW modelling to refine the estimate flood behaviour at the site, potentially using rainfall-on-grid methodology or further discretisation of the contributing subcatchments. Modelling of the pre- and post-development scenarios is recommended to define potential changes to flood behaviour and flood planning levels.

2.3 Site Inspection

A site inspection was undertaken on Friday 24 May 2019. The following areas were inspected:

- > The O’Riordan Street Sag (Photo 1). It was clear that this sag covers a large area. There was no obvious overland flow route from the sag.
- > Mascot Oval and carpark (Photo 2). No surface inlet pits were observed in the park, which is consistent with what has been modelled (MRE). The carpark obviously falls away from the 146-154 O’Riordan Street towards the oval which is inconsistent with the catchment area. Residential lots east of the carpark are noticeable higher than the carpark.
- > 146-154 O’Riordan Street. Photo 3 shows the surface grading and one of the internal drainage pits. It was observed that a portion of the SWOOS is exposed in the south western corner of the site due to failure of a log retaining wall (Photo 6).
- > The Mascot West Drainage Channel to the South of the Site (Photos 4 & 5).The channel was accessed through No.263-273 King Street. The channel banks and overbank areas had been cleared of vegetation. Photo 5 is looking towards the SWOOS where it crosses the channel.

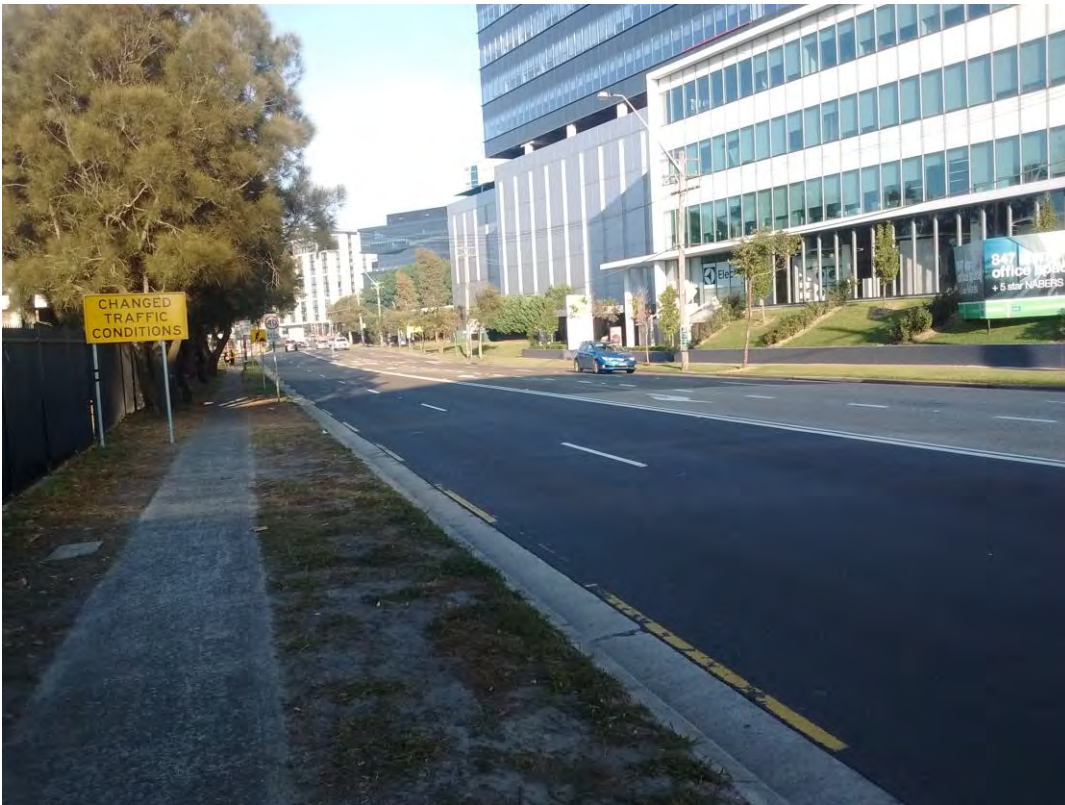


Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6

3 Development Controls

3.1 Flood Related Development Controls

Council's Flood Advice letter for No.146 specifies the following controls:

- > any new habitable floor level shall be designed a minimum of 200mm above the ground level to avoid shallow surface water entering the building; and
- > any new low level driveway to basement garage shall be designed a minimum of 100mm above the top of road kerb level to prevent street water flow entering the driveway.

Council's Flood Advice letter for No.154 & 154A specifies the following controls:

- > For the design of a new developments on this land the minimum habitable floor level is: 8.99m AHD; and
- > The minimum level for non-habitable buildings and structures such as garages and ramps to basement car parking is: 8.79 m AHD.

3.2 Internal Stormwater Drainage

Councils' DCP requires that internal drainage is designed in accordance with Australian / New Zealand Standard 3500.3. This Standard requires that floor levels be 300mm above the ponding level of any sag pits where water may pond against or enter a building.

3.3 Recommended Flood Planning Levels

Flood planning levels for this site would generally be determined based on the peak flood levels external to the site, not the internal flood levels from the modelling as these would be dependent on internal site conditions which are not explicitly modelled. It is assumed that roof gutter and surface drainage would be designed to manage internal runoff.

A minimum flood planning level of 8.1m AHD is estimated for habitable areas based on a 500mm freeboard to the peak external 1% AEP flood level of 7.6m AHD (noting the peak flood level on the southern boundary is lower at 6.0m AHD). However the above criteria of "a minimum of 200mm above the ground level to avoid shallow surface water entering the building" gives a higher floor level.

3.4 Sydney Water Requirements

Sydney Water has comprehensive guidelines for Building over and adjacent to their stormwater assets. This document is on their website

http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdux/~edisp/dd_051552.pdf. The general requirements include (which are further detailed in the document):

- 1m horizontal clearance and 0.6m vertical clearance to any proposed structure;
- A Flood Impact Assessment may be required.

Potentially there are three options for developing adjacent to the Mascot Park Branch stormwater:

1. *Leave as is and reduce the development footprint to be outside of the easement*
2. *Divert the Mascot Park Branch stormwater pipe along the site boundaries, potentially as shown on the figures in Appendix B.*
 - This is Sydney Water's preferred option;
 - Will allow the development to have a single basement;
 - Currently proposed building setbacks almost allow enough space for this; and

- Work will be required in the lot to the south to construct a new connection to the main branch channel
3. *Leave Mascot Park Branch on current alignment and develop over it.*
- Sydney Water would only permit this if diversion is not feasible;
 - Separate basements would be required;
 - Stormwater pipe would likely to require reconstruction as its expected life may be less than that of a new building;
 - Building structure would need to be structurally independent to stormwater pipe.

It is recommended that a Water Servicing Coordinator (WSC) be engaged to liaise with Sydney Water regarding requirements for their assets in proposed development of the site. Further analysis and modelling would be required to design, assess conveyance capacity, and review potential flood impacts.

4 Proposed Development

Proposed development of the site comprises four multi-storey buildings (with residential and retail units), an internal road, and three levels of basement across the whole site servicing all the separate buildings. A general layout of the buildings is shown in Figure 4-1. Architectural drawings by PTW Architects are included as Appendix C (note only a selection of drawings is attached).



Figure 4-1 General Development Layout (Aerial image source Nearmap)

4.1 Flood Levels

As noted in the preceding sections of this report, it is recommended that additional flood modelling is undertaken to estimate flood behaviour of the pre- and post-development conditions. A refined flood model of the site would account for the contributing subcatchment (comprising effectively just the site itself) and localised hydraulic controls (from detailed site survey and internal drainage). Flood behaviour on the site would change post-development due to the proposed ground elevations and building position.

4.2 Floor Levels

Refined flood modelling (noted above) would estimate peak flood levels for determining flood planning levels for the proposed floor levels. Potential freeboards required for habitable and non-habitable areas as well as basement entries is dependent on the characteristics of the flood behaviour at the particular location.

