



MCP Ref: 23046

8th December 2023

Claire Hynes
Delegate (Chair)
Tasmanian Planning Commission

Via email: tpc@planning.tas.gov.au
 clarence@ccc.tas.gov.au
 iboss@ccc.tas.gov.au
 cityplanning@ccc.tas.gov.au
 bfp@fire.tas.gov.au

Attention: Lauren O'Brien

Dear Claire,

TASMANIAN PLANNING SCHEME - CLARENCE DRAFT AMENDMENT PDPSPAMEND-2021-019004 AND COMBINED PERMIT 30 HOLLAND COURT, HOWRAH

MC Planners have been engaged by Howrah Church of Christ (the applicant) to respond to your letter of the 27th September 2023.

Item 1

An amended Bushfire Management Plan consistent with the advertised layout and endorsed by the Tasmanian Fire Service is attached (Attachment A).

Item 2

The proposal is for subdivision within the proposed General Residential zone and a public .

Residential Zone

8.6 Development Standards for Subdivision

8.6.1 A1/P1 - All residential lots have an area of greater than 450m² (the smallest being Lot 3 at 826m²) and accommodate the required 10x15m at a slope of up to 15% (less than the 20% stipulated). The setback under 8.4.2 required to the existing building is 4.5m to the frontage, 1.5m to side/rear boundary and the smallest setback to the existing church building is 5.3m at the boundary with Lot 7. The road lot (100) meets A1 (c). The proposal is thus compliant with 8.6.1 A1.

8.6.1 A2/P2 - All lots have a frontage to the proposed road of more than 12m (lot 3 is the smallest at 13m) compliant with 8.6.1 A2.

8.6.1 A3/P3 - All lots have an engineered lot access to the building area approved by the road authority (Council) compliant with 8.6.1 A3.



8.6.1 A4/P4 - All lots are connected to a new road and Lot 7 and 8 have their axis east west thus P4 must be considered. Lots 7 and 8 are large lots 2950m² and 5039m² respectively and thus are of appropriate size to enable solar access (a). The topography of the site is not a factor in the lot geometry (b). There is no overshadowing from adjoining properties (c). The lot geometry is caused by the need to maintain the existing building on the site (d). The lot access needs to be in an east west direction because of the location of the proposed road (e). The pattern of lots is generally north south, but the use of Lot 8 (church) is not typical of the residential lots to the west of these two lots (f). Based on the above Lots 7 and 8 will provide for adequate future solar access for future dwellings. The remaining lots meet A4. Thus P4 is met.

8.6.2 Roads A1/P1 - There is no acceptable solution so P1 must be considered. There is no road network plan (a). The proposed road extension fits with the existing road hierarchy (b). The road extension was a requirement of the road authority/Council (c). The proposal provides for a future connection to the existing reserve via Lot 101 (d). The use of the road network was favoured by Council rather than additional pedestrian links to access shops and services/public transport (e)(f)(g). The road extension is not a collector road thus (h) is not applicable. The topography of the site/road alignment is 10-15% (i). The land to the east (38 Buckingham Drive) is approved for subdivision and this approval has a public open space across its western boundary (j). On the basis of the above the new road complies with 8.6.2 P1.

8.6.3 Services A1/P1 - All lots (excepting the road Lot 100) have a connection to a reticulated water supply compliant with A1.

8.6.3 A2/P2 - All lots (excepting the road Lot 100) have a connection to a reticulated sewer system compliant with A2.

8.6.3 A3/P3 - All lots (excepting the road Lot 100) have a connection to a reticulated stormwater system compliant with A2.

