

MEMORANDUM

TO City of Rockingham

FROM Eva Cronin and Maitland Ely (Eco Logical Australia) on behalf of Frasers Property Australia



DATE 09/02/2024

PURPOSE For Information

SUBJECT Bushfire Management Plan Compliance Report: Stage 11 Baldvis Parks, Baldvis

Document purpose

Eco Logical Australia (ELA) has prepared this Bushfire Management Plan (BMP) compliance report for 54 lots within Stage 11 Baldvis Parks, Baldvis (the subject site; Figure 1). Lots within the subject site are subject to Western Australian Planning Commission (WAPC) subdivision approval WAPC Ref. 163242.

This report provides a post-subdivisional works compliance assessment of bushfire management measures required to clear Condition 26 and 27 of subdivision approval as follows:

26. Information is to be provided to demonstrate that the measures contained in Section 4 of the Bushfire Management Plan prepared by Eco Logical Australia V3 (dated 29 June 2023) have been implemented during subdivisional works. This information should include a completed 'Certification by Bushfire Consultant' from the bushfire management plan. (Local Government)

27. A notification, pursuant to Section 165 of the Planning and Development Act 2005 is to be placed on the certificate(s) of title of the proposed lot(s) with a bushfire attack level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan or survey (deposited plan).

The notification is to state as follows:

"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land."
(Western Australian Planning Commission)

The approach for preparation of this BMP compliance report is consistent with Section 4.2 of the Guidelines for Planning in Bushfire Prone Areas (the Guidelines; WAPC 2021).

Compliance assessment





The endorsed BMP (ELA 2023) included nine bushfire management strategies that are required to ensure the proposed subdivision will comply with the bushfire protection criteria in the Guidelines. Three of these strategies are not relevant to progress subdivision clearance and have been excluded from this report.

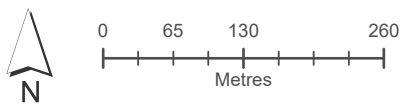
ELA has undertaken a bushfire risk assessment and compliance assessment to determine if the relevant bushfire management measures documented in the endorsed BMP have been undertaken (Table 1).

Based on our assessment, ELA can confirm that the relevant bushfire management measures detailed in the endorsed BMP have been implemented as intended to a satisfactory level, with the exception of water supply and vehicular access which whilst not yet fully complete, have been progressed to a point that these measures are likely to be compliant, once completed.



Figure 1: Site Overview

-  Subject site
-  100m site assessment
-  150m site assessment
-  Photo location



Datum/Projection:
GDA 1994 MGA Zone 50
24PER5724-SM Date: 31/01/2024

Table 1: Bushfire compliance assessment against Bushfire Management Plan ELA (2023)

BMP reference	Action	Implementation status	Compliance assessment
Bushfire Management Measure No 1 – Table 4 ¹	Ensure that Asset Protection Zones (APZs) ² are established and maintained as per the design in Figure 6 ³ .	The subject site has been cleared for development and will remain managed to a low threat status as per clause 2.2.3.2 (f) of AS 3959: 2018 or APZ standards. APZ within the road reserve inside of the site (adjacent to the Baldvis Tramway) and 1 m within front face (western boundary) of proposed lots 1114 to 1126 has been cleared. Landscaping within these areas must be in accordance with APZ standards as per Appendix B ⁴ and Figure 6.	<p>Compliant</p> <p>All proposed residential lots are located in areas where habitable buildings on these lots can achieve BAL ratings ≤BAL-29.</p> <p>Refer to Plate 1, Plate 2 and Plate 3 for evidence of internal and external clearing and management. Evidence of some remnant vegetation within 100 m of the subject site can be seen in Plate 4 (Appendix A).</p> <p>APZ over the road reserve that separates lots from Baldvis Tramway has been cleared at the time of the assessment. ELA do not have details of proposed landscaping to streetscape in this area, however, if landscaping in this road reserve is installed in accordance with APZ standards (as referenced in BMP) this will likely be compliant.</p> <p>The updated BAL assessment can be seen in Appendix B.</p>
Bushfire Management Measure No 2 – Table 4	Ensure that APZs are cleared around each stage of subdivision if the entirety of the development depicted in Figure 6 is not developed in a single stage.	All areas within the subject site have been cleared and will remain managed to low threat status as per clause 2.2.3.2 (f) of AS 3959: 2018 or APZ standards. APZ within the road reserve inside of the site (adjacent to the Baldvis Tramway) and 1 m within front face (western boundary) of proposed lots 1114 to 1126 has been cleared. Landscaping within these areas must be in accordance with APZ standards as per Appendix B ⁴ and Figure 6.	<p>Compliant</p> <p>APZ over the road reserve that separates lots from Baldvis Tramway has been cleared at the time of the assessment. ELA do not have details of proposed landscaping to streetscape in this area, however, if landscaping in this road reserve is installed in accordance with APZ standards (as referenced in BMP) this will likely be compliant.</p> <p>Refer to Plate 1 and Plate 2 for evidence of subject sites internal management including road reserve (Appendix A).</p>
Bushfire Management Measure No 3 – Table 4	Place Section 165 Notification on Title for all	Notification will be placed on all titles for lots with a rating of BAL-12.5 or greater in accordance with	<p>Compliant</p> <p>Refer to Appendix C for a copy of the Deposited Plan.</p>

BMP reference	Action	Implementation status	Compliance assessment
	lots within Bushfire Prone Areas.	Condition 27 of subdivision approval. Notice of this notification shown on Deposited Plan.	
Bushfire Management Measure No 4 – Table 4	Withhold the seven lots depicted in Figure 6 subject to BAL-FZ from sale, until the BAL rating for future dwellings on these lots can be reduced to ≤BAL-29.	N/A Not relevant to this stage of the subdivision.	N/A
Bushfire Management Measure No 5 – Table 4	Construct road network (including temporary cul-de-sacs) as per plan in Figure 6.	All public roads within the subject site are currently being constructed in accordance with the approved Roadworks Layout Plan which will meet the technical requirements of the Guidelines as stated in the endorsed BMP (ELA 2023). Proposed cul-de-sac will also be constructed in accordance with the approved Roadworks Layout Plan and as per the technical requirements in the Guidelines.	Will be Compliant Roads and cul-de-sac heads not fully constructed yet, however if constructed in accordance with Roadworks Layout plan in Appendix D, these will likely be compliant. Refer to Plate 5, Plate 6 and Plate 7 in Appendix A that shows roads within the subdivision are being constructed. Plate 7 provides evidence of access/egress connections to external road networks also currently being installed (Plate 7). Proposed temporary cul-de-sac is currently still being installed.
Bushfire Management Measure No 6 – Table 4	Provide reticulated water supply to all lots and hydrants in accordance with Figure 6.	Water supply not fully constructed at the time of assessment. Installation of reticulated water supply and network hydrants is underway as per the Water Reticulation Plan.	Will be Compliant Water supply not fully constructed yet, however, if constructed in accordance with Water Reticulation Plan in Appendix E, this will be likely compliant. Refer to Plate 8 and Plate 9 for evidence of current progress of water supply and hydrant installation within the site (Appendix A). Evidence of external hydrant installation in close proximity to site is shown in Plate 10.

1. TABLE 4 OF THE ENDORSED BUSHFIRE MANAGEMENT PLAN (ELA 2023)
2. ASSET PROTECTION ZONES
3. FIGURE 6 OF THE ENDORSED BUSHFIRE MANAGEMENT PLAN (ELA 2023)
4. APPENDIX B OF THE ENDORSED BUSHFIRE MANAGEMENT PLAN (ELA 2023)

References

City of Rockingham (CoR). 2023. *Firebreak Control Notice 2023-2024*. Available from: [Fire Control Notice 2023/2024 \(rockingham.wa.gov.au\)](https://rockingham.wa.gov.au)

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Eco Logical Australia 2023. Bushfire Management Plan: Subdivision Application: Lots 9012, 9024 and Stage 11 Baldvis Parks, Baldvis. Prepared for Frasers Property Australia.

Standards Australia, 2018, *Construction of buildings in bushfire-prone areas, AS 3959: 2018*. SAI Global, Sydney.

Water Corporation, 2021, *Water Reticulation Standard Design and Construction Requirements for Water Reticulation Systems up to DN250, Design Standard DS 63 (Version 3, Revision 15)*. Water Corporation, Western Australia.

Western Australian Planning Commission, 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission, 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices)*, WAPC, Perth.

Appendix A Photographic evidence of compliance



Plate 1: Evidence of site internal being cleared and/or maintained to low threat.



Plate 2: Evidence of APZ and site internal (road reserve) being cleared and/or maintained to low threat.



Plate 3: Evidence of external areas to site being cleared and/or maintained to low threat.



Plate 4: Evidence of external remnant vegetation areas within 100 m (Baldvis Tramway).



Plate 5: Evidence of construction internal road network is underway.

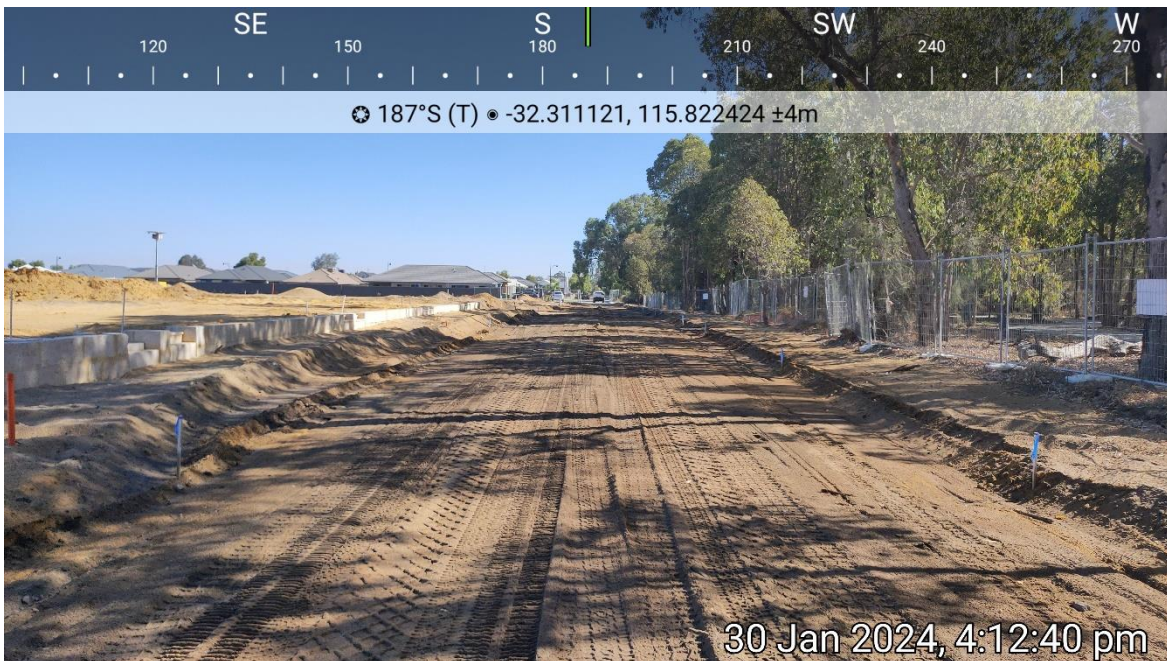


Plate 6: Evidence of construction internal road network is underway.

