



BUSHFIRE THREAT ASSESSMENT

FOR
PROPOSED
TWO ATTACHED DUPLEXES

AT
106 SPRINGFIELD DRIVE,
LOCHINVAR NSW 2321

Prepared by:

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Prepared for:	Neacon
Reference No.	Lochinvar – Neacon – December 2024
Document Status & Date:	06/12/2024
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Disclaimer

Notwithstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.



Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Neacon for proposed two attached duplexes at 106 Springfield Drive, Lochinvar NSW 2321. The report forms part of the supporting documentation for a DA to be submitted to Maitland City Council (MCC) because the site is mapped as Bushfire Prone Land (BPL) under the Environmental Planning & Assessment Act 1979 (s10.3 – Bush fire prone land).

This Report demonstrates how the development conforms with the document titled 'Planning for Bushfire Protection' (PBP). The aim of PBP is to provide for the protection of human life and minimise the impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment (p.10).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards to facilitate an acceptable level of bushfire protection.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- 1. Asset Protection Zone (APZ) - The APZ provides space and reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and to prevent direct flame contact.**

To achieve a Bushfire Attack Level (BAL) of **BAL-LOW** the following land is to be managed as an APZ:

- The areas of the site outside the development footprint should be managed as an Inner Protection Area.

These distances are to be managed as described under 'Planning for Bushfire Protection (Appendix 4 – Asset Protect Zone Requirements)' and the document titled 'Standards for Asset Protection Zones'.

- 2. Perimeter Roads - Access standards provide for emergency evacuation and firefighting operations**

- The proposed duplexes will have direct access to the existing public road (Springfield Drive) at a distance of <70m therefore there are no specific access requirements for the development.

- 3. Construction Standards – Construction standards seek to increase the protection of the habitable buildings from bushfire. The shorter the APZ (distance between the external wall of the habitable building and the unmanaged vegetation), then the higher the construction standard, which is referred to as the BAL**



- The proposed duplexes in the proposed building envelopes will be assessed as BAL-LOW based on the abovementioned APZs.

4. Landscaping – The type, location and ongoing maintenance of landscaping is considered a necessary BPM

- The identified APZs are to be managed in accordance with accordance with PBP (Appendix 4);
- A clear area of low-cut lawn or pavement is maintained adjacent to the dwellings; and
- Fencing details in accordance with PBP (7.6 – Fences and gates)

This report provides the above required information to assist Council and the RFS in determining compliance in accordance with the PBP 2019 and AS 3959-2018.



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Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2017	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BFPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
<i>EPA Act</i>	<i>NSW Environmental Planning and Assessment Act 1979</i>
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
MCC	Maitland City Council
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
PoM	Plan of Management
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation



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I INTRODUCTION

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Neacon for proposed two attached duplexes at 106 Springfield Drive, Lochinvar NSW 2321, hereafter referred to as the “site” (refer to Figure 1-1 for site locality). Refer to Appendix A for Proposed Site Plans.

This BTA is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with ‘Planning for Bushfire Protection’ (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Environmental Planning and Assessment Amendment (Planning for Bushfire Protection) Regulation 2007 and the Rural Fires Amendment Regulation 2007 (RF Amendment Regulation 2007).

I.1 Site Particulars

Locality:	106 Springfield Drive, Lochinvar NSW 2321
Lot:	Lot 249
LGA:	Maitland City Council
Current Land Use:	Vacant Lot
Forest Danger Index:	100 FFDI



Client: Neacon

Project Name

Figure 1-1: Site Location

Legend

- Subject Land
- Assessment Area 100m
- Assessment Area 140m
- Cadastre
- Building Outline



Client: Neacon

Project Name

Figure 1-2: Bushfire Prone Land

Legend

- Subject Land
- Cadastrate
- Building Outline
- Assessment Area
- 100m
- 140m
- Bushfire Prone Area
- Vegetation Category 3
- Vegetation Buffer



I.2 Description of the Proposal

This DA relates to the proposal for two attached duplexes. Refer to Appendix A for proposed plans.

I.3 Legislative Requirements

The Site has been mapped as Bush Fire Prone Land Map (BFPLM) by MCC.

This report forms part of the supporting documentation for a Development Application (DA) to be submitted to MCC.

This BTA has been prepared using current legislative requirements and associated guidelines for assessment of bushfire protection, these being:

- PBP (RFS, 2019); and
- AS3959-2018 Construction of Buildings in Bushfire Prone Area.

I.4 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the Rural Fires Regulation. This BTA also addresses the six key Bush Fire Protection Measures (BFRMs) in a development assessment context being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's));
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.



2 METHODOLOGY

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent
- Confirmation of the vegetation assemblage typology present.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 2m.



3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

3.1 Vegetation & Slope Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken. Vegetation that may be considered a bushfire hazard was identified in all directions from the site. This assessment is depicted in Table 3-1 for dwelling 1 and Table 3-2 for dwelling 2.

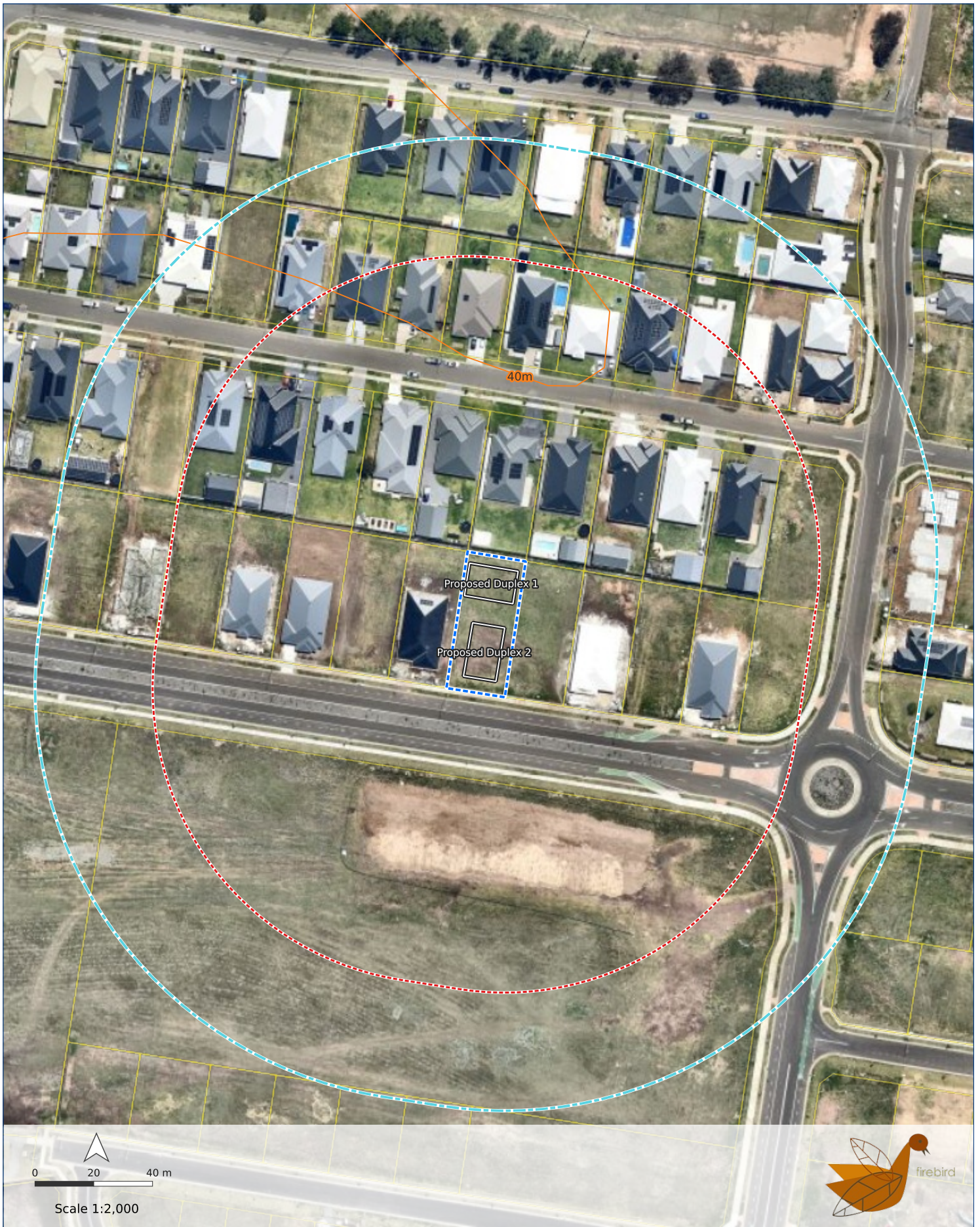
In accordance with PBP (RFS 2019), an assessment of the slope beneath the vegetation considered a bushfire hazard was undertaken and the results are presented in Table 3-1 and 3-2 and Figure 3-1 and 3-2 below.

Table 3-1: Vegetation Classification for Duplex 1

Direction	Vegetation Type	Distance from Site Boundary	Slope Vegetation occurs on
North	Managed Land – Residential Development	>100m	N/A
East	Managed Land – Cleared for Future Development	>100m	N/A
South	Managed Land – Cleared for Future Development	>100m	N/A
West	Managed Land – Residential Development	>100m	N/A

Table 3-2: Vegetation Classification for Duplex 2

Direction	Vegetation Type	Distance from Site Boundary	Slope Vegetation occurs on
North	Managed Land – Residential Development	>100m	N/A
East	Managed Land – Cleared for Future Development	>100m	N/A
South	Managed Land – Cleared for Future Development	>100m	N/A
West	Managed Land – Residential Development	>100m	N/A



Client: Neacon

Project Name

Figure 3-1: Vegetation Map

Legend

- Subject Land
- Assessment Area 100m
- Assessment Area 140m
- Cadastre
- Building Outline
- Elevation Contours

4 BUSHFIRE PROTECTION ASSESSMENT

4.1 Asset Protection Zones (APZ)

The PBP (RFS, 2019) guidelines have been used to determine the widths of the APZs required for habitable buildings within the site using the vegetation and slope data identified in Section 3-1 of this report.

The site lies within Maitland Local Government Area and therefore is assessed under an FDI rating of 100. Using the results from the Site Assessment (section 3.1 of this report) the deemed to satisfy APZ requirements for the proposed buildings within the site were determined using Table A1.12.2 in PBP (RFS, 2019). Refer to Table 4-1 for the required APZs for the proposed habitable buildings.

Table 4-1: Recommended APZs for Proposed Dwellings within the proposed building envelope

Direction from Development	Vegetation classified within 140m	Effective Slope (within 100m)	APZ to be provided
North	Managed Land	N/A	>100m of managed land occurs. The site can be managed as an IPA
East	Managed Land	N/A	>100m of managed land occurs. The site can be managed as an IPA
South	Managed Land	N/A	>100m of managed land occurs. The site can be managed as an IPA
West	Managed Land	N/A	>100m of managed land occurs. The site can be managed as an IPA



5 DWELLING DESIGN & CONSTRUCTION

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 100
- Flame temperature
- Slope
- Vegetation classification; and
- Building location.

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW** The risk is considered to be **VERY LOW**

There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5** The risk is considered to be **LOW**

There is a risk of ember attack.

The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m².

(c) **BAL – 19** The risk is considered to be **MODERATE**

There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.

The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m².

(d) **BAL-29** The risk is considered to be **HIGH**

There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.



The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m².

(e) **BAL-40** The risk is considered to be **VERY HIGH**

There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m².

(f) **BAL-FZ** The risk is considered to be **EXTREME**

There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux greater than 40 kW/m².

5.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation and slope was applied to Table A1.12.5 of PBP 2019 to determine the appropriate BAL ratings. The results from this bush fire risk assessment are detailed below in Table 5-1- Bush Fire Attack Assessment.

Table 5-1: Determination of Required BAL for Dwellings within the site

Vegetation Type & Direction	Separation Distance from vegetation	Bushfire Attack Level (BAL)	Construction Section
Managed Land to the North	>100m	BAL-LOW	No requirements
Managed Land to the East	>100m	BAL-LOW	No requirements
Managed Land to the South	>100m	BAL-LOW	No requirements
Managed Land to the West	>100m	BAL-LOW	No requirements

Given the information in Table 5-1 above the proposed dwellings within the proposed building envelope will be able to comply with AS3959-2018 and have been assessed as BAL-LOW.



6 COMPLIANCE

The proposal is for two attached duplexes and therefore development standards apply. Table 6-1 details compliance with Development Standards for Residential and Rural Residential Subdivisions as this development increases residential density (s8.2.1 in PBP 2019).

Table 6-1: Proposed Duplexes Compliance with Development Standards

Acceptable Solutions	Performance Criteria	Compliance
Asset Protection Zones		
> APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI.	potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m ² on each proposed lot.	Complies with Acceptable Solution – APZs for the site have been provided in accordance with Table A1.12.5 of PBP 2019.
> APZs are managed in accordance with the requirements of Appendix 4.	APZs are managed and maintained to prevent the spread of a fire towards the building.	Complies with Acceptable Solution – The site is to be managed to the standard of an IPA.
> APZs are wholly within the boundaries of the development site	the APZs is provided in perpetuity	Complies with Acceptable Solution – The site is to be managed to the standard of an IPA.
> APZs are located on lands with a slope less than 18 degrees.	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	Complies with Acceptable Solution – APZs on site occur over land with slope <18°.
Landscaping		
> landscaping is in accordance with Appendix 4; and fencing is constructed in accordance with section 7.6.	landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Complies with Acceptable Solution – All landscaping within the site will meet the requirements of the acceptable solution.