Open Space Zone

29.5 Development Standards for Subdivision

29.5.1 A1/P1 - Lot 101 is for public use compliant with A1(a).

29.5.1 A2/P2 - Lot 101 is not for utilities or a riparian/littoral reserve thus A2 cannot be met and P2 must be considered. Lot 101 will have a legal connection via Mayfair Court and Raleigh Court via 6 Mayfair Court (CT169863/110 and CT106986/104) under the access rights of the Council reserve area. The addition of Lot 101 will be one additional lot to the Council reserve (a). The topography of the site is steep (15%) (b). There is no frontage for Lot 101, but the frontage to Mayfair Court is accessible by 4WD (c). It is understood the Lot 101 area will be used as a future footway through 38 Buckingham Drive to connect to the footpath along Rokeby Road (d). The small size and steepness of the lot, and the desire to keep the vegetation would only require access for small track construction vehicles (e). Emergency Services would access the site via existing fire trails in the Kuynah reserve (f). The Kuynah Bushland Reserve is a series of titles, some of which have no road frontage (such as CT 169863/111 & CT 69863/113)(g).

29.5.1 A2/P2 The road authority have not required vehicular (car/truck) access to Lot 101 compliant with A1.

Bushfire-Prone Areas Code

Refer to the Bushfire Hazard Management Report attached.



Natural Assets Code

C7.7 Standards for Subdivision

C7.7.1 A1/P1 - The lots are not within a waterway and coastal protection or a future coastal refugia area thus the clause is not applicable.

C7.7.2 A1/P1 Lot 8 falls into A1(a) and Lot 101 falls under A1(b). Lots 3-7 are partly within the Priority Vegetation Overlay and have building envelopes within the overlay area, thus P1 must be considered. This is addressed on page 17 of the Natural Values Assessment (Appendix F of the Bushfire Hazard Report attached).

We trust this meets the Commission's request but if further information or clarification with respect to this application, please contact me on mat@mcplanners.com.au or mobile 0404803772.

Yours faithfully

MC PLANNERS PTY LTD

A handwritten signature in blue ink, appearing to read 'Mat Clark'.

Mat Clark

DIRECTOR/PRINCIPAL PLANNER



ATTACHMENT 1

Bushfire Hazard Management Plan

BUSHFIRE HAZARD REPORT

Church of Christ
Subdivision
30 Holland Court, Howrah



November 2023

Version 2.0 - previous draft version completed by JMG Engineering 2022

TABLE OF CONTENTS

1	Introduction	1
2	Site Description	3
3	Proposed Use & Development.....	5
4	Bushfire Hazard Assessment	5
	4.1 Required Separation	Error! Bookmark not defined.
5	Bushfire Protection Measures	11
	5.1 Hazard Management Areas	11
	5.2 Construction Standards	12
	5.3 Access	12
	5.4 Water	13
	5.5 Optional Protection Measures	14
6	Conclusion & Recommendations.....	16

Appendix A - Proposed Subdivision Plan

Appendix B - Bushfire Hazard Management Plan

Appendix C - POS - Clarence Council

Appendix D - Certificate of Compliance

Appendix E - Site Photos

Appendix F - Natural Values Assessment

1 Introduction

Johnstone McGee & Gandy Pty Ltd (JMG) Engineers have been engaged by Howrah Church of Christ to prepare a bushfire hazard assessment for a subdivision, and subsequently David Lyne has been subcontracted to complete the necessary report. The address of the property is 30 Holland Court. The author, David Lyne, is an Accredited Person under Part 4A of the *Fire Service Act 1979*.

The proposed development involves the subdivision of land located within a bushfire-prone area necessitating an assessment against the Bushfire-Prone Areas Code of the *Tasmanian Planning Scheme - Clarence*.

This report considers:

- Whether the site is within a bushfire-prone area;
- The characteristics of the site and surrounding land;
- The proposed use and development that may be threatened by bushfire hazard;
- The applicable Bushfire Attack Level (BAL) rating;
- Appropriate bushfire hazard mitigation measures; and
- Compliance with planning requirements pertaining to bushfire hazard.

In order to demonstrate compliance with the Bushfire-Prone Areas Code this report includes a Certificate of Compliance (for planning purposes).

