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Our Ref: L.A10426.003_Maryland.docx

8 February 2023

CKDS
115 King St
Newcastle NSW 2300

Attention: Ben Rapley

RE: HOUSING REDEVLOPMENT PROGRAM, MARYLAND – EXISTING FLOOD BEHAVIOUR

BMT has been engaged to undertake a flooding assessment to assist with the DA process for 38 and 40 John T Bell Drive and 31 and 33 Matfen Close, Maryland (lots 111, 112, 116 and 117 DP 253956), herein referred to as the "Site".

The Site is situated near the headwaters of Shelly Creek, a tributary of Ironbark Creek. Ironbark Creek drains into the Hunter River via Hexham Swamp, approximately 6 km downstream of the site. The Site is elevated at around 4 – 5 m AHD and has an upstream catchment area of approximately 70 ha. Elevations in the upper catchment reach around 50 m AHD. There is therefore potential for the proposed development to be impacted by both regional and local catchment flooding.

The proposed redevelopment of the site is expected to consist of 8 townhouse dwellings. It is understood that a FIA is required for the proposed works, to ensure the proposed development is compatible with the flood risk at the site, in accordance City of Newcastle's (Council's) flood planning policies. It is understood that the FIA will support the Development Application (DA) for redevelopment of the site.

This letter addresses the first stage of the flood assessment which is defining the existing flood behaviour for both the regional and local catchment events. The scope of this work is as follows.

Stage 1: Existing Flood Behaviour:

- Review Council's existing mainstream Hunter River regional flood information
- Develop of an XP-RAFTS hydrological model and a TUFLOW hydraulic model of the local catchment
- Present the existing flooding conditions at the study site, for mainstream Hunter River and local catchment flood events
- Assess of any potential flood constraints associated with the future development on-site, in accordance with Council's flood planning policies.

Hunter River Flooding

The site is categorised as residual risk for regional flooding, which means that the area is above the 1% AEP flood level but below the PMF level. That is, the site is subject to regional flooding, but only in very rare events. The regional flood risk is shown in Figure 1.

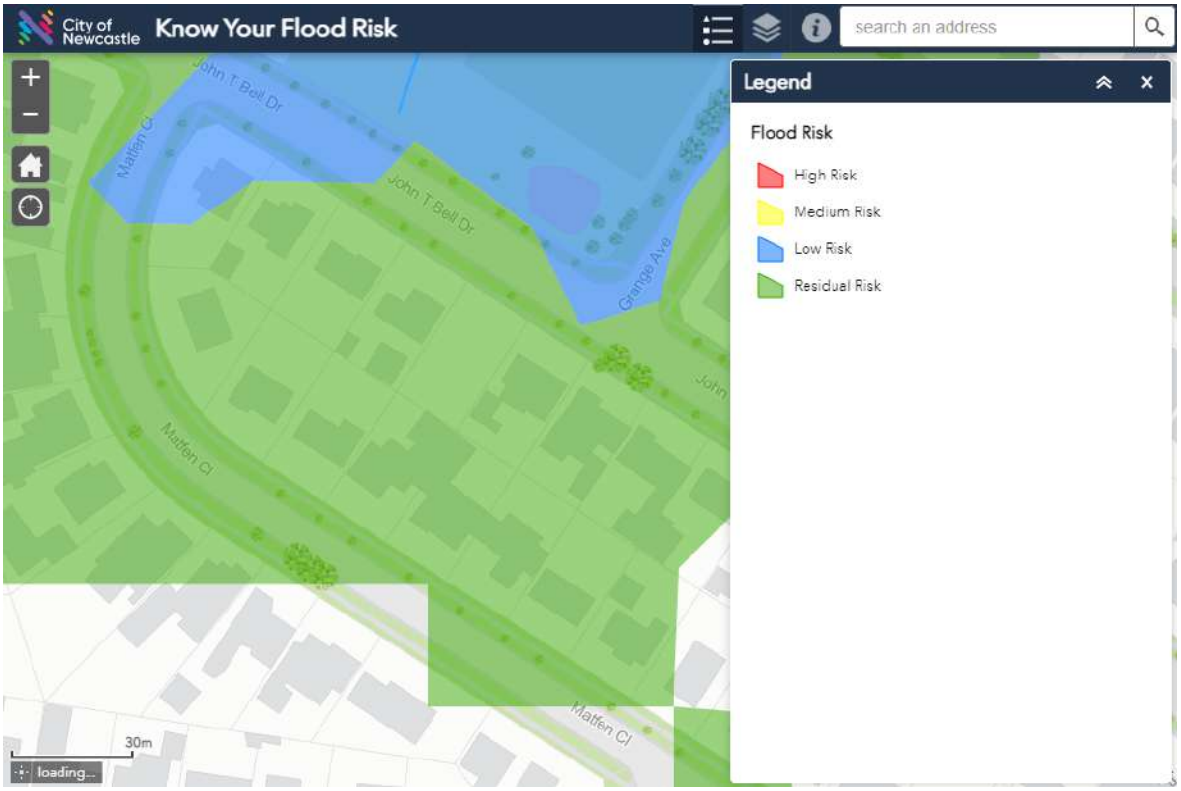


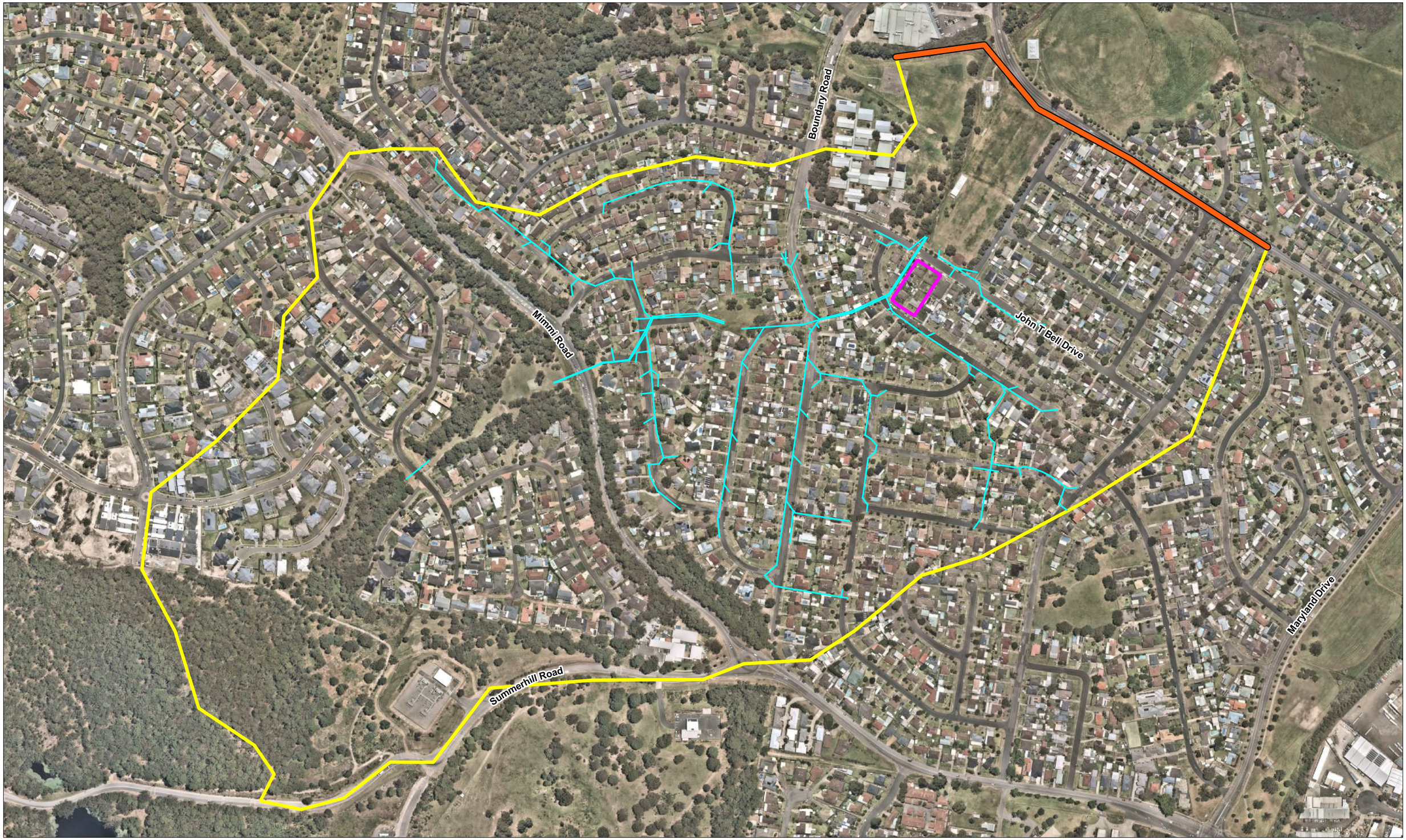
Figure 1 Regional Flood Risk

There have been a number of flood studies undertaken to define Hunter River flood conditions in the Lower Hunter with the most recent assessment being the *Upgrading of Lower Hunter Flood Model at Hexham* (DHI, 2008a). Hunter River flood conditions determined in the DHL (2008a) study have been used to define Hunter River flooding conditions for the development site. According to this report, the 1% AEP flood level at the site is 3.8 m AHD. The flood planning level is the 1% AEP flood level plus 500 mm, meaning floor levels would need to be to 4.3 m AHD to be at the regional flood planning level.

Local Flooding

As the catchment is small and has no defined channel upstream of the site, a direct rainfall local drainage model was considered most appropriate for determining local flood levels, rather than a separate hydrologic model and hydraulic model. This is because sub-catchment boundaries are difficult to define in flat and highly urbanised terrain.

TUFLOW HPC was the modelling package adopted. The extent and key model features are shown in Figure 2. The following sections outline the key components of the model development and results.



LEGEND

- Site
- Pipe Locations
- Downstream Boundary
- Model Extent

Aerial Image 28 November 2020 by nearmap.com

Title:

Model Layout

Figure: 2

Rev: A

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Topography

The model topography has been based on LiDAR data freely available from ELVIS and captured in 2014. The data has an accuracy of 0.3 m vertically and 0.8 m horizontally. The model extent is shown on

Figure 2 TUFLOW Model Layout Due to the use of direct rainfall modelling, the model had to extend to the upstream catchment boundaries to ensure all rainfall was accounted for.

A 2 m grid size was adopted and SGS (sub-grid sampling) was utilised in the model in order to sample the underlying topography data at a higher resolution. Due to the high resolution and use of SGS, no additional topographic modifications were needed.

Roughness

The model area was delineated to represent varying roughness values across the catchment. The values adopted are provided in Table 1 below.

Table 1 Adopted Manning's Values

Description	Manning's Value
High Density Residential	0.3
Roads	0.025
Medium Density Vegetation	0.08
Grass	0.035

To test the model's sensitivity to the choice of Manning's values, a sensitivity test was undertaken where the Manning's values were doubled. This takes the values out of the bounds of industry accepted ranges for each land use, but it is a useful test. Modelled water levels increased by up to 25 mm on the site due to the doubled roughness values. Given that the flood planning level for Newcastle includes a 500 mm freeboard, a variance of 25 mm is not considered particularly sensitive. As the original selection of Manning's values are generally accepted as reasonable, they have been adopted.

Structures

Local drainage is important in determining flood levels where flooding is dominated by localised runoff and overland flow. The local pit and pipe network, provided by Council, was therefore added to the model. The pit and pipe data has limitations and inaccuracies. Regardless it is considered more appropriate to include the pit and pipe network with assumptions, rather than excluding it. For example, invert levels were not known so it was assumed that the obverts lay 500 mm below the ground level (that is, the pipes had 500mm of cover). This allowed inverts to be estimated and adjusted based on the ground surface elevations, which was needed to ensure continuity in the pipe network.

Boundaries

The TUFLOW ARR tool was used to create the rainfall csvs based on point temporal patterns. Point temporal patterns were used due to the small size of the upstream catchment, as per ARR 2019.

The rainfall excess method was used for losses and the Probability Neutral Burst Initial Loss was applied. For durations where an initial loss wasn't available from the ARR Data Hub[1], the initial loss for the next largest duration was used (eg. used the 60 min loss for durations shorter than 60 mins). The continuing losses as suggested by the ARR Data Hub, were multiplied by 0.4, as recommended for NSW.[2] For residential areas, it was assumed 40% of the area was impervious. No losses were applied for hard surfaces.

The 5% AEP, 1% AEP, 1% AEP with climate change and PMF events were simulated.

For the 1% AEP, durations up to 360 minutes and all temporal patterns were simulated. The critical durations for the site were found to be the 15 and 20 minute storms. Only the 15 and 20 minute storm durations were simulated for further events.

Climate change was estimated based on ARR 2019. The year 2090 and RCP 6 was adopted.

The PMF rainfall was calculated based on the generalised short duration method due to the short critical durations.

Results

Design flood simulations were undertaken for the 5% AEP, 1% AEP, 1% AEP plus climate change and PMF design events. Modelled peak flood depths have been mapped for each event and are attached as Figure A-1, A-2, A-3 and A-4.

There is overland flow that flows across the site from south to north, consistent with higher ground levels along Matfen Cl compared to John T Bell Dr. For the 1% AEP event, depths on Site due to the overland flow reach up to 0.2 m but are primarily less than 0.1 m and peak flood levels on Site range between 4.3 - 5 m AHD.

The combination of flood depths and flood velocities can be used to assess the risk to property and life based on the physical flood behaviour. Situations in which flood depths are shallow, but velocities are high can be just as critical as situations where flood depths are large, but velocities are low. The combination of flood depths and flood velocities (v*d) is defined as the flood hydraulic behaviour. Different values, or thresholds, for flood hydraulic behaviour help to categorise the risk to life of people exposed to the flood, either directly as pedestrians, or indirectly inside a vehicle, or inside a building/structure. The hydraulic behaviour also aids in the categorisation of risk to property. Newcastle Council has a set of Hydraulic Behaviour Thresholds that are detailed in Section 4.01 of the Development Control Plan (DCP) 2012.

[1] The ARR Data Hub is an online tool that allows access to the design inputs required to undertake flood estimation in Australia using ARR 2019 methodology: https://data.arr-software.org/about
[2] NSW Office of Environment and Heritage, 2019, Floodplain Risk Management Guide Incorporating 2016 Australian Rainfall and Runoff in studies

Risk to Property

The hydraulic behaviour thresholds (and the flood depth and velocity relationships that define them) as defined in Council's DCP are described in Table 2 along with the subsequent risk to property definition. They are not inherently tied to a size or likelihood of flood, but rather, they describe the stability of a chosen object (e.g. a type of building construction) in water of a certain depth and velocity. The risks to property criteria are determined based on 1% AEP flood conditions and shown in Figure A-5.

Table 2 Definition of Hydraulic Behaviour Thresholds (The City of Newcastle, 2012)

Hydraulic Behaviour Threshold	Velocity-Depth Relationship	Risk to Property
H1	v < 0.5 m/s, d < 0.3 m	P1 - Parked or moving cars remain stable
H2	v < 2 m/s, d < 0.8 m, v*d < (3.2 – 4*d)	P2 - Parked or moving heavy vehicles remain stable
H3	v < 2 m/s, d < 2 m, v*d < 1	P3 - Suitable for light frame construction
H4	v < 2.5 m/s, d < 2.5 m, v*d < 2.5	P4 - Suitable for heavy frame construction or structural reinforcement
H5	Remaining areas	P5 - Hydraulically unsuitable for normal building construction

With reference to Figure A-5, the hydraulic behaviour classification across the Site is H1 for the 1% AEP event. This results in a risk to property classification at the Site of P1 and is indicative of no risk to construction for the 1% AEP event.

Risk to Life

In addition to hydraulic behaviour, risks to life are influenced by the warning time of the particular flooding mechanism (i.e. flash, river or ocean flooding), as well as the availability of an evacuation route. Generally, evacuation can be expected from areas that are under threat from river or ocean flooding due to the increased warning time allowing people to mobilise and leave. As such, the risks to life in areas affected by river and ocean flooding is considered low. Flash flooding, however, can represent a significant risk, as there is generally little time to respond or indeed evacuate. If there is an evacuation route available, which consists of a continuously rising route to flood free land (above the PMF level), then the risks in flash flood situations are less than if no route was available (requiring either shelter-in-place, or evacuation through floodwaters – neither of which are recommended).