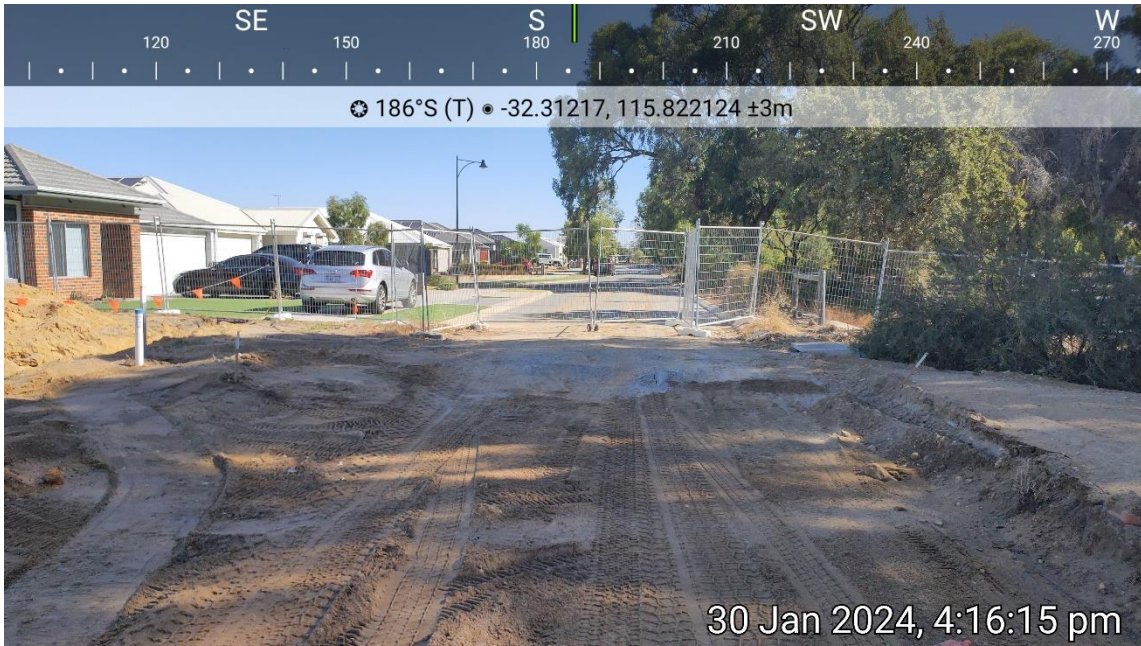


Plate 7: Evidence of construction internal road network and access/egress connection is underway.



Plate 8: Evidence of installation of internal water reticulation is underway.



Plate 9: Evidence installation of hydrants and internal water reticulation is underway

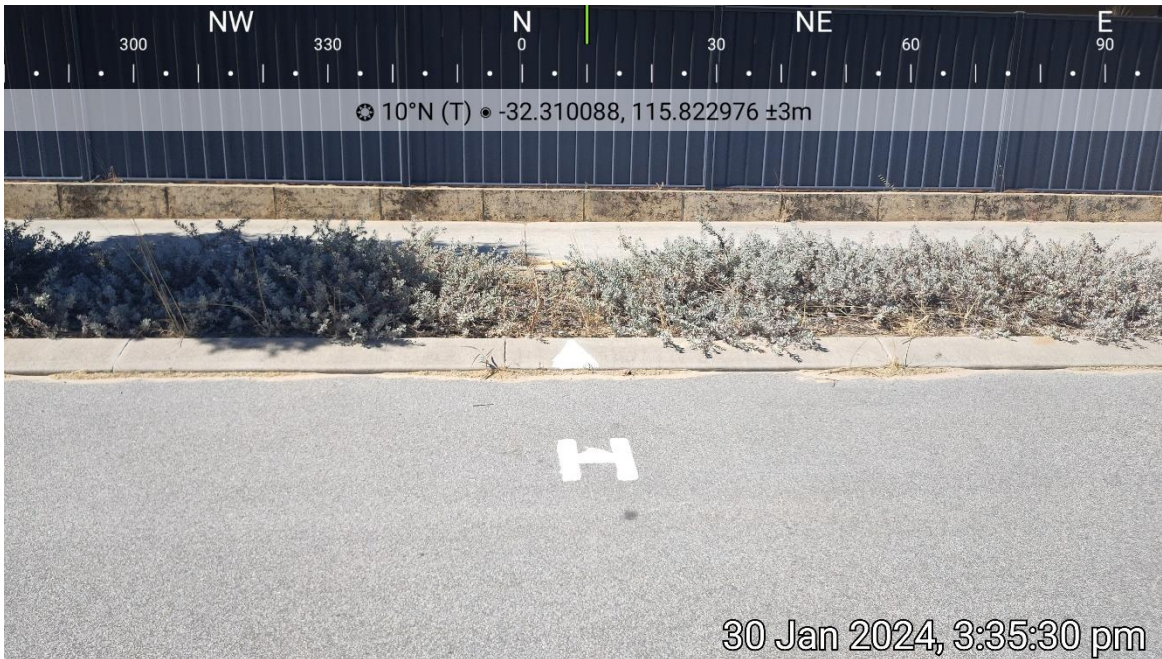


Plate 10: External Hydrant installed external to site (within 100 m of subject site).

Appendix B Bushfire Attack Level (BAL) Assessment Report

Bushfire Attack Level (BAL) Assessment Report for Stage 11 Baldivis Parks, Baldivis

Site Details

Address: Stage 11 Baldivis Parks, Baldivis (Dooragan Street, Baldivis) (Lots 1102-1126, 1166-1170, 1172-1180 & 1182-1195)

Suburb: Baldivis, 6171 **State:** Western Australia

Local Government Area: City of Rockingham

Description of building works: Residential development

Report details

Report/Job number:	24PER7524	Report version:	v2
Assessment date:	30/01/2024	Report date:	8/02/2024
Author:	Maitland Ely	Review:	Eva Cronin (BPAD Level 2-45482)



SITE ASSESSMENT AND SITE PLAN

The assessment of the 54 residential lots was undertaken on 30 January 2024 for the purpose of determining the Bushfire Attack Level (BAL) in accordance with *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas (SA 2018) Simplified Procedure (Method 1)*. An overview of the site is presented in Figure 1.

VEGETATION CLASSIFICATION

All vegetation within 100 m of the 54 residential lots was classified in accordance with Clause 2.2.3 of AS 3959: 2018. Each distinguishable vegetation class with the potential to determine the BAL is identified below and presented in Figure 1.

Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 1

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understorey is comprised of shorts grasses and isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned within the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this plot was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 2

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with foliage cover of 10%-30%. Understorey is comprised of grasses.

Slope under this plot was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 3

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with foliage cover of 10%-30%. Understorey is comprised of grasses.

Slope under this plot was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 4

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understorey is comprised of short grasses and isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned within the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this plot was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 5

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understorey is comprised of short grasses and isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned within the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this plot was assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause Class D Scrub

Photo Point 6

Classified vegetation within this plot is comprised of shrubs greater than 2 m high with >30% foliage cover.
2 m height pole present within the associated photo.
Slope under this plot was assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause Class D Scrub

Photo Point 7

Classified vegetation within this plot is comprised of shrubs greater than 2 m high with >30% foliage cover.
2 m height pole present within the associated photo.
Slope under this plot was assessed as upslope/flat land.



Plot 3 Classification or Exclusion Clause Class G Grassland

Photo Point 8

Classified vegetation within this plot is predominantly grassland with foliage cover from the overstorey less than 10%.
Slope under this plot was assessed as upslope/flat land.



Plot 3 Classification or Exclusion Clause Class G Grassland

Photo Point 9

Classified vegetation within this plot is comprised of grasses with isolated shrubs present.
Slope under this plot was assessed as upslope/flat land.



Plot 4 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (b)

Photo Point 10

This plot has been excluded under 2.2.3.2 (b) due to the area of vegetation being less than 1 ha (0.56 ha) and not within 100 m of other areas of classifiable vegetation.



Plot 4 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (b)

Photo Point 11

This plot has been excluded under 2.2.3.2 (b) due to the area of vegetation being less than 1 ha (0.56 ha) and not within 100 m of other areas of classifiable vegetation.



Plot 5 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 12

Non-vegetated area that is permanently cleared of vegetation (i.e., footpaths, roads and residential housing).

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed landscaping and yards.



Plot 5 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 13

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed landscaping and parkland.



Plot 5 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 14

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed landscaping and parkland.



Plot 5 Classification or Exclusion Clause Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 15

Non-vegetated area that is permanently cleared of vegetation (i.e., cleared areas for future development). Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed grass.



Plot 5 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 16

Non-vegetated area that is permanently cleared of vegetation (i.e., footpaths).

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed landscaping and parkland.



Plot 5 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e)

Photo Point 17

Non-vegetated area that is permanently cleared of classifiable vegetation (i.e., cleared area within the subject site for future roads and residential development).



RELEVANT FIRE DANGER INDEX

The fire danger index for this site has been determined in accordance with Table 2.1 of AS 3959: 2018.

Relevant Fire Danger Index			
FDI 40 <input type="checkbox"/>	FDI 50 <input type="checkbox"/>	FDI 80 <input checked="" type="checkbox"/>	FDI 100 <input type="checkbox"/>
<i>Table 2.4.5</i>	<i>Table 2.4.4</i>	<i>Table 2.4.3</i>	<i>Table 2.4.2</i>

POTENTIAL BUSHFIRE IMPACTS

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 1.

Table 1: BAL Analysis AS 3959: 2018

Plot	Vegetation Classification	Effective Slope	Separation distances required				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10-<14	14-<20	20-<29	29-<100
2	Class D Scrub	All upslopes and flat land (0 degrees)	<10	10-<13	13-<19	19-<27	27-<100
3	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
4	Excluded AS 3959: 2018 2.2.3.2 (b)	-	No separation distances required – BAL-LOW				
5	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-	No separation distances required – BAL-LOW				

DETERMINED BUSHFIRE ATTACK LEVEL (BAL)

The determined Bushfire Attack Level (highest BAL) for the proposed works has been determined in accordance with Clause 2.2.6 of AS 3959: 2018 relevant data from the site assessment shown in Table 2 and Figure 2.

Table 2: BAL Assessment summary

BAL	Affected lots	Construction sections to be consulted in AS 3959-2018
BAL-29	Lots 1101**-1102 & 1114-1126*	3 and 7
BAL-19	Lots 1166	3 and 6
BAL-12.5	Lots 1103-1113, 1167-1170, 1172-1180 & 1194-1195	3 and 5
BAL-LOW	Lots 1182-1193	4

* BAL-29 ACHIEVED WITH THE INSTALATION OF A 1 M SETBACK AS PER FIGURE 2
** BAL-19 ACHIEVED WITH THE INSTALATION OF A 1.5 M SETBACK AS PER FIGURE 2

Note: This BAL rating is based on the information current at the date of this document and is valid for 12 months.