2 Site Description

The subject site is located at 30 Holland Court, Howrah (35660/1) (Figure 1). The site is currently used as a Church and the total area subject to rezoning is 1.562 ha. To extend Holland Court works will need to be undertaken in the existing Holland Court 'road reserve' (CT35062/101) which is currently privately owned but a Council maintained public road.

The site is located immediately to the south of the South Arm Highway Road Reserve, between existing residential settlements of the Clarence Municipality and areas to be developed for residential purposes. It is also in proximity to environmental/open space areas. The site (in its entirety) is currently occupied by a Church (community purpose use).

Planning Context

The relevant planning instrument for the assessment of use and development on the site is the *Tasmanian Planning Scheme - Clarence* ("Planning Scheme"). The subject site is currently zoned *Community Purpose* and is within the Planning Scheme's Bushfire-Prone Areas overlay.

Howrah is situated within the Clarence City Council municipality and has a population of approximately 8,690 residents¹. The site currently houses the *Howrah Church of Christ* building, which is a community building that hosts a range of community events and programs, predominantly on weekends. The facility will remain in operation.

The subject site is surrounded by *General Residential* to the east and west, *Low Density Residential* to the southeast and southwest, *Landscape Conservation* to the south, and *Utilities* to the north.

An application is with Council for the site to be subdivided and re-zoned *General Residential*, *Utilities* (a small slither of land along the northwest of the site which includes a section of the public footpath) and *Public Open Space* (see Appendix A for further details).

¹ 2016 Census Quick Stats - Howrah



Figure 1: Aerial view of site (outlined in red) and surrounding land (source: LISTmap 12/05/2023).

Natural Values

Approximately a third of the site is developed with a church, car park and managed lawn. There are also the remnants of an abandoned vegetable garden. TASVEGv4.0 identifies the vast majority of the site as non-native (FUR - Urban Areas).

There are remnants of native vegetation, albeit in a modified and degraded state which are connected by a narrow sliver of bushland to extensive native forested areas on the upper slopes of Rokeby Hills to the south.

A Natural Values Assessment (NVA) by North Barker is provided for the proposal (Appendix F). The report identified where the highest conservation values are concentrated.

Land on the upslope lots (Lots 3, 4, 5, 6 and 7) are subject to the Priority Vegetation Area overlay and includes cleared areas and modified native vegetation and does not support any priority vegetation as defined in the Code.

Works associated with subdivision within a potentially threatened flora and fauna habitat (lots 1 and 8) will minimise adverse impacts on significant trees by having regard to buildable areas and that works associated with subdivision (access, services) consider these areas. The significant trees are to be protected by a separate mechanism (permit condition).

Weed management will be required due to the presence of declared weeds. The report identified an infestation of Paterson's curse of many thousands of plants which should be treated before subdivision as a cost-saving measure and to ensure success.

3 Proposed Use & Development

The proposed scheme amendment involves rezoning the Subject Site from ‘Community Purpose’ to ‘General Residential’ to allow for residential development. The amendment will affect the Planning Scheme zoning map. The rezoned land will immediately adjoin existing ‘General Residential’ zoned land to the east and west as well as ‘Low Density Residential’ to the south.

The proposed development (Appendix A) includes the subdivision of one (1) existing site into nine (9) lots including one balance lot (Lot 8) - a non-residential use lot which contains an existing church building that is to remain, 7 residential lots and one Public Open Space lots (see Appendix C for details), and the construction of a subdivision road.

The proposed subdivision will involve clearance of native vegetation to enable to construction of residential dwellings and so that dwellings comply with bushfire hazard management requirements. This clearing will be subject to a planning permit condition. This subdivision will not be staged.

Plans have been devised which particularly consider the site in relation to:

- the Bushfire Hazard overlay; and
- Priority Vegetation area overlay.

See Appendix A and Appendix C for proposed lot sizes and frontages.