Risks to life categorisation adopted by Council has been developed by considering both the time available for evacuation, rising land access and the hydraulic behaviour, as presented in Table 2. The risks to life criteria are determined based on PMF conditions. The extreme flood condition is adopted when considering risk to life as the NSW Floodplain Development Manual is explicit in requiring risks to life to be considered and managed over the full range of flood events (i.e. up to the most extreme conditions, or the PMF).

Table 3 Risk to Life Hazard Categories (adopted at the PMF level)

Catchment Response Time				Hydraulic Behaviour Threshold				
				H1	H2	H3	H4	H5
	Riverine and Ocean Flooding			L1				
	Flash	Escape Route to flood free land	available	L2		L4		L5
			not available	L3				

Where:

L1 Riverine flooding where there is sufficient time to remove people from the risk to their lives by means of formal community evacuation plans. Not relevant to flash flooding scenarios such as the local Maryland Creek catchment.

L2 Short duration flash flooding with no warning time in circumstances where there is an obvious escape route to flood free land with enclosing waters during the PMF suitable for wading or heavy vehicles i.e. hydraulic threshold does not exceed H_2. On-site flood refuge not necessary and normal light frame residential building are appropriate.

L3 Short duration flash flooding with no warning time and no obvious escape route to flood free land with enclosing waters during the PMF suitable for wading or heavy vehicles i.e. hydraulic threshold does not exceed H_2. On-site flood refuge not necessary and normal light frame residential buildings appropriate.

L4 Short duration flash flooding with no warning time and enclosing waters during the PMF not suitable for wading or heavy vehicles i.e. hydraulic threshold exceeds H_2. Onsite refuge is necessary and if hydraulic threshold exceeds H_3, heavy frame construction or suitable structural reinforcement required.

L5 Short duration flash flooding with no warning time and enclosing waters during the PMF have too much energy for normal heavy building construction and therefore it is generally not possible to construct a flood refuge i.e. hydraulic threshold is H_5. The risk to life is considered extreme and the site is unsuitable for habitation, either residential or short stay.

The hydraulic behaviour thresholds for the PMF event for the Site are shown in Figure A-6. The hydraulic classification across most of the Site is defined as H2 - H3 for the PMF event.

The Site will become inundated at the PMF event with hydraulic category classed as H2 to H3, translating to a risk to life category of L4. According to the guidelines in the DCP, this means that onsite flood-free refuge is necessary.

Planning Levels

Flood depth and levels for each lot are summarised below. Depths provided are the maximum for the lot. Flood levels are provided as a range as there is a gradient in flood levels across each lot. The higher levels are on the southern sides of the lots. The lot numbers are shown on the results figures for reference.

Table 4 Flood Planning Levels

Lot	Peak 1% AEP Flood Depth (Maximum on lot)	Peak 1% AEP Flood Level Range	Planning Level (Peak level plus 500 mm freeboard)	Source (Local or Regional Flooding)
111	0.1 m	4.3 - 4.6 m AHD	4.8 – 5.1 m AHD	Local
112	0.4 m	4.3 - 4.6 m AHD	4.8 – 5.1 m AHD	Local
116	0.15 m	4.7 – 5.0 m AHD	5.2 – 5.5 m AHD	Local
117	0.1 m	4.7 – 5.0 m AHD	5.2 – 5.5 m AHD	Local

The peak flood levels and peak planning levels for each of the units is tabulated below, based on the current concept design as included as an attachment to this letter.

Table 5 Flood Planning Levels at Units

Unit	Peak 1% AEP Flood Level	Planning Level (Peak level plus 500 mm freeboard)	Peak PMF Level
1	4.6 m AHD	5.1 m AHD	5.1 m AHD
2	4.6 m AHD	5.1 m AHD	5.1 m AHD
3	4.6 m AHD	5.1 m AHD	5.1 m AHD
4	4.6 m AHD	5.1 m AHD	5.1 m AHD
5	4.7 m AHD	5.2 m AHD	5.4 m AHD
6	5.0 m AHD	5.5 m AHD	5.7 m AHD
7	5.0 m AHD	5.5 m AHD	5.7 m AHD
8	5.0 m AHD	5.5 m AHD	5.7 m AHD

Conclusions

The Site at 38 - 44 John T Bell Drive and 31 - 35 Matfen Close, Maryland (Lot 111, 112, 116 and 117, DP 253956), has low flood risk from regional mainstream Hunter River flooding, with the Site becoming only partially inundated in the 1% AEP event based on Council's existing flood information. To assess the potential for local catchment flash flooding at the Site, a TUFLOW direct rainfall hydraulic model was developed. Freely available LiDAR aerial survey tiles (with a vertical accuracy of 0.3 m) were used to define the topography within the TUFLOW model.

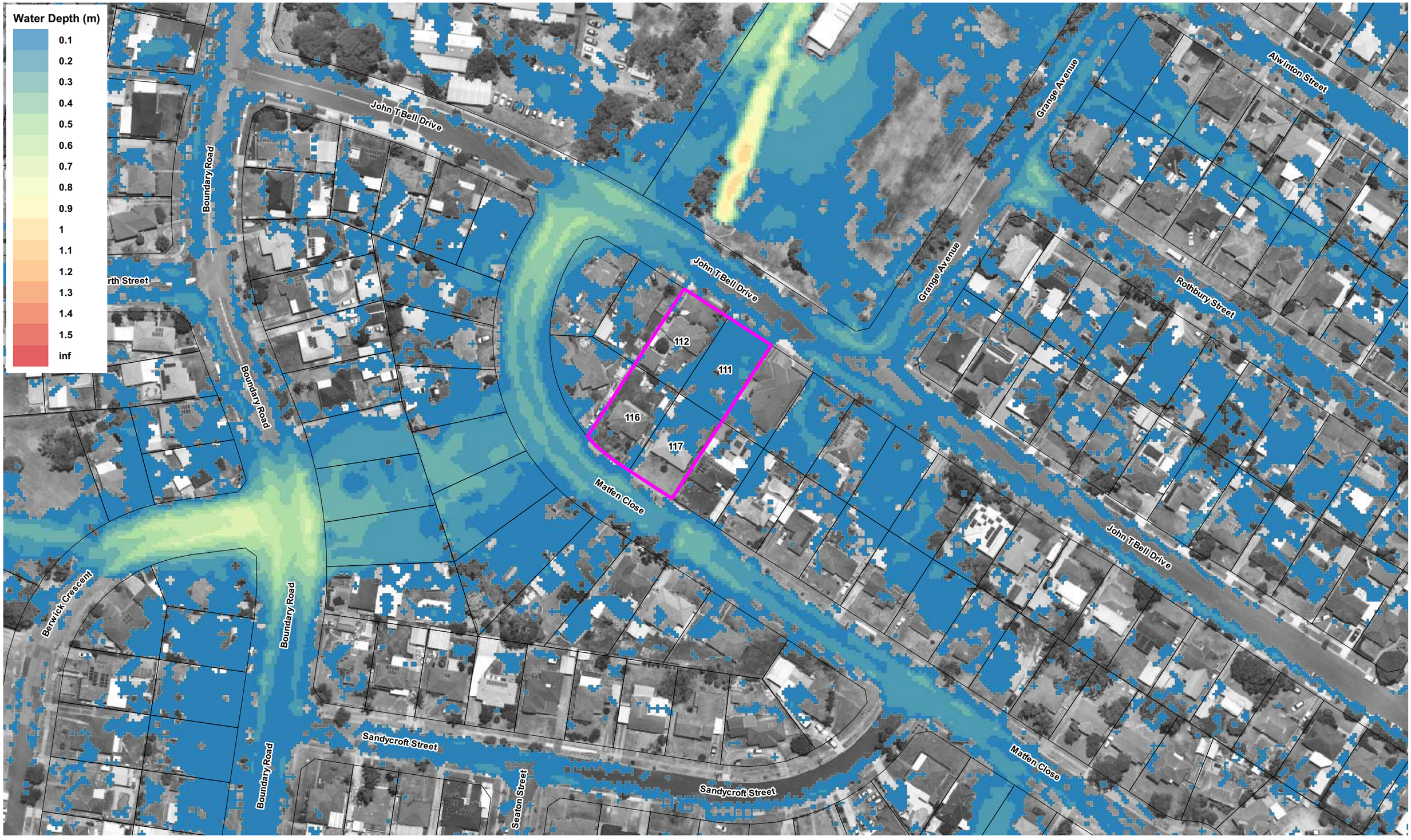
The modelling has demonstrated that the Site will become inundated during 1% AEP and PMF design local flood events. For the local 1% AEP, flood depths on Site reach up to 0.2 m but are primarily less than 0.1 m. Peak flood levels on Site range between 4.3 - 5 m AHD.

Flood levels associated with the proposed development should be constructed at or above the Flood Planning Level (FPL). Garage floor levels should be no lower than the 1% AEP flood event and large floatable objects and vehicles should not be stored within the areas classified as a H2 hydraulic behaviour threshold for the 1% AEP event. Council defines the FPL as the 1% AEP design flood level with a 0.5 m allowance for freeboard. The FPL applicable to the development varies across the site. Onsite flood-free refuge is necessary during a major flood event due to the Risk to Life Hazard category.

If you have any queries regarding this letter, please do not hesitate to contact the undersigned.

Yours Faithfully

Zita Dore
Associate Principal Flood Engineer
BMT



LEGEND

- Site
- Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

5% AEP Peak Flood Depth

Drawing: A-1

Rev: A

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Filepath: I:\A10426.I.zd_Maryland\QGIS\Project\Maryland_FloodModelResults.qgz

Water Depth (m)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5
inf
John T Bell Drive
Boundary Road
rth Street
Grange Avenue
Alwinton Street
Rothbury Street
112
111
116
117
Maffen Close
Berwick Crescent
Sandycroft Street
Seaton Street

LEGEND

Site

Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

1% AEP Peak Flood Depth

Drawing: A-2

Rev: A

N

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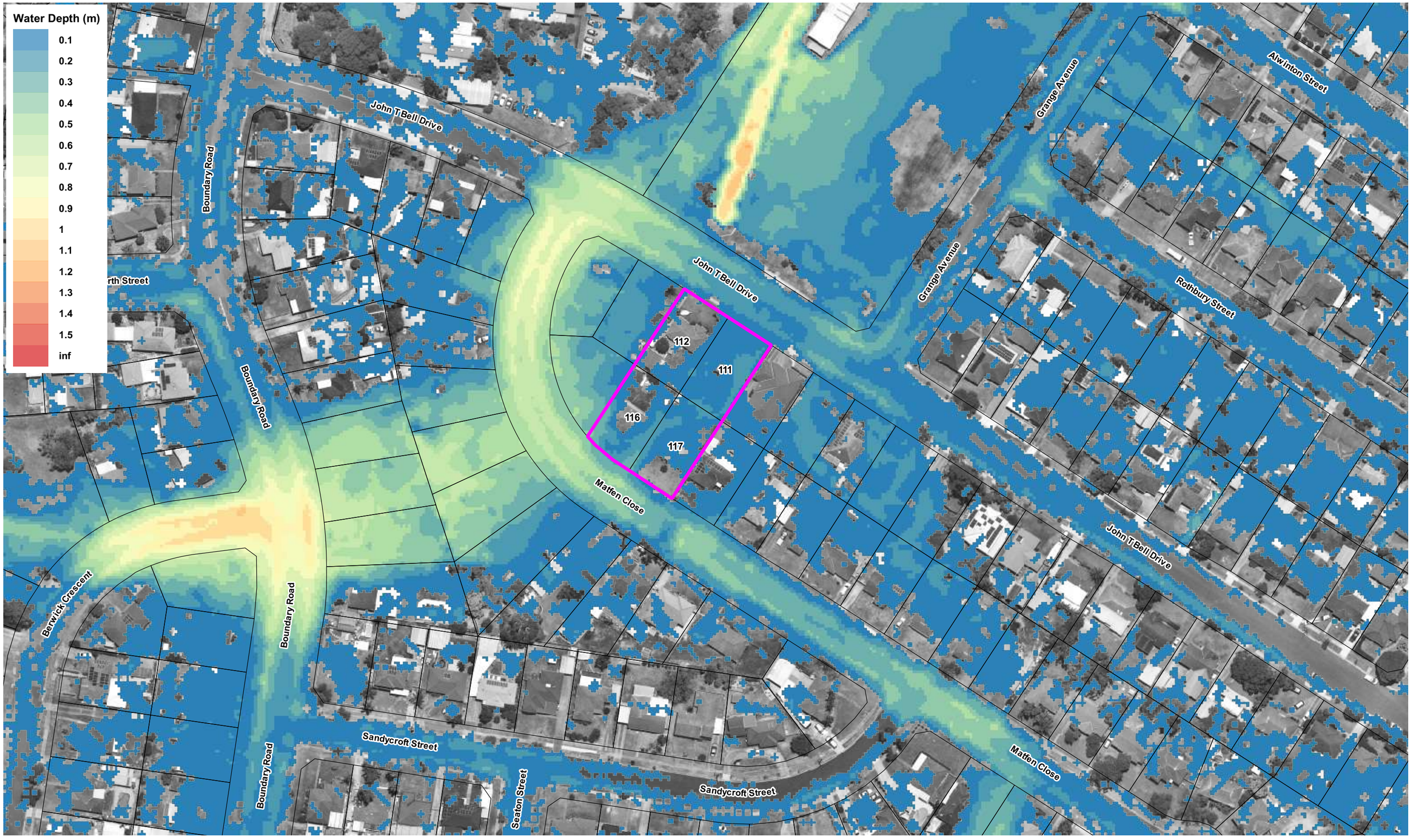

LEGEND

- Site
- Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

1% AEP Peak Flood Depth with Climate Change

Drawing: A-3

Rev: A

N

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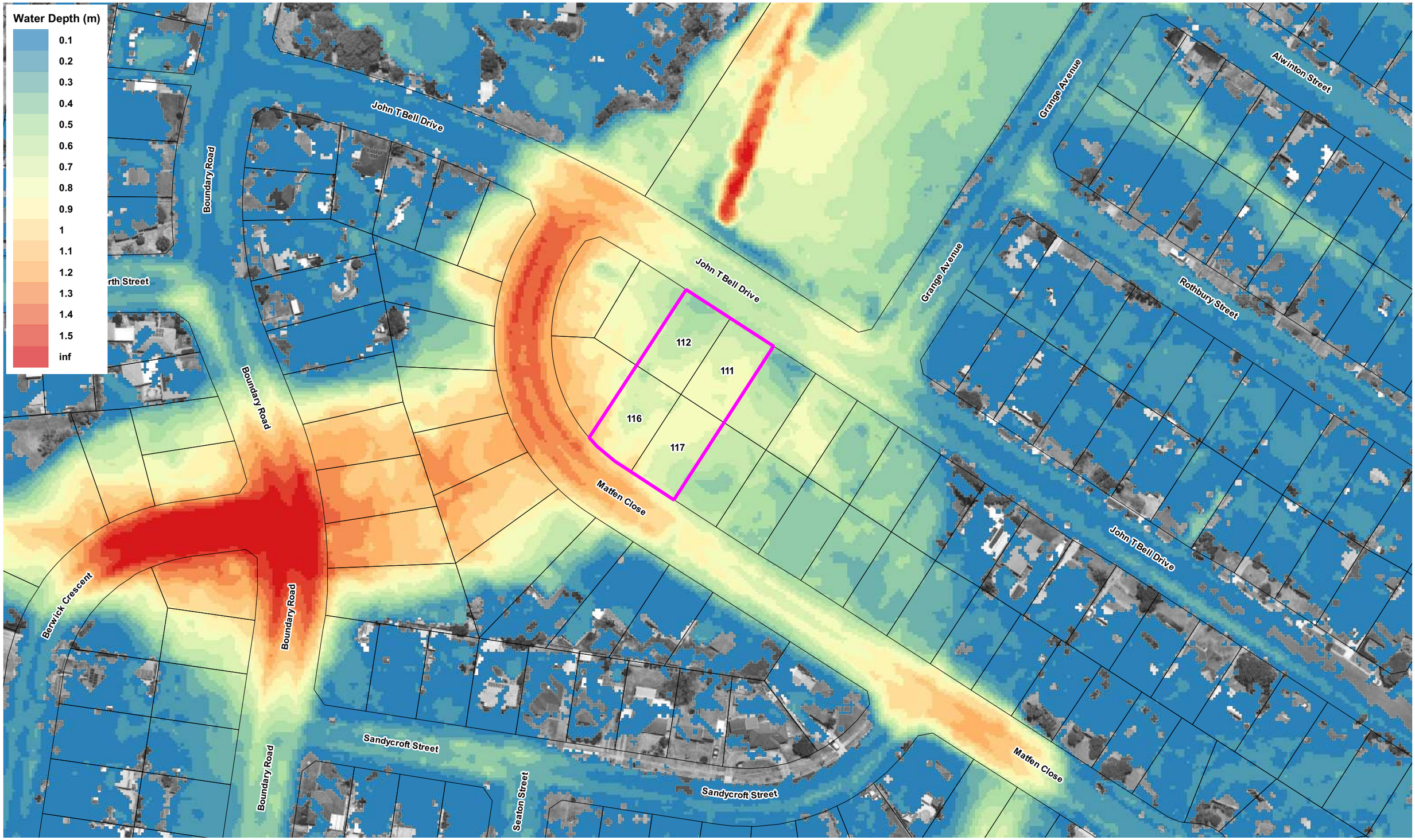
Filepath: I:\A10426.l.zd_Maryland\QGIS\Project\Maryland_FloodModelResults.qgz