4.3 Flood Impacts

A development requirement is that the water level or hazard on adjoining properties is not increased. Stormwater runoff on the site results from catchment areas within the site and there are no significant flowpaths across the site from external catchments. Refined flood modelling would be assessed in this regard.

4.4 Trunk Drainage Realignment

Realignment of the existing stormwater drainage pipe across the site would be required due to the proposed three levels of basement. A potential diversion is discussed in Section 3.4. The trunk drainage realignment may be analysed separately to the peak flood level modelling.

4.5 Flood Risk Management Plan

Council has requested a flood risk management plan be prepared and an outline document was included with the flood advice letters (refer to Appendix D). A plan would be prepared when the post-development flood behaviour is estimated and the potential risk and management can be determined.

5 Summary

Bayside Council records indicate the subject site is affected by flooding. The MRE catchment study is conservative in estimation of the flood behaviour on the site.

Stormwater runoff on the site results from catchment areas within the site and there are no significant flowpaths across the site from external catchments. It is recommended that further site-specific detailed modelling is undertaken to estimate the flood behaviour of the pre- and post-development scenarios.

Proposed floor and basement entry levels can be assessed based on the additional flood modelling outcomes.

APPENDIX

A

BAYSIDE COUNCIL FLOOD ADVICE

11 April 2019

Our Ref: FA-2019/30
Contact: Pulak Saha

Toplace Pty Ltd
121 Majors Bay Rd
CONCORD NSW 2137

Dear Sir/Madam

Re: Flood Advice Letter for 154 & 154A O'Riordan Street, MASCOT (LOT 14 DP1232496, LOT 13 DP 1232496, LOT A DP402876)

When lodging a Development Application you must enclose a copy of this letter.

FLOOD NOTATION Council has notated this property as being affected by the 1% Annual Exceedance Probability (AEP) flood. The 1% AEP flood means there is a 1% (i.e. a 1 in 100) chance of a flood of this height, or higher occurring in any one year.

FLOOD STUDY The Council Flood Study applicable to the property is: Mascot, Rosebery & Eastlakes Flood Study, WMA Water Ltd, 2015

FLOOD LEVELS **All levels are to Australian Height Datum (AHD)**
1% AEP Flood level: 8.49m
2% AEP Flood level: 8.47m
5% AEP Flood level: 8.45m
10% AEP Flood level: 8.43m
20% AEP Flood level: 8.41m

Probable Maximum Flood (PMF) Level:
8.60m AHD

FLOOD RISK EXPOSURE The Flood Risk Exposure of the site has been assessed as
Overland Flooding: Flood Fringe: Hazard varies from H1 to H2

FLOOD COMMENTARY

- Refer to figure 1 for flood extent map.
- Attached example of flood management plan is applicable for minor addition/alteration to the existing development. For complex/major development, detailed flood risk management plan will be required.
- No accurate information is recorded regarding the impact of tsunamis in the Bayside Local Government area.

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Westfield Eastgardens
152 Bunnerong Road
Eastgardens NSW 2036, Australia
ABN 80 690 785 443 Branch 004

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444-446 Princes Highway
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**HAZARD
CATEGORY
DETAILS**

H1 - Generally safe for vehicles, people and buildings.
H2 - Unsafe for small vehicles.

**FLOOD
PLANNING
LEVEL (FPL)**

The Flood Planning Level (FPL) is a height used to set floor levels for property development in flood prone areas. It is generally defined as the 1% AEP flood level plus an appropriate freeboard.

For the design of a new developments on this land the minimum habitable floor level is: 8.99m AHD

The minimum level for non-habitable buildings and structures such as garages and ramps to basement car parking is: 8.79 m AHD

As noted these floor levels are minimums, floor levels higher than these are allowable subject to normal planning rules. In order to relate these levels to your property you will need to obtain a survey to determine the ground level to AHD at the site.

**OVERLAND
FLOW**

The development is not to increase the water level or hazard on adjoining properties. Opportunities should be investigated to design a development that is clear of the overland floodway and acts to reduce the impacts of these flows, possibly by removing inappropriate travel paths and/or reducing the hazard.

For the design of all new developments, alterations and additions on this land a civil/hydraulic engineer is to be engaged to assess the impacts of these overland flows before and after development using a hydraulic model. A *TUFLOW* model has been created by WMA Water Pty Ltd for Bayside Council reflecting catchment conditions in 2015. The model will be made available to a nominated Consulting Engineer subject to entering a Model and Data Licence Agreement and payment of the required fee as listed in Council's fees and charges – Flood studies/ GIS drainage.

**FLOW
THROUGH
FENCING**

Flow through open form fencing (louvres or pool fencing) is required for all new front, side and rear fencing and gates up to the 1% AEP Flood level to allow flood water flow through.

**FLOOD
RELATED
DEVELOPMENT
CONTROLS**

The following additional flood related development controls apply:

1. Any portion of the building or structure lower than the applicable flood planning level (FPL) shall be built from flood compatible materials to be specified by a Structural Engineer.
2. All services associated with the development shall be flood proofed to the habitable floor level.
3. Filling on this land may impact on flood behaviour and may increase the hazard on adjoining properties. A qualified civil/hydraulic engineer is to be engaged to assess the impacts of the filling before and after development using a hydraulic model.
4. A suitably qualified engineer is to certify that the structure can withstand

the forces of floodwater, debris and buoyancy in a 1% AEP flood event.

5. A Flood Management Plan is required to be lodged with the DA which will detail whether evacuation procedures are required and if so how they will be initiated, warning signs and preservation of flood awareness as owners and/or occupants change through time. An example is attached.

**EXISTING
DRAINAGE
NETWORK
ADVICE**

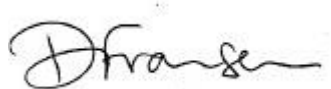
Council is aware of an existing 1050mm diameter stormwater drainage pipe running across the middle of the site (refer to figure 1 for the approximate location). Council records show that this pipe is owned by Sydney Water.

This pipe should be physically located by a surveyor along with the depth. The depth of the pipe and the alignment of the pipe should be clearly shown on the plans submitted for the application for planning consent (DA or CDC). Requirements for construction adjacent to the pipe or relocation of existing drainage asset shall be sought from Sydney Water prior to the lodgement of the DA.

Council considers that this is the best information currently available on flooding in the area, but Council cannot comment on the accuracy of the result.

Should you require any further information, please contact Council's Strategic Floodplain Engineer, Pulak Saha on 9562 1652.