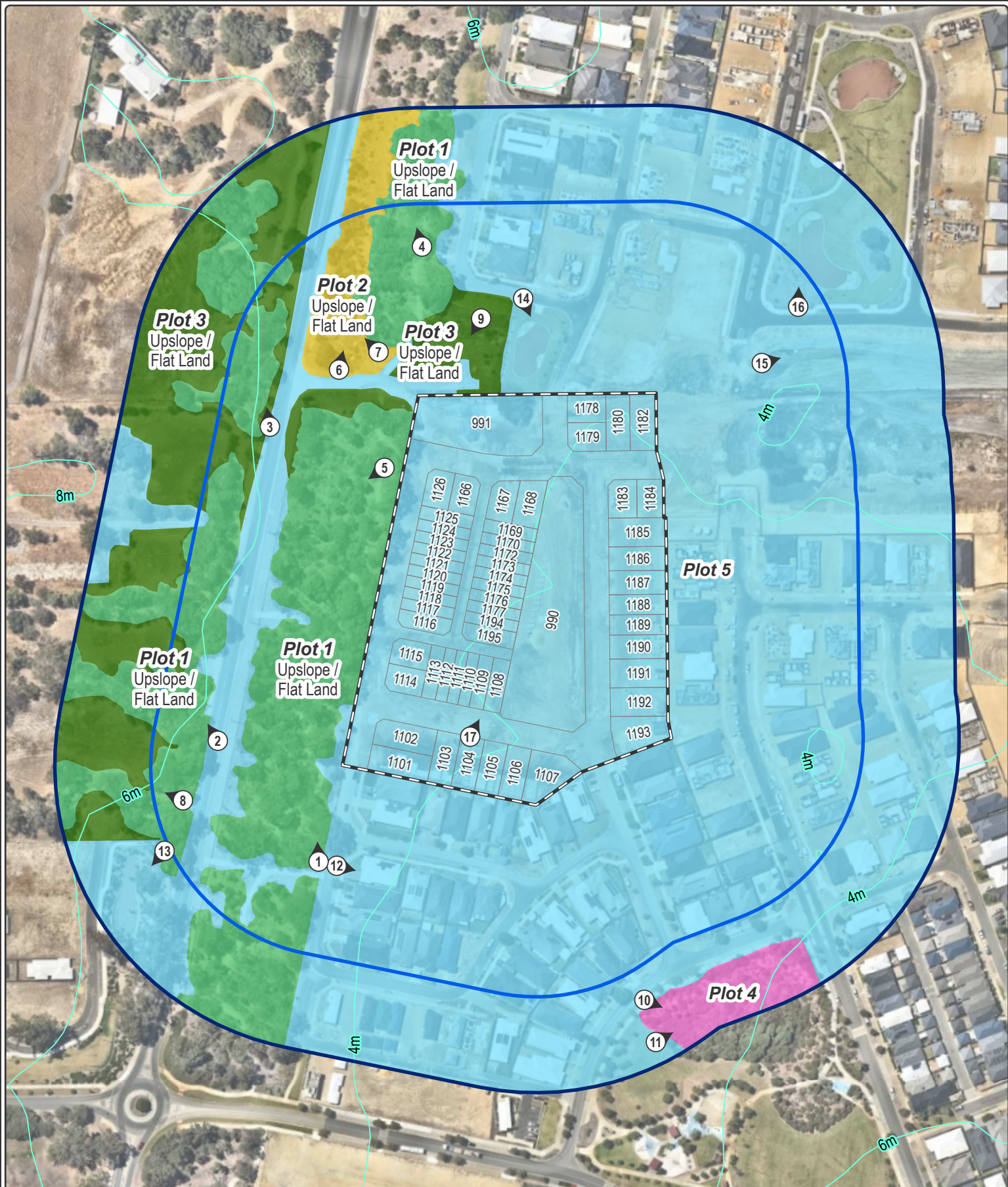


Figure 1: Vegetation Classification

Subject site	Vegetation classification	0 20 40 80 Metres
100m site assessment	Class B Woodland	
150m site assessment	Class D Scrub	Datum/Projection: GDA 1994 MGA Zone 50
Lot boundary	Class G Grassland	
Photo location	Excluded as per clause 2.2.3.2 (b)	24PER5724-SM Date: 2/02/2024
Contour (2m)	Excluded as per clause 2.2.3.2 (e) and (f)	

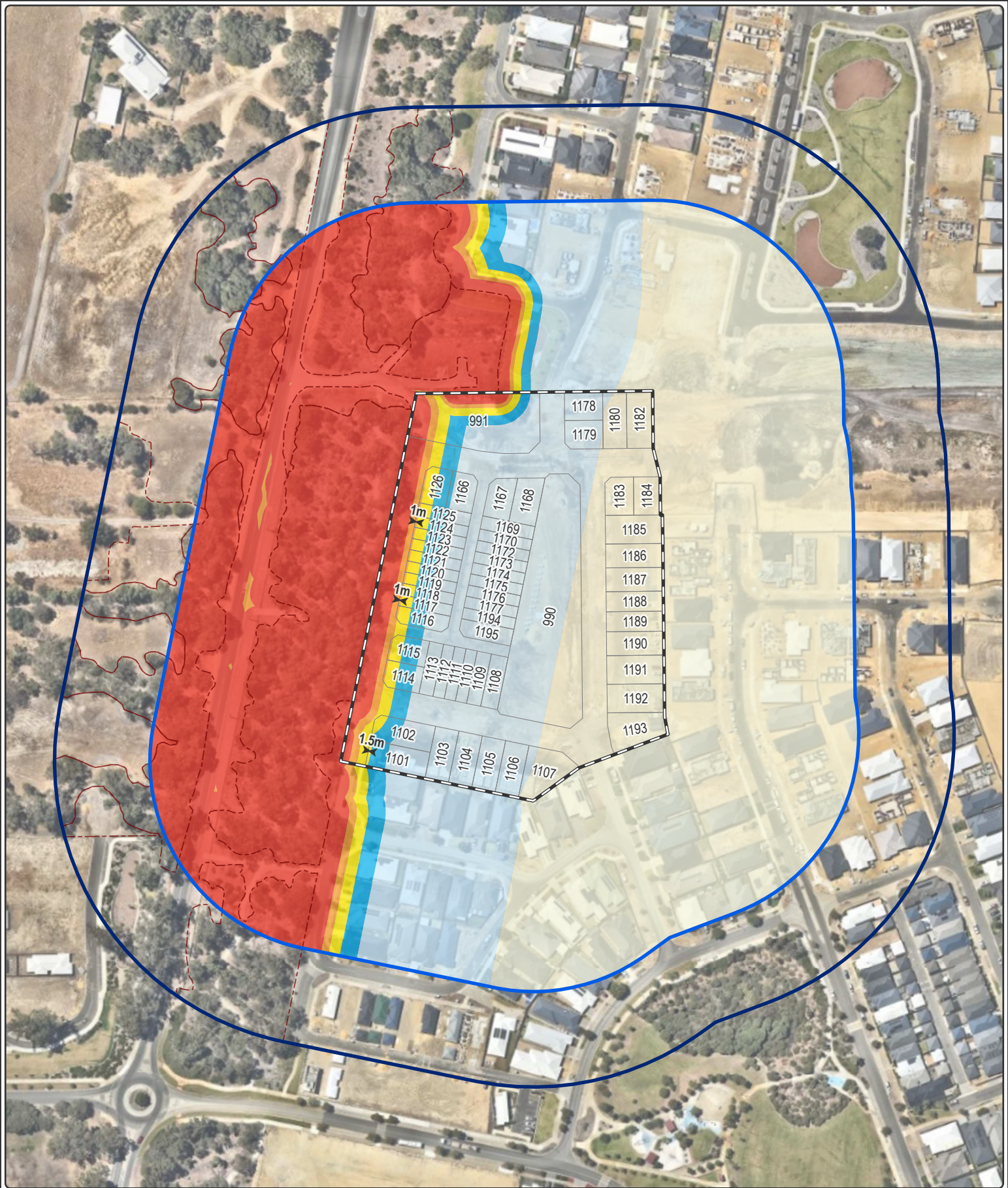
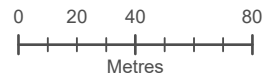


Figure 2: Bushfire Attack Level (BAL) Contours

- Subject site
- 100m site assessment
- 150m site assessment
- Lot boundary
- Bushfire hazard interface

Bushfire Attack Level (BAL)

- BAL - FZ
- BAL - 40
- BAL - 29
- BAL - 19
- BAL - 12.5
- BAL - LOW



Datum/Projection:
GDA 1994 MGA Zone 50
24PER5724-SM Date: 7/02/2024



Appendix A – Additional Information / Advisory Notes

This assessment was undertaken as per AS 3959: 2018. It is important that the current version of AS 3959, is consulted for construction purposes.

This BAL rating is based on the information current at the date of this letter and is valid for 12 months from the date of this letter.

Bushfire Attack Level (BAL) as set out in the *Australian Standard 3959 Construction of Buildings in Bushfire-Prone Areas* (AS 3959), as referenced in the *Building Code of Australia*.

Bushfire Attack Level (BAL)	Classified vegetation within 100 m of the site and radiant heat flux exposure thresholds	Description of predicted bush fire attack and levels of exposure	Construction Section as per AS 3959
BAL-LOW		There is insufficient risk to warrant specific construction requirements.	4
BAL-12.5	≤12.5 kW/m ²	Ember attack	3 and 5
BAL-19	>12.5 kW/m ² ≤19 kW/m ²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux.	3 and 6
BAL-29	>19 kW/m ² ≤29 kW/m ²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux	3 and 7
BAL-40	>29 kW/m ² ≤40 kW/m ²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux with the increased likelihood of exposure to flames.	3 and 8
BAL-FZ	>40 kW/m ²	Direct exposure to flames from fire front in addition to radiant heat flux and ember attack	3 and 9

Source: “AS 3959: 2018 Construction of buildings in bushfire-prone areas” published by Standards Australia, Sydney

Appendix B – Baldvis Tramway Vegetation

From: Brett Ashby <Brett.Ashby@rockingham.wa.gov.au>
Sent: Thursday, 16 March 2023 10:46 AM
To: Wayne Burns <Wayne.burns@frasersproperty.com.au>
Cc: David Waller <David.Waller@rockingham.wa.gov.au>; James Henson <James.Henson@rockingham.wa.gov.au>; Luke Rogers <Luke.Rogers@rockingham.wa.gov.au>; Cyril Sharrock <Cyril.Sharrock@rockingham.wa.gov.au>
Subject: RE: Baldivis Parks Stage 18 BAL Assessment

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Good morning Wayne,

Further to our conversation, I've been out on-site and discussed with relevant staff within the City. It's agreed that there isn't further revegetation required in that area of the Tramway, particularly with shrubs or trees, however, there may be some areas requiring limited planting of ground covers.

I do note that the City will not be seeking to maintain a specific classification over the tramway, and in this regard will not be removing any trees or shrubs that naturally regenerate in the area.

Regards

Brett



Brett Ashby - Manager Strategic Planning and Environment

PO Box 2142 Rockingham DC WA 6967
Civic Boulevard Rockingham Western Australia
telephone +61 8 9528 0405 facsimile +61 8 9592 1705

mobile +61 450 671 299
email brett.ashby@rockingham.wa.gov.au
web rockingham.wa.gov.au



From: Wayne Burns <Wayne.burns@frasersproperty.com.au>
Sent: Wednesday, 1 March 2023 1:15 PM
To: James Henson <James.Henson@rockingham.wa.gov.au>
Cc: Daniel Panickar (danielp@ecoaus.com.au) <danielp@ecoaus.com.au>
Subject: Baldvis Parks Stage 18 BAL Assessment

CAUTION: This email originated from outside of the City of Rockingham. Do not click links or open attachments unless you recognise the sender and know the content is safe. If you are unsure please contact the Service Desk.

Hi James,

As discussed, what we are seeking and what our bushfire consultant requires to maintain a Class B Woodland classification over the Baldvis Tramway within their BAL assessment, is confirmation from the City that it will not be undertaking revegetation within areas of the Tramway adjacent to the Baldvis Parks project, specifically with the planting of shrubs or additional trees?

Wayne Burns
Development Manager
Frasers Property Australia

T +61 8 9214 7997 M +61 413 469 093
E Wayne.burns@frasersproperty.com.au
Level 2, 3 De Vlamingh Avenue, East Perth WA 6004 Australia
www.frasersproperty.com.au | [LinkedIn](#) | [YouTube](#)



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Appendix C Deposited plan

Plan Information	
Tenure Type	Freehold
Plan Type	Deposited Plan
Plan Purpose	Subdivision

Plan Heading
 Lots 990, 991, 1101-1126, 1166-1170, 1172-1180, 1182-1195, 9032, Roads, Easement & Restrictive Covenant

Locality & Local Government	
Locality	Baldivis
Local Government	City of Rockingham

Department of Planning, Lands and Heritage	
File Number	

Examination	
Examined	Date

Planning Approval	
Planning Authority	WAPC
Reference	163242

Delegated under S. 16 P&D Act 2005	Date
------------------------------------	------

In Order For Dealings	
Subject To	

For Registrar of Titles	Date
-------------------------	------

Plan Approved
 REG 26A (1)(4)

Inspector of Plans and Surveys / Authorised Land Officer	Date
--	------

Survey Details	
Field Records	123309
Declared as Special Survey Area	Yes

Survey and Plan Notation
 Limited in Depth to 60.96 metres except as to Lot 539.