LEGEND

- Site
- Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

PMF Peak Flood Depth

Drawing: A-4

Rev: A

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LEGEND

- Site
- Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

1% AEP Hydraulic Behaviour Thresholds

Drawing: A-5

Rev: A

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LEGEND

- Site
- Cadastral Boundaries

Aerial Image 28 November 2020 by nearmap.com

Title:

PMF Hydraulic Behaviour Thresholds

Drawing: **A-6**

Rev: **A**

N

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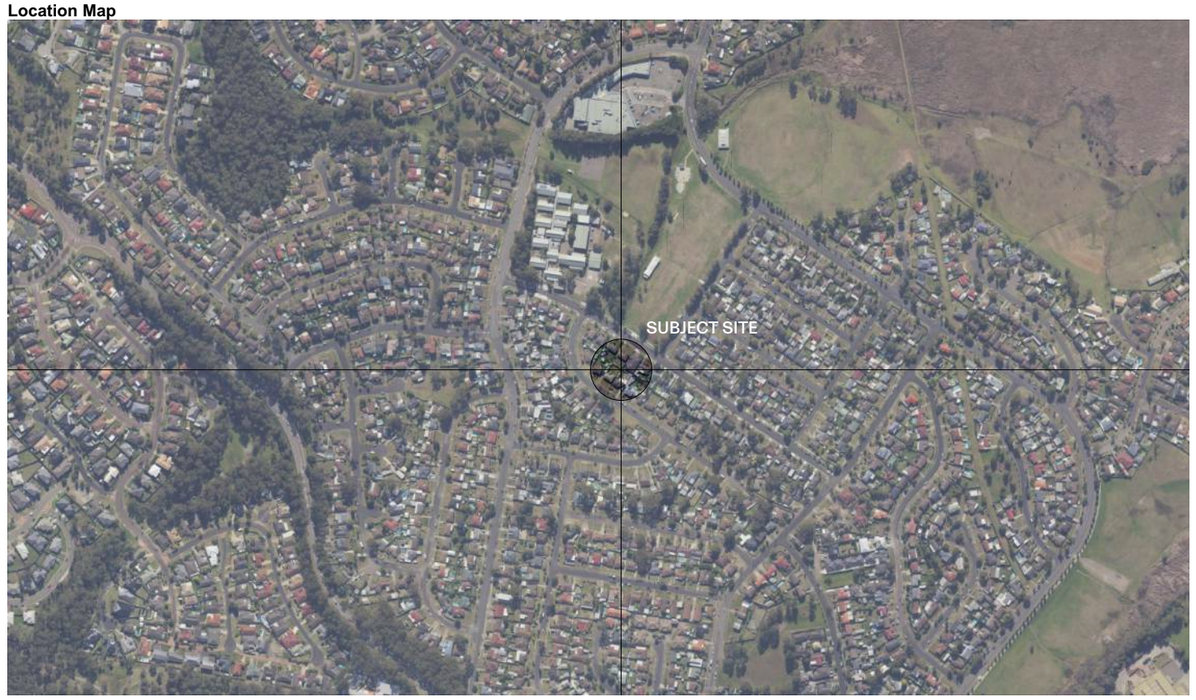
Filepath: I:\A10426.l.zd_Maryland\QGIS\Project\Maryland_FloodModelResults.qgz

LAHC Maryland Development - BGWY7

38, 40 John T Bell Dr & 31, 33 Matfen Cl Maryland NSW 2287
Lot 111, 112, 116, 117/-/DP253956

Location Map



Photomontage Image

Part 5 Activity Submission

DEVELOPMENT DATA						
Job Reference	BGTX2 - 38-40 John T Bell Drive & 31-33 Matfen Close, Maryland (Residential Flat Building)					
Locality / Suburb	Maryland (Newcastle City Council)					
Street Address	38-40 John T Bell Drive & 31-33 Matfen Close					
Lot & DP	Lots 111, 112, 116, and 117 DP253956					
SITE AREA	2311					
EXISTING LOTS	4					
PROPOSED GFA	1041					
DWELLING #	10 x 2 Bed 6 x 1 Bed = 16 Dwellings					
DWELLINGS	Number	Type*	No of Bedrooms		Area*(m²)	POS*
	1	ground	2	Social General	76	23
	2	ground	1	Social General	50	17
	3	ground	1	Social General	50	17
	4	ground	2	Social General	71	23
	5	ground	2	Social General	76	21
	6	ground	2	Social General	71	25
	7	ground	2	Social General	71	25
	8	ground	1	Social General	53	17
	9	1st	2	Social General	76	10
	10	1st	1	Social General	50	9
	11	1st	1	Social General	50	9
	12	1st	2	Social General	71	10
	13	1st	2	Social General	76	10
	14	1st	2	Social General	71	10
	15	1st	2	Social General	71	10
	16	1st	1	Social General	58	10
	Control		Requirement			Proposed
ZONING	Council - Newcastle LEP		R2 Low Density Residential			R2
HEIGHT	Council - Newcastle LEP		8.5m			8.36m Ridge Line
	Housing SEPP		9.0m			
FSR	Council - LEP + Housing SEPP		0.75:1 + 0.5 FSR Bonus pursuant to Division 1 of Housing SEPP			0.45
SETBACK	Council - Newcastle DCP	Front Street Setback	Prevailing setback within 40m either side of the site. John T Bell Drive - 7.4m Matfen Close - 8.325m Maximum encroachment of balcony is 1.5m Newcastle DCP 3.03.01B			7.0m John T Bell Dr / 5.8m Matfen Cl
		Secondary Street	2m			N/A
		Side Setback	0.9m up to a height of 4.5m, then at an angle of 4:1 up to the maximum permitted height			3m
		Rear Setback	3m up to 4.5m and 6m greater than 4.5m			N/A
PARKING	Housing SEPP (Division 1)	accessible	0.5 x 10 (no. 2 Beds) = 5.0 0.4 x 6 (no. 1 beds) = 2.4			8 Car spaces
LANDSCAPED	Housing SEPP (Division 1)	General	35sqm per Dwelling (Social Housing Provider) = 560sq			615.89sqm
DEEP SOIL	Housing SEPP (Division 1)	General	15% (3m dimension) = 350sqm 65% at rear (if practicable)			576.85sqm 411.70m2 at rear (71%)
SOLAR ACCESS	Housing SEPP (Division 1)	General	70% for 3 hrs in Mid-Winter = 11.2 dwellings			14 Dwellings 87.5%
POS	SLUDG / LAHC Dwelling Requirement	General	Ground Floor: Min 15m2 (min dimension 3m) 1st Floor: Min 8m2 (1-Bed) & 10m2 (2-bed) (min. dimension 2m)			Refer to table above
CUT AND FILL	Council - Newcastle DCP	General	Ground floor levels are not more than 1.3m above existing ground level and not more than 1m below existing ground level. Excavation - 1m depth within 1m of a boundary and 1m depth > 1m from a boundary. Fill - Max. 600mm within 1m of a boundary and 1m > 1m from a boundary.			Finished Floor Level to be raised by 500-600mm to meet flood planing level.
DWELLING SIZE	Housing SEPP (Division 1)	General	1-bed: min. 50m2 2-bed: min. 70m2			Refer to table above

Drawing List

General Notes

ALL DIMENSIONS TO BE CHECKED AND CONFIRMED ON SITE.

ALL BUILDING WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT AND REGULATIONS, THE BUILDING CODE OF AUSTRALIA, AND APPROVED PLANS.

BUILDER SHALL MAKE GOOD ALL DISTURBED AREAS ADJACENT TO THE WORKS ON COUNCIL PROPERTY.

ALL CONCRETE FOOTINGS, FLOOR SLABS, COLUMNS, AND ROOF FRAMING TO STRUCTURAL ENGINEER'S DETAIL.

ALL STORMWATER REQUIREMENTS, EXTERNAL RL'S AND DRIVEWAY LEVELS TO CIVIL ENGINEER'S DETAILS IF REQUIRED.

ALL LANDSCAPE AREAS, EXISTING TREES, AND DRIVEWAY TO LANDSCAPE PLANS IF REQUIRED.

Part 5 Activity Submission

CKDS
Architecture | Planning | Interiors

NEWCASTLE
115 King Street P.O. Box 958
Newcastle NSW 2300
P 02 4929 1843
E admin@ckds.com.au
www.ckds.co.au

issue	description	date	verified
01	For Client Review	24/11/2021	01
02	For Client Review	1/2/2022	02
03	For Client Review	29/2/2022	03
04	For Client Review	27/4/2022	04
05	Issue for Information	29/5/2022	05
06	Issue for Review	8/6/2022	06
07	Issue for Review	1/27/2022	07
08	Draft Part 5 Activity Submission	19/7/2022	08
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

consultants

Civil/Structural Engineers
Northrop Consulting Engineers
1/215 Pacific Hwy,
Charlestown NSW 2290
(02) 4943 1777

Electrical Engineer
Electrical Projects Australia
386 Maitland Rd,
Mayfield NSW 2304
(02) 4967 5999

Landscape Architects
Xeriscapes
1/28 Adelaide Street,
East Gosford NSW 2250
(02) 4302 0477

Hydraulic Engineer
McCallums PFCA
5/35 Smith St,
Charlestown NSW 2290
(02) 4946 2633

clients

Land & Housing Corporation

NSW GOVERNMENT Planning & Environment

project

LAHC Maryland Development - BGWY7

38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title

Preliminary

Cover Sheet

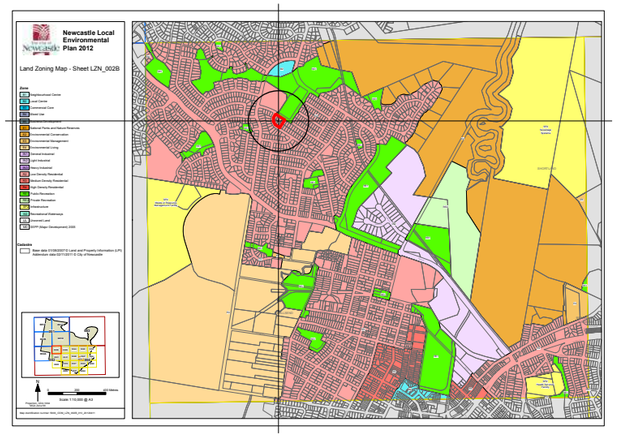
drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-0001	B

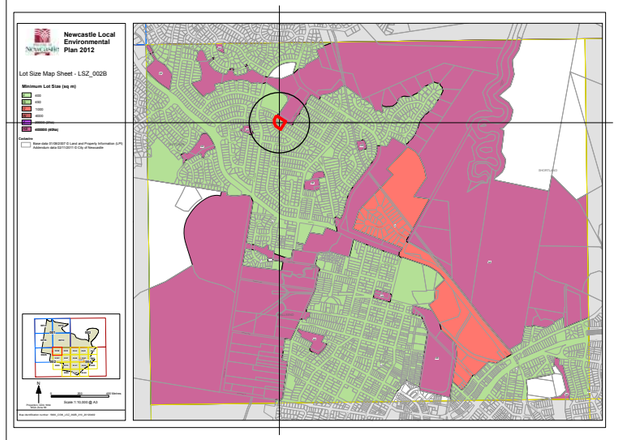
Part 5 Activity Submission

Newcastle LEP 2012

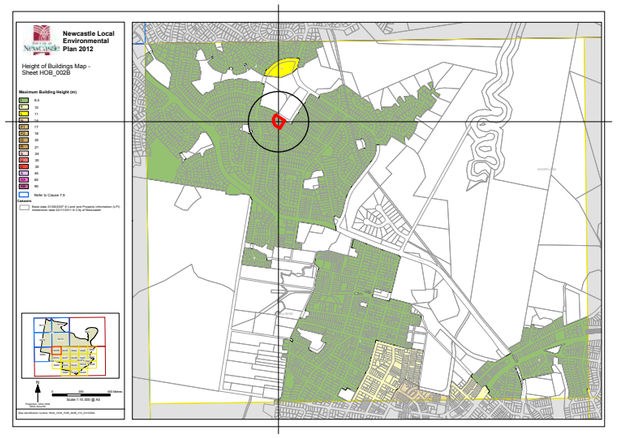
LAND ZONE	R2 Low Density Residential
HEIGHT OF BUILDING	8.5m
FLOOR SPACE RATIO	0.75:1
MINIMUM LOT SIZE	450m^2
ACID SULFATE SOILS	Class 2
LAND APPLICATION	N/A
LAND RESERVATION	N/A
KEY SITES	N/A
HERITAGE	N/A
SITE AREA	4174m^2
ALLOWABLE GFA	3130m^2



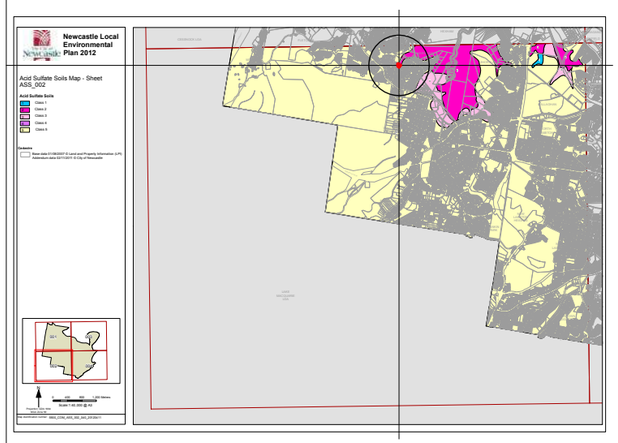
LAND ZONE R2 Low Density Residential



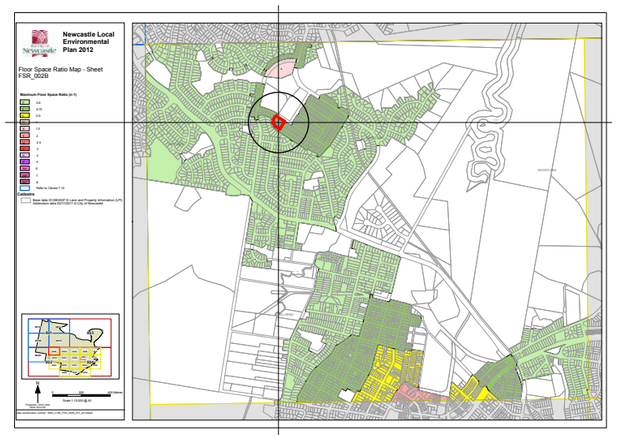
MINIMUM LOT SIZE 450m^2



HIEGHT OF BUILDING 8.5m



ACID SULFATE SOILS Class 2



FLOOR SPACE RATIO 0.75:1

NOTE: PRELIMINARY AUTHORITY CONTROL INFORMATION SUBJECT TO PLANNER AND COUNCIL REVIEW AND FURTHER INVESTIGATION

Newcastle DCP 2012

3.30 RESIDENTIAL DEVELOPMENT KEY CRITERIA	RESIDENTIAL FLAT BUILDING
FRONT SETBACK	AVERAGE OF ALL FRONT SETBACKS WITHIN 40m OF SITE
SIDE SETBACKS	0.9m UP TO 4.5m THEN ANGLE AT 4:1 TO MAX HEIGHT
LANDSCAPE AREA	MIN 30% OF SITE LANDSCAPE AREA MIN 15% OF SITE DEEP SOIL ZONE
SOLAR & DAYLIGHT ACCESS	2 HRS DIRECT SUNLIGHT BETWEEN 9am & 3pm
DWELLING SIZE & LAYOUT	MIN 90m^2 FOR 2B MIN 115m^2 FOR 3B +5m^2 FOR ADDITIONAL BATHROOMS
PRIVATE OPEN SPACE	MIN 16m^2 PRIVATE OPEN SPACE MIN DIMENSION 3m 50% OF P.O.S. COVERED WITH SHADE
STORAGE	2B MIN 8M^3 3B MIN 10m^3 MIN 50% LOCATED WITHIN DWELLING
UNIVERSAL DESIGN	SENIORS HOUSING SEPP, OR; LIVABLE HOUSING SILVER UNIVERSAL DESIGN FEATURES
7.03 TRAFFIC, PARKING & ACCESS	
CAR PARKING	MIN 1 SPACE PER DWELLING MIN 1 VISITOR SPACE PER 5 DWELLINGS
BIKE PARKING	1 SPACE PER DWELLING UNLESS SEPARATE STORAGE PROVIDED