Yours faithfully



Debbie Fransen
COORDINATOR ASSET STRATEGY

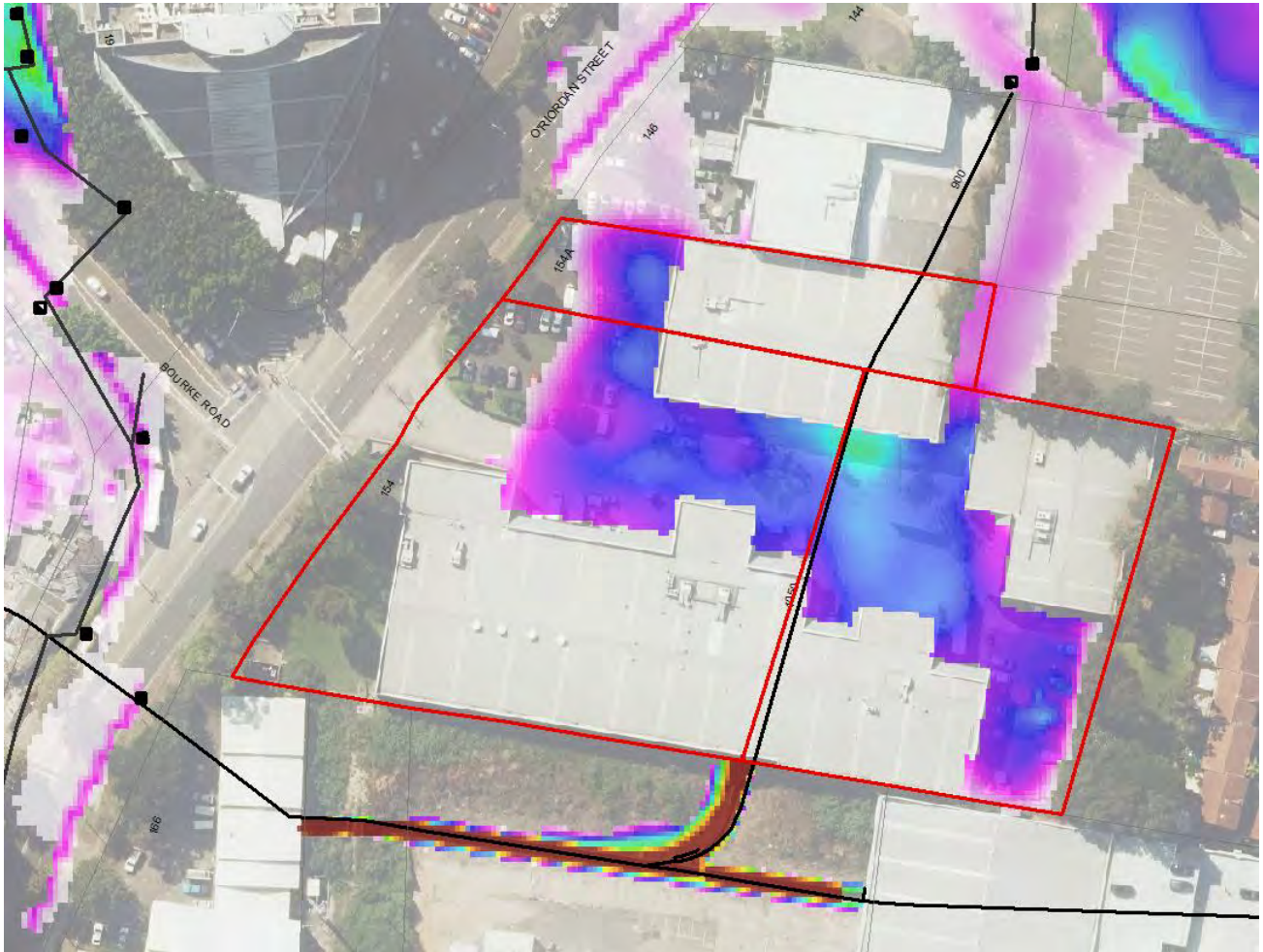


Figure 1: 1% AEP Flood extent map (brown and dark blue graduating to green indicates greater depth of water and pale pink indicates shallower depth, black line indicates approximate location of the existing drainage network)

21 January 2019

Our Ref: FA-2019/2
Contact: Pulak Saha

JKN Park Pty Ltd
121 Majors Bay Rd
CONCORD NSW 2137

Dear Sir/Madam

Re: Flood Advice Letter for 146 O'Riordan Street, MASCOT

When lodging a Development Application you must enclose a copy of this letter.

FLOOD NOTATION	<p>Council has not notated this property as being affected by the 1% Annual Exceedance Probability (AEP) flood.</p> <p>Council has notated this property as being affected by a Probable Maximum Flood (PMF) flood.</p> <p>The PMF is the largest flood that could conceivably occur at a particular location. Generally, it is not physically or economically feasible to provide complete protection against this event.</p>
FLOOD STUDY	<p>The Council Flood Study applicable to the property is: Mascot, Rosebery & Eastlakes Flood Study, WMA Water Ltd, 2015</p>
FLOOD LEVELS	<p>1% AEP Flood level: 8.49m Australian Height Datum (AHD)</p> <p>Probable Maximum Flood (PMF) Level: 8.58m AHD</p>
FLOOD RISK EXPOSURE	<p>The Flood Risk Exposure of the site has been assessed as</p> <p>Low Hazard: Land below probable maximum flood level.</p>
FLOOD COMMENTARY	<p>No accurate information is recorded regarding the impact of tsunamis in the Bayside Local Government area.</p>

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Τηλεφωνικές Υπηρεσίες Διερμηνέων

بخدمة الترجمة الهانفية

電話傳譯服務處

Служба за преведување по телефон

**FLOOD
RELATED
DEVELOPMENT
CONTROLS**

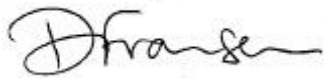
While no flood control is applicable to this site, it is advised that any new habitable floor level shall be designed a minimum of 200mm above the ground level to avoid shallow surface water entering the building.

It is also advised that any new low level driveway to basement garage shall be designed a minimum of 100mm above the top of road kerb level to prevent street water flow entering the driveway.

Council considers that this is the best information currently available on flooding in the area, but Council cannot comment on the accuracy of the result.

Should you require any further information, please contact Council's Strategic Floodplain Engineer, Pulak Saha on 9562 1652.

Yours faithfully

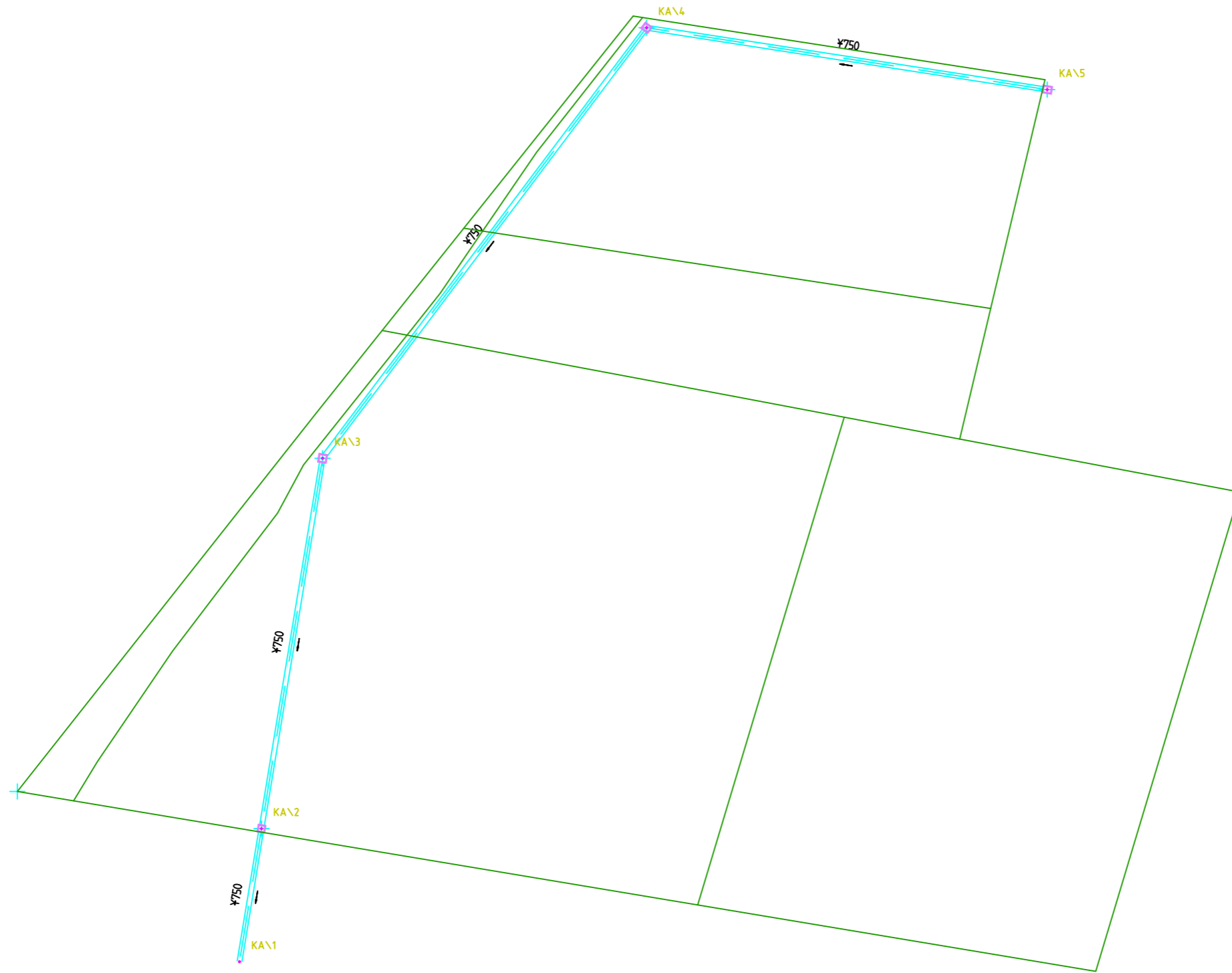
A handwritten signature in black ink, appearing to read 'Dfransen', written in a cursive style.