Access (General Requirements)

<ul style="list-style-type: none">› property access roads are two-wheel drive, all-weather roads;› perimeter roads are provided for residential subdivisions of three or more allotments;› subdivisions of three or more allotments have more than one access in and out of the development;› traffic management devices are constructed to not prohibit access by emergency services vehicles;› maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient;› all roads are through roads;› dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end;› where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;› where access/egress can only be achieved through forest, woodland and heath	<p>firefighting vehicles are provided with safe, all-weather access to structures.</p>	<p>Complies with Acceptable Solution – no roads are proposed as part of the proposal. The road network is already existing and the public roads comply with the requirements of the acceptable solution.</p>
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<p>vegetation, secondary access shall be provided to an alternate point on the existing public road system; and</p> <p>› one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.</p>		
<p>› the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating.</p>	<p>the capacity of access roads is adequate for firefighting vehicles.</p>	<p>Complies with Acceptable Solution – no roads are proposed as part of the proposal. The existing public road complies with the acceptable solution requirements.</p>
<p>› hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;</p> <p>› hydrants are provided in accordance with the relevant clauses of AS 2419.1:2017 - Fire hydrant installations System design, installation and commissioning; and</p> <p>› there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.</p>	<p>there is appropriate access to water supply.</p>	<p>Complies with acceptable solution – hydrants are located within 70m of the proposed dwellings.</p>



Perimeter Roads

<ul style="list-style-type: none"> › are two-way sealed roads; › minimum 8m carriageway width kerb to kerb; › parking is provided outside of the carriageway width; › hydrants are located clear of parking areas; › are through roads, and these are linked to the internal road system at an interval of no greater than 500m; › curves of roads have a minimum inner radius of 6m; › the maximum grade road is 15 degrees and average grade of not more than 10 degrees; › the road crossfall does not exceed 3 degrees; and › a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided. 	<p>access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.</p>	<p>N/A – perimeter roads are not proposed. The existing public roads comply with the acceptable solution.</p>
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Non-Perimeter Roads

<ul style="list-style-type: none"> › minimum 5.5m carriageway width kerb to kerb; › parking is provided outside of the carriageway width; › hydrants are located clear of parking areas; 	<p>access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.</p>	<p>N/A – no roads exist as part of the proposal.</p>
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<ul style="list-style-type: none"> › roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; › curves of roads have a minimum inner radius of 6m; › the road crossfall does not exceed 3 degrees; and › a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided. 		
Property Access		
<ul style="list-style-type: none"> › There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. <p>In circumstances where this cannot occur, the following requirements apply:</p> <ul style="list-style-type: none"> › minimum 4m carriageway width; › in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, 	<p>firefighting vehicles can access the dwelling and exit the property safely.</p>	<p>Complies with Acceptable Solution – All proposed lots will be able to comply with PBP 2019 and in any case access will be connected to a public road by a driveway <70m.</p>



<p>making a minimum trafficable width of 6m at the passing bay;</p> <ul style="list-style-type: none">› a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;› provide a suitable turning area in accordance with Appendix 3;› curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;› the minimum distance between inner and outer curves is 6m;› the crossfall is not more than 10 degrees;› maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and› a development comprising more than three dwellings has access by dedication of a road and not by right of way. <p>Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development</p>		
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<p>property access roads in addition to the above.</p>		
<h2 style="background-color: #1a3d54; color: white; padding: 5px;">Water Supplies</h2>		
<ul style="list-style-type: none"> > reticulated water is to be provided to the development where available; > a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and > static water supplies shall comply with Table 5.3d. 	<p>adequate water supplies are provided for firefighting purposes.</p>	<p>Complies with Acceptable Solution – The site is connected to reticulated water.</p>
<ul style="list-style-type: none"> > fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2017; > hydrants are not located within any road carriageway; and > reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads. 	<p>Water supplies are located at regular intervals; and</p> <p>the water supply is accessible and reliable for firefighting operations.</p>	<p>Complies with Acceptable Solution – hydrants are located within 70m of the proposed dwellings</p>
<ul style="list-style-type: none"> > fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017. 	<p>flows and pressure are appropriate.</p>	<p>Complies with Acceptable Solution – fire hydrant pressures and flows are assumed to be compliant.</p>



<ul style="list-style-type: none"> › all above-ground water service pipes are metal, including and up to any taps; and › above-ground water storage tanks shall be of concrete or metal. 	<p>the integrity of the water supply is maintained.</p>	<p>Complies with Acceptable Solution – All above ground water service pipes will meet the requirements.</p>
<h2>Electricity Services</h2>		
<ul style="list-style-type: none"> › where practicable, electrical transmission lines are underground; › where overhead, electrical transmission <ul style="list-style-type: none"> › lines are proposed as follows: lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and › no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines. 	<p>location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.</p>	<p>Complies with Acceptable Solution – Proposed dwellings are able to meet the requires for electricity services.</p>
<h2>Gas Services</h2>		
<ul style="list-style-type: none"> › reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used; › all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; 	<p>location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.</p>	<p>Can Complies with Acceptable Solution – Proposed dwellings are able to meet the requirements for gas services.</p>



<ul style="list-style-type: none">> connections to and from gas cylinders are metal;> polymer-sheathed flexible gas supply lines are not used; and> above-ground gas service pipes are metal, including and up to any outlets.		
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7 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment has been undertaken for proposed two attached duplexes at 106 Springfield Drive, Lochinvar NSW 2321. The report forms part of the supporting documentation for a Development Application (DA) to be submitted to MCC.

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level necessary to provide an adequate level of protection to life and property on the subdivision. In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements:

1. **Asset Protection Zone (APZ) - The APZ provides space and reduced fuel loads to ensure radiant heat levels at the buildings are below critical limits and to prevent direct flame contact.**

To achieve a Bushfire Attack Level (BAL) of **BAL-LOW** the following land is to be managed as an APZ:

- The areas of the site outside the development footprint should be managed as an Inner Protection Area (IPA).

These distances are to be managed as described under 'Planning for Bushfire Protection (Appendix 4 – Asset Protection Zone Requirements)' and the document titled 'Standards for Asset Protection Zones'.

2. **Perimeter Roads - Access standards provide for emergency evacuation and firefighting operations**

- The proposed duplexes will have direct access to the existing public road (Springfield Drive) at a distance of <70m therefore there are no specific access requirements for the development.

3. **Construction Standards – Construction standards seek to increase the protection of the habitable buildings from bushfire. The shorter the APZ (distance between the external wall of the habitable building and the unmanaged vegetation), then the higher the construction standard, which is referred to as the BAL**

- The proposed dwellings in the proposed building envelope will be assessed as **BAL-LOW** based on the above mentioned APZs.

4. **Landscaping – The type, location and ongoing maintenance of landscaping is considered a necessary BPM**

- The identified APZs are to be managed in accordance with accordance with PBP (Appendix 4);
- A clear area of low-cut lawn or pavement is maintained adjacent to the dwellings; and



-
- Fencing details in accordance with PBP (7.6 – Fences and gates)

This report provides the above required information to assist Council and the RFS in determining compliance in accordance with the PBP 2019 and AS 3959-2018.



8 BIBLIOGRAPHY

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APPENDIX A PROPOSED SITE PLANS

> DEVELOPMENT APPLICATION DOCUMENTATION > 26/11/2024

- > NEACON
- > 5202 > MULTI RES
- > LOT 249, DP 1271229
- > 106 SPRINGFIELD DRIVE, LOCHINVAR

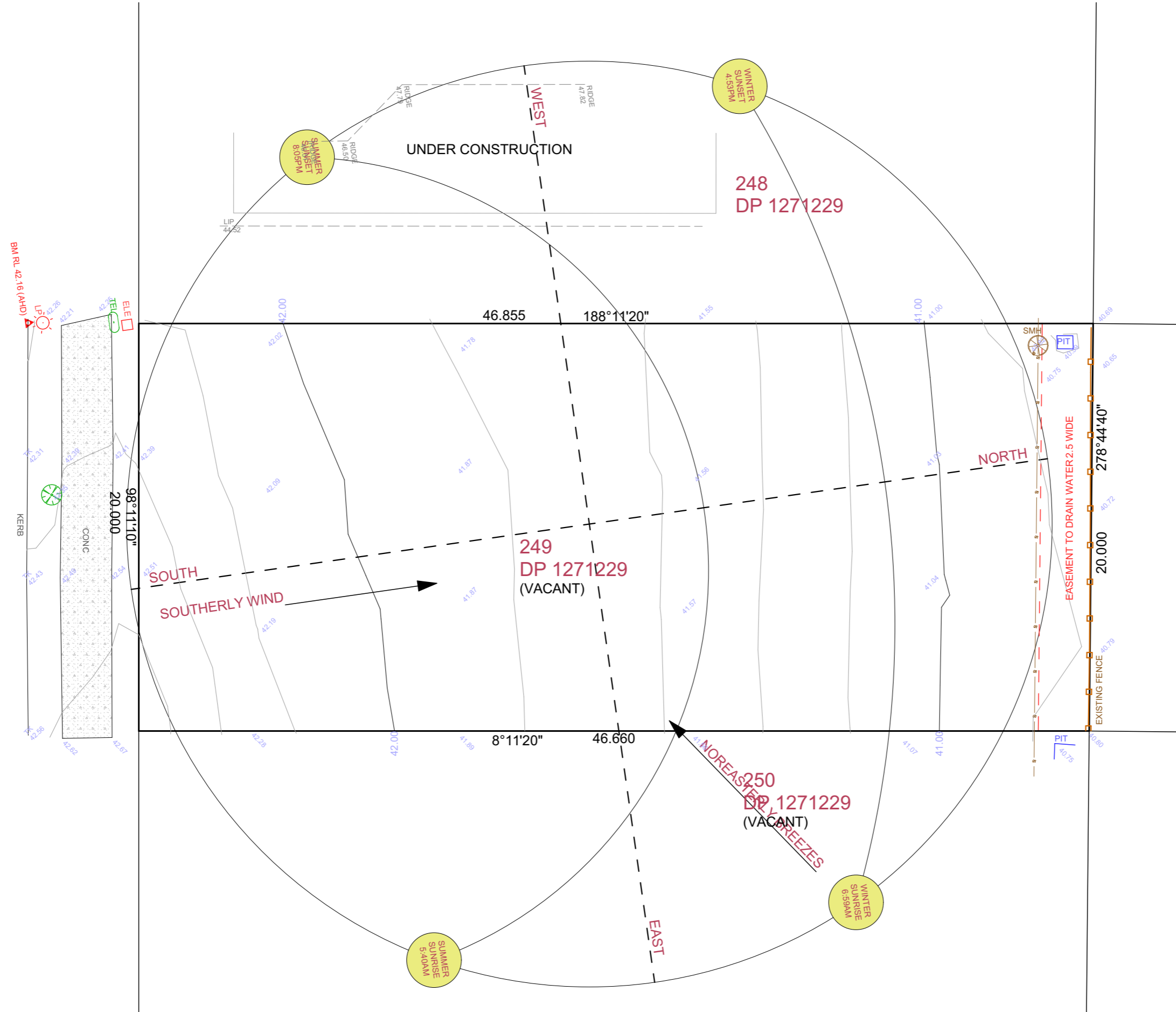
> REVISION SCHEDULE

REV	DESCRIPTION	DATE
DA-D1	DRAFT DA PLANS FOR REVIEW	08/11/2024
DA-D2	DRAFT DA PLANS CHANGES TO DOOR HEIGHTS, SKYLIGHTS, STORES	13/11/2024
DA1	DA PLANS FOR ISSUE	26/11/2024

> LAYOUT INDEX

#	LAYOUT NAME
1.1	> COVER PAGE
1.2	> SITE ANALYSIS PLAN
1.3	> SITE PLAN
1.4	> BULK EARTHWORKS PLAN
1.5	> DRIVEWAY DETAIL
1.6	> RES 1 & 2 FLOOR PLAN
1.7	> RES 3 & 4 FLOOR PLAN
1.8	> SECTIONS / BASIX
1.9	> RES 1 & 2 ELEVATIONS
1.10	> RES 3 & 4 WEST ELEVATION
1.11	> LANDSCAPE PLAN
1.12	> 3D VIEW
1.13	> JUNE 21st 9:00AM SHADOW DIAGRAM
1.14	> JUNE 21st 12:00PM SHADOW DIAGRAM
1.15	> JUNE 21st 3:00PM SHADOW DIAGRAM

SPRINGFIELD DR



> SITE ANALYSIS PLAN

1:200

> NOTE

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 > **NEACON**
 > Development
 > MULTI RES
 > 106 SPRINGFIELD DRIVE, LOCHINVAR
 > LOT 249, DP 1271229

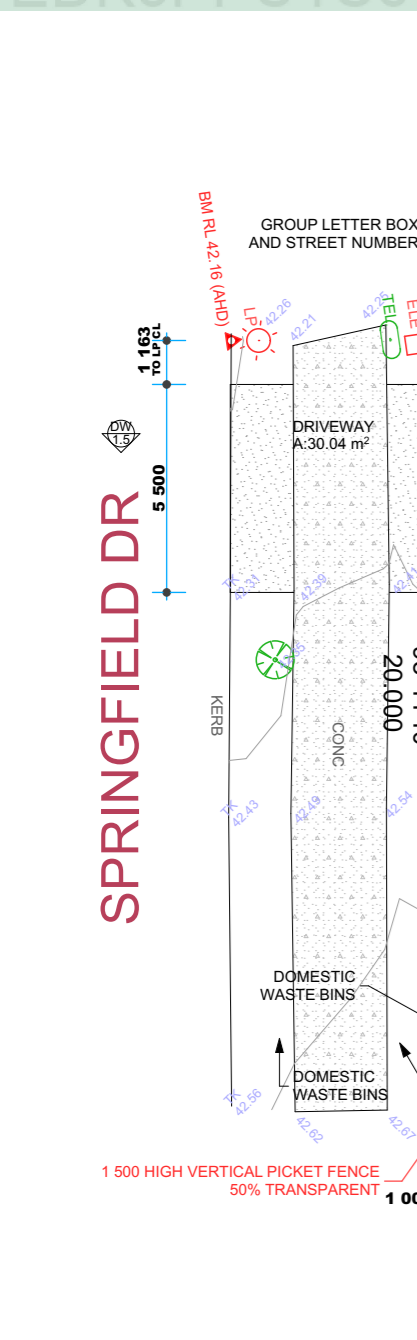
> DEVELOPMENT APPLICATION

> Designer > Drafter
 > JB > SN

> Job No. > Revision No. > Drawing No.
 > 5202 > DA1 > 1.2

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 Scan QR code or follow website link for rating details.
 Assessor name: siva nagarajan
 Accreditation No: HERA10225
 Property Address: 106 SPRINGFIELD DRIVE, LOCHINVAR, NSW, 2321
 https://www.f5.com.au/QRCodeLanding?PublicId=EDK3PPU1C6&GrpCert#1



1

> SITE PLAN

1:200



248
DP 1271229

250
DP 1271229
(VACANT)

> NOTE
 > SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
 > NO SUBTERRANEAN INVESTIGATIONS HAVE BEEN UNDERTAKEN. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIAL BEFORE YOU DIG ON PHONE No. 1100 or www.1100.com.au PRIOR TO ANY EXCAVATION OR EARTHWORKS



> SEDIMENT CONTROLS
 > 1. ATTENTION IS DRAWN TO THE ENVIRONMENT PROTECTION ACT AND THE REQUIREMENTS FOR THE PROTECTION FROM DISCHARGE OF ANY POLLUTION FROM THE SITE.
 > 2. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED AND MAINTAINED.
 > 3. ALL SEDIMENT RETAINING STRUCTURES SHALL BE CLEARED UPON REACHING A MAXIMUM OF 75% CAPACITY. REMOVED SEDIMENT SHALL BE SPREAD WITHIN DISTRIBUTION AREAS ON THE SITE.
 > 4. IMMEDIATELY FOLLOWING THE COMPLETION OF WORKS ALL EXPOSED AREAS SHALL BE STABILISED BY TURFING OR MULCHING (BY OWNER). SEDIMENT CONTROL SHALL BE MAINTAINED UNTIL GROUND COVER IS ESTABLISHED.