HOUSING SEPP 2021

SOLAR ACCESS	70% OF DWELLINGS TO RECEIVE 3HRS MID-WINTER BETWEEN 9am & 3pm.
PARKING (FOR SOCIAL HOUSING PROVIDER - ACCESSIBLE SITE)	1B - 0.4 SPACE PER DWELLING 2B - 0.5 SPACE PER DWELLING
LANDSCAPE	35m^2 PER DWELLING
DEEP SOIL ZONE	15% SITE AREA (3m WIDE) 65% AT REAR OF SITE.
DWELLING SIZE	1B - 50m^2 2B - 70m^2

Part 5 Activity Submission

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issue	description	date	verified
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B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

consultants

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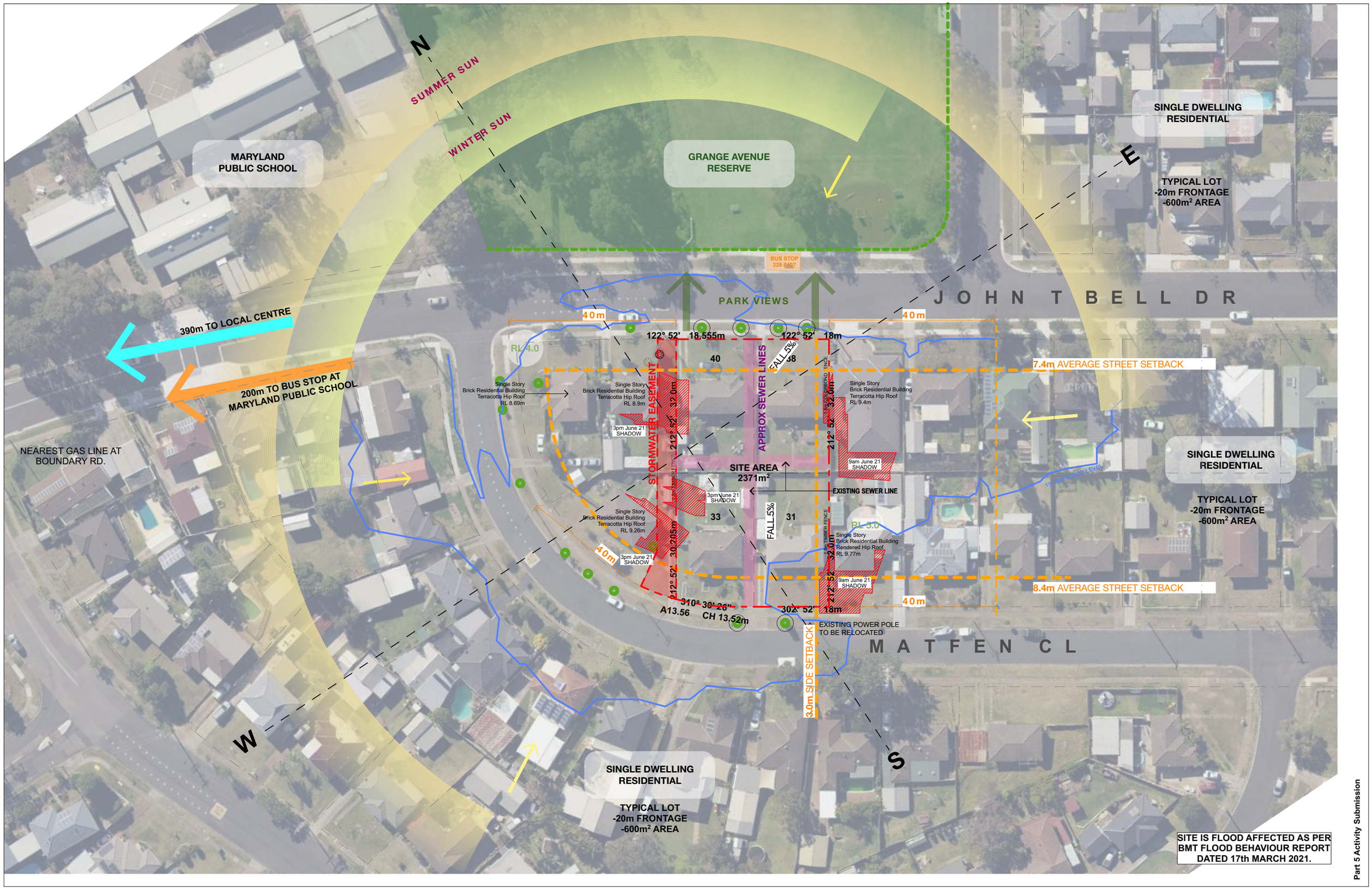
NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Preliminary
Planning Controls

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-0002	B



Part 5 Activity Submission

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key plan

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project

LAHC Maryland Development - BGWY7

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Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

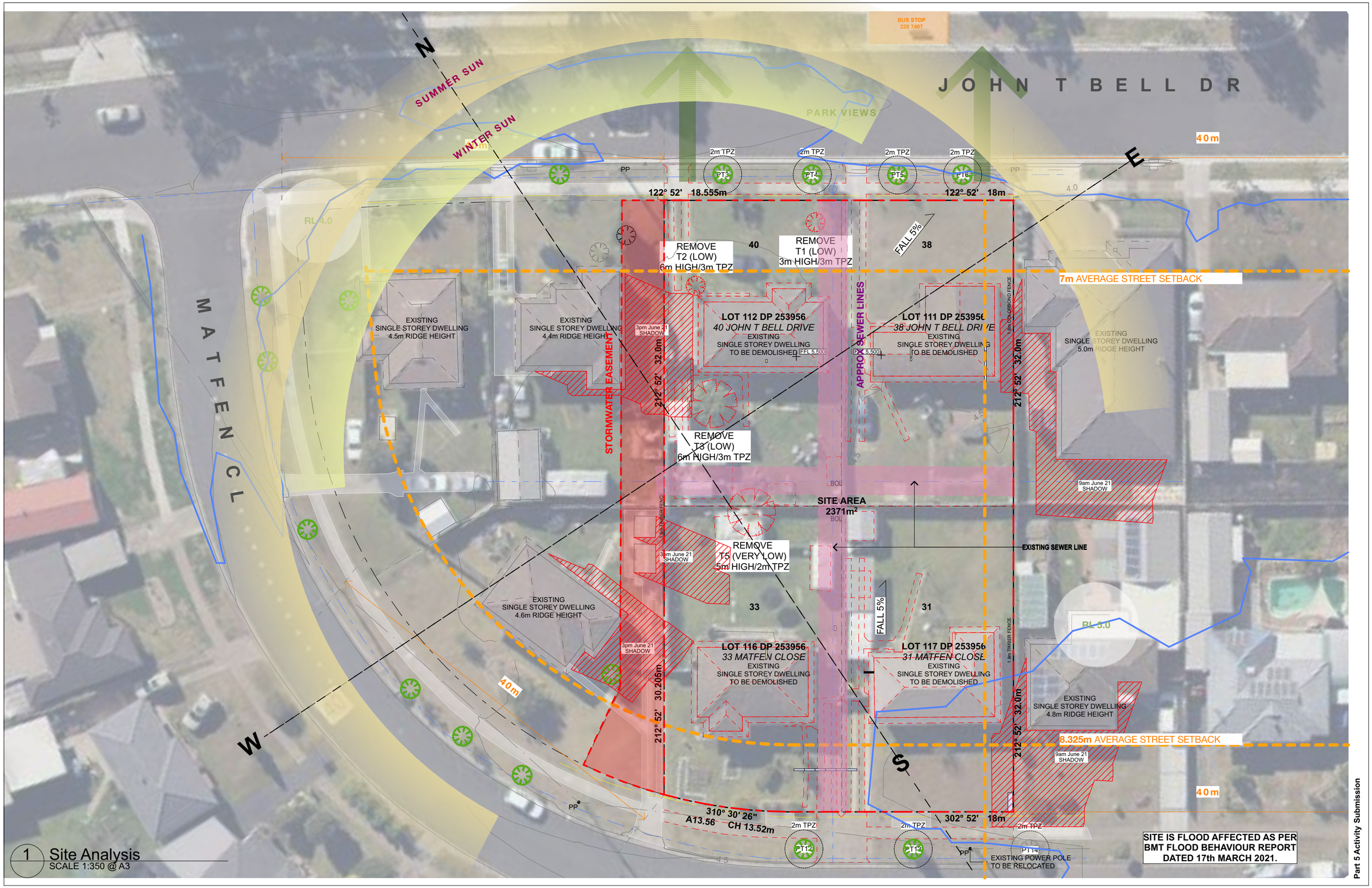
drawing title

Preliminary

Block Analysis

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-0003	B



1 Site Analysis
SCALE 1:350 @ A3

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key plan

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Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Preliminary
Site Analysis Plan

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

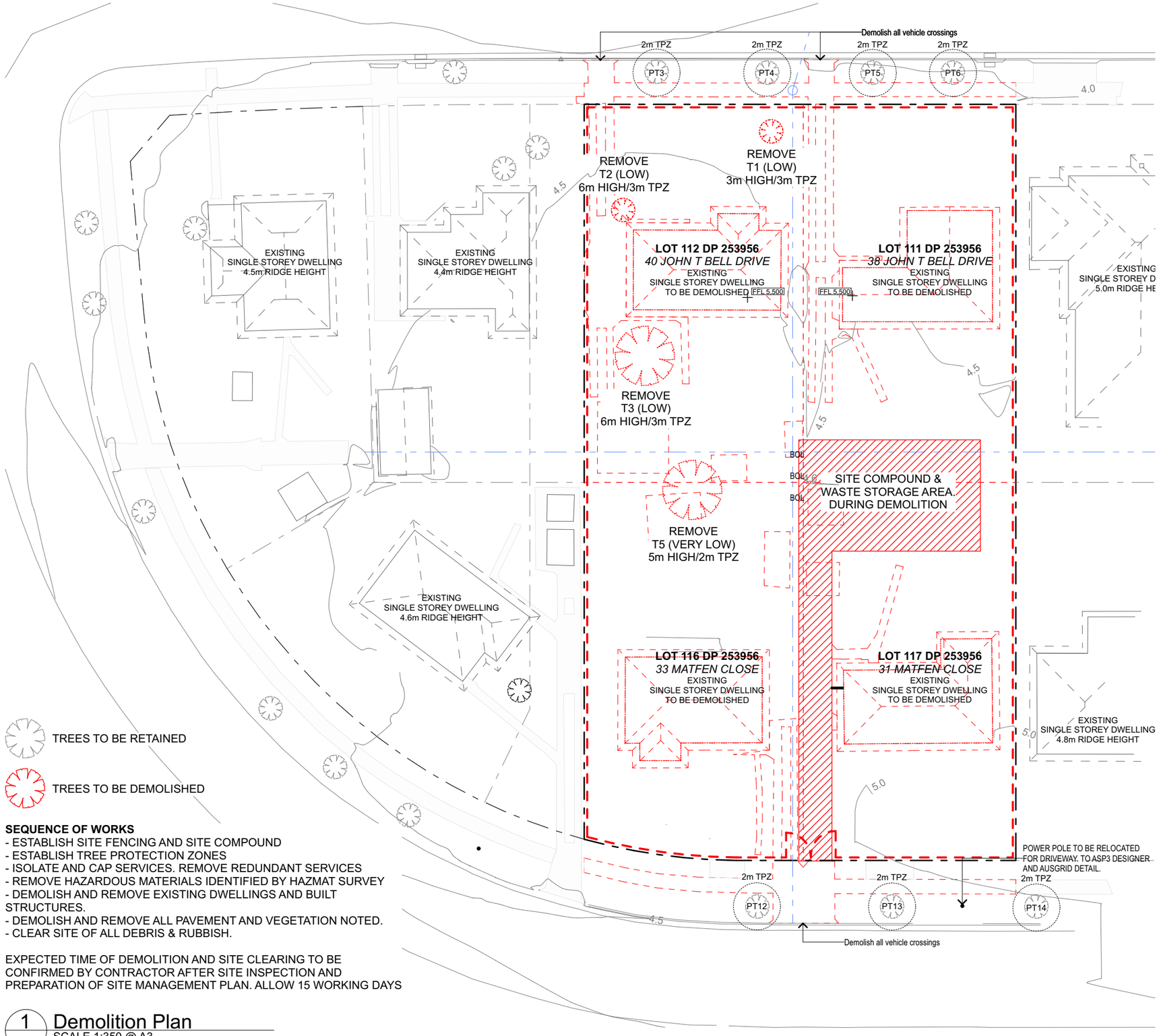
project #	drawing #	issue
20126	A-0004	B

Lot 111 - 38 John T Bell Drive

Lot 112 - 40 John T Bell Drive

Lot 116 - 33 Matfen Close

Lot 117 - 31 Matfen Close



TREES TO BE RETAINED

TREES TO BE DEMOLISHED

SEQUENCE OF WORKS

- ESTABLISH SITE FENCING AND SITE COMPOUND
- ESTABLISH TREE PROTECTION ZONES
- ISOLATE AND CAP SERVICES. REMOVE REDUNDANT SERVICES
- REMOVE HAZARDOUS MATERIALS IDENTIFIED BY HAZMAT SURVEY
- DEMOLISH AND REMOVE EXISTING DWELLINGS AND BUILT STRUCTURES.
- DEMOLISH AND REMOVE ALL PAVEMENT AND VEGETATION NOTED.
- CLEAR SITE OF ALL DEBRIS & RUBBISH.