Survey carried out under Reg. 26A(1) Deferred Final Marking Approval. Approval ID xxxx-xx dated Day Month Year : Landgate File xxxxx-xxxx

Survey Method Regulatory Statement
 Survey carried out under Reg. 26A Special Survey Area Guidelines. See survey sheet(s) to determine the true final position and type of all survey marks placed for this plan.

Survey Certificate - Regulation 54
 I, David J. Gibb hereby certify that this plan is accurate and is a correct representation of the -
 (a) survey; and
 (b) calculations from measurements recorded in the field records, undertaken for the purposes of this plan and that it complies with the relevant written law(s) in relation to which it is lodged.

Licensed Surveyor	Date
-------------------	------

Survey Organisation	
Name	VERIS
Address	JOLIMONT 6014
Phone	6241 3333
Fax	6241 3300
Email	lodgements.wa@veris.com.au
Reference	609975-S011-DJG

Former Tenure				
New Lot / Land	Parent Plan Number	Parent Lot Number	Title Reference	Subject Land Description
Lots 990, 991, 1101-1126, 1166-1170, 1172-1180, 1182-1195 & 9032	DP 425987	Lot 9031		

Former Tenure Interests and Notifications						
Subject	Purpose	Statutory Reference	Origin	Land Burdened	Benefit To	Comments
33b) J	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	DP 403189	Lots 991 & 9032	Water Corporation	
33b) N	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	DP 403190	Lot 991	Water Corporation	
33b) F	Easement (Sewerage & Water Supply)	Sec 167 of the P & D Act Reg33(b)	DP 403189	Lot 9032	Water Corporation	
33b) O	Easement (Sewerage & Water Supply)	Sec 167 of the P & D Act Reg33(b)	DP 403190	Lot 9032	Water Corporation	
33c) C	Easement (Electricity Supply)	Sec 167 of the P & D Act Reg33(c)	DP 403189	Lot 9032	Electricity Networks Corporation	
33c) D	Easement (Electricity Supply)	Sec 167 of the P & D Act Reg33(c)	DP 403190	Lot 9032	Electricity Networks Corporation	
33b) R	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	DP 406069	Lot 9032	Water Corporation	
33b) V 33b) X	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	DP 406834	Lot 9032	Water Corporation	
X	Easement		Doc N971268	Lot 9032	Water Corporation	
33a) B	Easement (Drainage)	Sec 167 of the P & D Act Reg33(a)	DP 422527	Lot 9032	City of Rockingham	
33b)	Easement (Sewerage & Water Supply)	Sec 167 of the P & D Act Reg33(b)	DP 423253	Lot 9032	Water Corporation	
33c) G	Easement (Electricity Supply)	Sec 167 of the P & D Act Reg33(c)	DP 423253	Lot 9032	Electricity Networks Corporation	
F	Restrictive Covenant	Sec 129BA of the TLA	Doc P525171	Lot 9032	Electricity Networks Corporation	Fire Separation
33b) A	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	DP 425072	Lot 9032	Water Corporation	

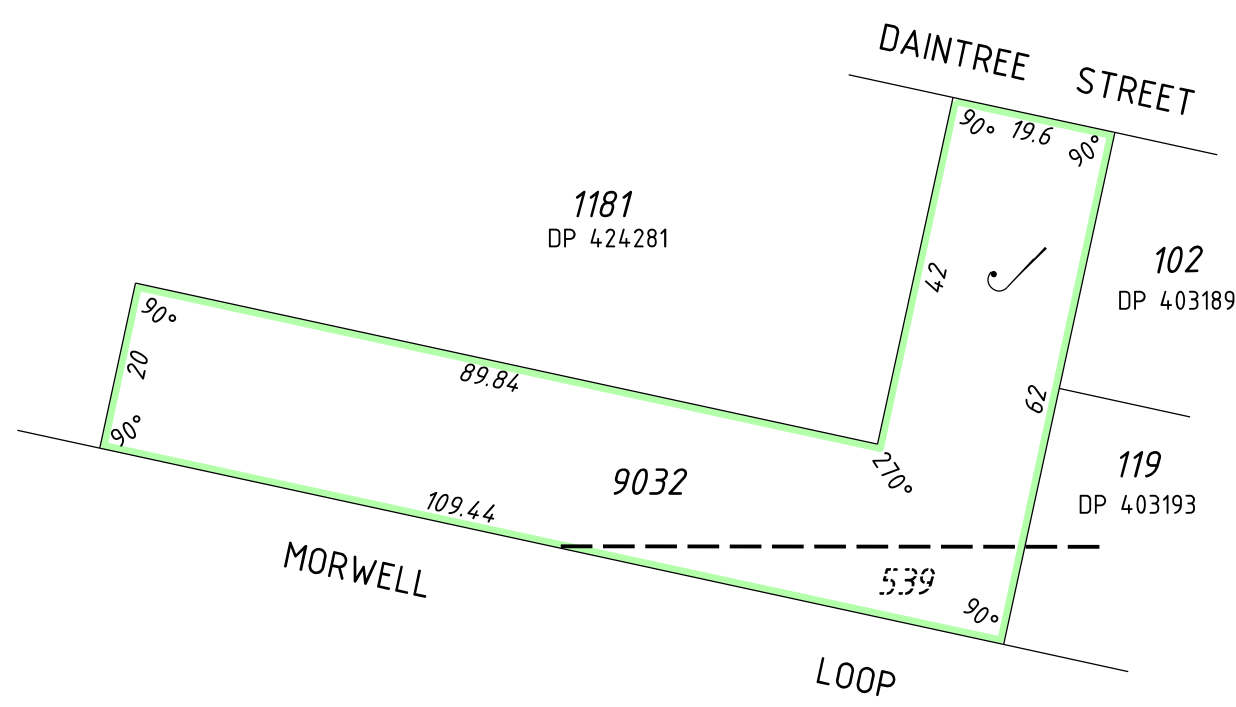
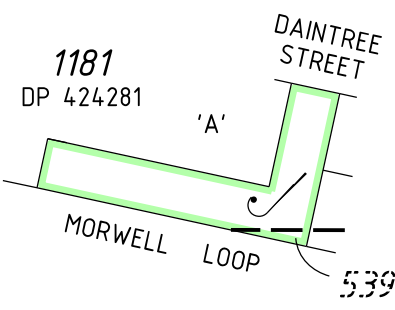
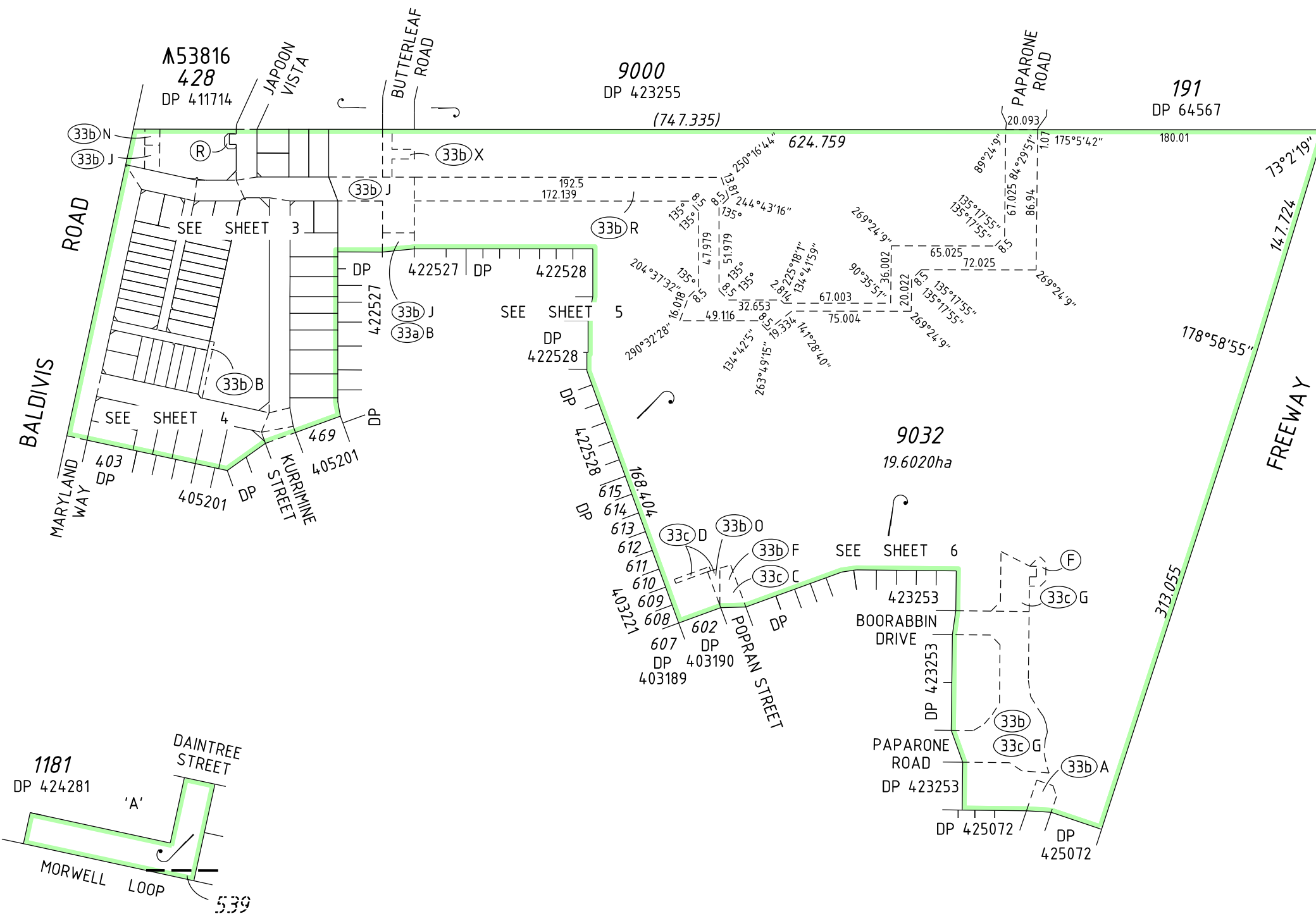
New Interests						
Subject	Purpose	Statutory Reference	Origin	Land Burdened	Benefit To	Comments
33b) B	Easement (Sewerage)	Sec 167 of the P & D Act Reg33(b)	This Plan	Lot 990	Water Corporation	
	Restrictive Covenant	Sec 136D of the TLA	This Plan & Doc	All Lots Except Lots 990, 991 & 9032	All Lots Except Lots 990, 991 & 9032	
R	Restrictive Covenant	Sec 129BA of the TLA	Doc	Lot 991	Electricity Networks Corporation	Fire Separation

New Notifications and Memorials						
Subject	Purpose	Statutory Reference	Origin	Land Burdened	Benefit To	Comments
	Notification	Sec 165 of the P & D Act	Doc	All Lots Except Lots 990, 991 & 9032		Mosquitoes
	Notification	Sec 165 of the P & D Act	Doc	Lots 990,991, 1101-1126,1166-1170, 1172-1180,1194 & 1195		Bushfire Management Plan