> SITE STATISTICS
 FLOOR SPACE RATIO N/A
 SITE COVERAGE 66.2%
 UNBUILT AREA 33.0%

> AREAS

	AREA (m ²):
SITE AREA	935.11
SITE COVERAGE	618.45
UNBUILT	308.55
DRIVEWAY	264.40

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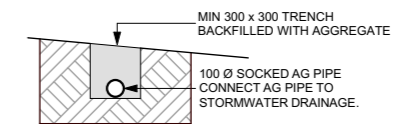
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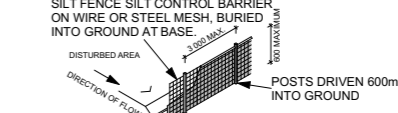
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 > MULTI RES
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 > LOT 249, DP 1271229

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> SITE DRAINAGE DETAIL

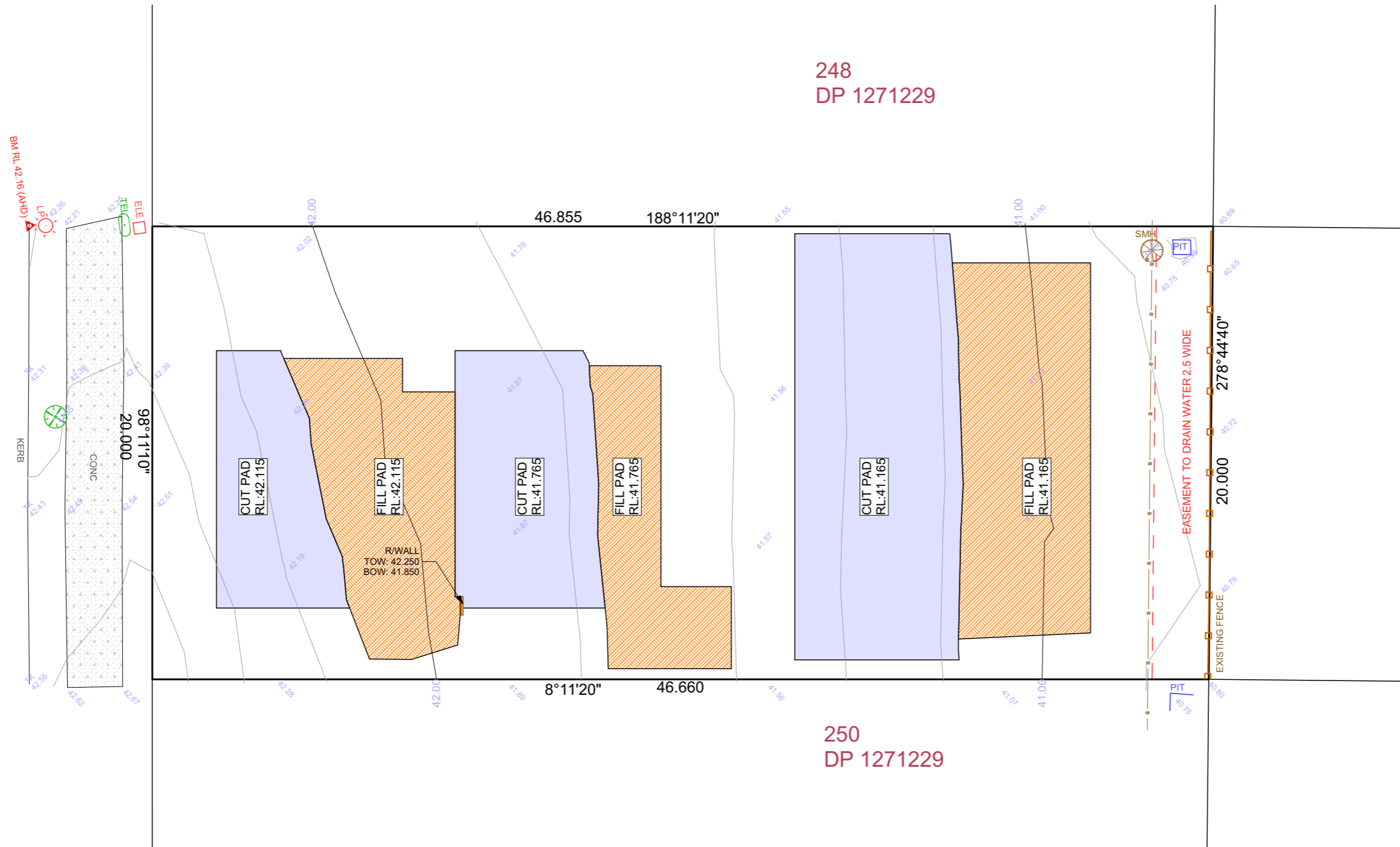
> SEDIMENT FENCE
 DRAINAGE AREA 0.6 HA MAXIMUM.
 SLOPE GRADIENT 1:2 MAXIMUM.
 SLOPE LENGTH 60m MAXIMUM.



> SEDIMENT CONTROL FENCE

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 > PO Box 186 East Maitland NSW 2323

SPRINGFIELD DR



248
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> BULK EARTHWORKS PLAN

1:200

1

> NOTES

- > SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
- > CUT AND FILL VOLUMES ARE ESTIMATED BASED ON SITE MODELLING USING ArchiCAD. IT DOES NOT TAKE INTO ACCOUNT SOIL CLASSIFICATION, MOISTURE CONTENT, ROCK, VEGETATION, COMPACTION, OR "FLUFF RATE"
- > NO SUBTERRANEAN INVESTIGATIONS HAVE BEEN UNDERTAKEN. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIAL BEFORE YOU DIG ON PHONE No. 1100 or www.1100.com.au PRIOR TO ANY EXCAVATION OR EARTHWORKS

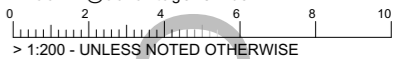


> EXCAVATION VOLUMES

CUT / FILL	VOLUME (m³)
CUT VOLUME	33.63
FILL VOLUME	21.18

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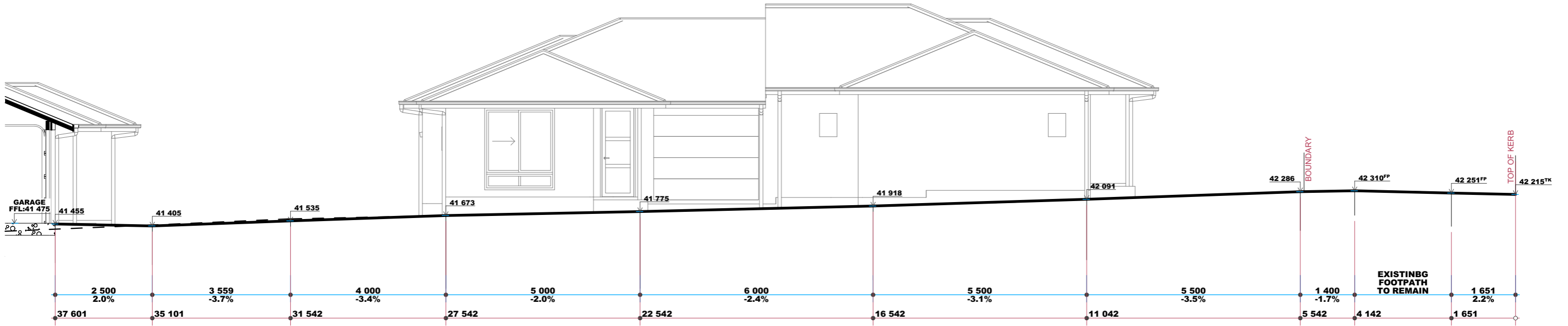
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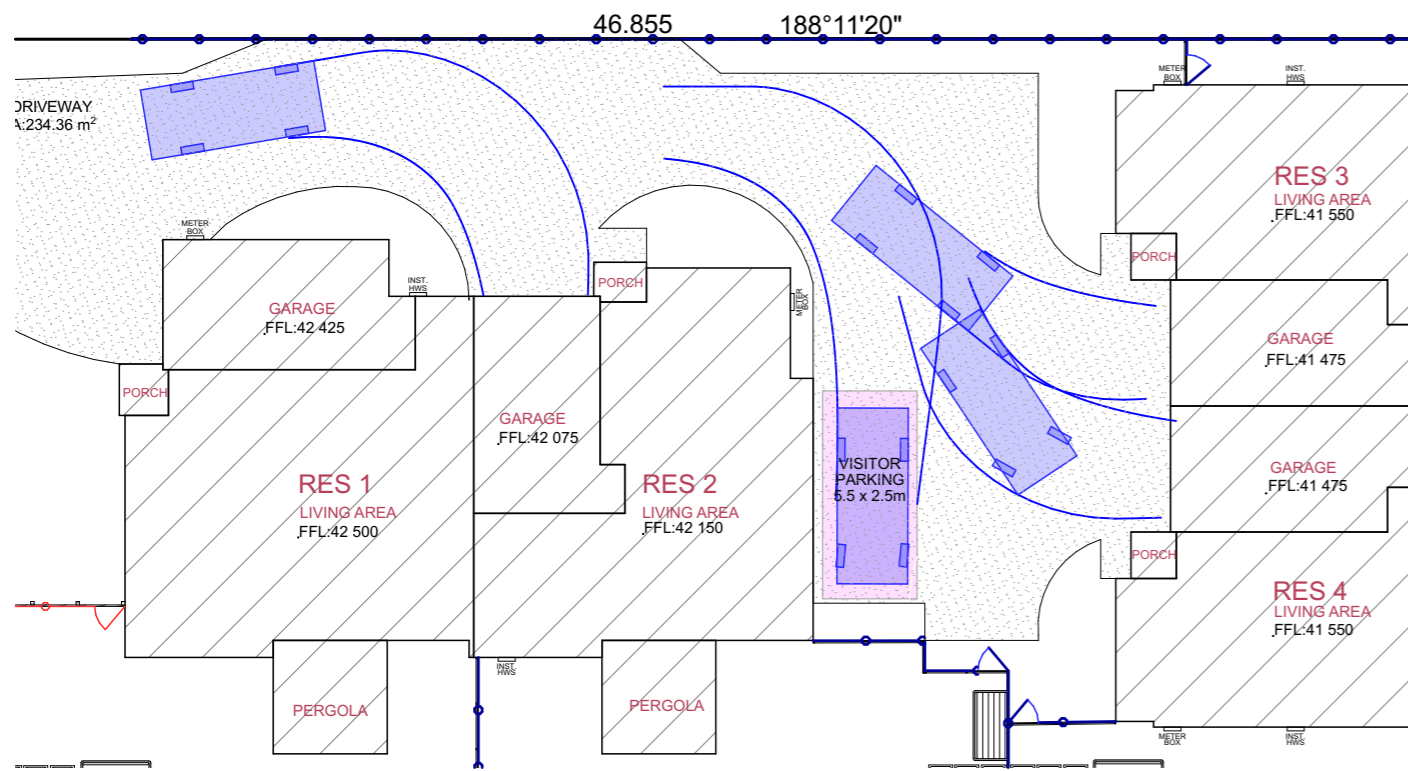
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1

> DRIVEWAY PROFILE

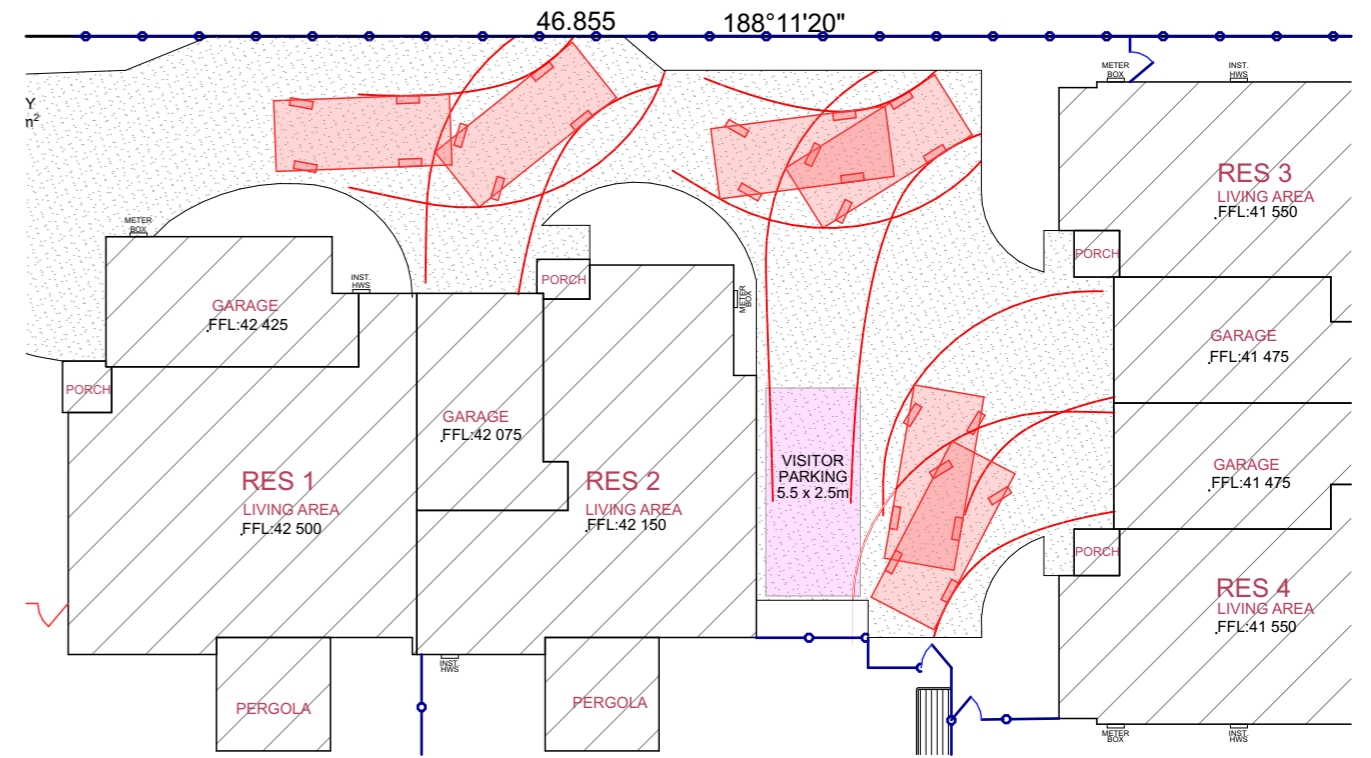
1:100



2

> B85 VEHICLE SWEEP PATHS (ENTRY)

1:200



3

> B85 VEHICLE SWEEP PATHS (EXIT)

1:200

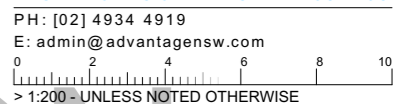
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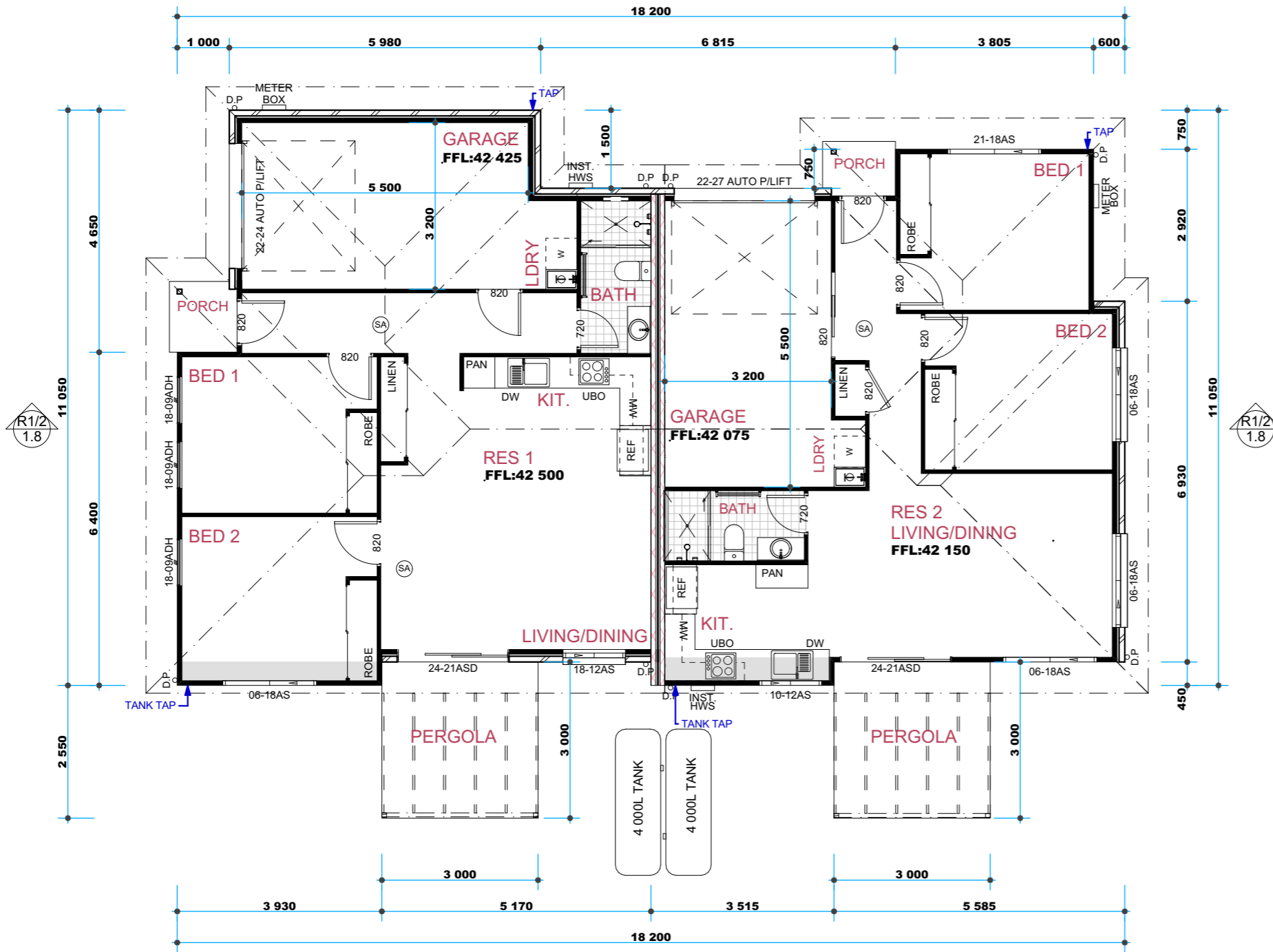
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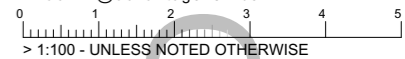
> RES 1 & 2 FLOOR PLAN