4 Bushfire Hazard Assessment

The subject site is located within the Planning Scheme’s Bushfire-Prone Areas overlay. Therefore, the site is within a ‘bushfire prone area’ as defined in the Planning Scheme.

The key factors affecting bushfire behaviour are fuel, weather conditions and topography. This section of the report considers these factors in the context of the Australian Standard *AS3959-2018 - Construction of buildings in bushfire-prone areas*, which is required in order to determine compliance with planning and building requirements for bushfire protection.

AS:3959-2018 provides categories for classifying vegetation based on structural characteristics. ‘Effective Slope’ refers to the slope of land underneath bushfire-prone vegetation relative to the subject site. Effective Slope affects a fire’s rate of spread and flame length and is accordingly a critical aspect affecting bushfire behaviour. AS3959-2018 refers to five categories of Effective Slope and these have been used for the purpose of this analysis.

The process for determining BAL ratings is outlined in AS:3959-2018. This assessment has relied on Method 1, which considers vegetation type, distance from hazardous vegetation and effective slope.

A site visit was conducted on the 4th of October 2022.

Step 1: Relevant fire danger index: FDI 50

Step 2: Assess the vegetation within 100m in all directions

Figure 3 shows land within 100 m of the proposed development as this is the minimum area for consideration under AS 3959-2018.

See appendix E for site photos.

Vegetation

Land to the north, east and west is mostly cleared of all native vegetation and is classed as 'agricultural, urban and exotic vegetation' (FUR). There are established well-managed gardens in close proximity to the existing dwellings on adjoining lots to the west and south-west with a major road to the immediate north. Therefore, the vegetation to the north, east, west (and south-west) of the site is classified as low threat; and the vegetation beyond the managed gardens/low threat vegetation is classified as Class G Grassland in accordance with Table 2.3 of AS 3959-2018.

To the south of the site is the Kuynah Bushland Reserve which includes a larger land parcel of 11 ha accessed from 6 Mayfair Court and 23, 23a Fairisle Terrace which is subject to a Reserve Activity Plan (RAP). A RAP documents the environmental, recreational and social values of the reserve and provides a practical guide for the management into the future. The Kuynah Bushland Reserve supports intact woodland vegetation with a number of fire trails and walking tracks. The intent of the Public Open Space contribution is to provide access to the road directly off Rokeby Road and a proposed residential subdivision on the adjacent lot to the east. The vegetation to the south-west is classed as 'Dry eucalypt forest and woodland' (DVG) and classified as Class A Forest in accordance with Table 2.3 of AS 3959-2018.

Land within the boundaries of the subdivision is a mixture of managed vegetation surrounding the existing Church, and Forest to the west and south of the church.

Vegetation - North

This vegetation on the northern end of the site is comprised of modified landscape associated with the urban environment with a small number of native trees scattered from the edge of the existing Church to the northern boundary. Beyond the boundary there is Rokeby Road (major highway).

Vegetation - South

This vegetation on the southern end of the site is managed residential to the west (beyond the boundary there are established dwellings with managed gardens) and the Kuynah Bushland Reserve to the east. The Reserve has dense bushland with walking tracks. A portion of lot 7 is to become Public Open Space to allow access to the reserve (Council land). This will become managed land.

Vegetation - East

This vegetation on the eastern end of the site is comprised of modified landscape associated with the urban environment and a number of native trees scattered from the edge of the Church to the eastern boundary.

Along the eastern boundary land will be retained for a public access to the Reserve. A portion of lot 7 is to become Public Open Space to allow access to the reserve (Council land). Therefore this land to the east is classified as woodland.

Vegetation - West

This vegetation on the western end of the site is comprised of modified landscape associated with the urban environment and a number of native trees scattered from the edge of the existing dwelling to the northern boundary. Beyond the boundary there are established dwellings with managed gardens.



Figure 2: Site Analysis 100m and Vegetation Communities (Source: LISTmap 19.10.23).