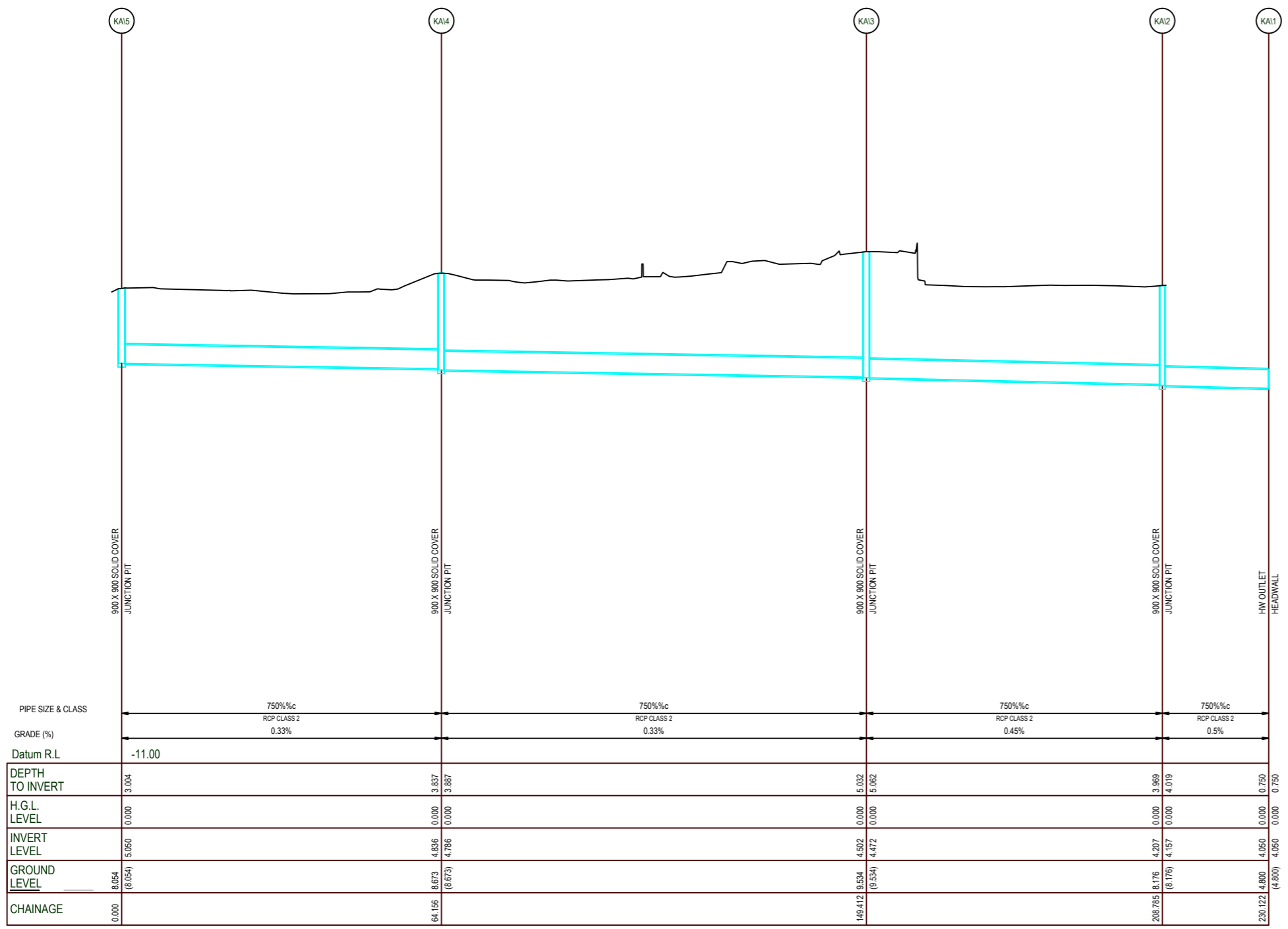
Debbie Fransen
COORDINATOR ASSET STRATEGY

APPENDIX

B

TRUNK DRAINAGE DIVERSION
CONCEPT





L=64.156

L=85.255 LINE KA

L=59.373

L=21.337

- NOTES**
1. PIPE SIZE BASED ON EXISTING PIPE SIZE. NOT YET CONFIRMED BY HYDRAULIC MODELLING.
 2. SURVEY IS REQUIRED OF MAIN CHANNEL TO THE SOUTH OF THE SITE.

APPENDIX

C

ARCHITECTURAL DRAWINGS

LEGEND

BOL	BOLLARD
COMM	COMMUNICATION PIT
D	DOOR
EB	ELECTRICAL BOX
E PILLAR	ELECTRICAL PILLAR
FFW	FIRST FLOOR WINDOW
FL	FLOOR LEVEL
GFW	GROUND FLOOR WINDOW
G.PIT	GRADED PIT
GTR	GUTTER
HYD	HYDRANT
INV	INVERT LEVEL
K.I. PIT	KERB INLET PIT
LP	LIGHT POLE
M.H.	MANHOLE
PP	POWER POLE
P.C.	FRAM CROSSING
S.M.H.	SEWER MANHOLE
S.V.	STOP VALVE
TK	TOP OF KERB
TL	TRAFFIC LIGHT
TCP	TRAFFIC CONTROL PIT
V.C.	VEHICULAR CROSSING
WM	WATER METER
W	WINDOW

TREES HAVE A TRUNK DIAMETER OF 300#-500# AND A HEIGHT OF 15M UNLESS STATED OTHERWISE

- (A) EASEMENT FOR STORMWATER DRAINAGE 1.98 WIDE (C562969) SHOWN IN DP 187190
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NOTES:

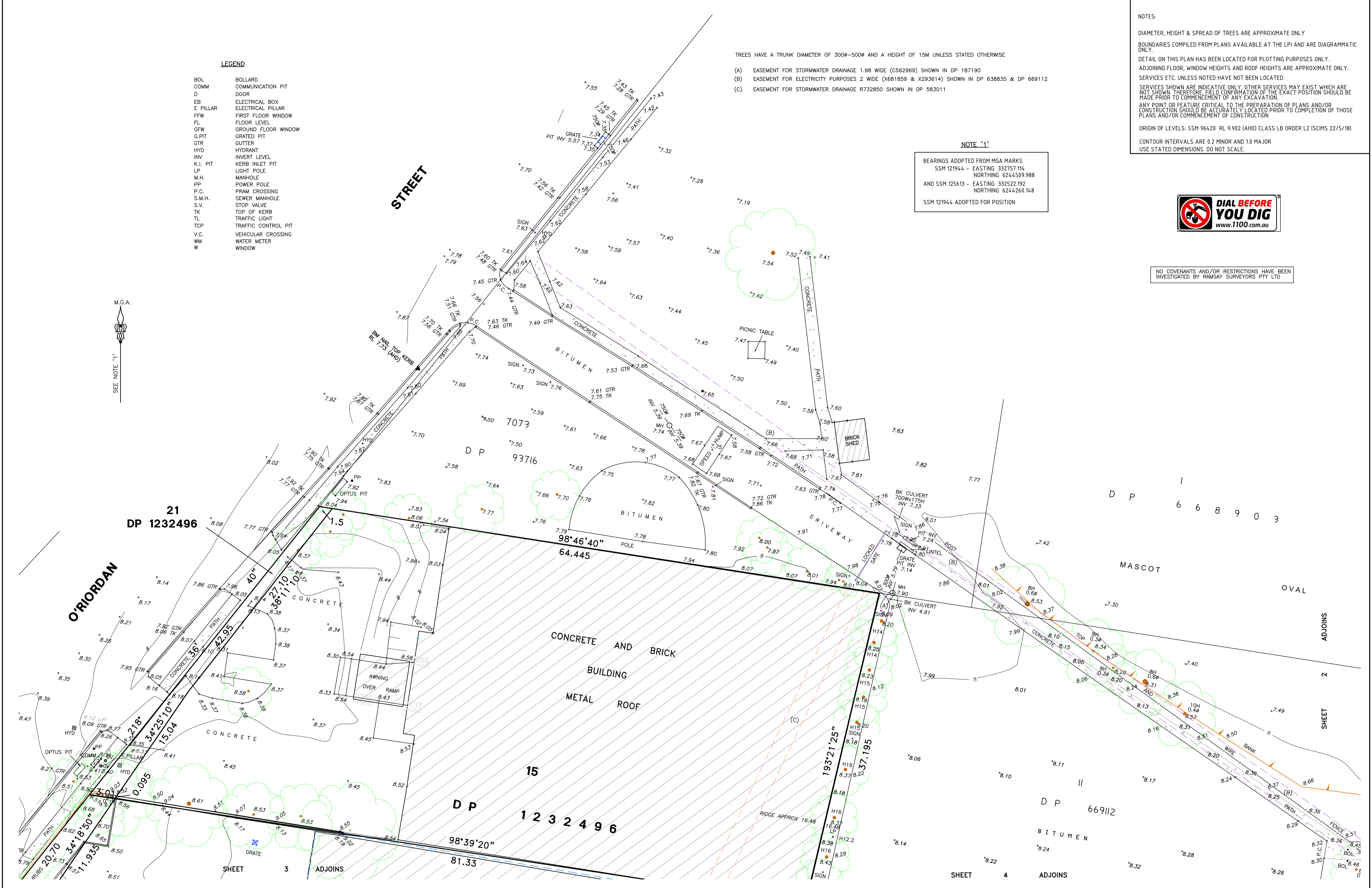
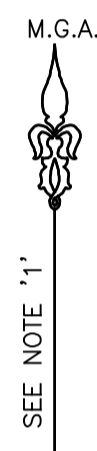
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NOTE '1'

BEARINGS ADOPTED FROM MGA MARKS
 SSM 121944 - EASTING 332757.114
 NORTHING 6244509.988
 AND SSM 125613 - EASTING 332522.192
 NORTHING 6244260.148
 SSM 121944 ADOPTED FOR POSITION



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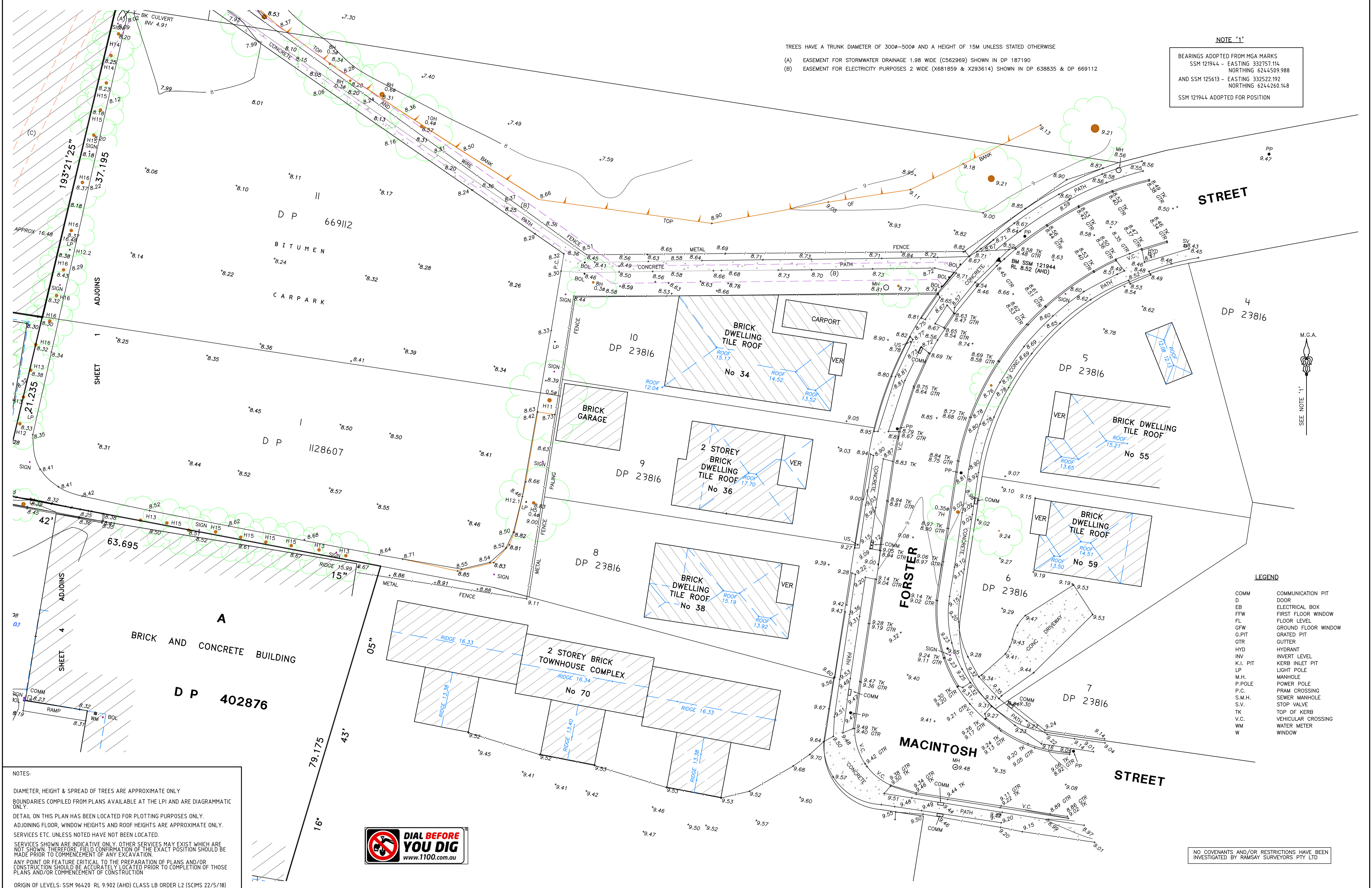
L.G.A	BAYSIDE
LOCALITY:	MASCOT

INSTRUCTED BY:	MICHAEL ESBER
RE:	TOPLACE PTY LTD

H RAMSAY & CO.
 SURVEYORS EST. 1962
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 P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
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PLAN SHOWING DETAIL AND LEVELS OVER
 LOTS 13,14,15,19,20 & 21 IN DP 1232496 AND
 LOT A IN DP 402876 ALSO ADJOINING LANDS AS SHOWN
 O'RIORDAN STREET MASCOT

SCALE	1:200@A1
DATUM	AHD
SURVEY	JK
DRAWN	GSM
DATE	21/5/18
OUR REF	8216
SHEET	1 OF 6 SHEETS



TREES HAVE A TRUNK DIAMETER OF 300mm-500mm AND A HEIGHT OF 15M UNLESS STATED OTHERWISE
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M.G.A.
 SEE NOTE '1'