EXPECTED TIME OF DEMOLITION AND SITE CLEARING TO BE CONFIRMED BY CONTRACTOR AFTER SITE INSPECTION AND PREPARATION OF SITE MANAGEMENT PLAN. ALLOW 15 WORKING DAYS

1 Demolition Plan

SCALE 1:350 @ A3

Part 5 Activity Submission

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key plan

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NSW GOVERNMENT Planning & Environment

project

LAHC Maryland Development - BGWY7

38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title

Demolition Plan(s)

Demolition Plan

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-0101	B

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

1 **Site Plan - Ground**
SCALE 1:350 @ A3

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

CKDS Architecture | Planning | Interiors
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issue	description	date	verified
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
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B	Part 5 Activity Submission	26/8/2022	B

key plan — North Point

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clients
Land & Housing Corporation
NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Site Plan(s)
Site Plan - Ground

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1001	B

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

1 Site Plan - First
SCALE 1:350 @ A3

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

CKDS
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issue	description	date	verified
02	For Client Review	1/2/2022	02
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key plan

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project

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Maryland NSW 2287

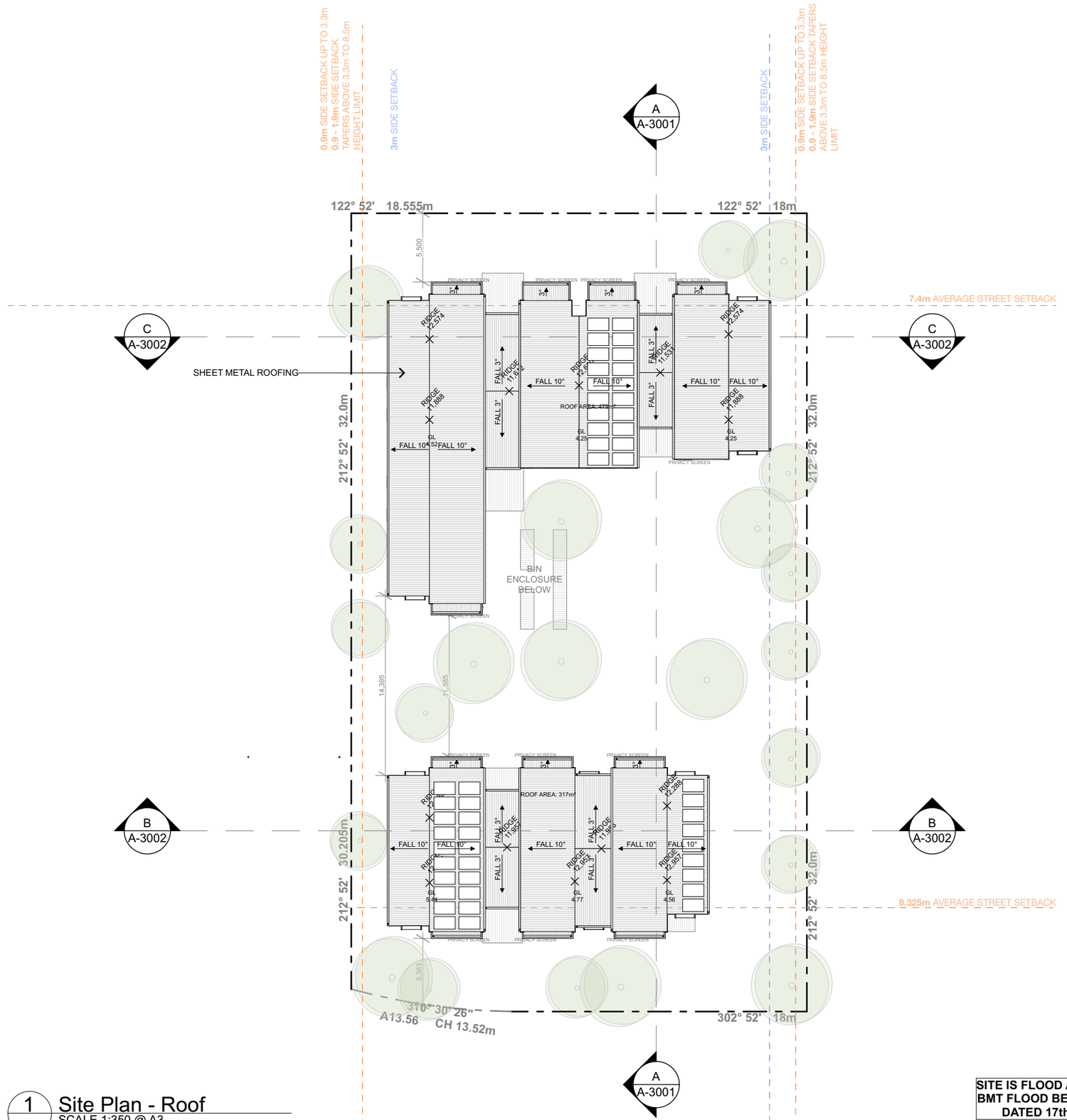
drawing title

Site Plan(s)

Site Plan - First Floor

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1002	B



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RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
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LC1	Lightweight Cladding - Prefinished Board
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MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

1 Site Plan - Roof
SCALE 1:350 @ A3

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

CKDS
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key plan

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project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
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Maryland NSW 2287

drawing title
Site Plan(s)
Site Plan - Roof

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1003	B

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

1 Ground Floor Plan South
SCALE 1:200 @ A3

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key plan

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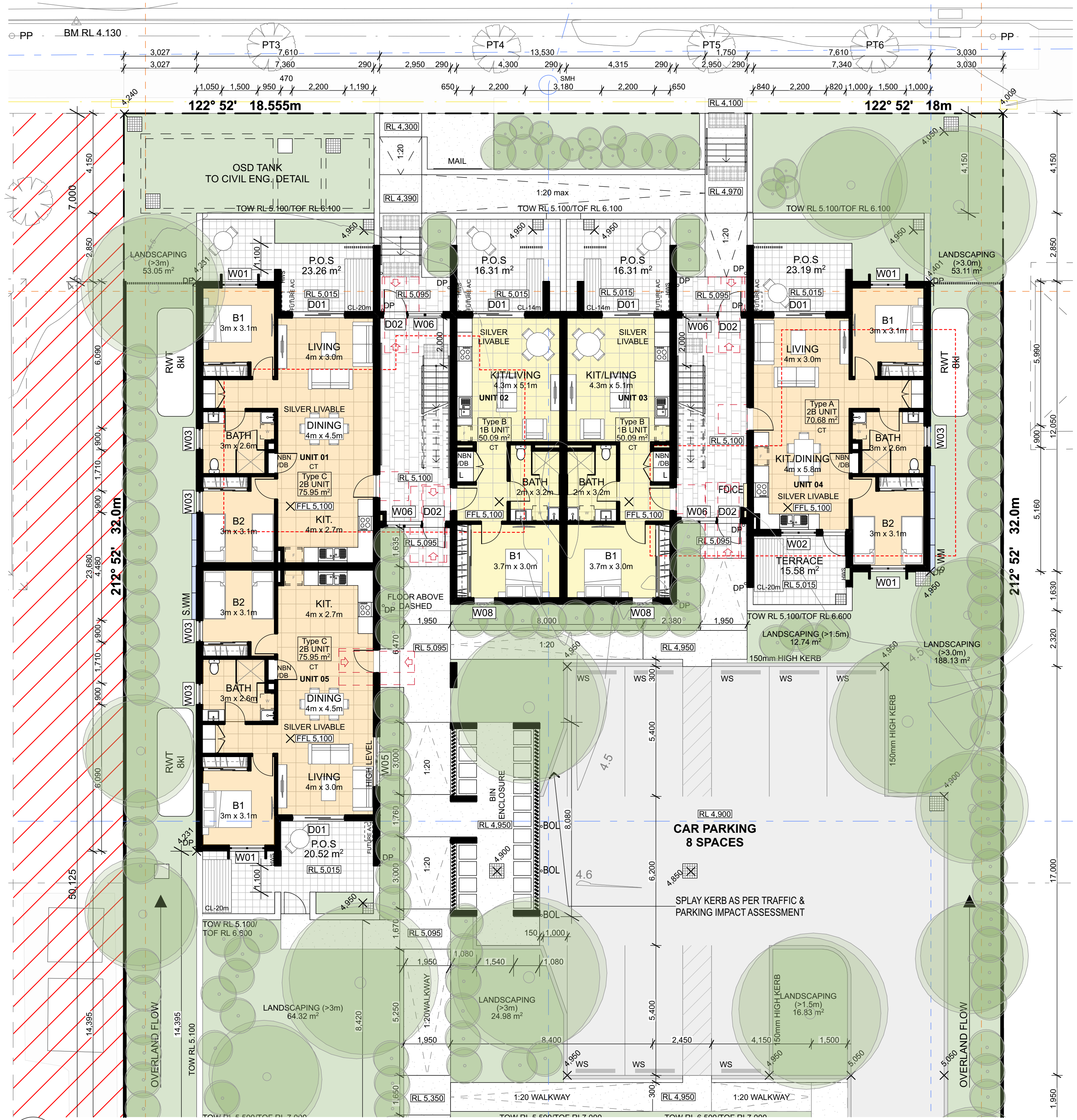
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
Ground Floor Plan - South

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1101	B



1 Ground Floor Plan North

SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
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MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

EXTERNAL WALL
CAVITY BRICK WORK 270mm

PARTIWALL
CAVITY BRICK WORK 290mm

INTERNAL PARTITION WALL
STEEL STUD 102mm

R1.3 BULK INSULATION AS PER
BASIX REQUIREMENT

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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key plan

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NSW Government Planning & Environment

project
LAHC Maryland Development - BGWY7
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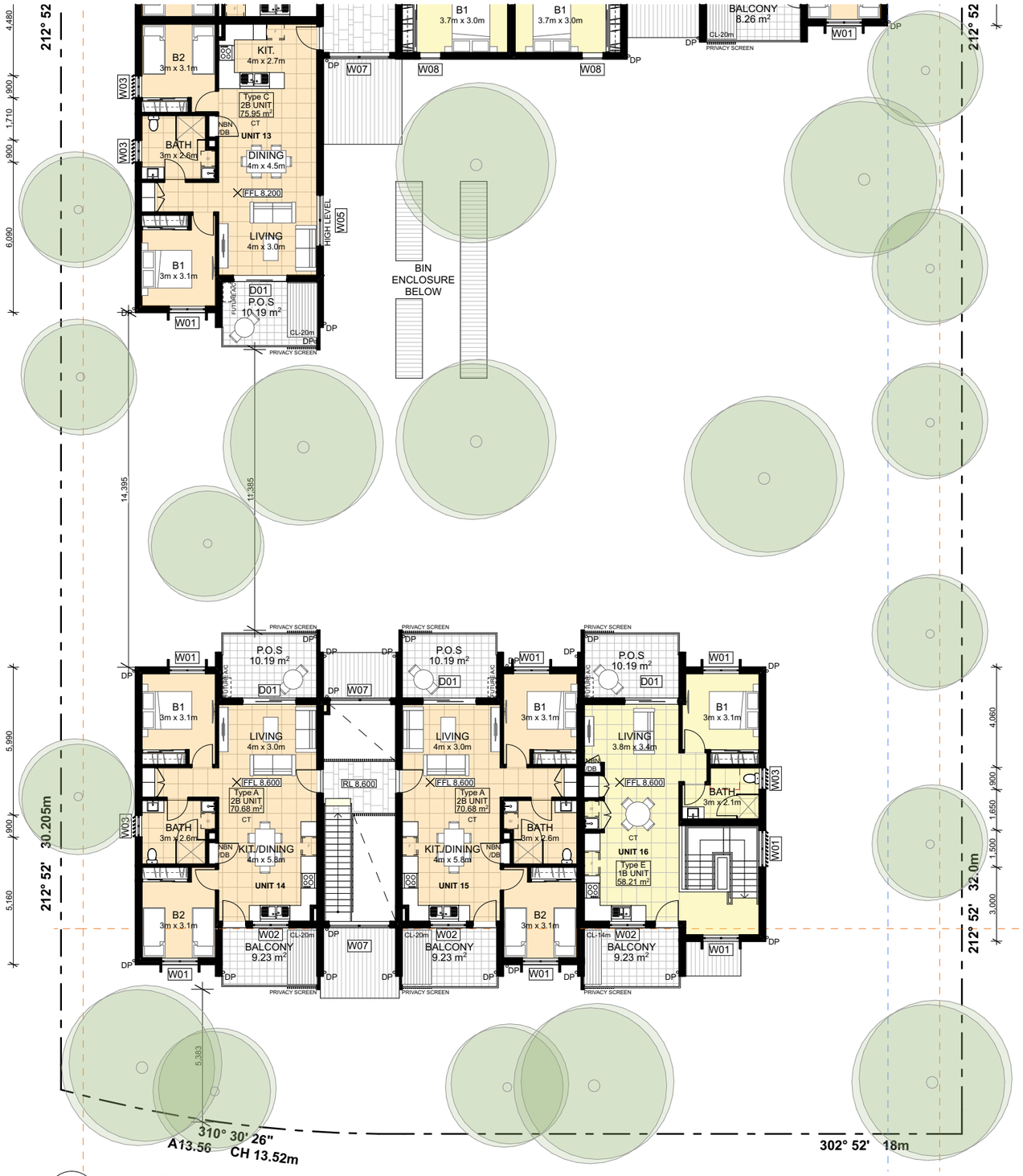
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
Ground Floor Plan - North

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1102	B



1 First Floor Plan South
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

EXTERNAL WALL
CAVITY BRICK WORK 270mm

PARTIWALL
CAVITY BRICK WORK 290mm

INTERNAL PARTITION WALL
STEEL STUD 102mm

R1.3 BULK INSULATION AS PER BASIX REQUIREMENT

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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issue	description	date	verified
01	For Client Review	24/11/2021	01
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
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B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

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project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
First Floor Plan - South

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1103	B

1 First Floor Plan North
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

EXTERNAL WALL
CAVITY BRICK WORK 270mm

PARTWALL
CAVITY BRICK WORK 290mm

INTERNAL PARTITION WALL
STEEL STUD 102mm

R1.3 BULK INSULATION AS PER BASIX REQUIREMENT

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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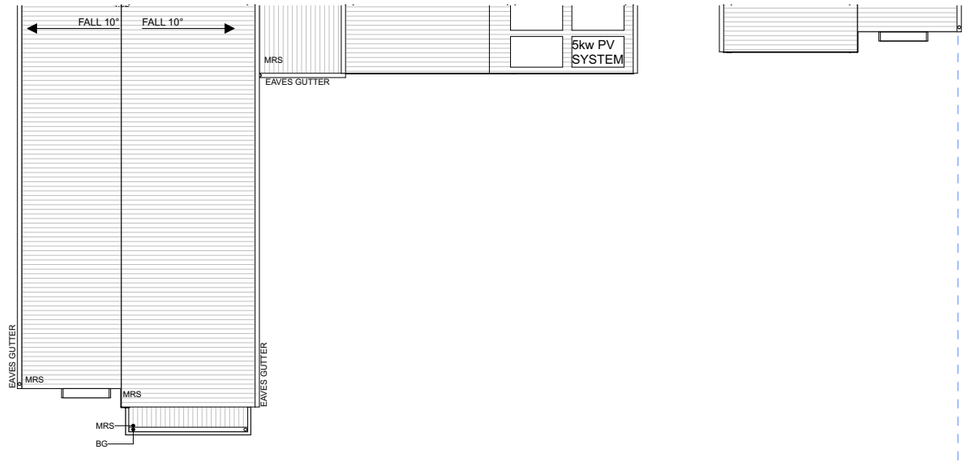
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
First Floor Plan - North

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1104	B



P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

1 Roof Plan South
SCALE 1:200 @ A3

EXTERNAL WALL
CAVITY BRICK WORK 270mm

PARTIWALL
CAVITY BRICK WORK 290mm

INTERNAL PARTITION WALL
STEEL STUD 102mm

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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key plan

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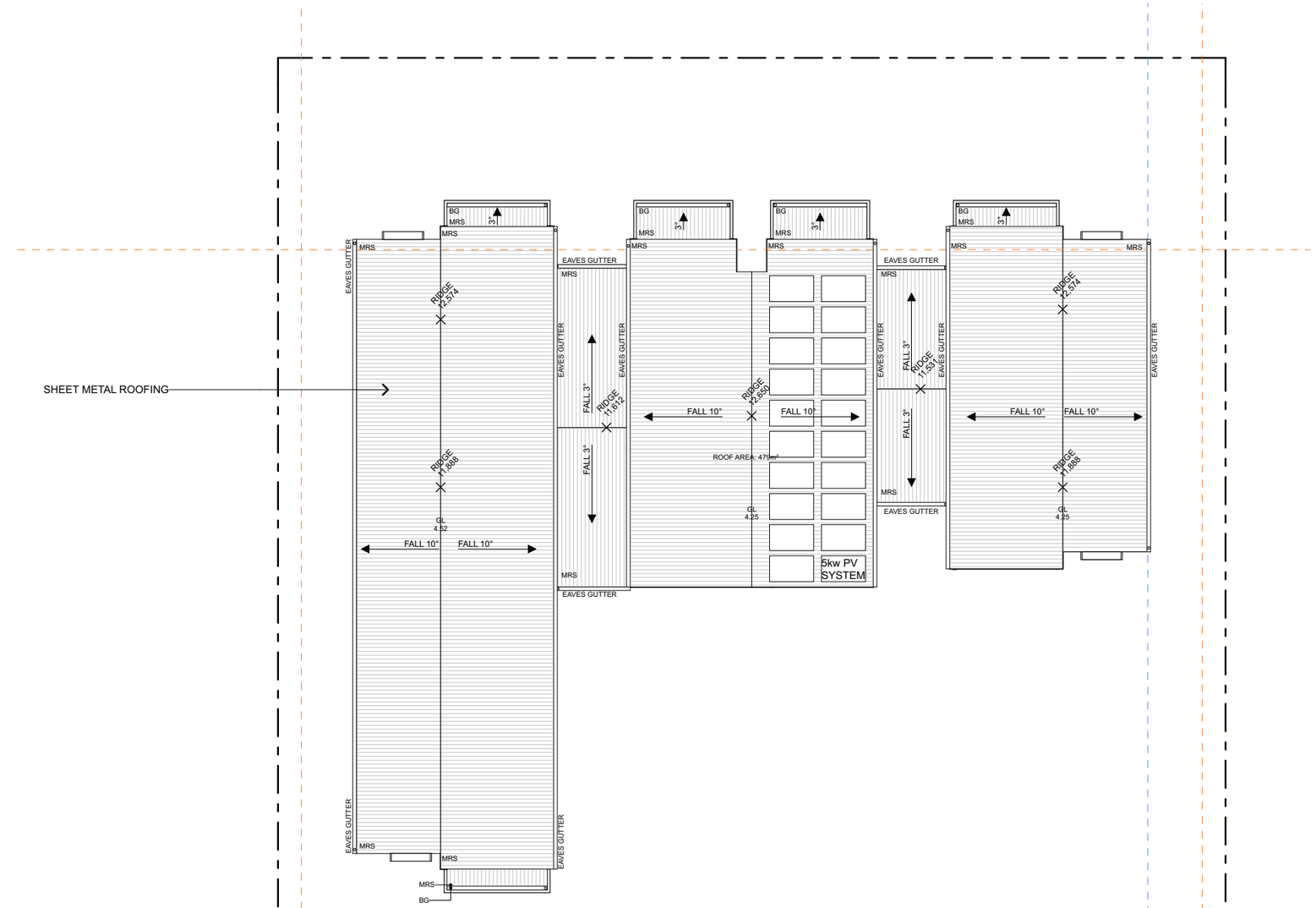
NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
Roof Plan - South