1:100

RES 1		> GENERAL NOTES
LIVING AREA	69.45	> 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ENGINEERS DRAWINGS.
GARAGE	21.93	> 2. ALL DIMENSIONS AND LEVELS TO BE CHECKED AND VERIFIED BY THE BUILDER.
PERGOLA	9.05	> 3. ALL WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS, CODES AND LOCAL AUTHORITIES.
PORCH	1.75	> 4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
	102.18 m²	> 5. ALL MATERIALS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS.
RES 2		> 6. SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
LIVING AREA	64.56	> 7. BUILDER TO CONFIRM KITCHEN & LAUNDRY LAYOUT WITH OWNER PRIOR TO ORDERING & INSTALLATION.
GARAGE	20.03	> 8. @ INDICATES SMOKE ALARM IN ACCORDANCE WITH H3D6 OF THE NCC 2022 AND PART 9.5 SMOKE ALARMS AND EVACUATION LIGHTING OF THE HOUSING PROVISIONS STANDARD 2022.
PERGOLA	9.03	> 9. WATERPROOFING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH AS3740:2021 OR NCC VOL. 2 PART 10.2 OF THE ABCB HOUSING PROVISIONS.
PORCH	1.44	> 10. BUILDER TO COMPLY WITH H4D9 OF THE NCC 2022 AND PART 10.8 CONDENSATION MANAGEMENT OF THE HOUSING PROVISIONS STANDARD 2022.
	95.06 m²	> CONSTRUCTION MATERIALS
		> FRAME: TIMBER
		> EXTERNAL WALLS: BRICK VNEER / LIGHTWEIGHT
		> ROOF: CUSTOM ORB
		> FLOOR: CONCRETE SLAB
RES 3		
LIVING AREA	66.31	
GARAGE	21.43	
PERGOLA	3.00	
PORCH	1.48	
	92.22 m²	
RES 4		
LIVING AREA	66.31	
GARAGE	21.43	
PERGOLA	2.85	
PORCH	1.48	
	92.07 m²	
	381.53 m²	

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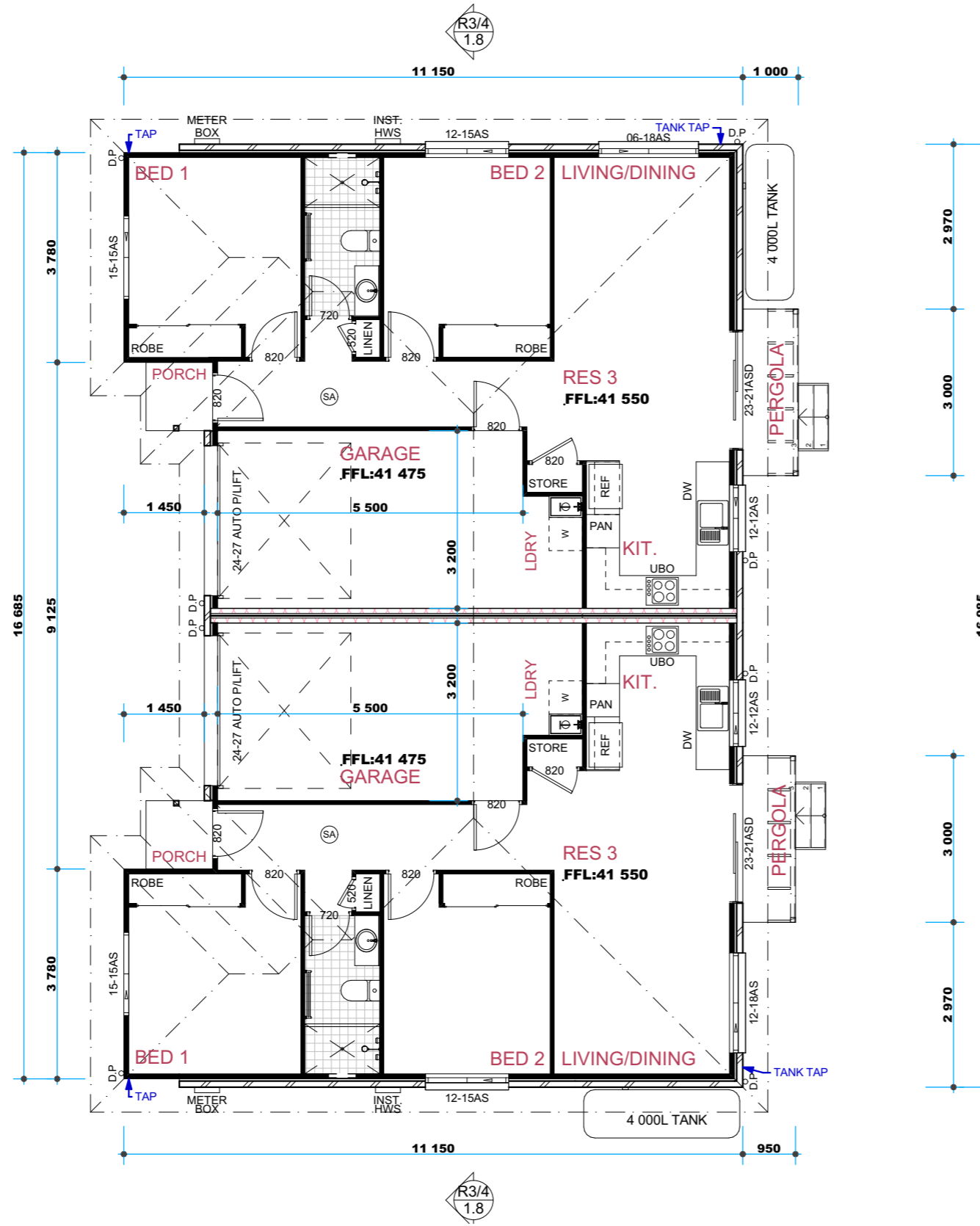
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> LOT 249, DP 1271229

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> RES 3 & 4 FLOOR PLAN

1:100

RES 1		> GENERAL NOTES
LIVING AREA	69.45	> 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ENGINEERS DRAWINGS.
GARAGE	21.93	> 2. ALL DIMENSIONS AND LEVELS TO BE CHECKED AND VERIFIED BY THE BUILDER.
PERGOLA	9.05	> 3. ALL WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS, CODES AND LOCAL AUTHORITIES.
PORCH	1.75	> 4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
	102.18 m²	> 5. ALL MATERIALS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS.
RES 2		> 6. SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
LIVING AREA	64.56	> 7. BUILDER TO CONFIRM KITCHEN & LAUNDRY LAYOUT WITH OWNER PRIOR TO ORDERING & INSTALLATION.
GARAGE	20.03	> 8. @ INDICATES SMOKE ALARM IN ACCORDANCE WITH H8D6 OF THE NCC 2022 AND PART 9.5 SMOKE ALARMS AND EVACUATION LIGHTING OF THE HOUSING PROVISIONS STANDARD 2022.
PERGOLA	9.03	> 9. WATERPROOFING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH AS3740:2021 OR NCC VOL. 2 PART 10.2 OF THE ABCB HOUSING PROVISIONS.
PORCH	1.44	> 10. BUILDER TO COMPLY WITH H4D9 OF THE NCC 2022 AND PART 10.8 CONDENSATION MANAGEMENT OF THE HOUSING PROVISIONS STANDARD 2022.
	95.06 m²	> CONSTRUCTION MATERIALS
RES 3		> FRAME: TIMBER
LIVING AREA	66.31	> EXTERNAL WALLS: BRICK VENEER / LIGHTWEIGHT
GARAGE	21.43	> ROOF: CUSTOM ORB
PERGOLA	3.00	> FLOOR: CONCRETE SLAB
PORCH	1.48	
	92.22 m²	
RES 4		
LIVING AREA	66.31	
GARAGE	21.43	
PERGOLA	2.85	
PORCH	1.48	
	92.07 m²	
	381.53 m²	

106 SPRINGFIELD DRIVE LOCHINVARE 2321				
SUMMARY OF BASIX COMMITMENTS PER DWELLING				
WATER COMMITMENTS				
<i>Fixtures</i>				
3 Star Shower Heads (L/min)	>7.5<=9	Star Toilet	3	
Star Kitchen Taps	4	Star Basin Taps	4	
<i>Alternative Water</i>				
Tank Size	All Dwelling:2000L	Roof Area	All Dwelling:104m ²	
<i>Tank Connected To:</i>				
All Toilets	Yes	Laundry W/M Cold Tap	Yes	
One Outdoor Tap	Yes	Landscape	Yes	
ENERGY COMMITMENTS				
Hot Water	Type	Gas Instantaneous	6 Stars or better	
Cooling Systems	Living	All Dwelling: 1 Phase A/C (Ducted)	EER >4.0 or better	
	Bedrooms	All Dwelling: 1 Phase A/C (Ducted)	EER >4.0 or better	
Heating System	Living	All Dwelling: 1 Phase A/C (Ducted)	EER >4.0 or better	
	Bedrooms	All Dwelling: 1 Phase A/C (Ducted)	EER >4.0 or better	
Ventilation	Bathroom	Individual fan, ducted to roof or facade	Interlocked to light	
	Kitchen	Individual fan, ducted to roof or facade	Manual on/off	
	Laundry	Natural ventilation or no laundry	N/A	
Natural Lighting	Window/Skylight in Kitchen	U1: No U2, U3, U4: Yes		
	Window/Skylight in Bathrooms/Toilets	U2: No U1, U3, U4: Yes		
Artificial Lighting	Number of Bedrooms	All Dwelling: 2	Dedicated	Yes
	Number of Living/Dining rooms	1	Dedicated	Yes
	Kitchen	Yes	Dedicated	Yes
	All Bathrooms/Toilets	Yes	Dedicated	Yes
	All Hallways	Yes	Dedicated	Yes
OTHER COMMITMENTS				
Outdoor clothes line	Yes			
Stove/Oven	Gas Cooktop / Electric Oven			
Photovoltaic system (Min.)	N/A			

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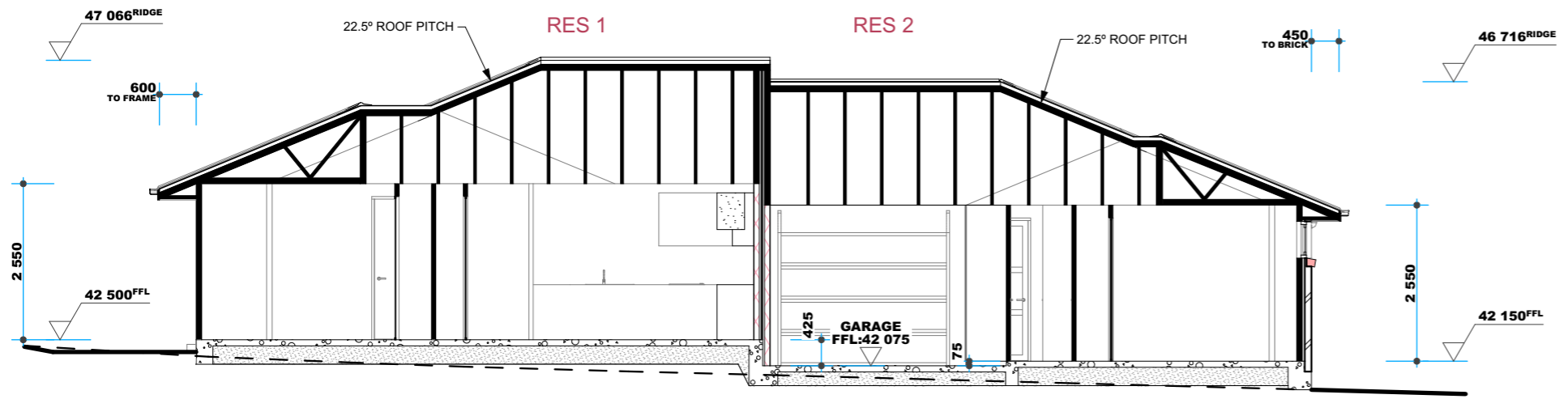
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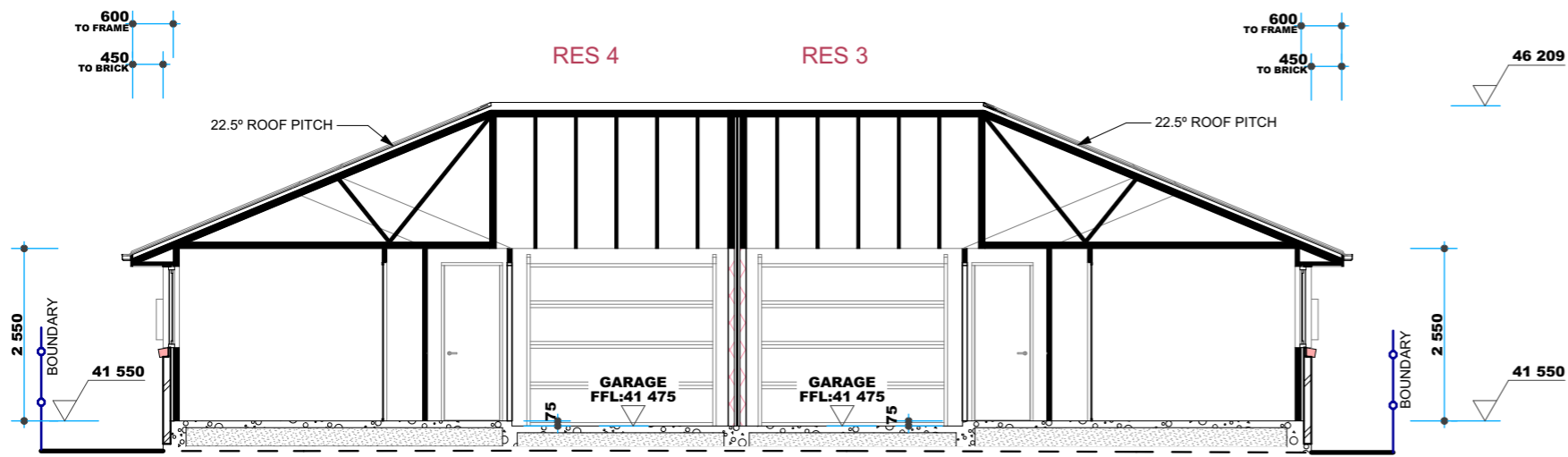
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1