Effective Slope

The site has complex elevations which can be distilled as strongly sloping upward from the north to the south before gently steep to the south and up into the Kuynah Bushland Reserve. For the site, the land to the south has a rising slope of between 10° and 15°, east and west the land has the same sloping pattern. Land to the north of the site is considered nearly level to gently level. Therefore, the effective slope to the south is upslope (with a stronger slope toward the south of lot 7); downwards to the north; and neutral to the east and west. Elevations are demonstrated in Figure 3.

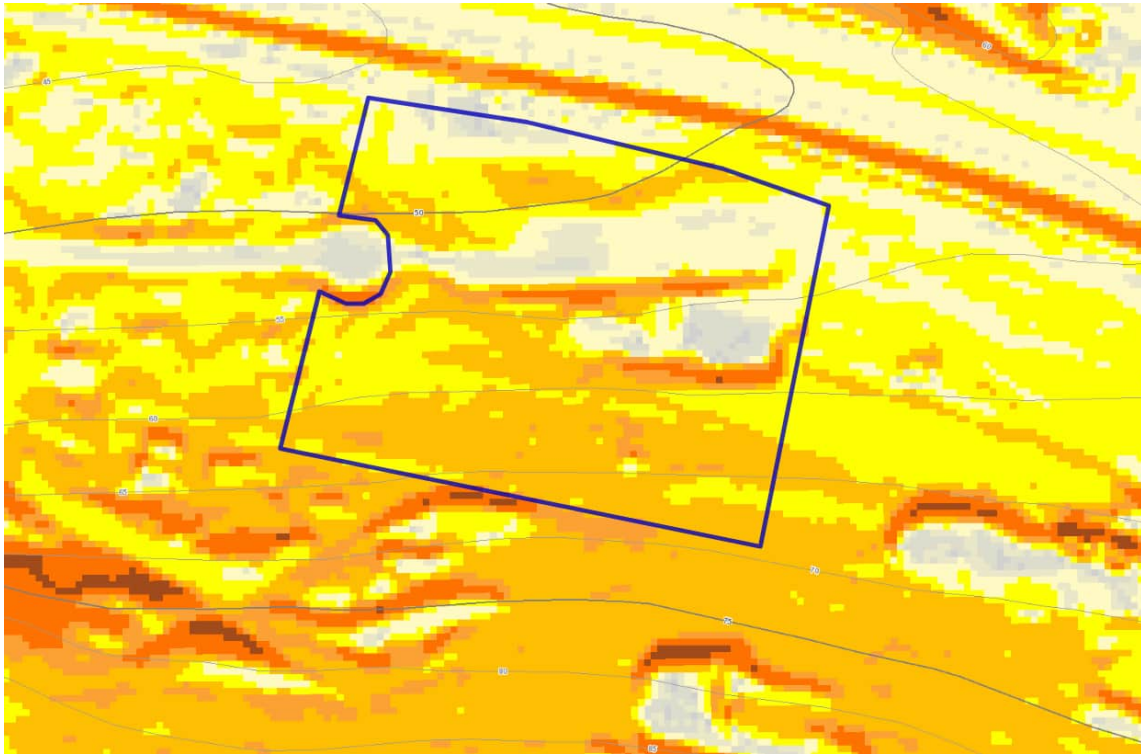


Figure 3: Effective slope - 5m contours (approx.) 45 to 70m (Source: LISTmap 19.10.23).

Step 3: Distance from classified vegetation

This section sets out the required separation distances from bushfire-prone vegetation to achieve the required BAL. It should be noted that AS3959 Table 2.6 only provides BAL ratings for separation distance up to and including 50m from grassland. Therefore, grassland less than 100m but greater than 50m separation from the site has been excluded from assessment.