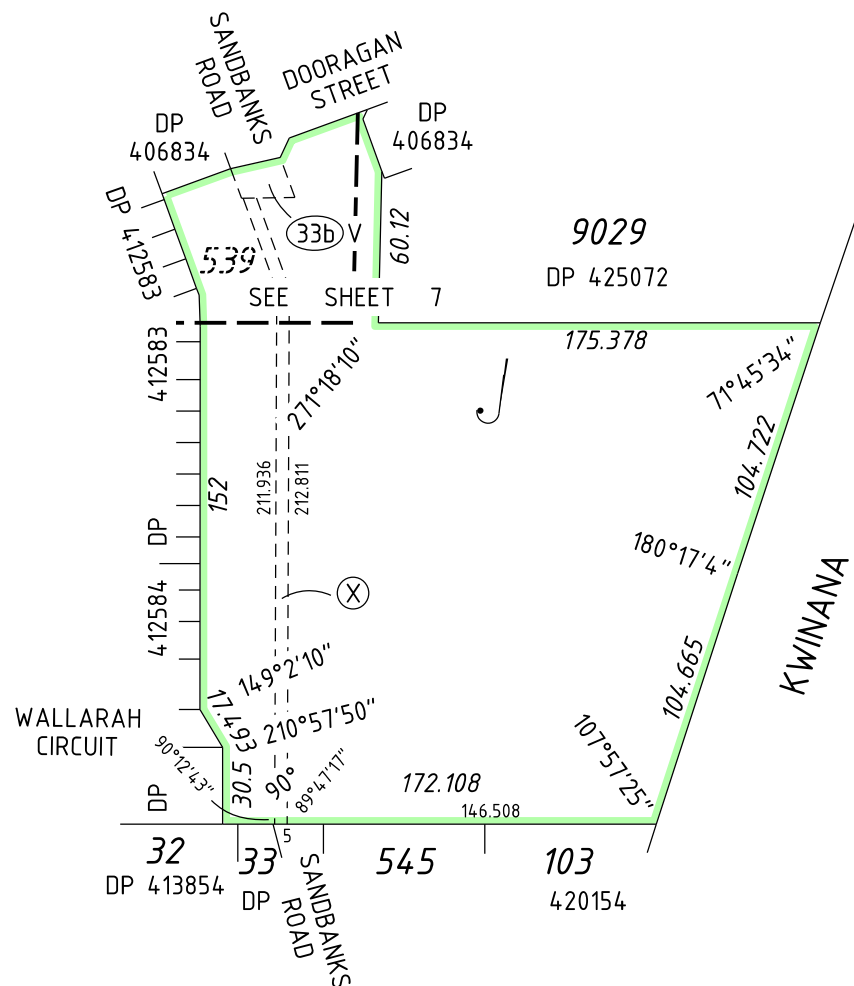
Vesting Lots				
Lot	Purpose	Statutory Reference	Origin	Comments
Lots 990 & 991	Reserve for Recreation	Vests in the Crown Under Sec 152 of the P & D Act	This Plan	

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LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539



ENLARGEMENT AT 'A'
NOT TO SCALE



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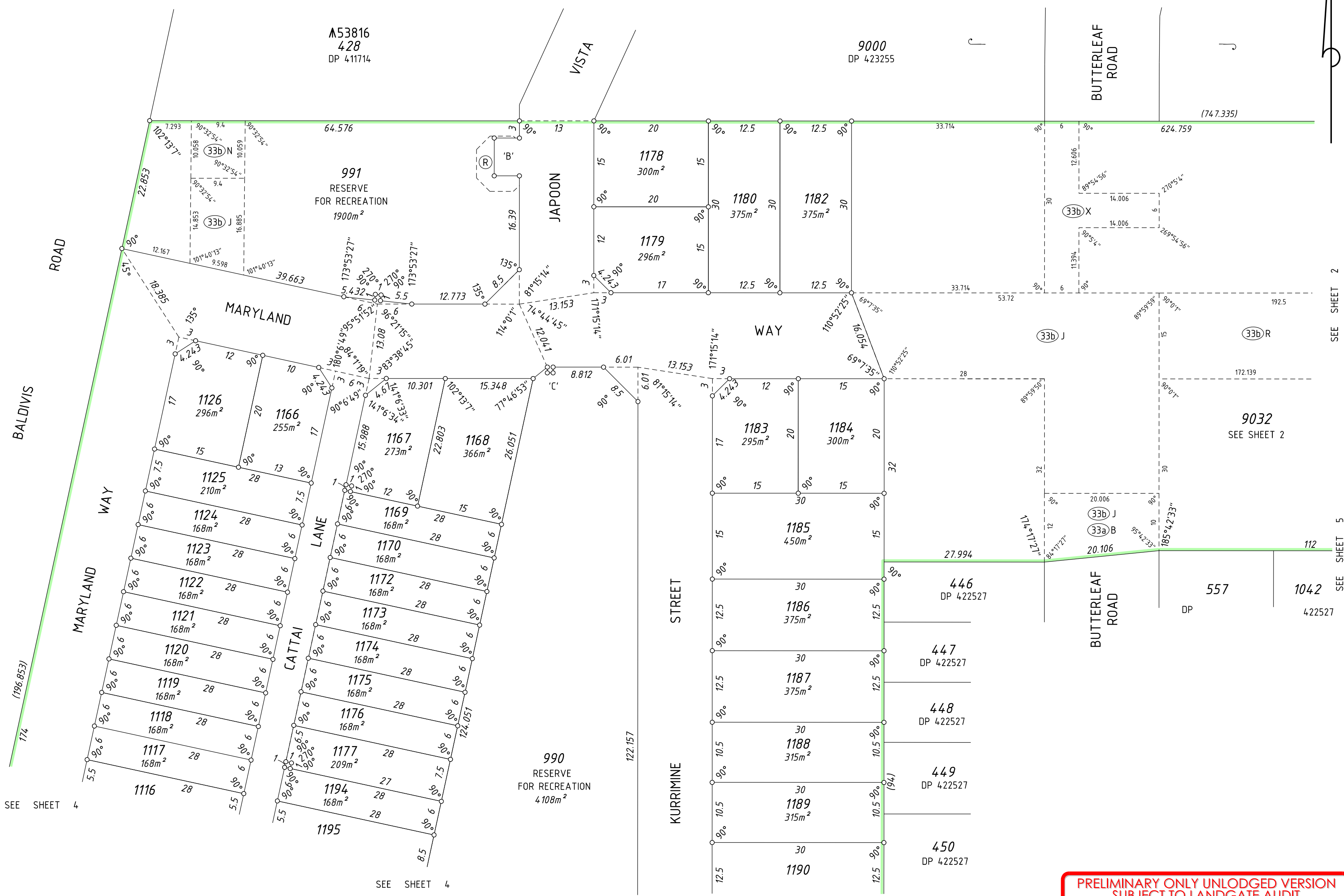
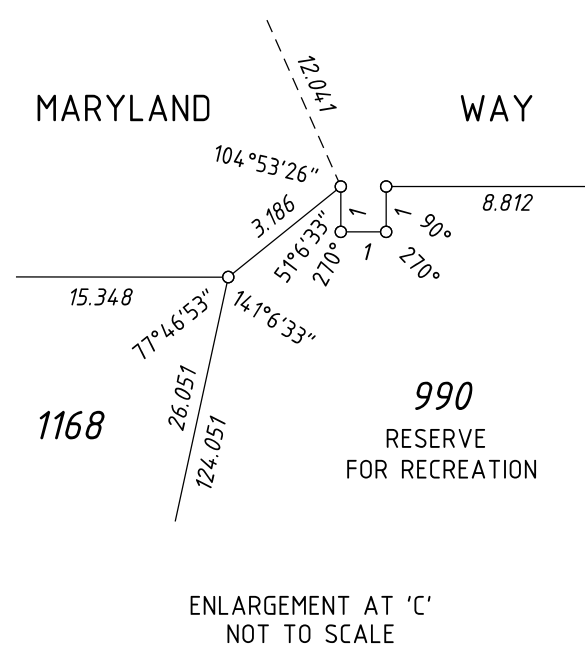
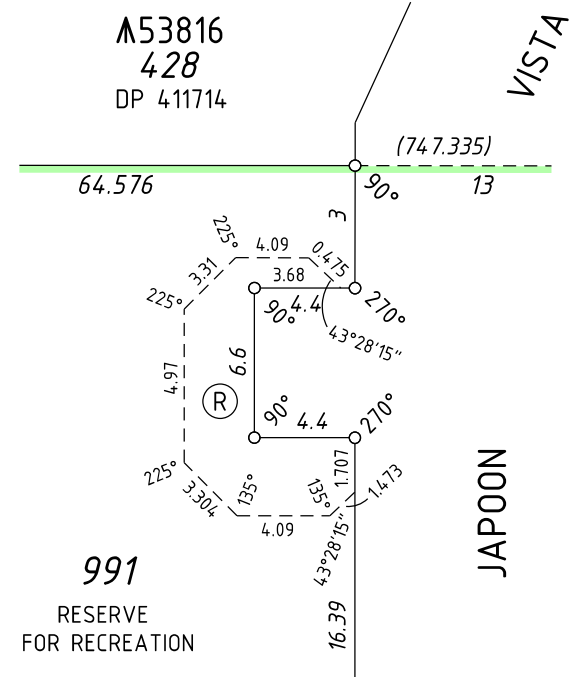
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ADDITIONAL SHEETS Survey Sheet(s)	SHEET 2 OF 7	SHEETS 7	VERSION NUMBER 1	DEPOSITED PLAN 426548
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LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539

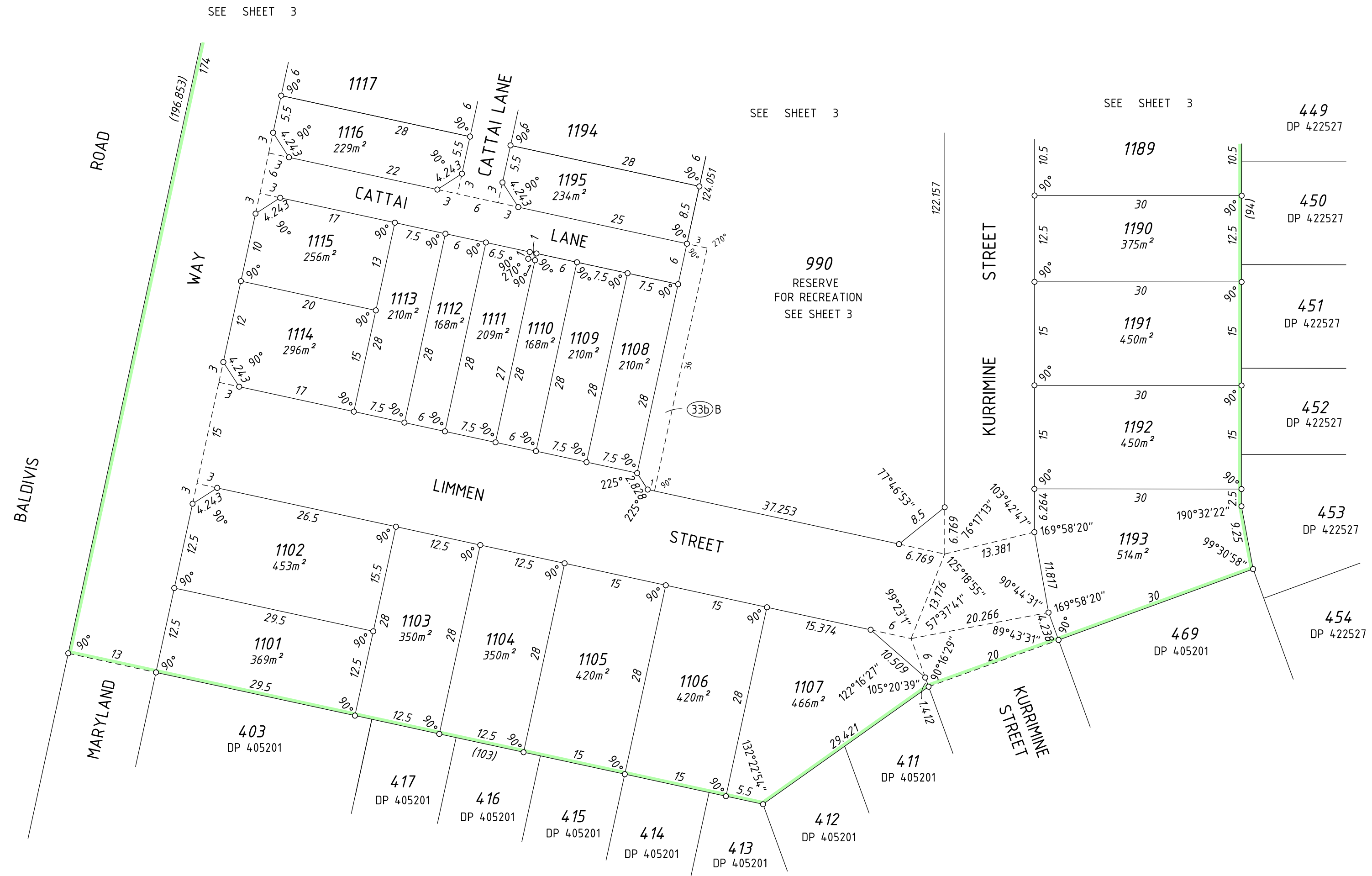


SCALE: 1:500 AT A2 SIZE

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LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539