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1105	B



1 Roof Plan North
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

EXTERNAL WALL
CAVITY BRICK WORK 270mm

PARTIWALL
CAVITY BRICK WORK 290mm

INTERNAL PARTITION WALL
STEEL STUD 102mm

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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key plan
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NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
General Arrangement Plan(s)
Roof Plan - North

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-1106	B

1 North Elevation John T Bell Drive
SCALE 1:200 @ A3

2 South Elevation Matfen Close
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

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Part 5 Activity Submission

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key plan
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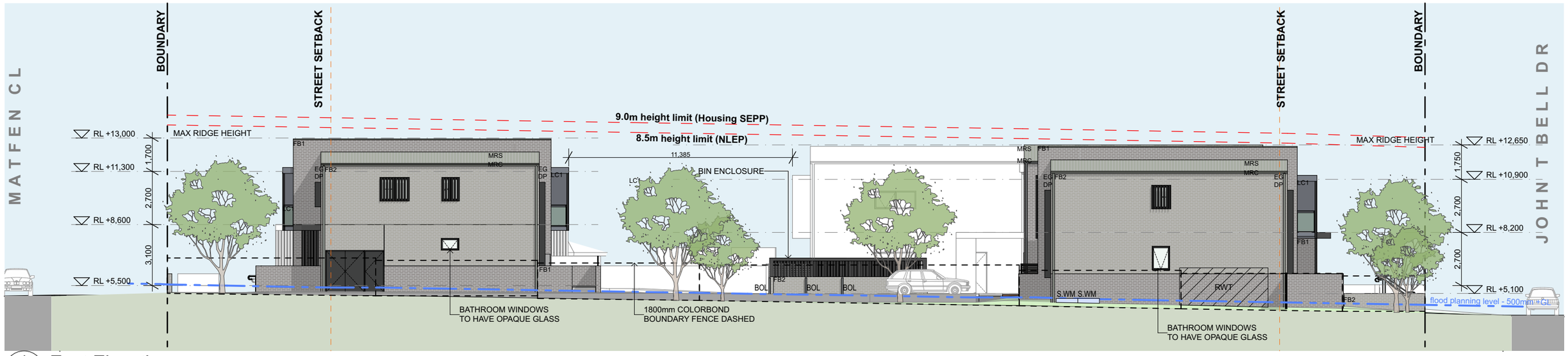
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/ -/DP253956
Maryland NSW 2287

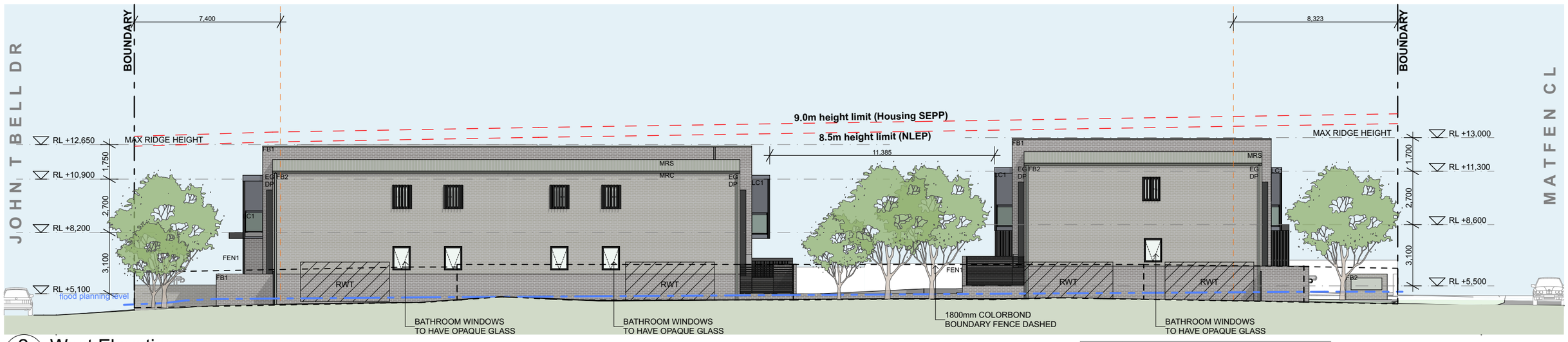
drawing title
Elevations
Street Elevations

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-2001	B



1 East Elevation
SCALE 1:200 @ A3



2 West Elevation
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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A	Part 5 Activity Submission	21/7/2022	A
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key plan
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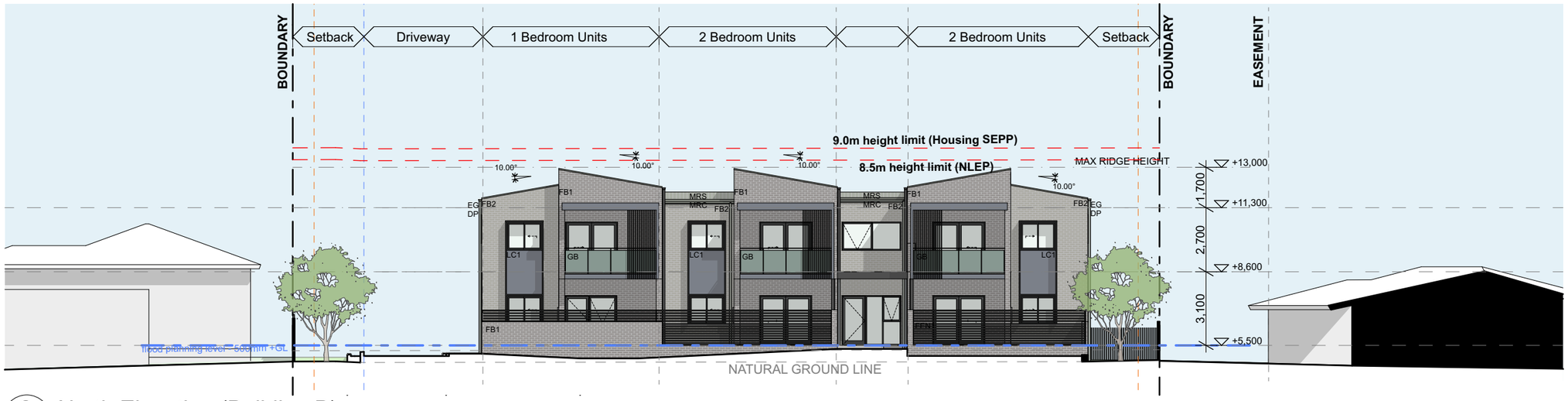
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Elevations
East / West Elevation

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-2002	B



2 North Elevation (Building B)
SCALE 1:200 @ A3

1 South Elevation (Building A)
SCALE 1:200 @ A3

P.O.S.	Private Open Space
RL	Reduced Level
RWT	Rain Water Tank
BG	Box Gutter
FB1	Face Brickwork Type 1
FB2	Face Brickwork Type 2
LC1	Lightweight Cladding - Prefinished Board
GB	Glazed Aluminium Balsutrade - Obscure
MRS	Metal Roof Sheeting
MRC	Metal Roof Capping/Flashing
EG	Eaves Gutter
DP	Downpipe
FEN1	Fence Type 1 - Vertical Slat
SCR	Privacy Screen - Vertical Slat
LB	Letterbox

SITE IS FLOOD AFFECTED AS PER BMT FLOOD BEHAVIOUR REPORT DATED 17th MARCH 2021.

Part 5 Activity Submission

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key plan
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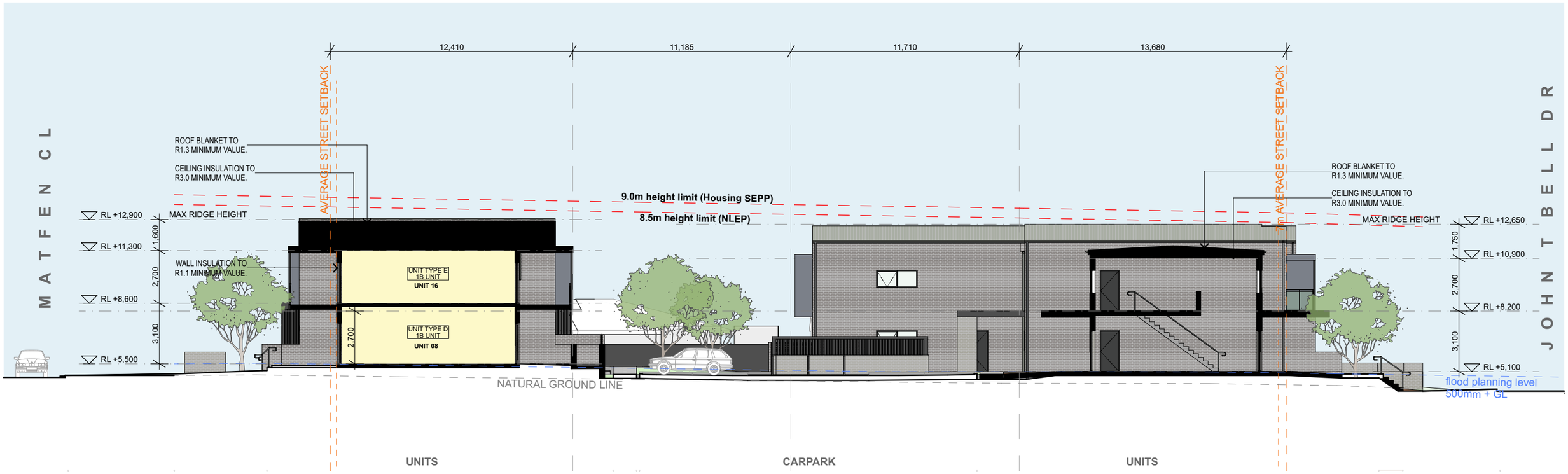
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Elevations
Int. North / North Building B Elev.

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-2003	B



1 Section A
SCALE 1:200 @ A3

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Part 5 Activity Submission

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38, 40 John T Bell Dr & 31, 33 Matfen Cl
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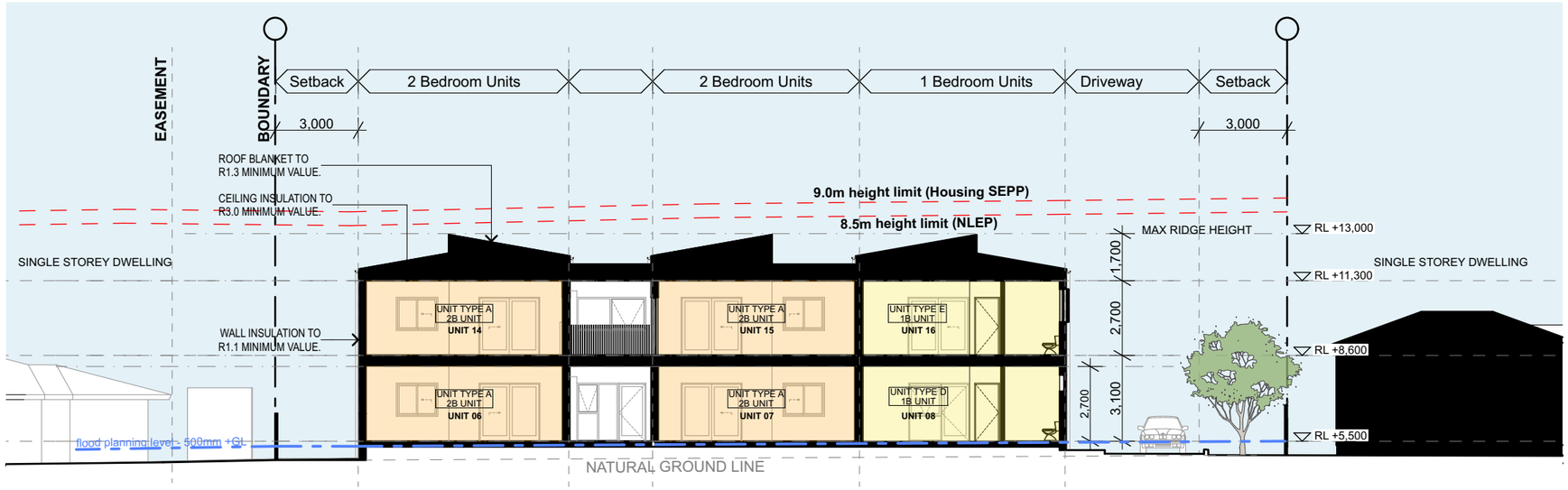
Maryland NSW 2287