Step 4: Effective slope under classified vegetation

Table 1 - Lot 1 - 5, & 8

Direction from site:	North	East	South	West
Vegetation Type:	Class G Grassland	Class G Grassland	Class A - Forest	Class G Grassland
Effective Slope	Downslope >0-5°	Downslope >0-5°	Upslope/0°	Upslope/0°
Required Separation Distance BAL-12.5:	16-<50m	16-<50m	32-<100m	16-<50m
Required Separation Distance BAL-19:	11-<16m	11-<16m	23-<32m	11-<16m
Minimum separation:	0m	0m	50m	0m
Assessed BAL:	Low	Low	12.5	Low
Proposed BAL:	BAL-12.5			

Table 2 - Lot 6

Direction from site:	North	East	South	West
Vegetation Type:	Class G Grassland	Class B Woodland	Class A - Forest	Class G Grassland
Effective Slope	Downslope >0-5°	Downslope >0-5°	0°	0°
Required Separation Distance BAL-12.5:	16-<50m	26-<100m	32-<100m	16-<50m
Required Separation Distance BAL-19:	11-<16m	18-<26m	23-<32m	11-<16m
Minimum separation:	16m	26m	23m	16m
Assessed BAL:	Low	Low	BAL-19	Low

Direction from site:	North	East	South	West
Proposed BAL:	BAL-19			

Table 3 - Lot 7

Direction from site:	North	East	South	West
Vegetation Type:	Class G Grassland	Class B Woodland	Class A - Forest	Class G Grassland
Effective Slope	Downslope >0-5°	Downslope >0-5°	Upslope/0°	Upslope/0°
Required Separation Distance BAL-12.5:	16-<50m	16-<50m	32-<100m	16-<50m
Required Separation Distance BAL-19:	11-<16m	18-<26m	23-<32m	11-<16m
Minimum separation:	0m	18m	50m	0m
Assessed BAL:	Low	19	12.5	Low
Proposed BAL:	BAL-19			

Step 5: Determination of Bushfire Attack Level (BAL)

Building areas shown are indicative only and are shown for planning purposes. These areas are flexible in they may change position as long as setbacks and HMAs are achieved and adhered to.

Lot Number	Achievable BAL Rating
1, 2, 3, 4, 5, 8	BAL-12.5
6, 7	BAL-19

Minimum Separation Required

The proposed dwellings are required to be able to achieve BAL-19. At BAL-19 exposure, the proposed development may be subject to increasing levels of ember attack, windborne burning debris and radiant heat flux between 12-19 kW/sqm. The available area onsite will provide separation for BAL-19.

5 Bushfire Protection Measures

During a bushfire event, a number of bushfire attack mechanisms may threaten buildings and occupants, including:

- Radiant heat;
- Direct flame contact;
- Ember attack; and
- Wind.

A range of bushfire protection measures are recommended to improve the resilience of the proposed development and achieve a tolerable level of residual risk for occupants. The protection measures outlined in this section have been consolidated in a Bushfire Hazard Management Plan (BHMP - see Appendix B).

Additional measures to improve resilience are also recommended but are at the discretion of the developer and future developers within the subdivision.

5.1 Hazard Management Areas

The Hazard Management Area ('HMA') refers to land that is managed in a minimum fuel condition so as to reduce the potential exposure of habitable buildings and occupants to radiant heat and flames and to provide defensible space. The effectiveness of the hazard management areas is reliant on ongoing maintenance by landowners.

The HMA has been designed to provide BAL-19 separation. All lots are to be maintained as a Hazard Management Area. The siting of the proposed habitable buildings are subject to BAL-19 and the Hazard Management Areas must be established and maintained by the owners of each allotment or by the developer until each lot is sold.

Management prescriptions for the hazard management area are provided in Table 3 and Appendix E provides an example of vegetation management within a hazard management area. The HMA must be verified by the assessing building surveyor prior to occupancy.