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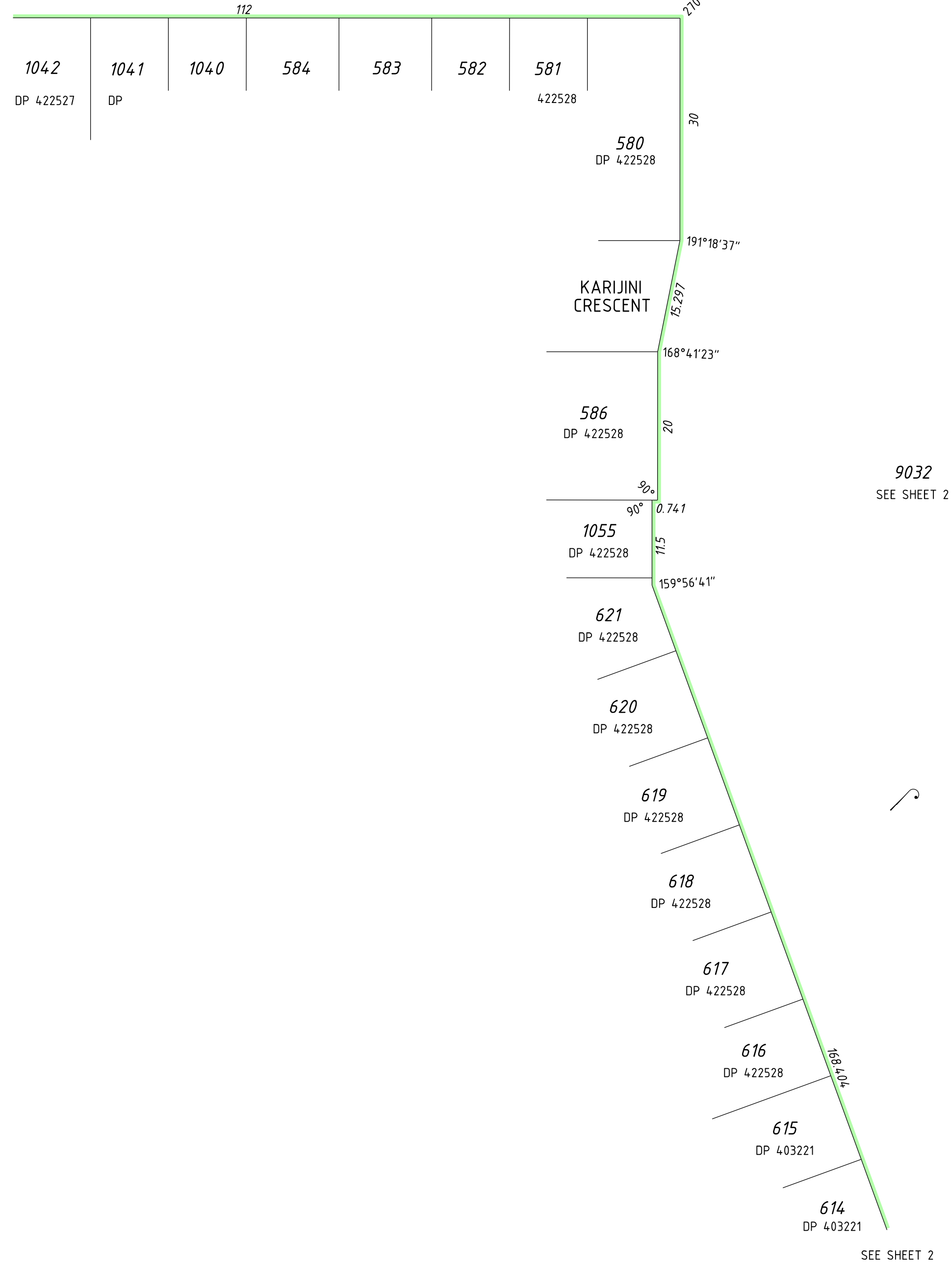
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 Survey Sheet(s)

SHEET	SHEETS	VERSION NUMBER
4	OF 7	1

DEPOSITED PLAN
426548

LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539

SEE SHEET 3



5 0 25
SCALE: 1:500 AT A2 SIZE

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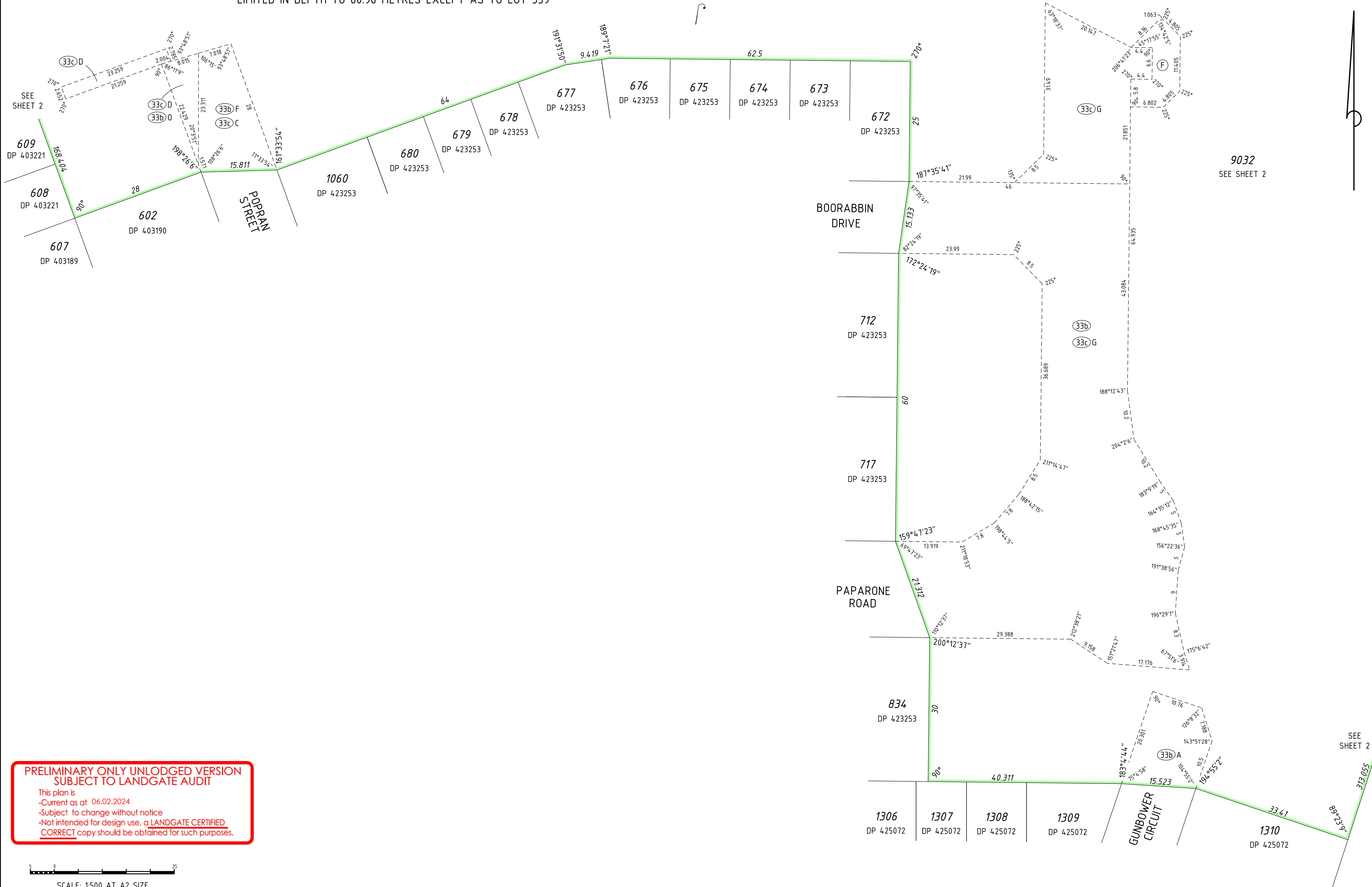
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SHEET SHEETS
5 OF 7

VERSION NUMBER
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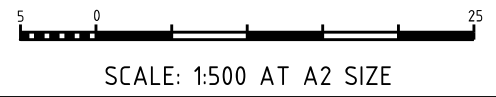
DEPOSITED PLAN
426548

LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539



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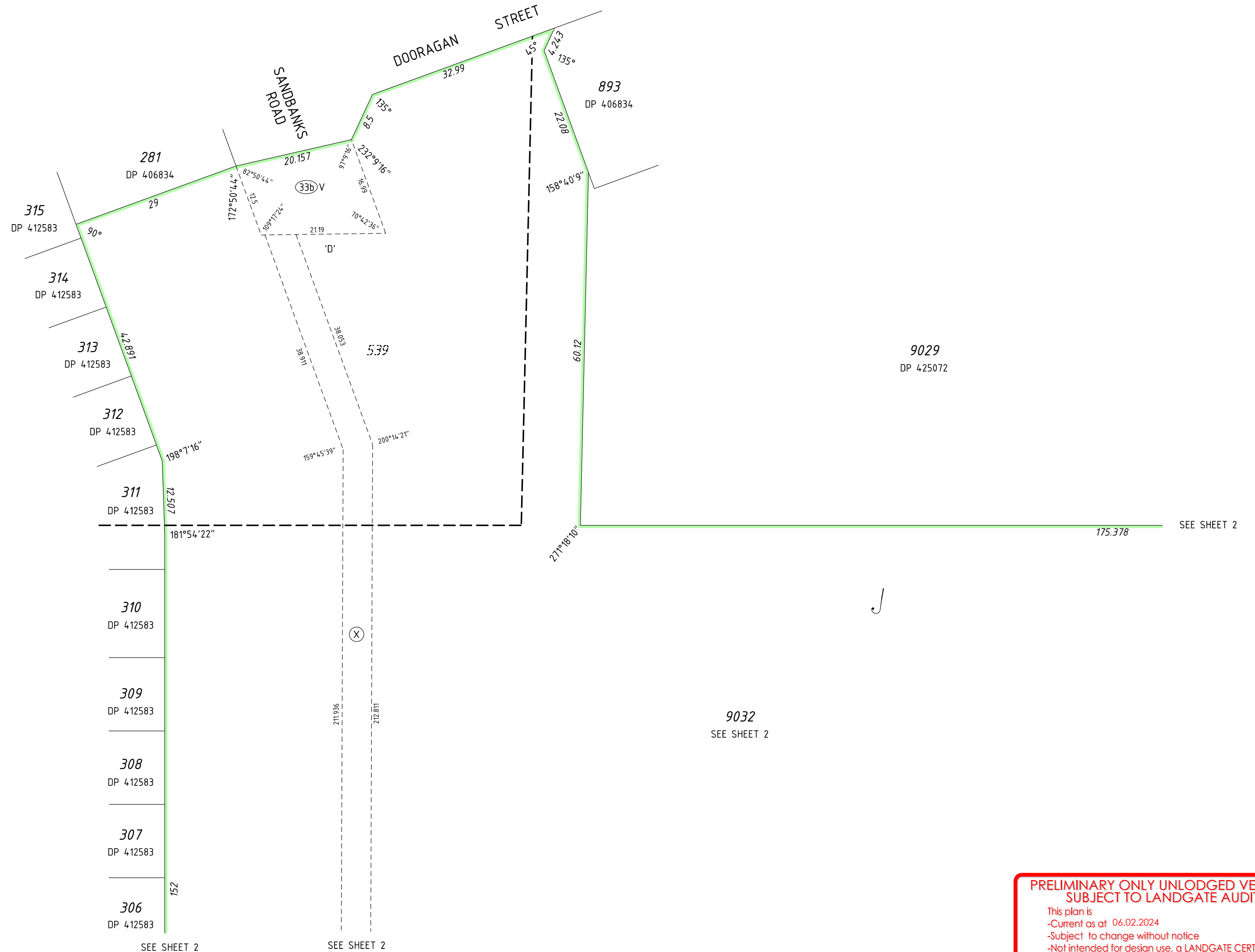
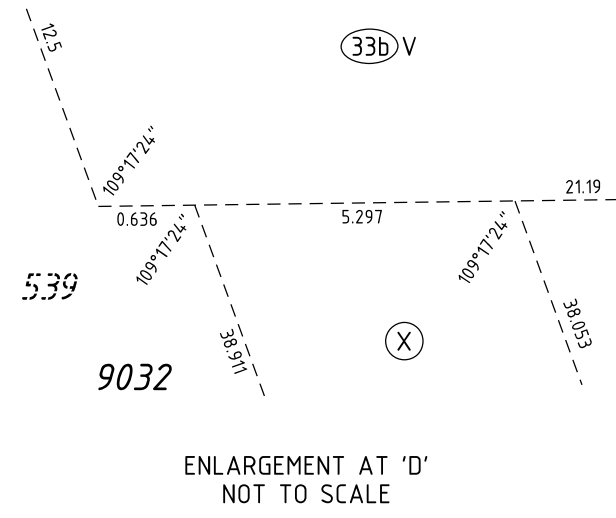
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ADDITIONAL SHEETS Survey Sheet(s)	SHEET 6	SHEETS OF 7	VERSION NUMBER 1	DEPOSITED PLAN 426548
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LIMITED IN DEPTH TO 60.96 METRES EXCEPT AS TO LOT 539



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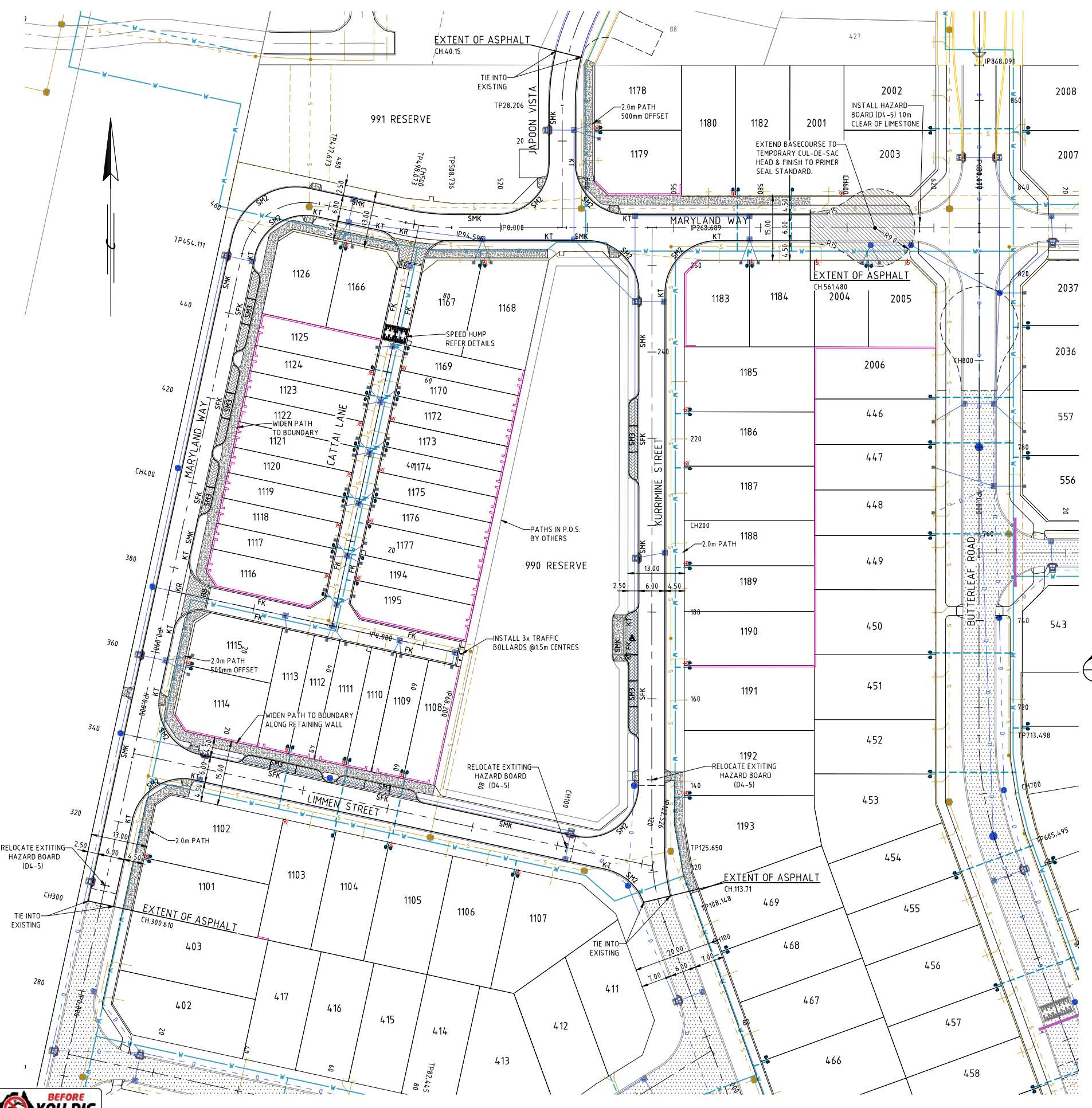


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Survey Sheet(s)

SHEET SHEETS VERSION NUMBER
7 OF 7 1

DEPOSITED PLAN
426548

Appendix D Roadworks layout plan

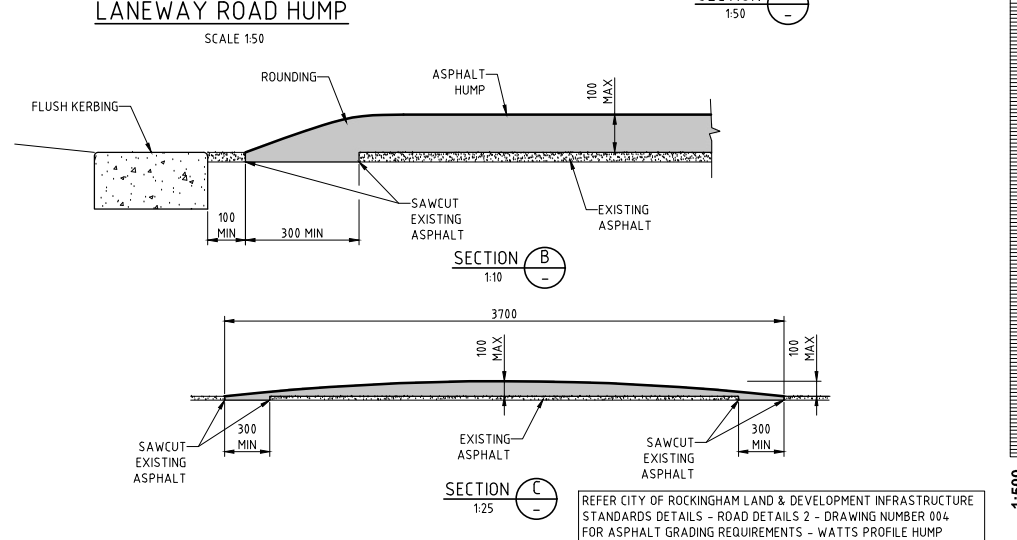
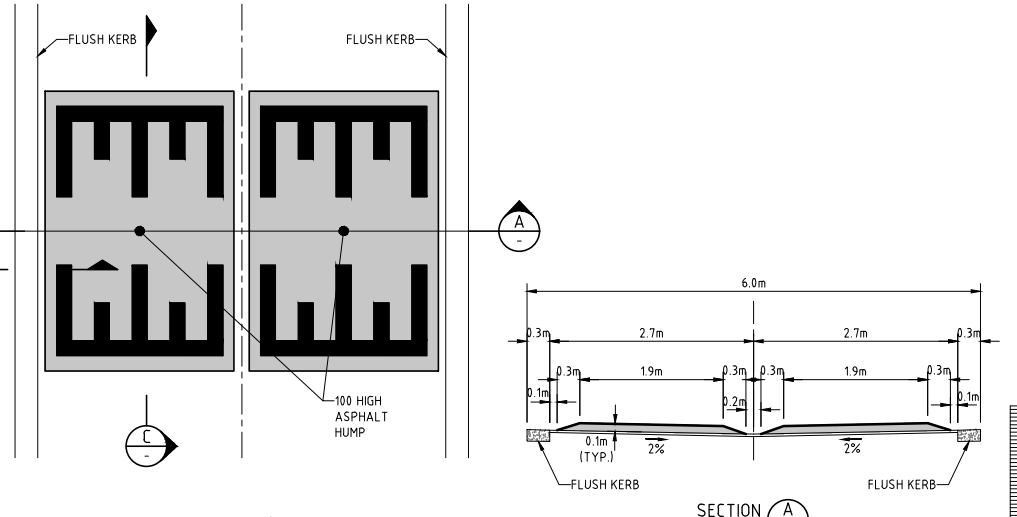


ROADWORKS LEGEND

- CHAINAGE MARK AND TANGENT POINT
- DENOTES PRAM RAMP
- PROPOSED BRICK PAVEMENT
- BOND BEAM
- MOUNTABLE KERB M-1 U.N.O.
- BLACK ASPHALT A7 U.N.O.
- FLUSH KERB
- ROAD SIGN AS PER COUNCIL STANDARDS AND SHOWN IN SPECIFICATIONS.
- HAZARD BOARD (D4-5)
- 100mm CONCRETE (N32) - BRUSHED FINISH
- BRICK PAVING - ROAD & CARBAYS: EASIPAVE 80 'WASHED GREY (SEA MIST)' WITH A EASIPAVE 80 'WASHED GREY (SEA MIST)' HEADER COURSE
- BRICK PAVING - ISLANDS: EASIPAVE 80 'SILVER' WITH A EASIPAVE 80 'SILVER' HEADER COURSE
- EXISTING ROAD PAVEMENT
- BK BARRIER KERB
- FK FLUSH KERB
- KT KERB TRANSITION
- BB BOND BEAM
- KR KERB RAMP
- SMK SEMI-MOUNTABLE KERB (SM-1)
- MK MOUNTABLE KERB (M-1)
- IRRIGATION DUCT $\phi 225$ mm (U.O.N) 600mm MINIMUM DEPTH ($\phi 100$ mm DUCTS INTO LOTS)