> SECTION RES 1 & 2

1:100



2

> SECTION RES 3 & 4

1:100

Nov 2024	Ref No:24072				
ZeroenergyStudio zeroenergystudio@gmail.com	Mobile:0415365359 www.zeroenergystudio.com.au				
Thermal Performance Specifications (does not apply to garage)					
External Wall Construction	Added Insulation				
Brick Veneer & Lightweight	R2.5				
Internal Wall Construction	Added Insulation				
Plasterboard on studs	R2.5 to walls adjacent to garage				
Plasterboard + studs + shaft liner + studs + Plasterboard (party walls)	R2.0 + R2.0				
Ceiling Construction	Added Insulation				
Plasterboard	R5.0 to ceilings adjacent to roof space				
Roof Construction	Colour (Solar Absorptance)	Added Insulation			
Metal	Medium SA 0.50	Foil + R1.3 blanket			
Floor Construction	Covering (if not noted default values used)	Added Insulation			
Concrete (225mm waffle pod)	As drawn	None			
Windows	Glass and frame type	U value	SHGC Range	Area sq m	
SSW-001-01 A	Alu Sliding Window SG 3Clr	6.35	0.71 – 0.79	U1, U3, U4	
SSW-003-01 A	Alu Double Hung SG 3Clr	6.28	0.70 – 0.78	U1	
SSW-001-05 A	Alu Sliding Window SG 4ET	4.49	0.59 – 0.65	U2	
Skylights	Glass and frame type	U	SHGC	Area sq m	Detail
U and SHGC values are according to AFRC. Alternate products may be used if the U value is lower & the SHGC is within the range specified					
Shade elements	(Eaves, verandahs, awnings etc.)				
All shade elements modelled as drawn					
Ceiling Penetrations	(Downlights, exhaust fans, flues etc.)				
Modelled as drawn and/or to comply with the ventilation and sealing requirements of the BCA					
Ducting is modelled at 250mm. Downlights modelled.					
Additional Notes					
Ceiling fan not Modelled.					

Certificate No. # EDK3PPU1C6
Scan QR code or follow website link for rating details.

Assessor name: siva nagarajan
Accreditation No: HERA10225
Property Address: 108 SPRINGFIELD DRIVE, LOCHINVAR, NSW, 2321

<https://www.fr5.com.au/QRCodeLanding?PublicId=EDK3PPU1C6&GrpCert=1>

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 - > 7. CJ BRICKWORK CONTROL JOINT

- > WINDOW NOTES**
- WINDOWS LABELLED (FS) ARE TO COMPLY WITH PART 11.3.7 AND 11.3.8 OF THE HOUSING PROVISIONS STANDARD 2022
- WINDOWS LABELLED OBS - OBSCURED GLASS

- > EXTERNAL FINISHES**
- > CLADDING: BRICK VENEER / LIGHTWEIGHT
 - > WINDOWS: ALUMINIUM
 - > HINGED DOORS: AS SELECTED
 - > ROOF CLADDING: CUSTOM ORB
 - > RIDGES AND HIPS: COLORBOND
 - > GUTTERS: COLORBOND
 - > DOWN PIPES: PVC

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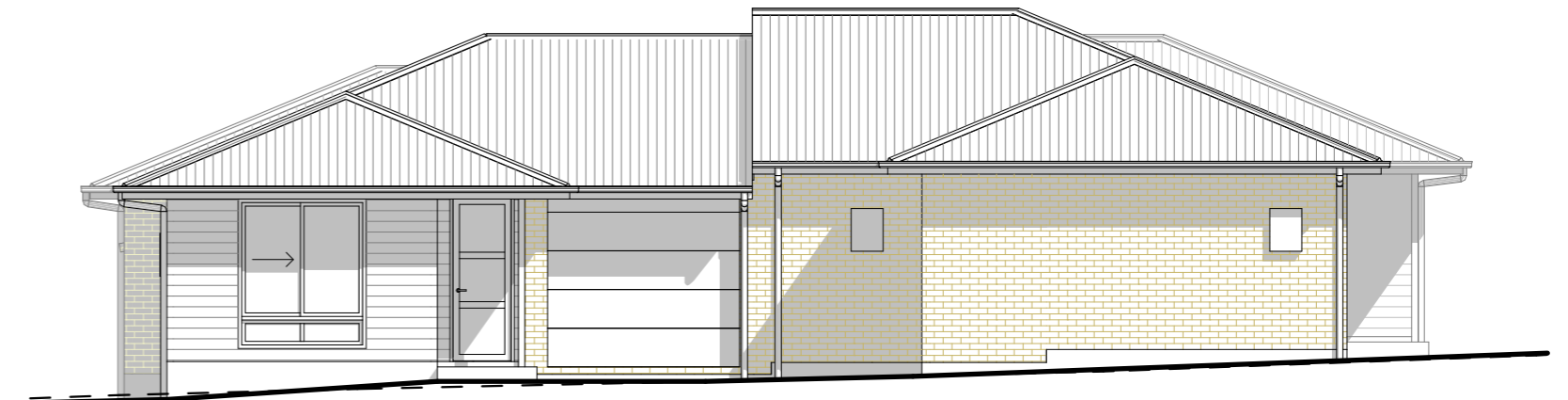
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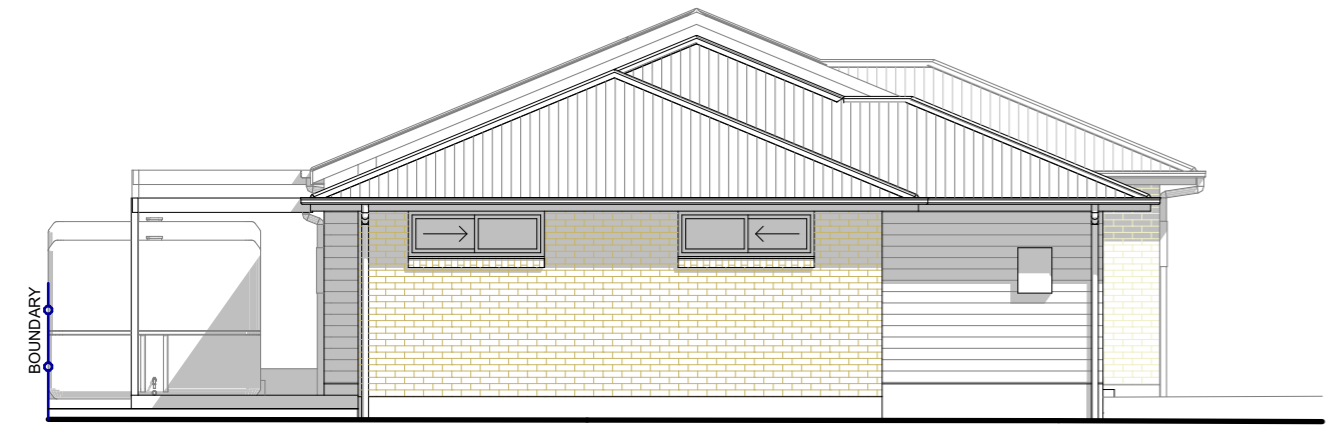
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1 > RES 1 & 2 SOUTH ELEVATION 1:100



2 > RES 1 & 2 WEST ELEVATION 1:100



3 > RES 1 & 2 NORTH ELEVATION 1:100



4 > EAST ELEVATION 1:100

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 Scan QR code or follow website link for rating details.

Assessor name: siva nagarajan
 Accreditation No.: HERA10225
 Property Address: 106 SPRINGFIELD DRIVE, LOCHINVAR, NSW, 2321

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 - > 5. ALL MATERIALS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS.
 - > 6. SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
 - > 7. CJ BRICKWORK CONTROL JOINT

- > WINDOW NOTES**
- WINDOWS LABELLED (FS) ARE TO COMPLY WITH PART 11.3.7 AND 11.3.8 OF THE HOUSING PROVISIONS STANDARD 2022
 - WINDOWS LABELLED OBS - OBSCURED GLASS

- > EXTERNAL FINISHES**
- > CLADDING: BRICK VNEER / LIGHTWEIGHT
 - > WINDOWS: ALUMINIUM
 - > HINGED DOORS: AS SELECTED
 - > ROOF CLADDING: CUSTOM ORB
 - > RIDGES AND HIPS: COLORBOND
 - > GUTTERS: COLORBOND
 - > DOWN PIPES: PVC

THE BUILDER SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE ORDERING OR CONSTRUCTION STARTS AND VERIFY ALL ERRORS AND OMISSIONS WITH THE DESIGNER.

> DO NOT SCALE. IF IN DOUBT, ASK

> DEVELOPMENT APPLICATION

> Client
 > NEACON

> Development
 > MULTI RES
 > 106 SPRINGFIELD DRIVE, LOCHINVAR
 > LOT 249, DP 1271229

> Designer > JB	> Drafter > SN
> Job No. > 5202	> Revision No. > DA1
> Drawing No. > 1.9	

ADVANTAGE
 > BUILDING DESIGN THAT'S ALL ABOUT YOU

PH: [02] 4934 4919
 E: admin@advantagensw.com

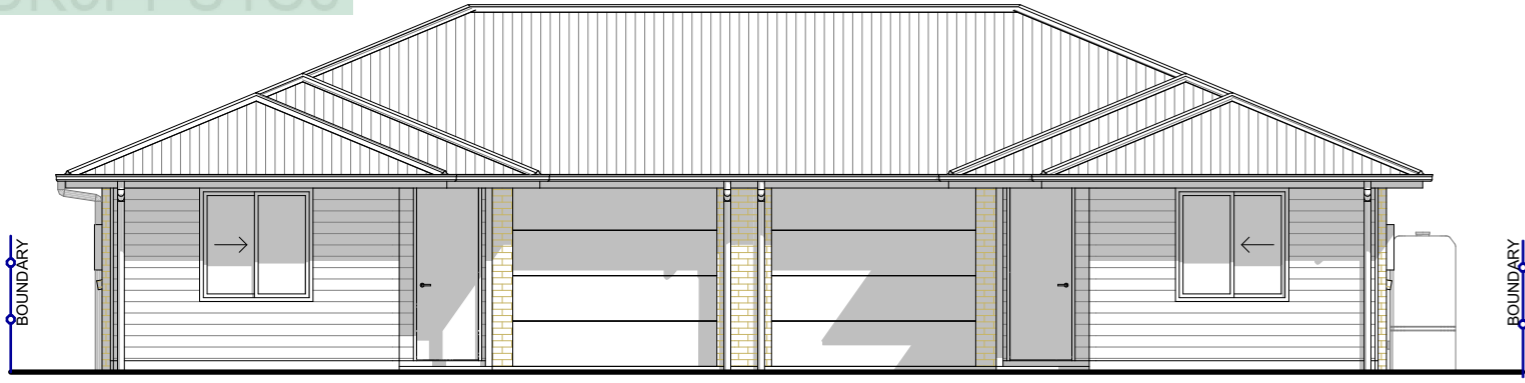
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North Point

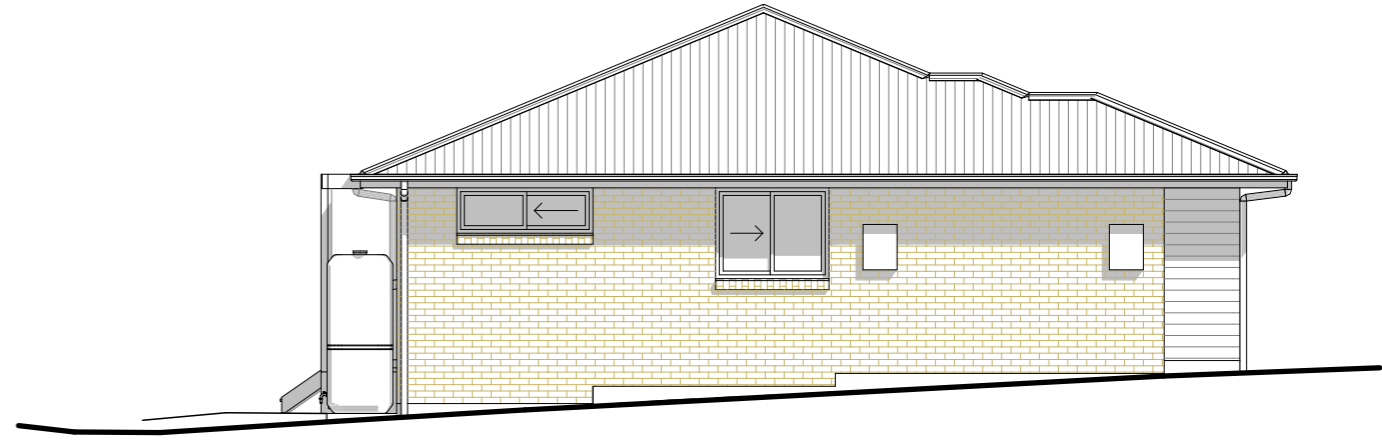
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 BUILDING DESIGNER

> Date Published
 > 26/11/2024

> Page Size
 > A3



1 > RES 3 & 4 SOUTH ELEVATION 1:100



2 > WEST ELEVATION 1:100



3 > RES 3 & 4 NORTH ELEVATION 1:100



4 > RES 3 & 4 NORTH ELEVATION 1:100

- > GENERAL NOTES**
- > 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ENGINEERS DRAWINGS.
 - > 2. ALL DIMENSIONS AND LEVELS TO BE CHECKED AND VERIFIED BY THE BUILDER.
 - > 3. ALL WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS, CODES AND LOCAL AUTHORITIES.
 - > 4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
 - > 5. ALL MATERIALS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS.
 - > 6. SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
 - > 7. CJ BRICKWORK CONTROL JOINT

> WINDOW NOTES

WINDOWS LABELLED (FS) ARE TO COMPLY WITH PART 11.3.7 AND 11.3.8 OF THE HOUSING PROVISIONS STANDARD 2022

WINDOWS LABELLED OBS - OBSCURED GLASS

> EXTERNAL FINISHES

- > CLADDING: BRICK VNEER / LIGHTWEIGHT
- > WINDOWS: ALUMINIUM
- > HINGED DOORS: AS SELECTED
- > ROOF CLADDING: CUSTOM ORB
- > RIDGES AND HIPS: COLORBOND
- > GUTTERS: COLORBOND
- > DOWN PIPES: PVC

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 > BUILDING DESIGN THAT'S ALL ABOUT YOU
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 E: admin@advantagenw.com

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> DEVELOPMENT APPLICATION

> Client		
> NEACON		
> Development		
> MULTI RES		
> 106 SPRINGFIELD DRIVE, LOCHINVAR		
> LOT 249, DP 1271229		
> Designer	> Drafter	
> JB	> SN	
> Job No.	> Revision No.	> Drawing No.
> 5202	> DA1	> 1.10