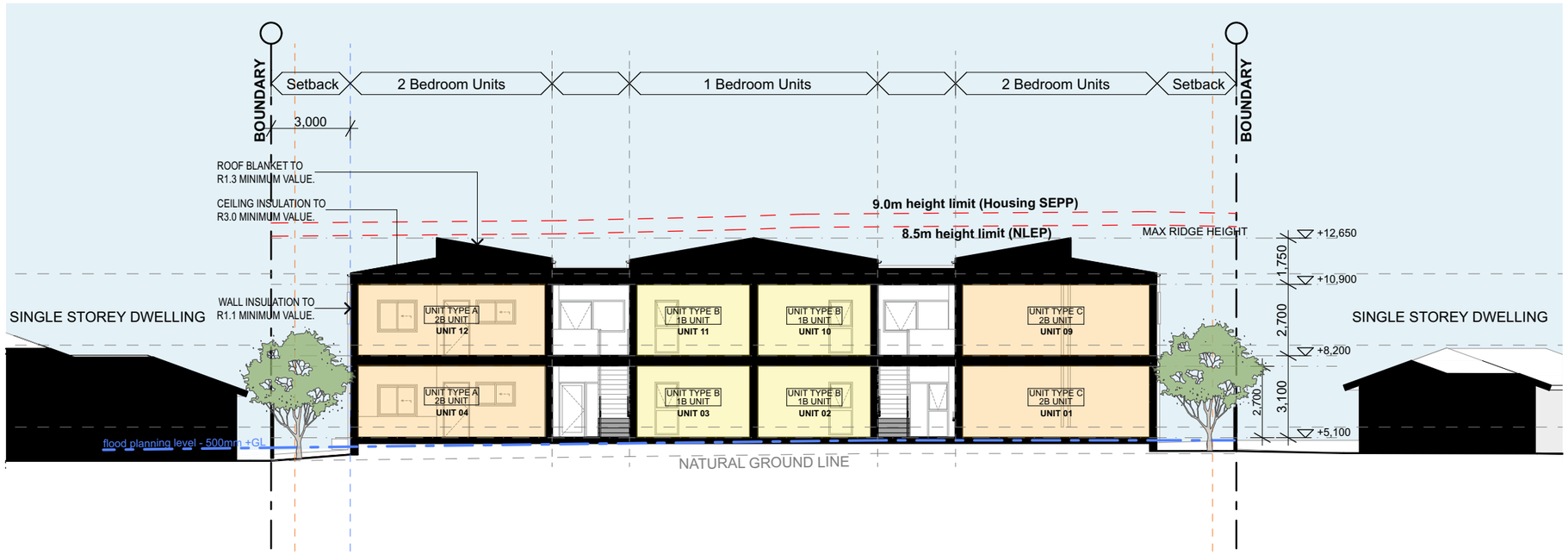
drawing title
Sections
Section A

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-3001	B



1 Section B
SCALE 1:200 @ A3



2 Section C
SCALE 1:200 @ A3

Part 5 Activity Submission

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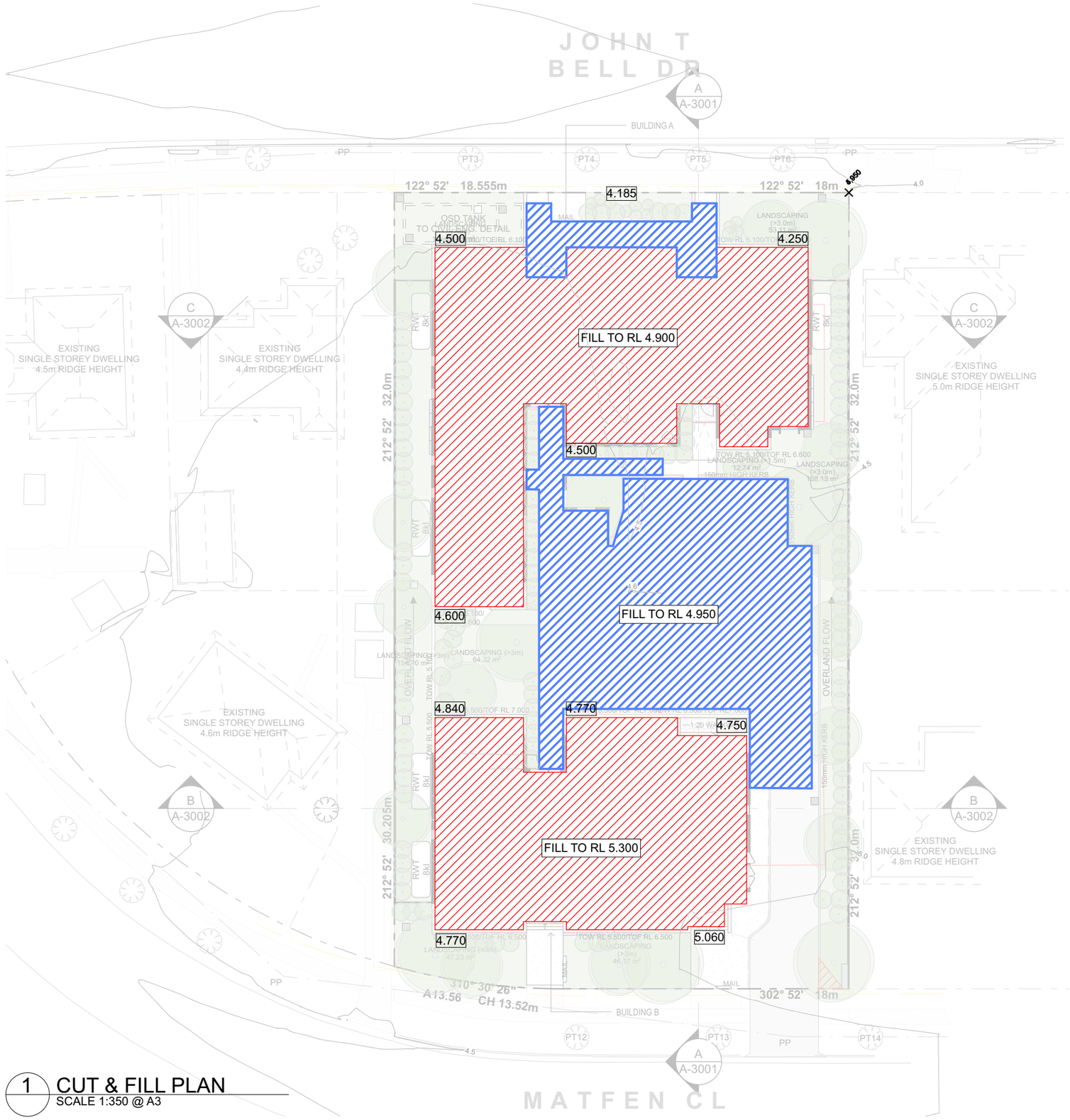
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Sections
Section B & C

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-3002	B



EXTENT OF FILL TO THE BUILDINGS

EXTENT OF FILL TO CAR PARK & RAMPS

1 CUT & FILL PLAN
SCALE 1:350 @ A3

Part 5 Activity Submission

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NSW GOVERNMENT Planning & Environment

project

LAHC Maryland Development - BGWY7

38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

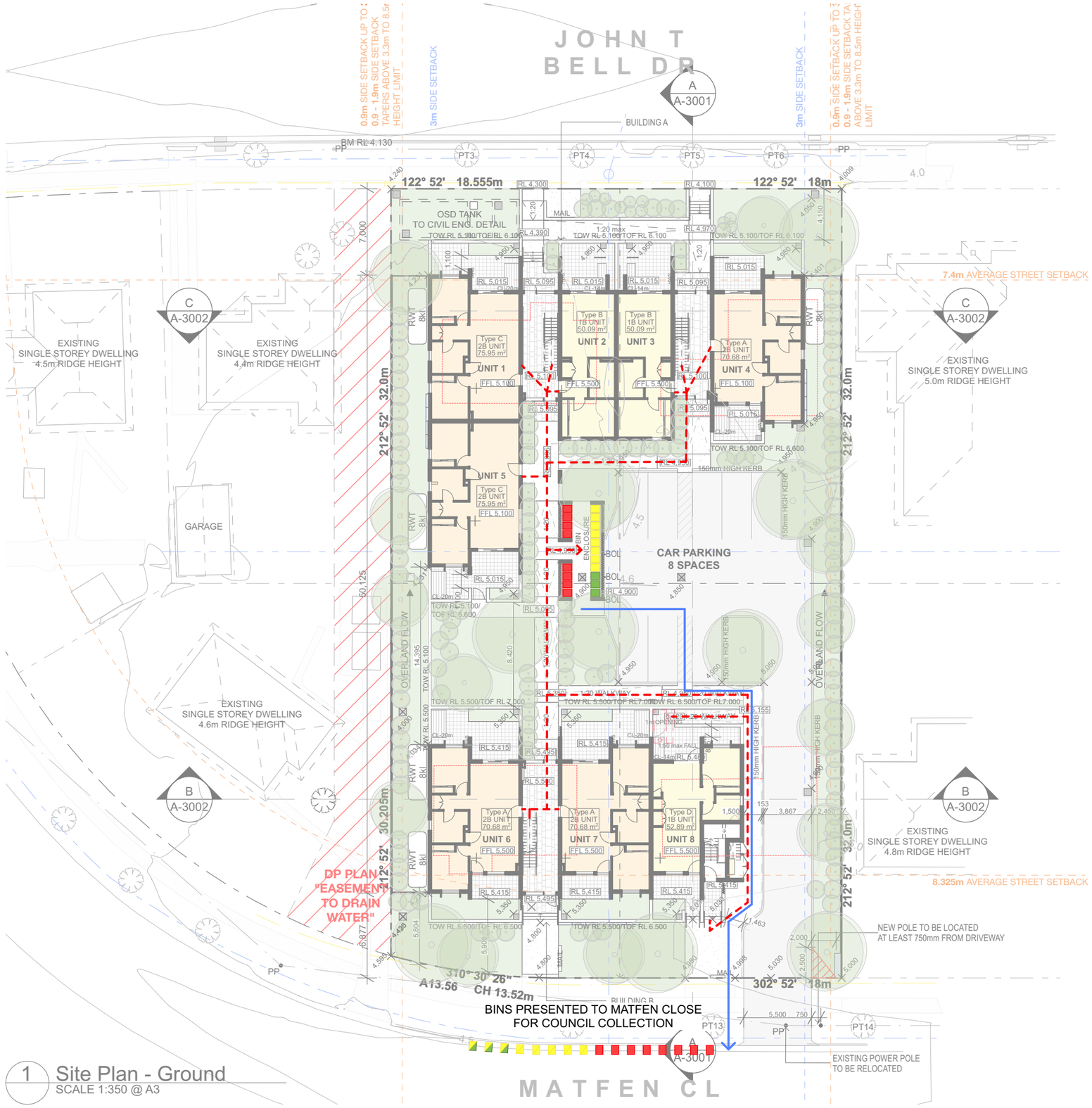
drawing title

Diagrams

Cut & Fill Diagram

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-4001	B



WASTE SORTED & STORED IN INDIVIDUAL UNITS (KITCHEN CPD) AND TAKEN TO WASTE ENCLOSURE BY RESIDENTS

WASTE STORED IN SCREENED BIN ENCLOSURE UNTIL COLLECTION DAY AND PRESENTED TO STREET BY SERVICE PROVIDER

1 Site Plan - Ground
SCALE 1:350 @ A3

Part 5 Activity Submission

CKDS
Architecture | Planning | Interiors

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www.ckds.co.au

issue	description	date	verified
01	For Client Review	27/4/2022	01
02	Issue for Information	26/5/2022	02
03	Issue for Review	8/6/2022	03
04	Issue for Review	12/7/2022	04
05	Draft Part 5 Activity Submission	19/7/2022	05
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan — North Point

consultants
Civil/Structural Engineers: Northrop Consulting Engineers 1/215 Pacific Hwy, Charlestown NSW 2290 (02) 4943 1777
Electrical Engineer: Electrical Projects Australia 386 Maitland Rd, Mayfield NSW 2304 (02) 4967 5999
Landscape Architects: Xeriscapes 1/28 Adelaide Street, East Gosford NSW 2250 (02) 4302 0477
Hydraulic Engineer: McCalliums PFCA 5/35 Smith St, Charlestown NSW 2290 (02) 4946 2633

clients
Land & Housing Corporation
NSW GOVERNMENT Planning & Environment

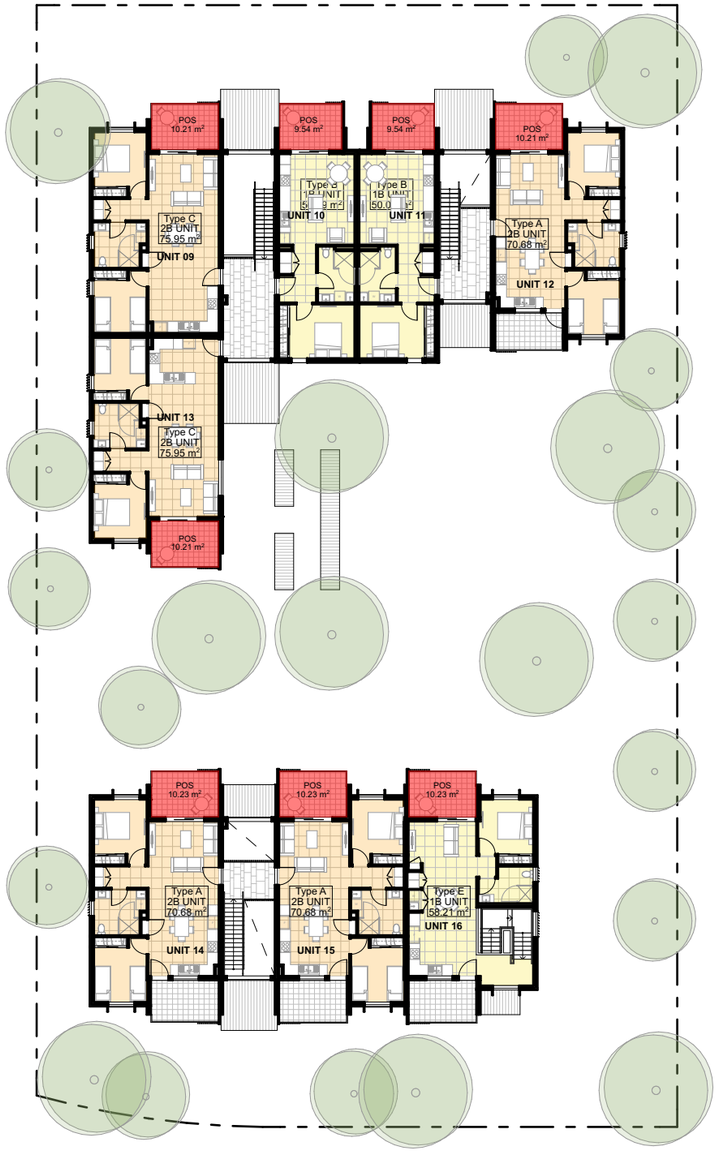
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Diagrams
Waste Management Plan

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-4002	B

1 RFB Areas Review Ground Floor
SCALE 1:350 @ A3



1 RFB Areas Review First Floor
SCALE 1:350 @ A3

Part 5 Activity Submission

CKDS Architecture | Planning | Interiors

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issue	description	date	verified
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
04	For Client Review	3/3/2022	04
05	For Client Review	27/4/2022	05
06	Issue for Information	26/5/2022	06
07	Issue for Review	8/6/2022	07
08	Issue for Review	12/7/2022	08
09	Draft Part 5 Activity Submission	19/7/2022	09
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

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clients
Land & Housing Corporation

NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7

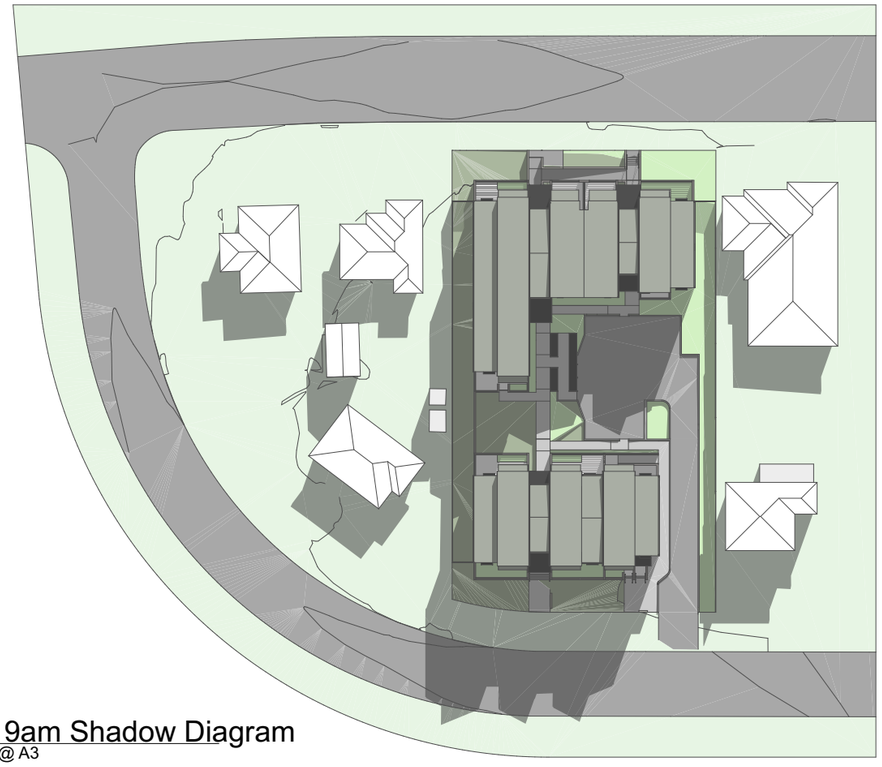
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Diagrams