LEGEND

COMM	COMMUNICATION PIT
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EB	ELECTRICAL BOX
FFW	FIRST FLOOR WINDOW
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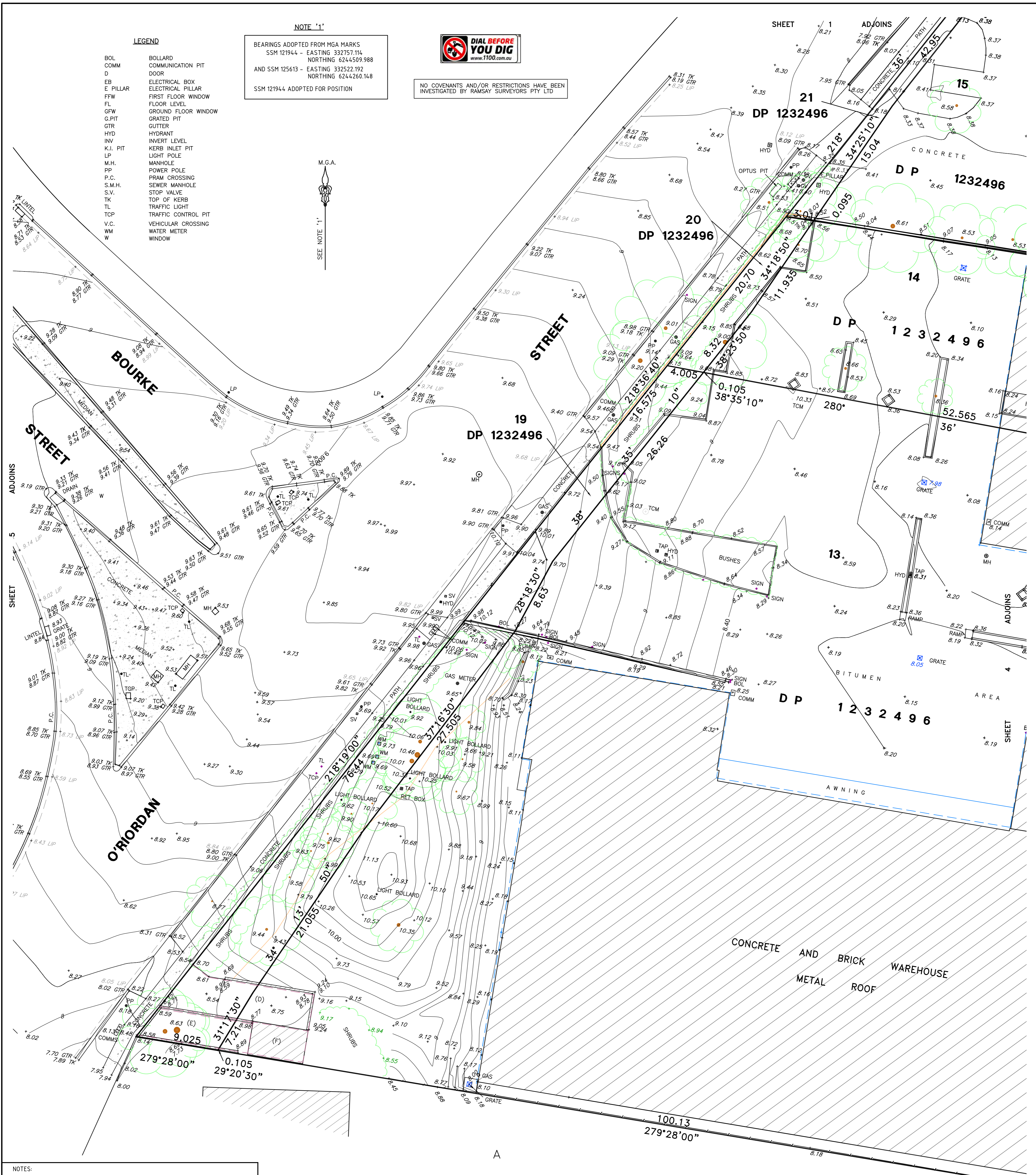
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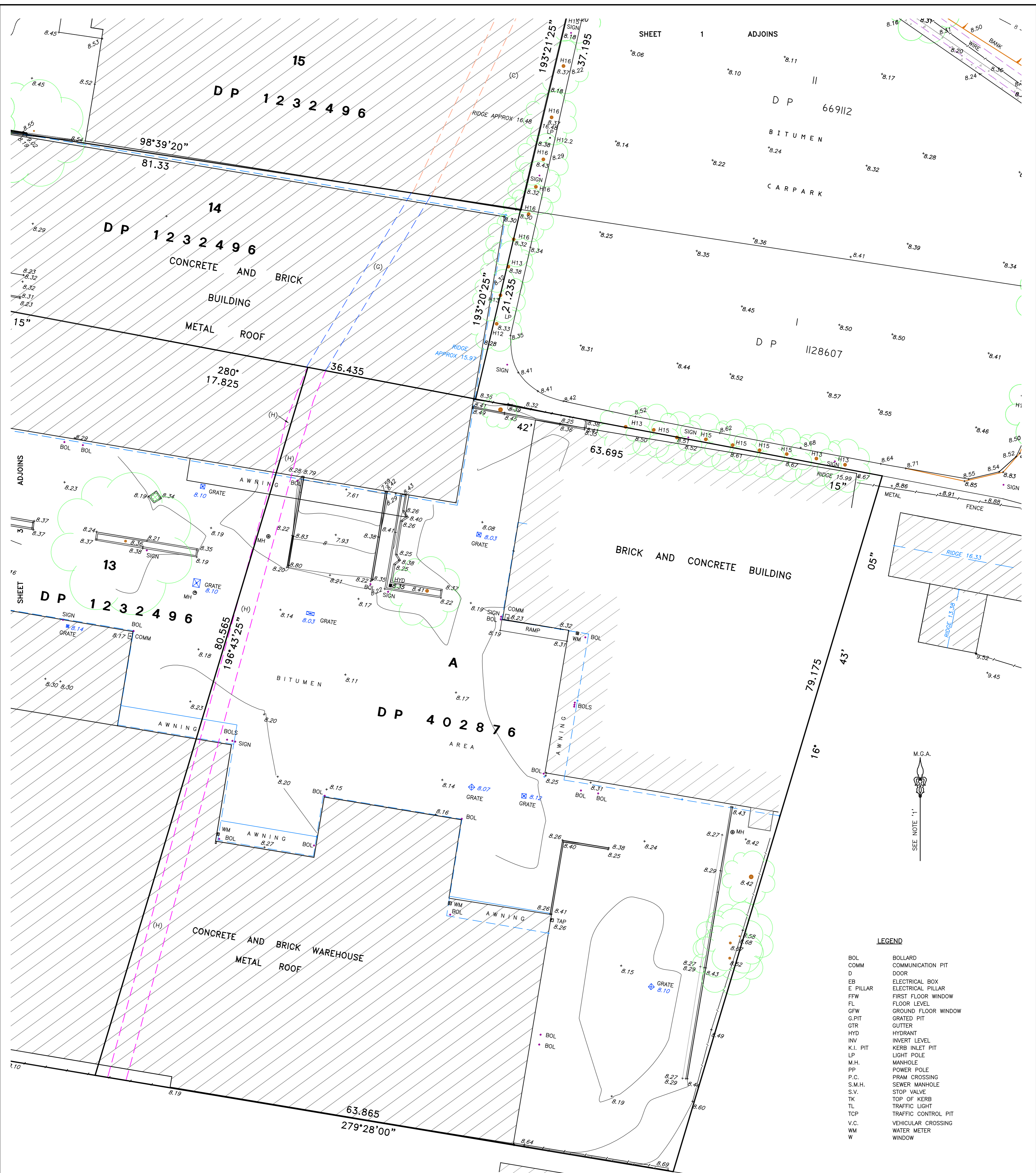
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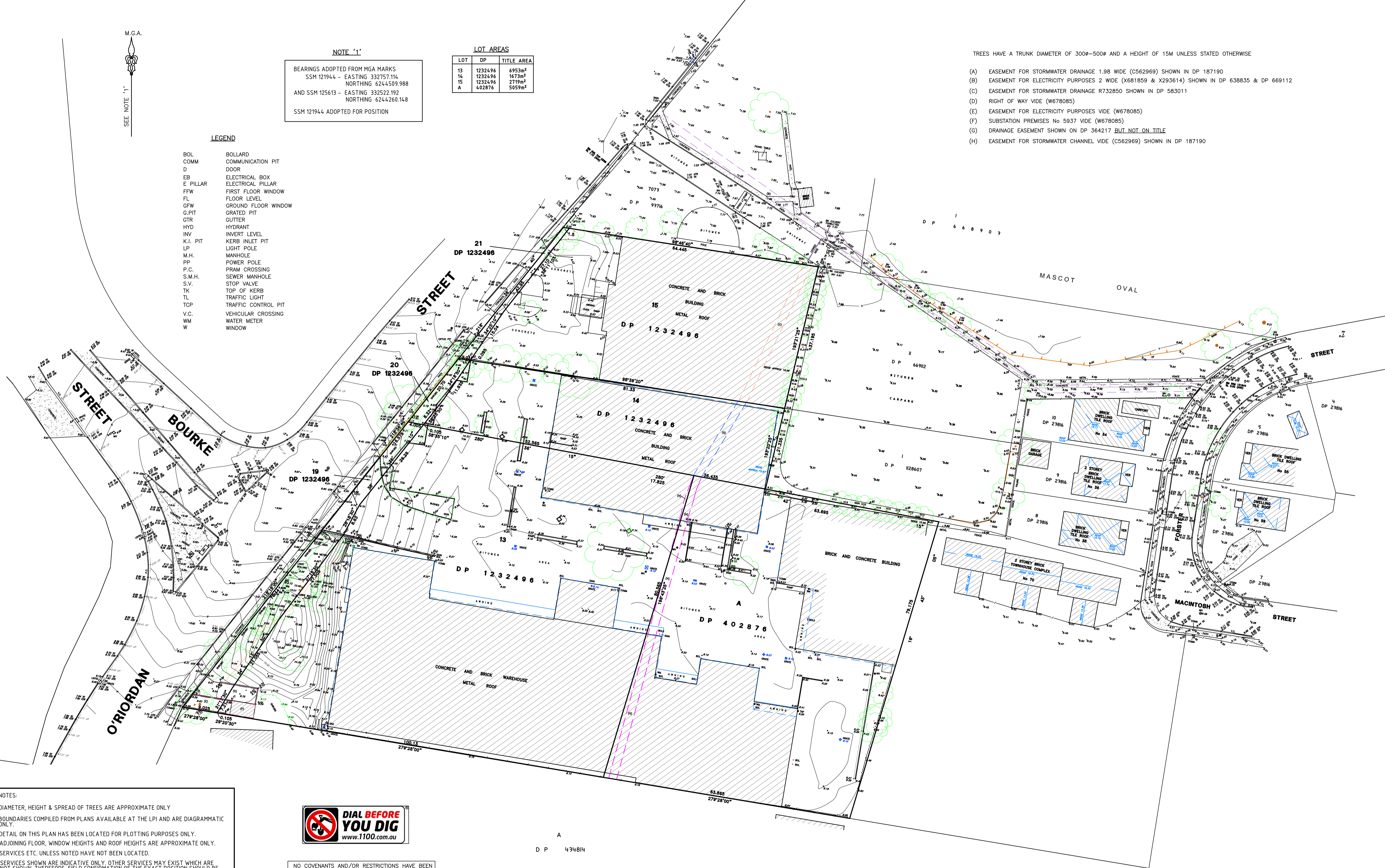
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LOT	DP	TITLE AREA
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14	1232496	1673m ²
15	1232496	2719m ²
A	402876	5059m ²