North Point

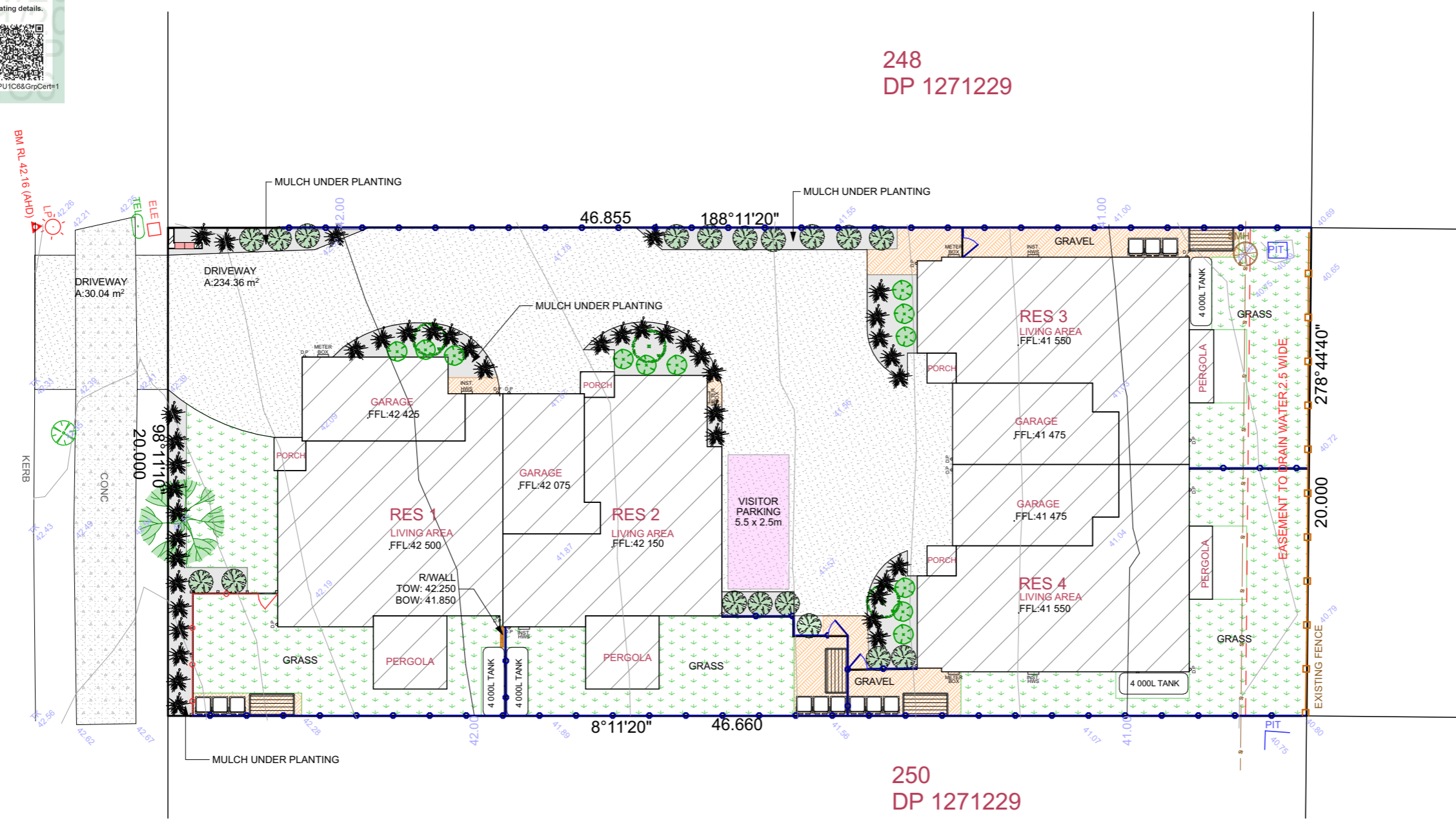
ACCREDITED BUILDING DESIGNER

> Date Published
 > 26/11/2024

> Page Size
A3

NOT FOR CONSTRUCTION

SPRINGFIELD DR



1

> LANDSCAPE PLAN

1:200

> LANDSCAPE SCHEDULE

PLANT SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	WIDTH (mm)	HEIGHT (mm)	POT SIZE (L)
	Callistemon citrinus 'White Anzac'	WHITE ANZAC BOTTLE BRUSH	18	1 000	1 500	1
	Lomandra hystrix	GREEN MATT RUSH	43	1 000	1 000	0.25
	Magnolia grandiflora 'Little Gem'	DWARF BULL BAY	1	3 500	5 000	25
	Prunus cerasifera 'Oakville Crimson Spire'	ORNAMENTAL PLUMB 'OAKVILLE CRIMSON SPIRE'	3	1 400	8 000	25
	Syzygium australe 'Tiny Trev'	TINY TREV LILLY PILLY	12	800	1 000	0.5

> NOTE
 > SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.
 > NO SUBTERRANEAN INVESTIGATIONS HAVE BEEN UNDERTAKEN. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIAL BEFORE YOU DIG ON PHONE No. 1100 or www.1100.com.au PRIOR TO ANY EXCAVATION OR EARTHWORKS



CONSTRUCT

PH: [02] 4934 4919
 E: admin@advantagenw.com
 0 2 4 6 8 10
 > 1:200 - UNLESS NOTED OTHERWISE

> North Point

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 > 26/11/2024
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> Client
 > NEACON
 > Development
 > MULTI RES
 > 106 SPRINGFIELD DRIVE, LOCHINVAR
 > LOT 249, DP 1271229

> DEVELOPMENT APPLICATION
 > Designer > Drafter
 > JB > SN
 > Job No. > Revision No. > Drawing No.
 > 5202 > DA1 > 1.11
 > DO NOT SCALE. IF IN DOUBT, ASK

> NOTE

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> North Point



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> 26/11/2024

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A3

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> Client
> NEACON
> Development
> MULTI RES
> 106 SPRINGFIELD DRIVE, LOCHINVAR
> LOT 249, DP 1271229

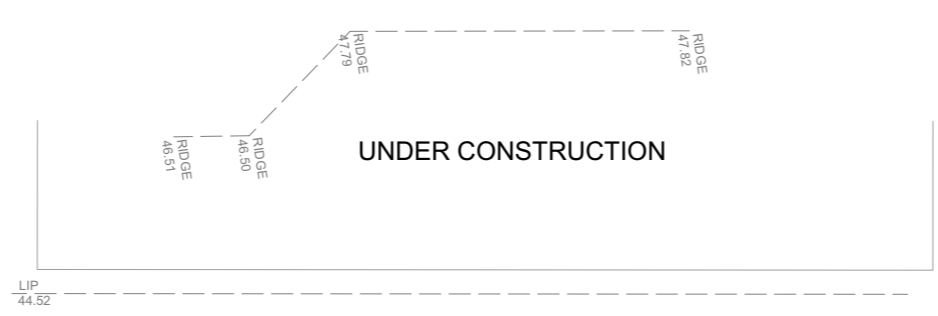
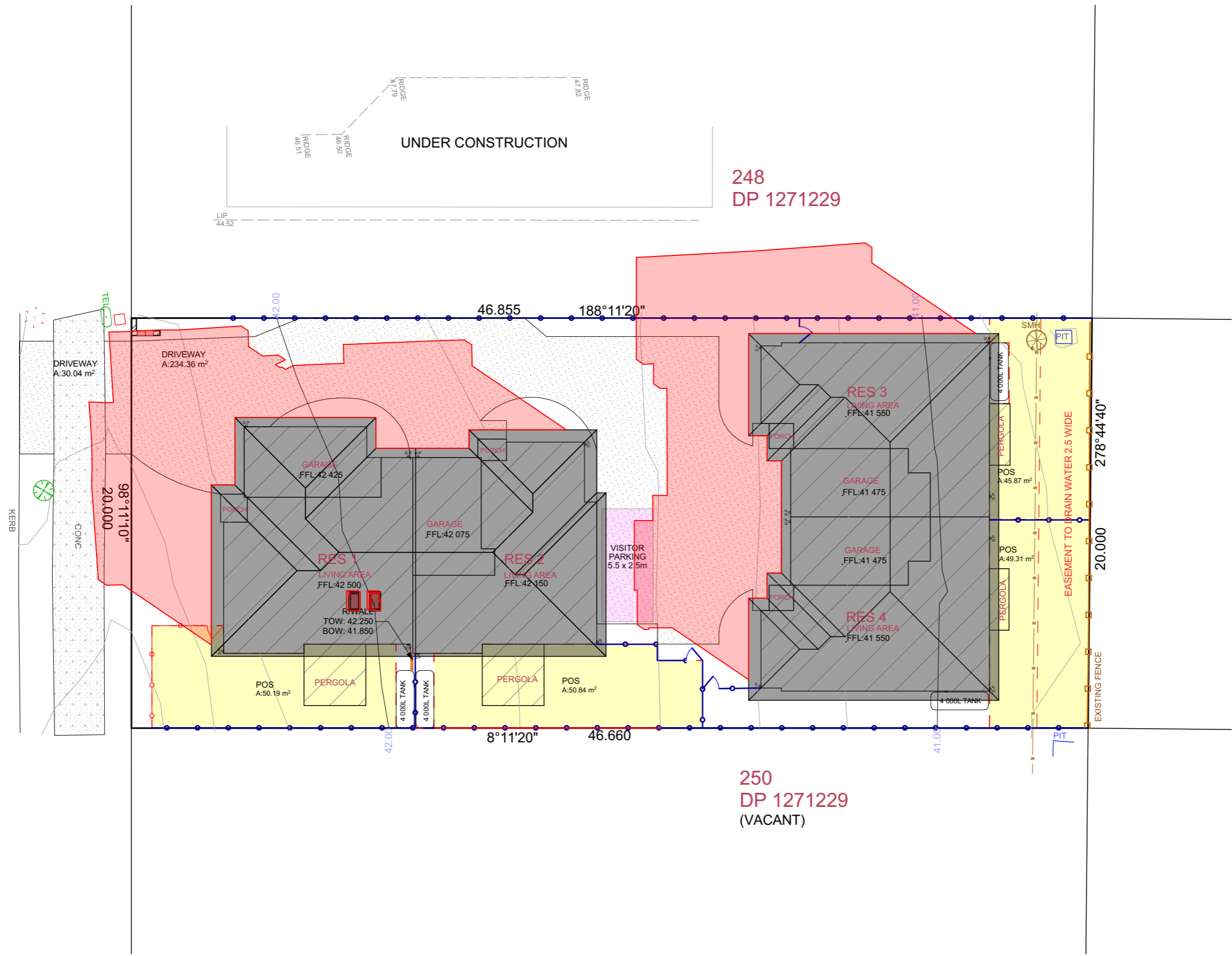
> DEVELOPMENT APPLICATION

> Designer > Drafter
> JB > SN

> Job No. > Revision No. > Drawing No.
> 5202 > DA1 > 1.13

> DO NOT SCALE. IF IN DOUBT, ASK

SPRINGFIELD DR



248
DP 1271229

250
DP 1271229
(VACANT)

> JUNE 21st 9:00AM SHADOW DIAGRAM

1:200

> NOTE

> SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.



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> 1:200 - UNLESS NOTED OTHERWISE

> North Point

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 BUILDING DESIGNER

> Date Published
 > 26/11/2024

> Page Size
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THE BUILDER SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE ORDERING OR CONSTRUCTION STARTS AND VERIFY ALL ERRORS AND OMISSIONS WITH THE DESIGNER.

> Client
 > NEACON
 > Development
 > MULTI RES
 > 106 SPRINGFIELD DRIVE, LOCHINVAR
 > LOT 249, DP 1271229

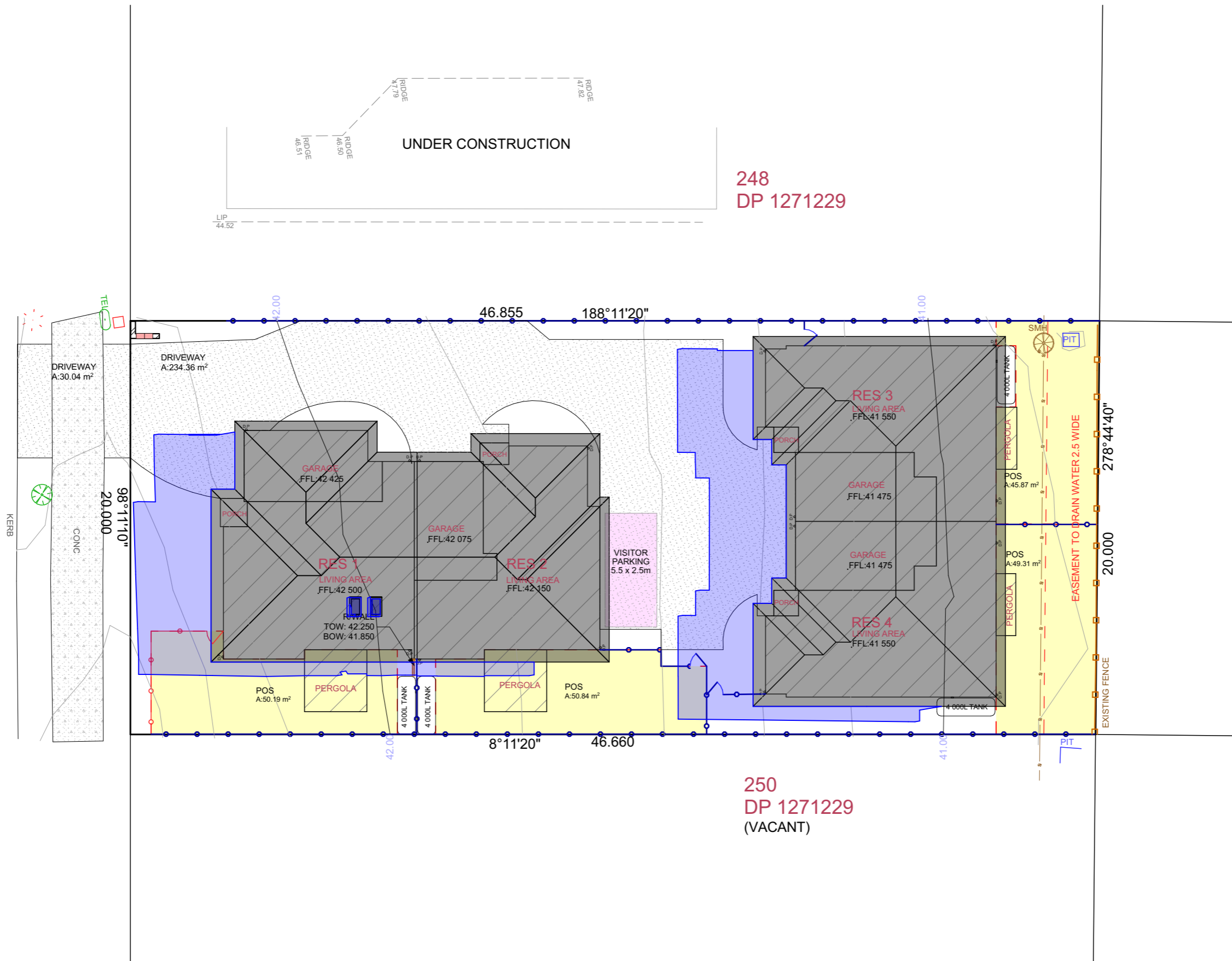
> DEVELOPMENT APPLICATION

> Designer > Drafter
 > JB > SN

> Job No. > Revision No. > Drawing No.
 > 5202 > DA1 > 1.14

> DO NOT SCALE. IF IN DOUBT, ASK

SPRINGFIELD DR



248
 DP 1271229

250
 DP 1271229
 (VACANT)

> JUNE 21st 12:00PM SHADOW DIAGRAM

1:200

> NOTE

> SITE LEVELS ARE APPROXIMATE ONLY. PLEASE EVALUATE ON SITE BEFORE ANY ORDERING OR WORK BEGINS.