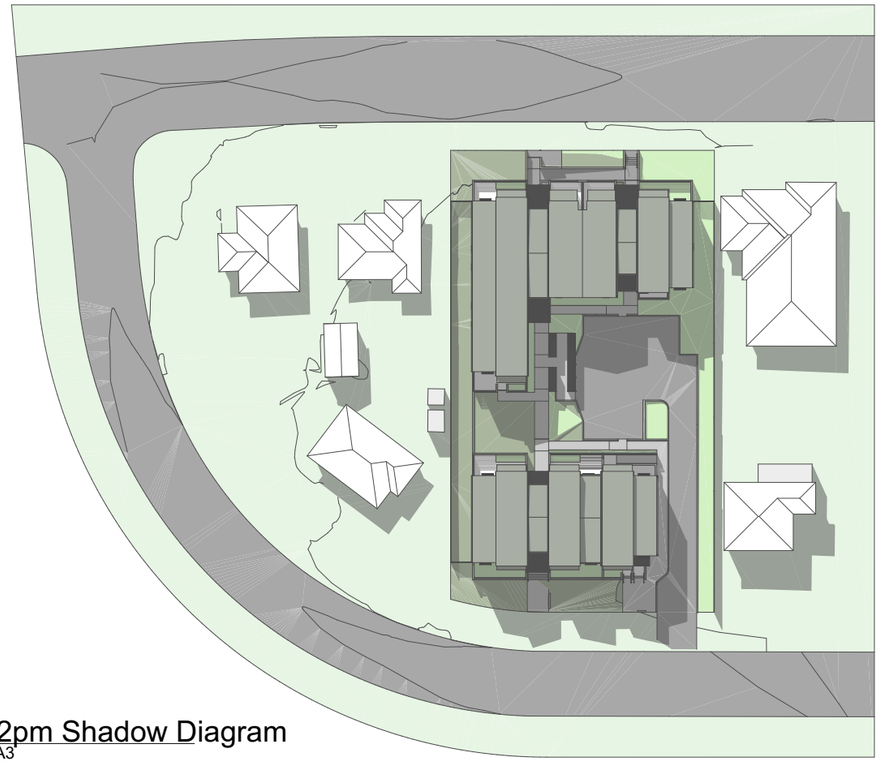
RFB & Landscape - Area

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

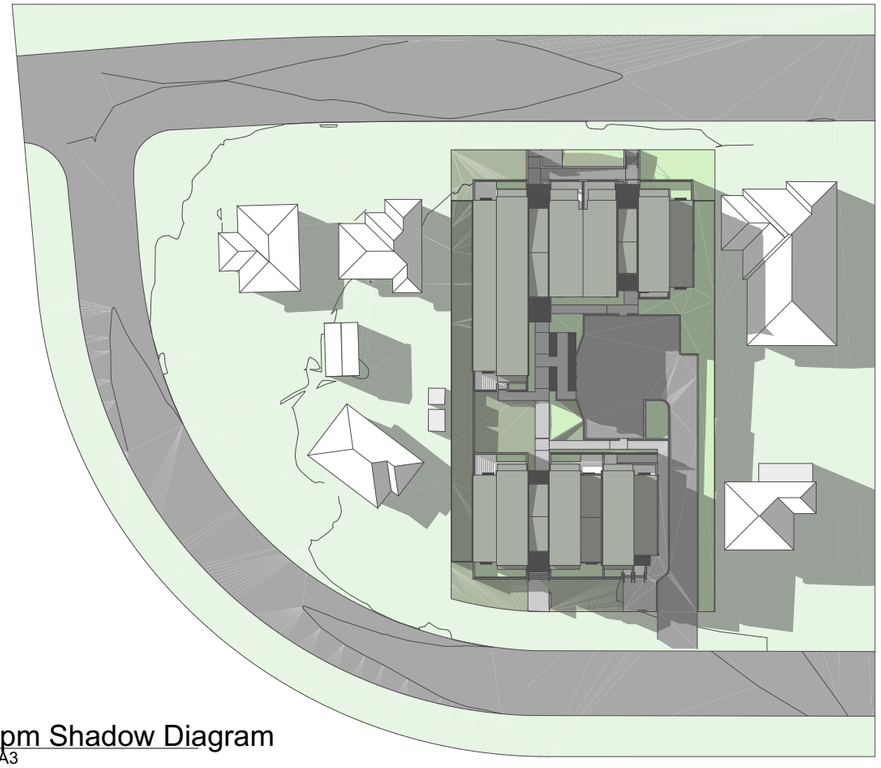
project #	drawing #	issue
20126	A-4003	B



1 June 22 9am Shadow Diagram
SCALE 1:850 @ A3



1 June 22 12pm Shadow Diagram
SCALE 1:850 @ A3



1 June 22 3pm Shadow Diagram
SCALE 1:850 @ A3

Part 5 Activity Submission

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issue	description	date	verified
01	For Client Review	24/11/2021	01
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
04	For Client Review	27/4/2022	04
05	Issue for Information	29/5/2022	05
06	Issue for Review	8/6/2022	06
07	Issue for Review	12/7/2022	07
08	Draft Part 5 Activity Submission	19/7/2022	08
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

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clients
Land & Housing Corporation

NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7

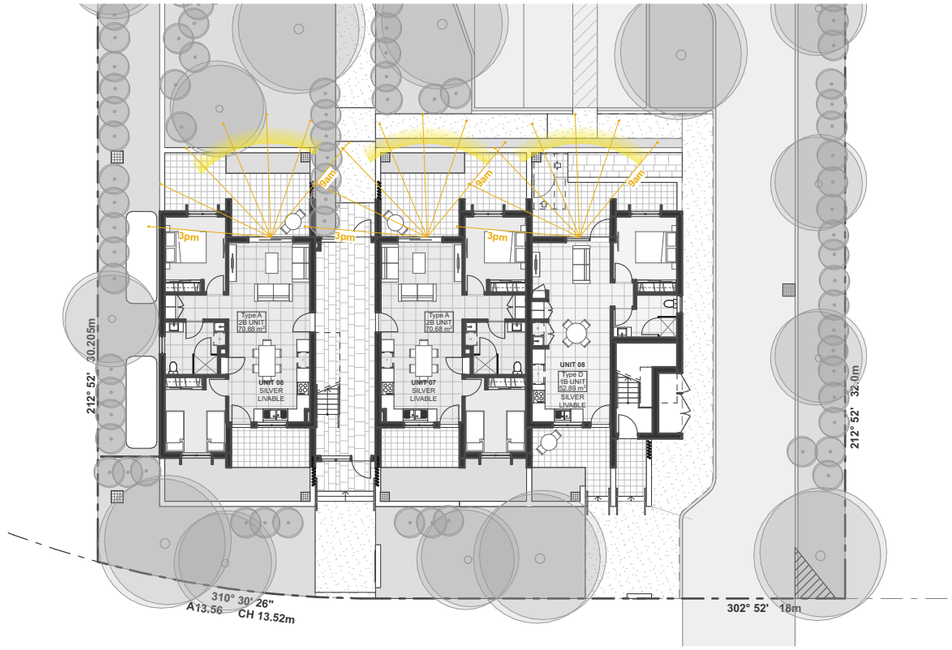
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Shadow Diagrams

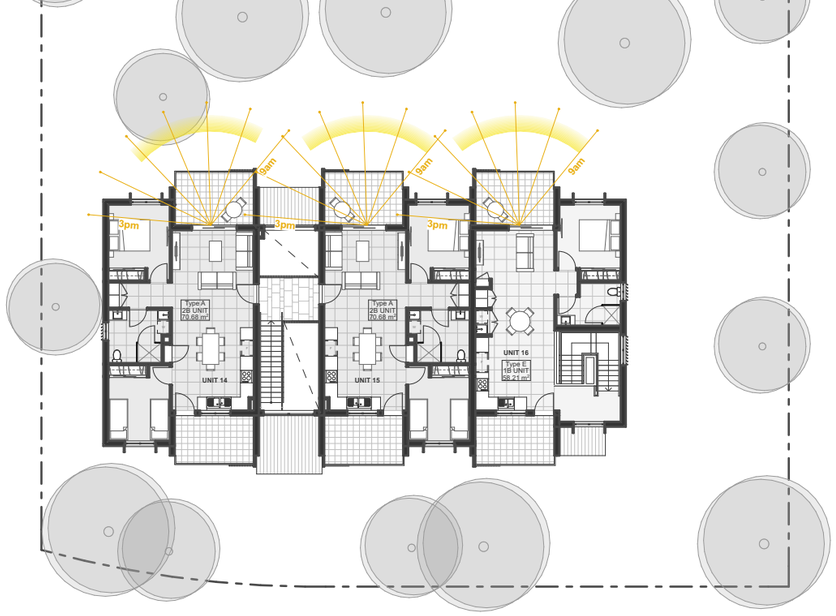
Shadow Diagrams

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-5001	B



1 ADG Solar Review - Ground
SCALE 1:300 @ A3



1 ADG Solar Review - First
SCALE 1:300 @ A3

Unit 8, 16 Shadows - 9am June 22

Unit 6, 7, 14, 15 Shadows - 9am June 22

Unit 8, 16 Shadows - 12pm June 22

Unit 6, 7, 14, 15 Shadows - 12pm June 22

Solar Access
(between 9am to 3pm 21st June)

Unit Number	Living Room	Private Open Space
01	Yes	Yes
02	Yes	Yes
03	Yes	Yes
04	Yes	Yes
05	No	No
06	Yes	Yes
07	Yes	Yes
08	Yes	Yes
09	Yes	Yes
10	Yes	Yes
11	Yes	Yes
12	Yes	Yes
13	No	No
14	Yes	Yes
15	Yes	Yes
16	Yes	Yes
Total	**14 (87.5%)**	**14 (87.5%)**

Part 5 Activity Submission

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issue	description	date	verified
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
04	For Client Review	3/3/2022	04
05	For Client Review	27/4/2022	05
06	Issue for Information	26/5/2022	06
07	Issue for Review	8/6/2022	07
08	Issue for Review	12/7/2022	08
09	Draft Part 5 Activity Submission	19/7/2022	09
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan
North Point

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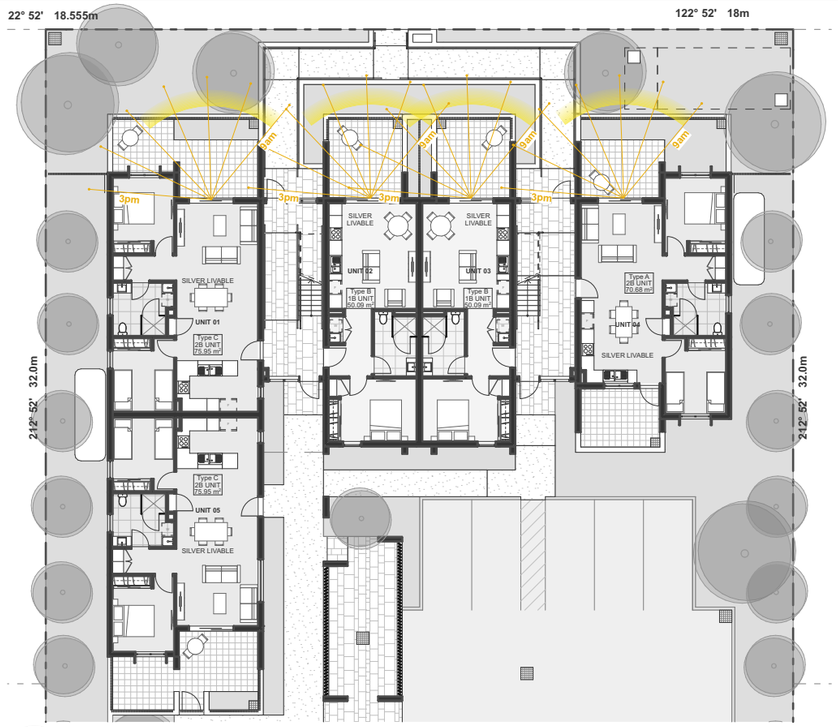
clients
Land & Housing Corporation

NSW GOVERNMENT Planning & Environment

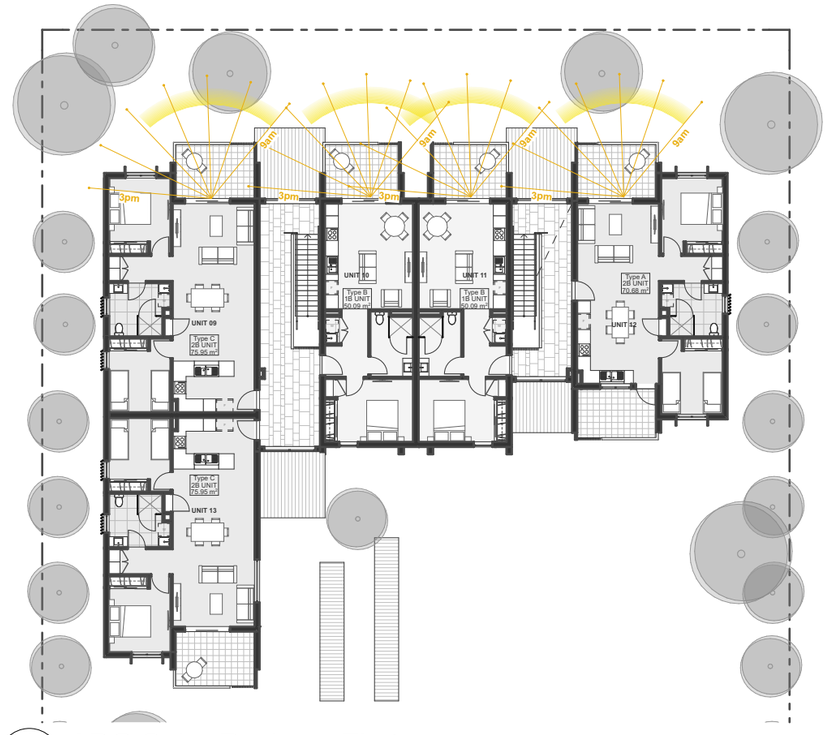
project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Shadow Diagrams
Solar - South

drawing scale: AS SHOWN
drawn:
verified: SC
date: 26/8/2022
project #: 20126
drawing #: A-5002
issue: B



1 ADG Solar Review - Ground
SCALE 1:300 @ A3



1 ADG Solar Review - First
SCALE 1:300 @ A3

Unit 3, 4, 11, 12 Shadows - 9am June 22

Unit 1, 2, 9, 10 Shadows - 9am June 22

Unit 3, 4, 11, 12 Shadows - 12pm June 22

Unit 1, 2, 9, 10 Shadows - 12pm June 22

Solar Access
(between 9am to 3pm 21st June)

Unit Number	Living Room	Private Open Space
01	Yes	Yes
02	Yes	Yes
03	Yes	Yes
04	Yes	Yes
05	No	No
06	Yes	Yes
07	Yes	Yes
08	Yes	Yes
09	Yes	Yes
10	Yes	Yes
11	Yes	Yes
12	Yes	Yes
13	No	No
14	Yes	Yes
15	Yes	Yes
16	Yes	Yes
Total	**14 (87.5%)**	**14 (87.5%)**

Part 5 Activity Submission

CKDS
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issue	description	date	verified
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
04	For Client Review	3/3/2022	04
05	For Client Review	27/4/2022	05
06	Issue for Information	26/5/2022	06
07	Issue for Review	8/6/2022	07
08	Issue for Review	12/7/2022	08
09	Draft Part 5 Activity Submission	19/7/2022	09
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan
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clients
Land & Housing Corporation
NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Shadow Diagrams
Solar - North

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-5003	B

John T Bell Drive Perspective

Part 5 Activity Submission

CKDS
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issue	description	date	verified
01	For Client Review	24/11/2021	01
02	For Client Review	1/2/2022	02
03	For Client Review	28/2/2022	03
04	For Client Review	27/4/2022	04
05	Issue for Information	29/5/2022	05
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07	Issue for Review	12/7/2022	07
08	Draft Part 5 Activity Submission	19/7/2022	08
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan

North Point

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clients
Land & Housing Corporation
NSW GOVERNMENT Planning & Environment

project
LAHC Maryland Development - BGWY7
38, 40 John T Bell Dr & 31, 33 Matfen Cl
Lot 111, 112, 116, 117/-/DP253956
Maryland NSW 2287

drawing title
Materials
Schedule of Finishes

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-6001	B

Matfen Close Perspective

Part 5 Activity Submission

CKDS
Architecture | Planning | Interiors

NEWCASTLE

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issue	description	date	verified
.01	For Client Review	1/2/2022	.01
.02	For Client Review	28/2/2022	.02
.03	For Client Review	27/4/2022	.03
.04	Issue for Information	26/5/2022	.04
.05	Issue for Review	8/6/2022	.05
.06	Issue for Review	12/7/2022	.06
.07	Draft Part 5 Activity Submission	19/7/2022	.07
A	Part 5 Activity Submission	21/7/2022	A
B	Part 5 Activity Submission	26/8/2022	B

key plan

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clients

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NSW GOVERNMENT Planning & Environment

project

LAHC Maryland Development - BGWY7

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Lot 111, 112, 116, 117/-/DP253956
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drawing title

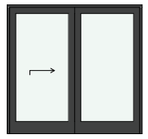
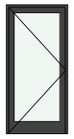
Materials

Matfen Close

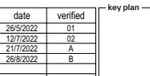
drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-6002	B

Glazed Doors

Element ID	D01	D02	D03
Quantity	15	6	1
Height	2,100	2,100	2,100
Width	2,200	1,000	2,200
			

Glazed Windows

Element ID	W01	W02	W03	W05	W06	W07	W08	W09
Quantity	20	8	13	2	6	6	4	1
Height	1,200	900	1,200	900	2,100	1,200	2,000	600
Width	1,500	1,500	900	2,100	1,500	2,500	900	900
								

Part 5 Activity Submission

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issue	description	date	verified
01	Issue for Information	26/5/2022	01
02	Issue for Review	12/7/2022	02
A	Part 5 Activity Submission	21/7/2022	A
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key plan

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LAHC Maryland Development - BGWY7

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drawing title

Schedules

Window Schedule

drawing scale	drawn	verified	date
AS SHOWN		SC	26/8/2022

project #	drawing #	issue
20126	A-7001	B