NOTES:

1. LEVEL DATUM - AUSTRALIAN HEIGHT DATUM
2. THE CONTRACTOR SHALL CO-ORDINATE THE LOCATION OF ALL EXISTING AND PROPOSED SERVICES PRIOR TO COMMENCEMENT OF WORK. ANY CONFLICTS ARE TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY
3. THE CONTRACTOR SHALL LOCATE ALL LEVELS FROM EXISTING BENCH MARKS
4. ALL BENCH MARKS ARE TO BE PROTECTED
5. SERVICES, SUCH AS WATER, GAS, TELEPHONE, ELECTRICITY, AND DRAINAGE MAY BE ENCOUNTERED DURING CONSTRUCTION OF THE WORKS. SERVICES INFORMATION SHOWN ON DRAWINGS IS INDICATIVE ONLY AND MAY NOT BE COMPLETE. BEFORE EXCAVATION COMMENCES THE LOCATION OF ALL SUCH SERVICES SHALL BE OBTAINED FROM THE RELEVANT AUTHORITIES
6. ALL KERBS TO BE MOUNTABLE TYPE M-1 U.N.O.
7. FOOTPATHS IN FRONT OF WALLS TO BE WIDENED TO FACE OF WALL
8. FOR CROSSOVER DETAILS REFER TO CITY OF ROCKINGHAM STANDARD DRAWINGS
9. PATHS TO BE 0.3m FROM BOUNDARY U.N.O.
10. CLEARING SHALL BE KEPT TO AN ABSOLUTE MINIMUM
11. SIGN POSTS AND STREET NAME PLATES SHALL BE SUPPLIED AND INSTALLED AS PER THE SPECIFICATION
12. REFER TO DRAWING BDVAUS2 R05 FOR STANDARD DETAILS



REFER CITY OF ROCKINGHAM LAND & DEVELOPMENT INFRASTRUCTURE STANDARDS DETAILS - ROAD DETAILS 2 - DRAWING NUMBER 004 FOR ASPHALT GRADING REQUIREMENTS - WATTS PROFILE HUMPH



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0	03/10/23	BWB	ISSUED FOR CONSTRUCTION	SRA	
B	14/09/23	BWB	COUNCIL COMMENTS REVIEWED, UPDATED PRECAL, CARBAYS AND PATHS AMENDED	SRA	
A	04/08/23	BWB	INITIAL ISSUE	SRA	
No.	DATE	BY	REVISION		

COORDINATE GRID SYSTEM: PCG 94, VERTICAL DATUM: AHD

DEVELOPMENT ENGINEERING CONSULTANTS
 SUITE 3, 123A COLIN ST, WEST PERTH, 6005 WESTERN AUSTRALIA
 Ph: (08) 9481 1900 Fax: (08) 9481 1700

PROJECT: **BALDISV EAST DEVELOPMENT STAGE 11**
 W.A.P.C. No. - 163242

DRAWING: **ROADWORKS LAYOUT PLAN**
 SCALE: 1:500
 DATE: JUNE 2023
 PROJECT NUMBER: **BDVAUS52 R01**

SCALE	1:500	DRAWN	BWB	CHECK	SRA	REV No.	
DATE	JUNE 2023	DESIGNED	BWB	APPROVED	SRA		0
PROJECT NUMBER: BDVAUS52 R01						DRAWING NUMBER	

Appendix E Water reticulation plan



LEGEND

- AGREEMENT BOUNDARY
- 63PE20 EXISTING WATER MAIN PIPE SIZE AND TYPE
- 63PE20 NEW WATER MAIN PIPE SIZE AND TYPE
- 63PE20 FUTURE WATER MAIN PIPE SIZE AND TYPE
- CHANGE OF PIPE SIZE MATERIAL OR ALIGNMENT
- EXISTING HYDRANT
- NEW HYDRANT
- BLUE RRPV VALVE
- FLUSHING POINT
- 80mm UPVC DUCT
- LOCATION OF LONG SERVICE
- DENOTES 112.5° BEND
- DENOTES 22.5° BEND
- DENOTES 45° BEND
- DENOTES 90° BEND
- DEFLECTION - MAX 3° (TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS)
- DEFERRED SERVICE
- SERVICE LOCATION
- INDICATES LOTS IN FUTURE STAGE BUT SERVICES TO BE LAID NOW (FULLY PRELAI SERVICE)
- INDICATES LOTS WHERE SERVICES LAID IN PREVIOUS STAGE - TO BE LOCATED & SET AT CORRECT LEVELS FOR F.T.I.
- POWER EXCLUSION ZONE
- RETAINING WALL

GENERAL NOTES

1. ALL PIPES, VALVES AND FITTINGS SHALL BE IN ACCORDANCE WITH THE WATER CORPORATION'S 'DESIGN STANDARDS DS63' WATER RETICULATION STANDARD, TABLE 3.1 'STANDARD WATER RETICULATION SYSTEM REQUIREMENTS'.
2. THE DIFFERENCE IN LEVEL BETWEEN THE CROWN OF THE PIPE AND ADJACENT FINISHED ROAD GUTTER SHALL NOT BE LESS THAN 600mm AND SHALL NOT EXCEED 700mm
3. UNLESS OTHERWISE DIRECTED BY THE SUPERINTENDENT, THE DIFFERENCE IN LEVEL BETWEEN THE CROWN OF THE PIPE AND THE FINISHED VERGE LEVEL SHALL BE NOT LESS THAN 600mm AND SHALL NOT EXCEED 800mm
4. WHERE PIPES CROSS OR ADJOIN OTHER EXISTING OR PROPOSED SERVICES, THE WATER MAIN SHALL HAVE A CLEARANCE OF 150mm
5. UNLESS OTHERWISE SHOWN ON THIS DRAWING OR VARIED BY THE SUPERINTENDENT, ALL PIPES AND FITTINGS SHALL BE LAID ON AN ALIGNMENT OF 2.1m FROM THE CENTRE OF THE PIPE TO THE ROAD RESERVE BOUNDARY
6. TEMPORARY DEAD ENDS, INSTALLED IN ACCORDANCE WITH THE SPECIFICATION, SHALL BE PROVIDED ON ALL MAINS AT CONNECTION POINTS TO EXISTING MAINS AND WHERE SPECIFIED
7. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN
8. UNLESS DIMENSIONED OTHERWISE, PE MAINS SHALL EXTEND AT LEAST 6.0m PAST THE LAST LOT SERVED
9. ALL VALVES AND HYDRANTS SHALL BE PLACED OPPOSITE BOUNDARY PEGS OR IN THE CENTRE OF LOT FRONTAGES AS SHOWN
10. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE STANDARD DETAILS, WATER CORPORATION'S 'DESIGN STANDARDS DS63' AND THE SPECIFICATION
11. EXISTING POWER POLES ARE TO BE SUPPORTED DURING LAYING OF THE WATER MAIN, BY WESTERN POWER, AT CONTRACTORS EXPENSE
12. ALL LOT CONNECTIONS AT FRONT
13. PIPES TO BE DEFLECTED WHERE BEND TYPE NOT SPECIFIED
14. CONTRACTOR TO INSTALL 1 x BLUE RRPV ON ROAD (170mm OFFSET FROM CL) OPPOSITE ALL HYDRANTS.
15. REFER TO BDVAUS52 V01 FOR TYPICAL SERVICE LAYOUT DETAILS

CONTRACTORS RESPONSIBILITY

IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE INDICATED POSITIONS FOR PRELAI SERVICES DO NOT CLASH WITH DRAINAGE OR OTHER FACILITIES. PLEASE CONTACT THE SITE SUPERINTENDANT IF AMENDMENTS TO THE PRELAI SERVICE LOCATIONS ARE REQUIRED

SERVICES

- L OR R INDICATES THE SIDE OF THE LOT AS VIEWED FROM THE ROAD
- FR OR FL INDICATES LEFT OR RIGHT FULLY PRELAI SERVICE
- D INDICATES A DEFERRED SERVICE
- L80 OR R80 INDICATES LEFT OR RIGHT PVC DUCT.

PRELAI SHORT SINGLE SERVICES:	8
PRELAI SHORT DUAL SERVICES:	20
PRELAI LONG SINGLE SERVICES:	1
PRELAI LONG DUAL SERVICES:	4
DEFERRED SERVICES:	0
TOTAL NUMBER OF LOTS SERVED-	57

EXTENSION

LAY 488.2	METRES OF 100P-16
LAY 232.8	METRES OF 150P-16

STRUCTURES

HYDRANTS	3
VALVES	5

STANDARD DRAWINGS

AS LISTED IN THE WATER CORPORATION'S 'DESIGN STANDARDS DS63', WATER RETICULATION STANDARD

CONNECTION DETAIL 1

NTS
150x150 90° BEND CONNECTION BY WATER CORPORATION AT DEVELOPERS EXPENSE. FEE INCLUDED IN LAND DEVELOPMENT AGREEMENT.

CONNECTION DETAIL 2

NTS
100 STRAIGHT CONNECTION BY WATER CORPORATION AT DEVELOPERS EXPENSE. FEE INCLUDED IN LAND DEVELOPMENT AGREEMENT.

CONNECTION DETAIL 3

NTS
100 STRAIGHT CONNECTION BY WATER CORPORATION AT DEVELOPERS EXPENSE. FEE INCLUDED IN LAND DEVELOPMENT AGREEMENT.

CONNECTION DETAIL 4

NTS
100 STRAIGHT CONNECTION BY WATER CORPORATION AT DEVELOPERS EXPENSE. FEE INCLUDED IN LAND DEVELOPMENT AGREEMENT.

CONNECTION DETAIL 5

NTS
100 STRAIGHT CONNECTION BY WATER CORPORATION AT DEVELOPERS EXPENSE. FEE INCLUDED IN LAND DEVELOPMENT AGREEMENT.



No.	DATE	BY	REVISION
0	03/10/23	BWB	SERVICES LOCATIONS REVISED TO SUIT AMENDED PRECAL. ISSUED FOR CONSTRUCTION
C	14/09/23	BWB	UPDATED PRECAL. SERVICES LOCATIONS AMENDED
B	18/07/23	BWB	COMMENTS RECEIVED. WATER CORPORATION NUMBER ADDED.
A	29/06/23	BWB	INITIAL ISSUE

CLIENT: **FRASERS PROPERTY**

COORDINATE GRID SYSTEM: PCG 94, VERTICAL DATUM: AHD

DEVELOPMENT ENGINEERING CONSULTANTS

SUITE 3, 123A COLIN ST, WEST PERTH, 6005 WESTERN AUSTRALIA
Ph: (08) 9481 1900 Fax: (08) 9481 1700

PROJECT: **BALDIVIS EAST DEVELOPMENT STAGE 11**

W.A.P.C. No. - 163242

DRAWING: **WATER RETICULATION LAYOUT PLAN**

CAD DRAWING DO NOT MANUALLY ALTER

SCALE: 1:500	DRAWN: BWB	CHECK: SRA	REV No: 0
DATE: JUNE 2023	DESIGNED: BWB	APPROVED: SRA	
PROJECT NUMBER: BDVAUS52		DRAWING NUMBER: W01	

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