ADVANTAGE
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> North Point

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> 26/11/2024

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THE BUILDER SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE ORDERING OR CONSTRUCTION STARTS AND VERIFY ALL ERRORS AND OMISSIONS WITH THE DESIGNER.

> Client	> NEACON
> Development	> MULTI RES
> Address	> 106 SPRINGFIELD DRIVE, LOCHINVAR
> Lot	> LOT 249, DP 1271229

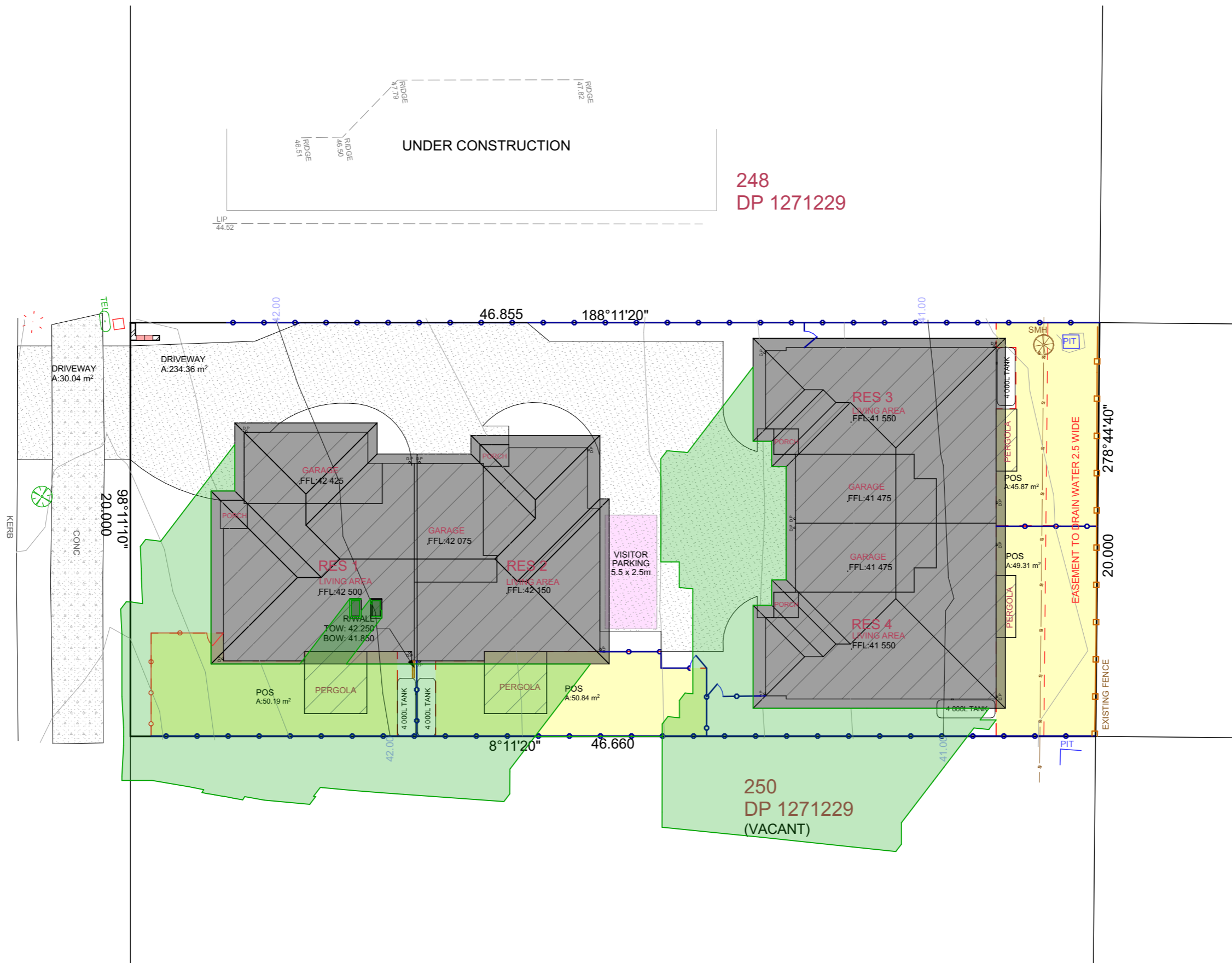
> DEVELOPMENT APPLICATION

> Designer	> Drafters
> JB	> SN

> Job No.	> Revision No.	> Drawing No.
> 5202	> DA1	> 1.15

> DO NOT SCALE. IF IN DOUBT, ASK

SPRINGFIELD DR



> JUNE 21st 3:00PM SHADOW DIAGRAM

1:200

APPENDIX B ASSET PROTECTION ZONES

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMS, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

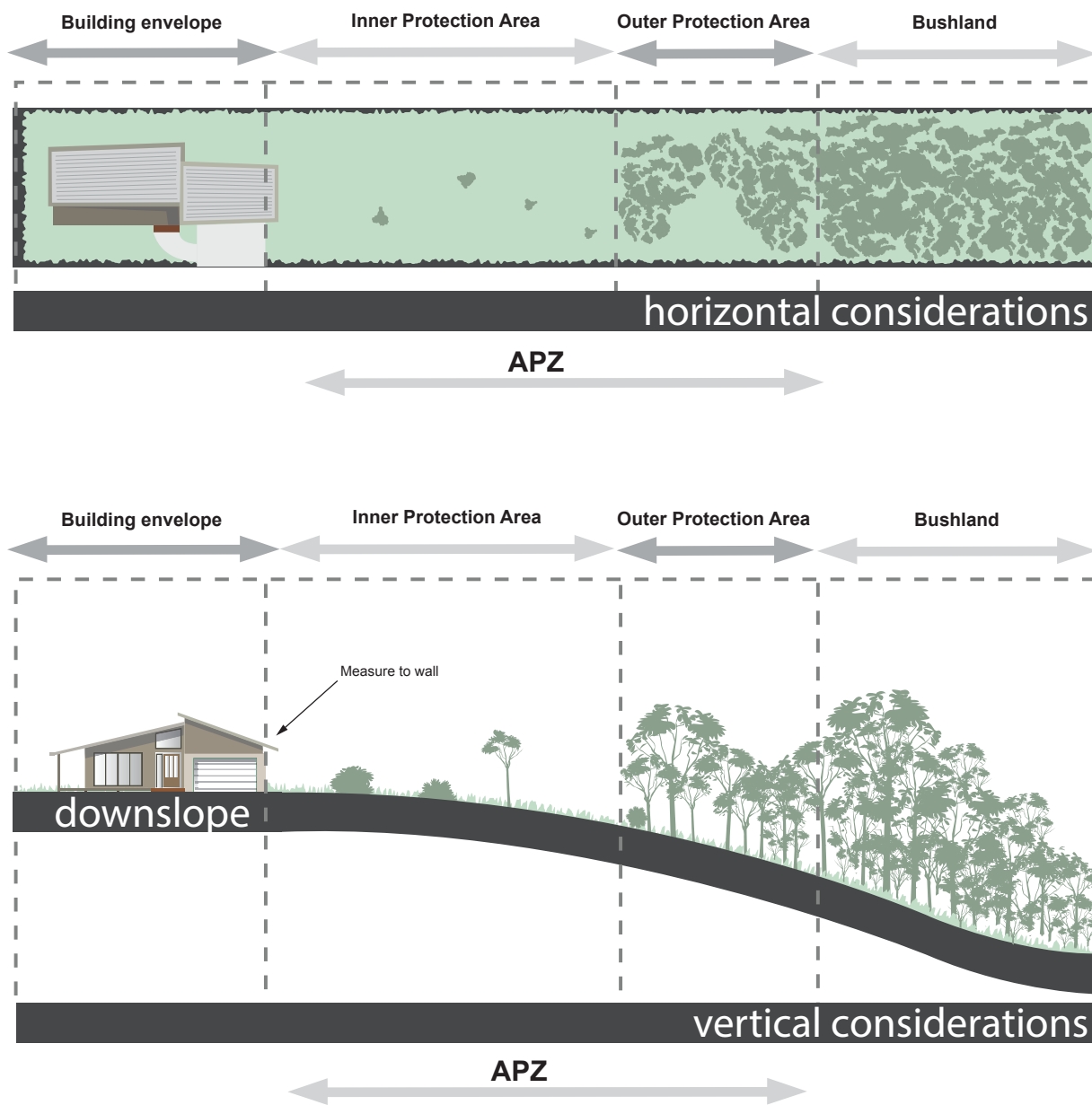
- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

Figure A4.1

Typical Inner and Outer Protection Areas.



A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defensible space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.

APPENDIX C HYDRANT AND WATER INFORMATION



Before You Dig Australia (BYDA) Location Information

Hunter Water Corporation
36 Honeysuckle Drive
NEWCASTLE NSW 2300

To:

Azmina Shafie
97 Scott Street
Newcastle NSW 2300

Enquiry Details	
Utility ID	80220
Job Number	38226616
Sequence Number	248471647
Enquiry Date	06/12/2024 14:00
Response	AFFECTED
Address	106 Springfield Dr Lochinvar
Location in Road	
Activity	Planning and Design

Enquirer Details	
Customer ID	3473355
Contact	Azmina Shafie
Company	
Email	azmina@firebirdeco.com.au
Phone	+61422344481

Enquirer Responsibilities

HWC's provision, and your access to and use, of the data, maps and other information contained in HWC's response to your Before You Dig Australia (BYDA) enquiry (Information) are subject to the following terms and conditions and any additional disclaimers contained in HWC's response.

1. Nature of HWC's assets

You acknowledge and accept that:

- (a) water in HWC mains is under pressure and may cause injury or damage if a main is damaged;
- (b) HWC sewer mains can be under pressure and may cause injury or damage if a main is damaged;
- (c) HWC recycled water mains can be under pressure and may cause injury or damage if a main is damaged;
- (d) HWC services are laid at varying depths;
- (e) the Information does not include data related to property services;
- (f) HWC will seek recovery of repair costs if an HWC asset is damaged; and
- (g) all electrical services are to be considered live.

Accordingly, all persons must exercise extreme care and only use hand excavation until the exact location of all assets within a work area is established.

2. Your use of Information

You acknowledge and accept that:

- (a) neither HWC nor BYDA make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information;
- (b) all Information is:
 - i. generated by an automated system based on the information you submit to the BYDA website and it is your responsibility to ensure that the dig site is properly defined in your enquiry;
 - ii. approximate, intended to be of general application and may not be suitable for your specific requirements;
 - iii. unsuitable for scaling purposes; and
 - iv. based on information available to HWC and may not show all existing structures. For example, the location of Private Sewer/Water Mains is the initial indicative location supplied to HWC. This may not be the current location of such mains and not all private mains have been supplied to HWC;
- (c) you must not solely rely on the Information when undertaking underground works;
- (d) all Information is provided for the sole purpose of assisting you to locate HWC assets before excavation (Permitted Purpose) and you must not copy, translate, modify, distribute or make derivative works of the Information except as directly required to achieve the Permitted Purpose;
- (e) all Information must be used and kept together;
- (f) your access to and use of the Information does not grant you any ownership of or intellectual property rights in the Information;
- (g) in identifying in the Information the presence or potential presence of hazardous or potentially hazardous materials in HWC assets, HWC is not representing or warranting that other HWC assets not identified in the Information as containing or potentially containing hazardous materials do not also contain such materials; and
- (h) in excavating and conducting underground works, you must do so having regard to the fact that asbestos cement pipelines may form part of HWC's water and sewer reticulation systems.

3. Your other obligations

You are responsible for, amongst other things:

- (a) exposing underground structures, including HWC assets, by pot-holing using hand-held tools or vacuum techniques to determine the precise location and extent of structures before any mechanical means of excavation are used;
- (b) protecting underground structures, including HWC assets, from damage and interference;
- (c) maintaining acceptable clearances between HWC assets and structures belonging to others;
- (d) ensuring that backfilling in the vicinity of HWC assets complies with HWC's requirements (as set out on HWC's website or otherwise communicated to you by HWC);
- (e) notifying HWC immediately of any damage caused or threat of damage to any HWC asset; and
- (f) ensuring that plans are approved by HWC (usually by stamping) prior to landscaping or building over or in the vicinity of any HWC asset.

Enquirer Responsibilities Continued

4. Disclaimer

While HWC takes reasonable care in providing details of its underground assets, due to changes in road and footway alignments and levels, the age and incompleteness of some records and the general nature of the Information, it is not possible to conclusively specify the location of all HWC underground assets, including pipes that contain or may contain hazardous materials.

ALL INFORMATION IS PROVIDED AS GENERAL GUIDANCE ONLY AND SHOULD NOT BE USED OR RELIED UPON IN SUBSTITUTION FOR SPECIALISED PROFESSIONAL INDEPENDENT ADVICE. YOU ACKNOWLEDGE AND AGREE THAT YOUR USE OF THE INFORMATION IS AT YOUR OWN RISK.

If you have any questions or concerns about the appropriateness, reliability or application of any Information you must seek advice from a relevantly qualified professional. Further, dealing with hazardous materials is potentially dangerous, and you must always seek advice where the Information provides that HWC's assets contain or may contain hazardous materials.

HWC makes no representation and gives no warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information or that the Information can be used for any purpose in substitution for specialised, professional and independent advice.

5. Limitation of liability

To the fullest extent permitted by law:

- (a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom, usage or otherwise are expressly excluded and to the extent such conditions and guarantees cannot be excluded, HWC's liability is limited to either of the following (as nominated by HWC):
 - i. HWC supplying the Information to you again; or
 - ii. HWC paying you the cost of having the Information supplied to you again.
- (b) HWC is not responsible for and you release HWC from any actions, liabilities, losses, damages, costs, claims, expenses, injuries or other claims whatsoever (including loss of revenue, use, production, goodwill, profit, business, contract, anticipated savings, financing costs, increased operating costs or other purely financial, economic, special or indirect loss or damage) arising out of:
 - i. your access to or use of the Information;
 - ii. any delay in HWC providing you with Information;
 - iii. your reliance on the Information or its inability to meet your needs;
 - iv. your failure to correctly or accurately:
 - (1) submit relevant or valid data to BYDA; or
 - (2) use or interpret Information provided to you by HWC; or
 - v. any failure, interruption or corruption of any Information;
- (c) you must indemnify HWC and its employees, agents and officers from and against all actions, liabilities, losses, damages, costs, claims, expenses, injuries and other claims arising out of or in connection with HWC providing you with incorrect or incomplete Information; and you assume all risk associated with your use of BYDA and HWC's websites and you release BYDA and HWC from and against all actions, liabilities, losses, damages, costs, claims, expenses, injuries or other claims which may arise in respect of such usage.