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PP	POWER POLE
P.C.	PRAM CROSSING
S.M.H.	SEWER MANHOLE
S.V.	STOP VALVE
TK	TOP OF KERB
TL	TRAFFIC LIGHT
TCP	TRAFFIC CONTROL PIT
V.C.	VEHICULAR CROSSING
WM	WATER METER
W	WINDOW



NOTES:
DIAMETER, HEIGHT & SPREAD OF TREES ARE APPROXIMATE ONLY
BOUNDARIES COMPILED FROM PLANS AVAILABLE AT THE LPI AND ARE DIAGRAMMATIC ONLY.
DETAIL ON THIS PLAN HAS BEEN LOCATED FOR PLOTTING PURPOSES ONLY.
ADJOINING FLOOR, WINDOW HEIGHTS AND ROOF HEIGHTS ARE APPROXIMATE ONLY.
SERVICES ETC. UNLESS NOTED HAVE NOT BEEN LOCATED.
SERVICES SHOWN ARE INDICATIVE ONLY. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN. THEREFORE, FIELD CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO COMMENCEMENT OF ANY EXCAVATION.
ANY POINT OR FEATURE CRITICAL TO THE PREPARATION OF PLANS AND/OR CONSTRUCTION SHOULD BE ACCURATELY LOCATED PRIOR TO COMPLETION OF THOSE PLANS AND/OR COMMENCEMENT OF CONSTRUCTION
ORIGIN OF LEVELS: SSM 96420 - RL 9.902 (AHD) CLASS LB ORDER L2 (SCIMS 22/5/18)
CONTOUR INTERVALS ARE 0.2 MINOR AND 1.0 MAJOR
USE STATED DIMENSIONS. DO NOT SCALE.



NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY RAMSAY SURVEYORS PTY LTD

A
D P 434814

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AMENDMENTS	
DATE	DESCRIPTION
18-10-18	BOUNDARIES ADJUSTED
31-10-18	DETAIL MOVED ONTO MGA CO-ORDINATES & BEARINGS ADJUSTED.
7-11-18	BOURKE ST & SURROUND DETAIL ADDED. MEDIAN STRIP IN O'RIORDAN ST REMOVED.

L.G.A	BAYSIDE
LOCALITY:	MASCOT

INSTRUCTED BY:	MICHAEL ESBER
RE:	TOPLACE PTY LTD

H RAMSAY & CO.
SURVEYORS EST. 1962
Ramsay Surveyors Pty Limited ACN 607 389 748
P.O. BOX 2244 CARLINGFORD NSW 2118 PH: (02) 9635 5840
EMAIL: surveyor@ramsays.com.au www.hramsays.com.au

PLAN SHOWING DETAIL AND LEVELS OVER
LOTS 13,14,15,19,20 & 21 IN DP 1232496 AND
LOT A IN DP 402876 ALSO ADJOINING LANDS AS SHOWN
O'RIORDAN STREET MASCOT

SCALE	NOT TO SCALE
DATUM	AHD
SURVEY	JK
DRAWN	GSM
DATE	21/5/18
OUR REF	8216
SHEET 6 OF 6 SHEETS	

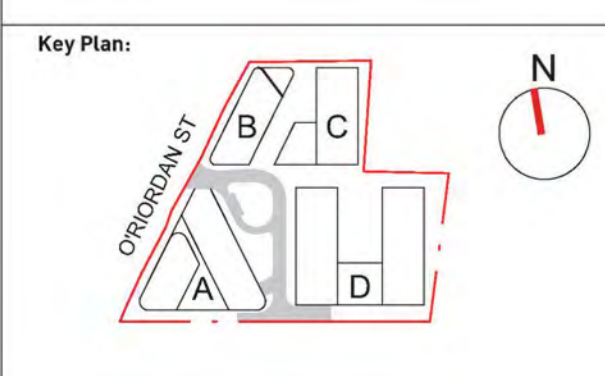


SITE ADDRESS: 146-154 O'RIORDAN ST
MASCOT, NSW, 2020

STE AREA: 17,020.5 m²

1 SITE PLAN
1 : 500

NOTE:
01. DISTANCES AND AREAS BASED ON SURVEY SOURCED FROM H RAMSAY SURVEYORS, DRAWING REF 8216, DATED 07.11.2019.