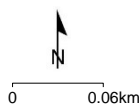
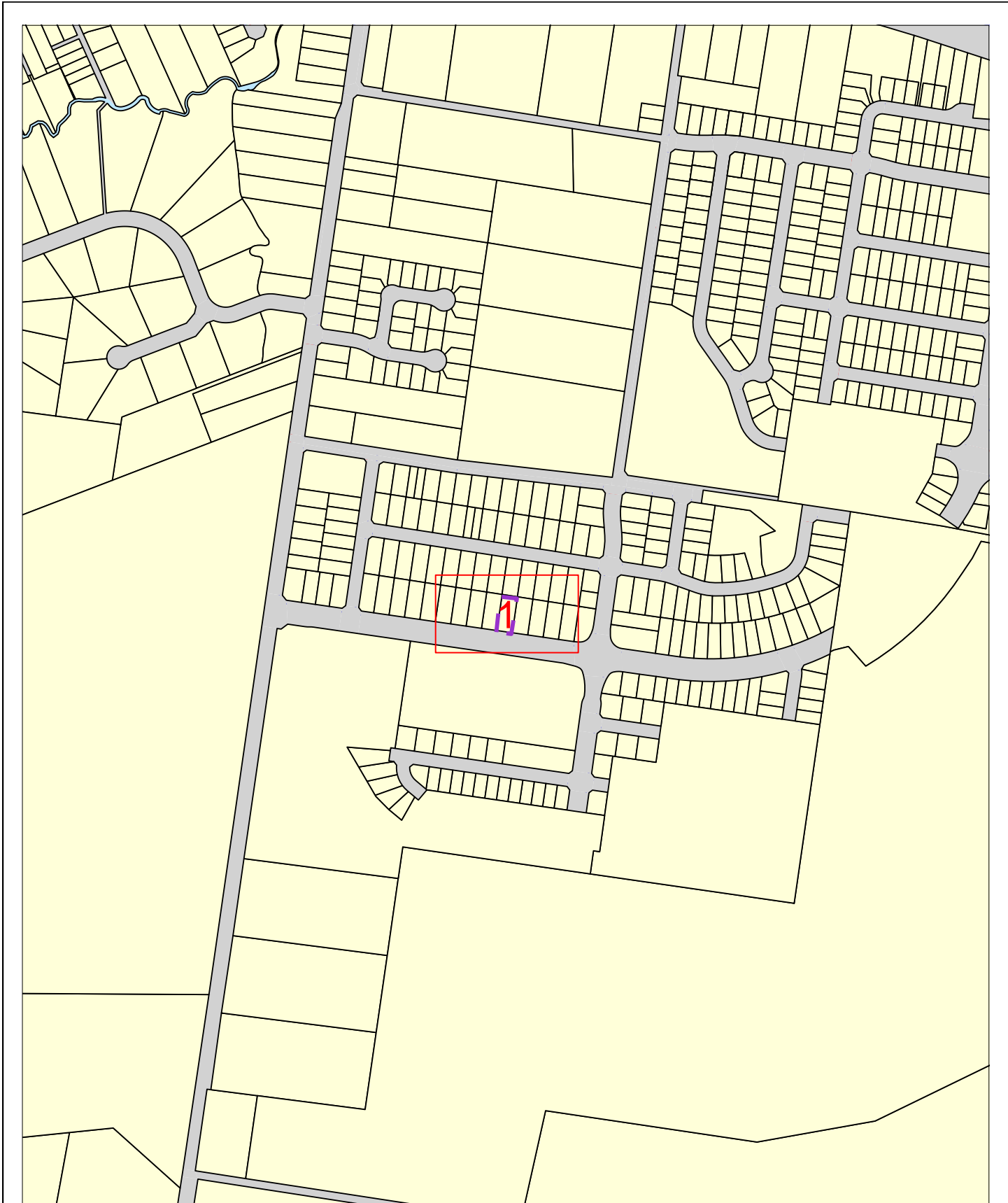
www.hunterwater.com.au

1300 657 000



Overview Map

Sequence No: 248471647
106 Springfield Dr Lochinvar



LEGEND:



Detail Map

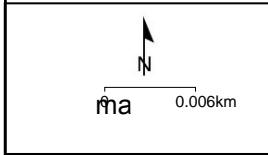
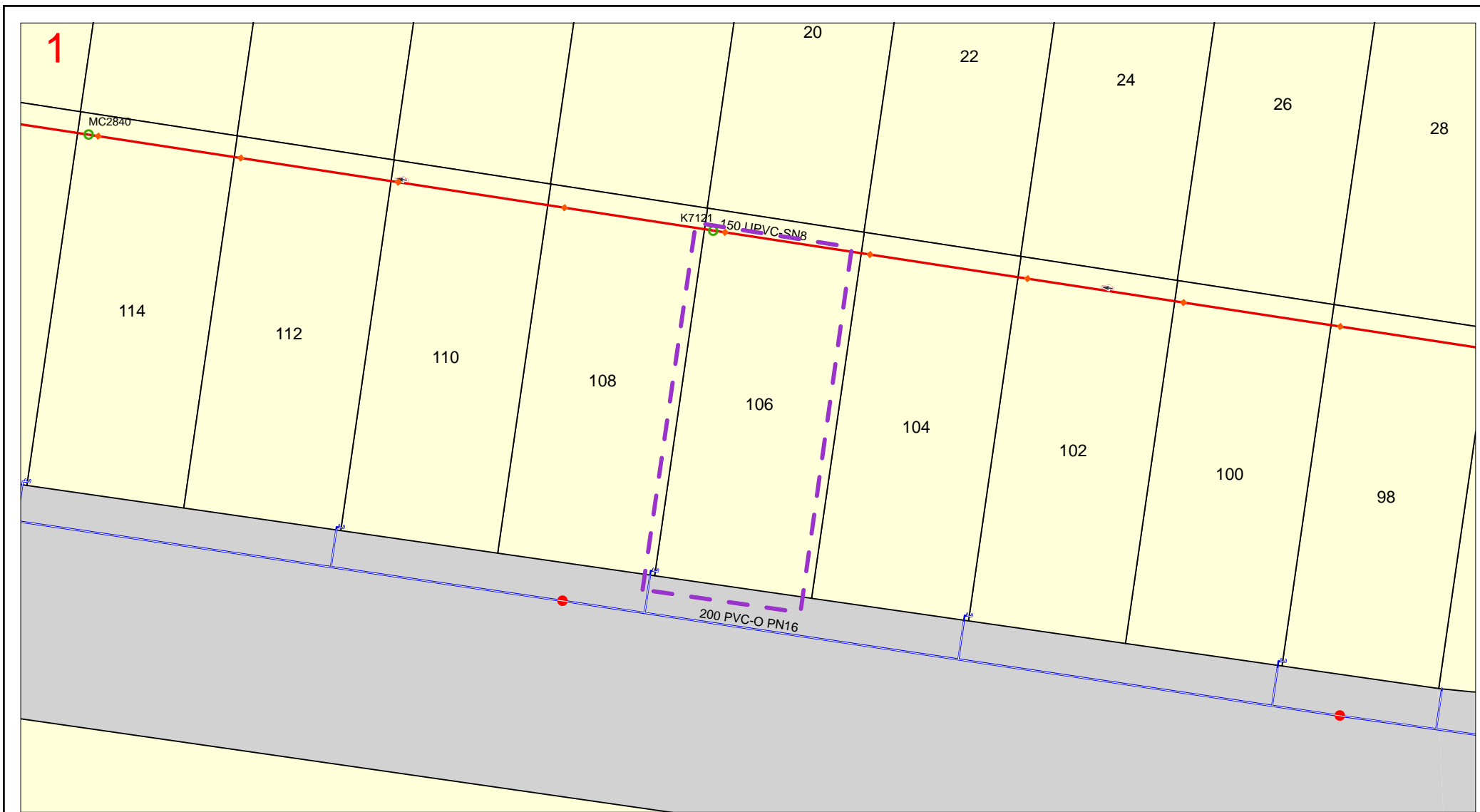


BYDADIA Work Area



Map 1

Sequence No: 248471647



IMPORTANT

THIS PLAN IS NOT TO BE USED FOR CONVEYANCING

THIS INFORMATION IS VALID FOR 30 DAYS FROM THE DATE OF ISSUE

















SEWER/WATER/RECYCLED WATER/
ELECTRICAL - UTILITY DATA
© HUNTER WATER CORPORATION 2019

SERVICE LOCATIONS ARE APPROXIMATE.
HAND DIG UNTIL ACTUAL LOCATIONS ARE IDENTIFIED.
PROPERTY SERVICES ARE NOT SHOWN.

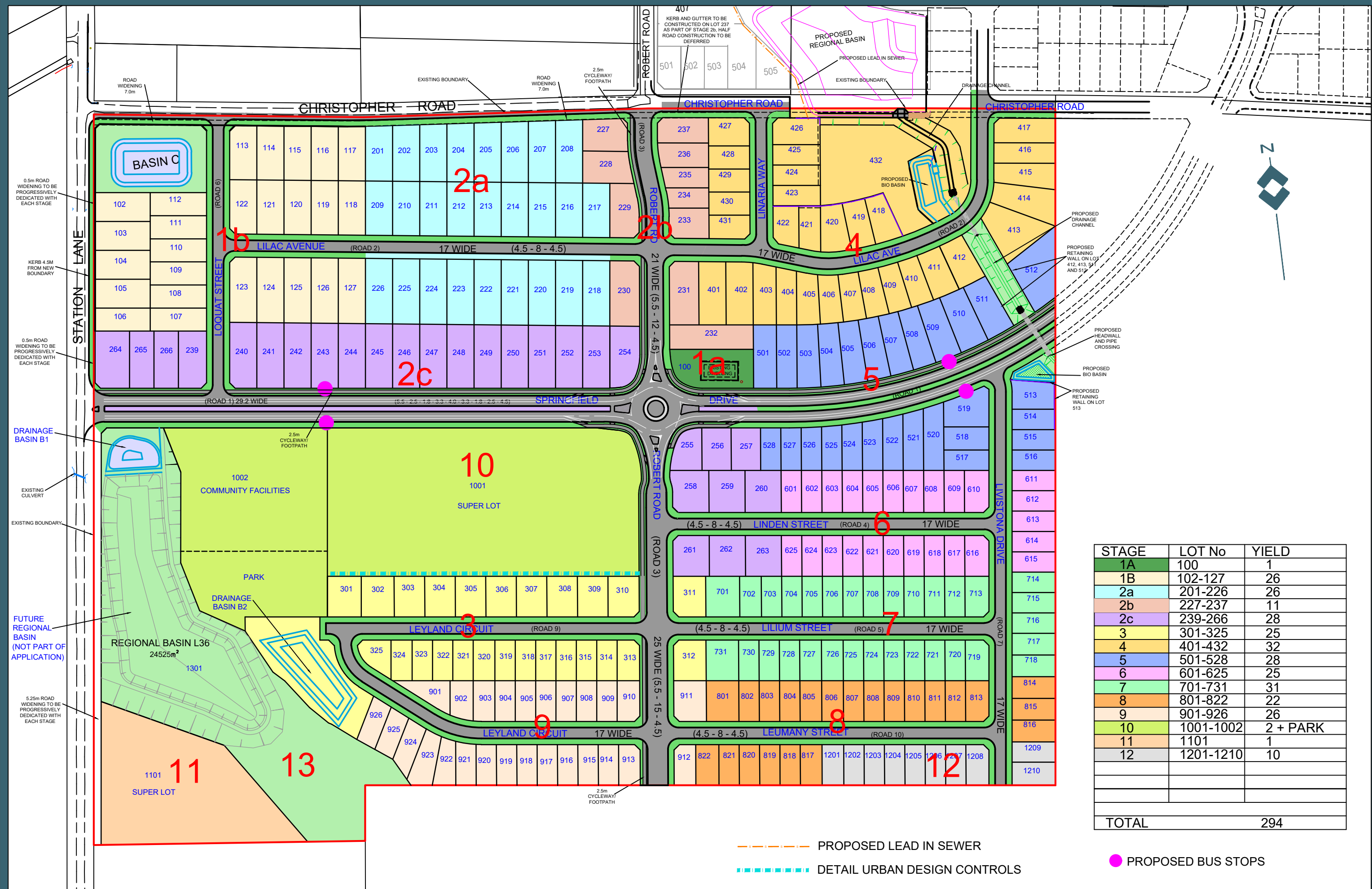
ANY INFORMATION ON THIS PLAN MAY NOT BE UP TO DATE
AND THE CORPORATION ACCEPTS NO RESPONSIBILITY FOR
ITS ACCURACY.

CADASTRAL DATA © Department Finance, Services & Innovation
[Nov 2017]

Hunter Water Corporation DBYD Asset Legend

<p>Electrical Assets</p> <ul style="list-style-type: none">  High Voltage  Low Voltage  Electrical Pole  Distribution Transformer  Air Break Switch  Circuit Breaker  High Voltage  Low Voltage 	<p>Water Assets</p> <ul style="list-style-type: none">  Contol Valve  Hydrant Control Valve  Reflux Valve  Stop/Scour Valve  Tee & Stop Valve  Hydrant  Cluster Box  End Cap  Flushing Tap  Manhole  Scour  Water Meter  Water Network Structure  Other Main  Trunk Main  Reticulation Main  Water Encased Mains  Water Prelaid Service 	<ul style="list-style-type: none">  HWC Rain Gauge  HWC Stream Flow Gauge  Radio Base  Weather Station  Piezometer  Bore Site 	<p>RecycledWater Assets</p> <ul style="list-style-type: none">  Air Valve  Reflux Valve Open  Stop Valve Open  RecycledWater Hydrant  Cluster Box  End Cap  Flushing Tap  Manhole  RecycledWater Meter  RecycledWater Network Structure  Other Main  Reticulation Main Encased/Conduit  Trunk Main Encased/Conduit  RecycledWater Encased Mains  RecycledWater Prelaid Service 	<p>Sewer Assets</p> <ul style="list-style-type: none">  Air Valve  Stop/Butterfly/Ball Valve  Gate Valve  Manhole  Cap  Dead End  Flushing Tank  H&V Bend  Junction Connection  Outfall  Overflow  Sewer/Valve Pit  Tangent Point  Sewer Meter  Sewer Vent  Sewer Network Structure  Other Main  Gravity Main  Pressure/Vacuum Main  Effluent Main  Outfall  Overflow Main  Rising Main  Sewer Encased Mains 	<ul style="list-style-type: none">  StormWater Assets  StormWater Network Structure  StormWater Mains  Mains Abandon 	<p>Land Details</p> <ul style="list-style-type: none">  Area of Interest  Easement Non HWC  Fence Line  Non-HWC Easement  HWC Easement  Parcel  Road  Water Parcels  Hazardous Material  Map Sheet Index
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APPENDIX D SUBDIVISION STAGE PLAN



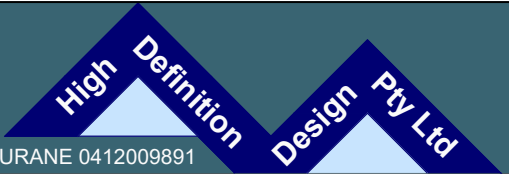
STAGE	LOT No	YIELD
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1B	102-127	26
2a	201-226	26
2b	227-237	11
2c	239-266	28
3	301-325	25
4	401-432	32
5	501-528	28
6	601-625	25
7	701-731	31
8	801-822	22
9	901-926	26
10	1001-1002	2 + PARK
11	1101	1
12	1201-1210	10
TOTAL		294

- - - - - PROPOSED LEAD IN SEWER
- - - - - DETAIL URBAN DESIGN CONTROLS
● PROPOSED BUS STOPS

TITLE: PROPOSED SUBDIVISION
 STATION LANE AND CHRISTOPHER ROAD
 LOCHINVAR
 LOCHINVAR RIDGE

STAGING PLAN

KEVIN URANE 0412009891



Date: 26.11.12	Scale: 1:2500 A3	Designed: KU	Project No
Cad Ref: HD176 r30			HD176
29	AMEND BASIN B	KU	04.01.22
28	ADD LEAD IN SEWER	KU	27.10.21
30	AMEND LAYOUT	KU	21.06.22
No	Amendment	Drawn	Date
		HD02	30