Drawing Disclaimer:
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Verify all dimensions on site before commencing work.
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Rv	Amendment	By	Ck	Date	Consultants
B	DEVELOPMENT APPLICATION			10/01/2019	
A	DEVELOPMENT APPLICATION			20/12/2018	

Client: TOPLACE

Architect:
PTW Architects
Level 11, 88 Phillip Street
Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au



Project: PAD16593
O'RIORDAN ST TOPLACE
146-154 O'RIORDAN ST
MASCOT, NSW, 2020

Title: DA-00 - GENERAL INFORMATION
SITE PLAN

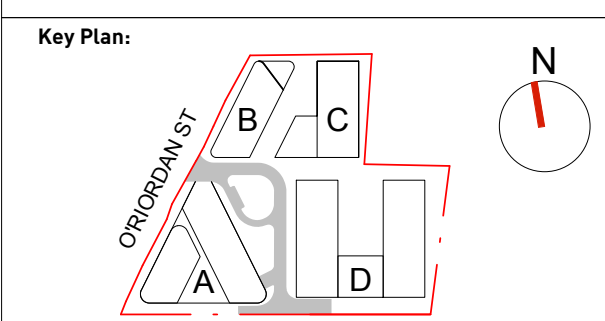
Drawing Number: DA-01-0200
Revision: B

Peddie Thorp & Walker P/L
ABN 23 000 454 624
Trading as PTW Architects

NSW Nominated Architects
5 Parana Architect No.6298
D. Jones Architect No.4778

Status: DEVELOPMENT APPLICATION

1 BASEMENT LEVEL 01 PLAN
1 : 250



Drawing Disclaimer:
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Rv	Amendment	By	Ck	Date	Consultants
B	DEVELOPMENT APPLICATION			10/01/2019	
A	DEVELOPMENT APPLICATION			20/12/2018	

Client
TOPLACE

Architect
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Sydney NSW 2000 Australia
T +61 2 9232 5877
ptw.com.au

PTW
As B B1 indicated
Project PA016593
O'RIORDAN ST TOPLACE
146-154 O'RIORDAN ST
MASCOT, NSW, 2020

Title
DA-10 - GENERAL ARRANGEMENT PLANS
BASEMENT LEVEL 01 PLAN

Drawing Number
DA-10-0090

Revision
B

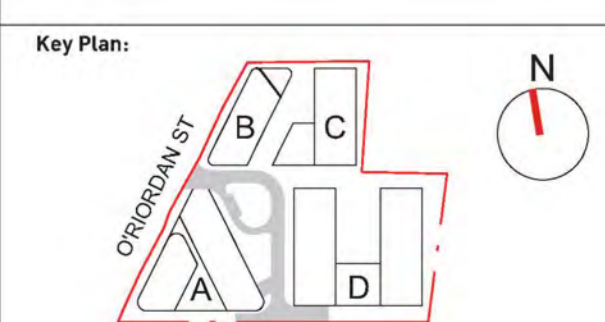
Peddie Thorp & Walker P/L
ABN 23 000 626 626
trading as PTW Architects

NSW Nominated Architects
5 Parsons Architect No.4898
D Jones Architect No.4778

Status
DEVELOPMENT APPLICATION



1 GROUND LEVEL FLOOR PLAN
1 : 250



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without the consent of PTW Architects

Rv	Amendment	By	Ck	Date	Consultants
B	DEVELOPMENT APPLICATION			10/01/2019	
A	DEVELOPMENT APPLICATION			20/12/2018	

Client
TOPLACE

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PTW
As indicated

Project PA016593
O'RIORDAN ST TOPLACE
146-154 O'RIORDAN ST
MASCOT, NSW, 2020

Status
DEVELOPMENT APPLICATION

Title
DA-10 - GENERAL ARRANGEMENT PLANS
GROUND FLOOR PLAN (LEVEL
00)
Drawing Number
DA-10-1000
Revision
B



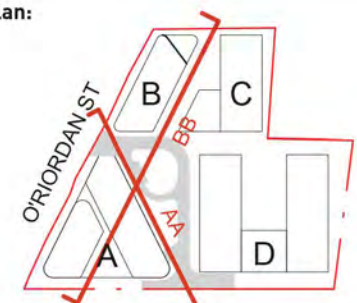
1 SECTION AA
1 : 250



2 SECTION BB
1 : 250

NOTE:
** : ELEVATIONS AND SECTIONS ARE PARALLEL TO THE
IRREGULAR GEOMETRY OF THE SITE AND MAY SHOW
DISTORTED SETBACKS DISTANCES. REFER TO DRAWING
DA-07-0100 FOR TRUE SETBACKS AND CONSTRAINTS.

Key Plan:



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Rv	Amendment	By	Ck	Date	Consultants
B	DEVELOPMENT APPLICATION			10/01/2019	
A	DEVELOPMENT APPLICATION			20/12/2018	

Client:
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NSW Nominated Architects
S Parsons Architect No.6098
D Jones Architect No.478

PTW

As @ B1 0 1 2 5 10
indicated

Project PA016593
O'RIORDAN ST TOPLACE
146-154 O'RIORDAN ST
MASCOT, NSW, 2020

Status
DEVELOPMENT APPLICATION

Title
DA-30 - SECTIONS
SITE SECTIONS AA & BB

Drawing Number
DA-30-0100

Revision
B

APPENDIX

D

FLOOD RISK MANAGEMENT PLAN
OUTLINE

FLOOD MANAGEMENT PLAN FOR

Background

Council has advised that this property is subject to flooding in a 1% AEP (1 in 100 year AEP) storm event. The Probable Maximum Flood (PMF) is the highest flood level that is ever likely to occur, however it is extremely rare.

Council has no information regarding Tsunami in Bayside Local Government.

Relevant levels are: *Complete as appropriate for your property*

1% AEP Flood Level =	m Australian Height Datum (AHD)
Probable Maximum Flood =	m AHD
Garage Floor Level =	m AHD
Driveway Crest Level =	m AHD (below ground garages only)
Habitable Floor Level =	m AHD
Second Floor Level =	m AHD
Front Boundary Level =	m AHD
Lowest Ground Level =	m AHD at

The above levels give an indication of how the various floods will impact this property and what level of protection is provided. Habitable living areas are designed to be a minimum of 0.5 m above the 1% AEP Flood Level and staying within the home will provide protection for a wide range of floods.

Procedure

1. Floods in Bayside Local Government are considered as “flash floods” and no warning system is available. Storms leading to major flooding are typically 2 hours long, however shorter storms as little as a 30 minutes long can produce significant flooding. Once the storm passes floodwaters usually disappear rapidly.

2. During floods many local and major streets and roads will be cut by floodwaters.

Traveling through floodwaters on foot, or in a vehicle can be very dangerous as the water may be polluted, obstructions can be hidden under the floodwaters, or you could be swept away. Council recommends staying within the home as much as practical as this is the safest option. If you need to leave the home do so early in the flood event, before the flood level reaches (*the trigger location for your property*)

3. Develop your own family flood plan and be prepared if flooding should occur while the kids are coming home from school or when you are returning from work. Talk to the Council to determine the safer travel routes that are less likely to be cut by floodwaters.

4. For below ground garages do not attempt to save the car if floodwaters start to enter the garage, it is too dangerous as water levels will rise rapidly and you could be trapped.

5. As the flood level approaches the garage floor level (but only if safe to do so) relocate any items that may be damaged by water, or poisons, or wastes to as high a level as possible.

6. As the flood level approaches the habitable floor level:

i) gather medicines, special requirements for babies or the elderly, mobile phones, first aid kit, special papers and any valuables into one location,

ii) put on strong shoes, raise any items within the home that may be damaged by water (e.g. photo albums) to as high a level as possible, with electrical items on top. Turn off and disconnect any large electrical items such as a TV that cannot be raised.

iii) place wet towels across the bottom and lower sides of external doors to slow down the entry of water through the door.

7. In the very rare event that floodwaters may enter the home collect items from 6.i) above and move to an upper level if possible, or if in a single level dwelling provide a chair in the kitchen to enable access to the kitchen bench preferably adjacent to the window. Ensure window is not locked or key readily available. Do not evacuate the home unless instructed to do so by the SES or the Police. Remember floodwaters are much deeper and flow much faster outside.

8. In the case of a medical emergency ring 000 as normal, but explain about the flooding.

9. A laminated copy of this flood plan should be permanently attached (glued) on an inside cupboard door in the kitchen and laundry and to the inside of the electrical meter box.

10. This flood management plan should be reviewed every 5 years, particularly with the potential effects of Climate Change with sea level rise and increased rainfall intensities.