Table 3 - Hazard Management Area Prescriptions

Within 10m of habitable buildings	<ul style="list-style-type: none"> • No storage of flammable materials (e.g. firewood); • Avoid locating flammable garden materials near vulnerable building elements such as glazed windows/doors, decks and eaves (e.g. non-fire retardant plants and combustible mulches); • Non-flammable features such as paths, driveways and paved areas are encouraged around habitable buildings.
Trees within HMA	<ul style="list-style-type: none"> • Maintain canopy separation of approximately 2.0m; • Ensure no branches overhang habitable buildings; • Remove tree branches within 2.0m of ground level below; • Locate any new tree plantings 1.5 x their mature height from the house; • Avoid planting trees with loose, stringy or ribbon bark.
Understory vegetation within HMA	<ul style="list-style-type: none"> • Maintain grass cover at <100mm; • Maintain shrubs to <2.0m height; • Shrubs to be maintained in clumps so as to not form contiguous vegetation (i.e. clumps up to 10sqm in area, separated from each other by at least 10m); • Avoid locating shrubs directly underneath trees; • Periodically remove dead leaves, bark and branches from underneath trees and around habitable buildings.



Figure 4 - Example Hazard Management Area

The proposal complies with A1(b)(i) of C13.6.1 Subdivision: Provision of hazard management areas of the planning scheme as the attached proposed plan of subdivision includes the lots that are proposed within a bushfire-prone area. The proposed subdivision would not be staged.

The proposal complies with A1(b)(ii) and (iii) as the plan of subdivision shows building areas for each lot and hazard management areas between the building areas and bushfire-prone vegetation greater than the separation distances required for BAL-19 in AS3959:2018.

A1(b)(iv) is also met as the attached BHMP also shows hazard management areas between the building areas and bushfire-prone vegetation equal to or greater than the separation distances required for BAL-19 in AS3959:2018 and is certified by an accredited person. The HMA has been designed to provide BAL-19 separation.

The proposal complies with A1(c) as a hazard management area is to be located on land external to the proposed subdivision the application is accompanied by the written consent of the owner of that land to enter into an agreement under section 71 of the Act that will be registered on the title of the neighbouring property providing for the affected land to be managed in accordance with the bushfire hazard management plan.

Subject to the implementation of the BHMP, the proposal will comply with clause 2.3.4 of the Determination.

5.2 Construction Standards

Future habitable buildings located within the specified building areas and provided with the requisite hazard management areas are to be designed and constructed to a minimum of BAL-12.5 and BAL-19 under AS3959-2018. Refer to section 4.2 above for specific BAL ratings for the subdivision lots. The building areas for each lot are shown on the attached BHMP. The minimum setbacks from bushfire-prone vegetation are demonstrated on the BHMP.

The building area shown on lot 7 is indicative only. This area is flexible as it may change position as long as setbacks and HMAs are achieved and adhered to.

The HMA must be verified by the assessing building surveyor prior to occupancy.

Subject to the implementation of the BHMP and compliant detailed design, the proposal will comply with clause 2.3.1 of the Determination.

5.3 Access

The exiting access is from Holland Court and currently terminates at a cul-de-sac 18m diameter. It is proposed to extend this road out into another cul-de-sac of the same size as shown on the plan of subdivision (Appendix A). As this proposed turning circle is not of a compliant size, comment and direction has been sort from the TFS regarding a Performance Solution for the turning area in accordance with the Performance Criteria C13.6.2 P1 of the Tasmanian Planning Scheme.

It is proposed that the existing road be extended and a new turn circle of a similar nature that is currently existing, with an 18m diameter be constructed such that all titles have a compliant frontage to Holland Court. The turning area will need to have roll-top kerbs installed for the entirety of the turning area with no parking signs posted around the turning area. For the entirety of the turning area, it will need to have a horizontal clearance of 4m minimum, and a vertical clearance of 2m around the turn circle with no obstructions. The proposed subdivision plan (Appendix A) shows sufficient access and egress for residents, firefighting vehicles and emergency service personnel to enable protection from bushfire as per the requirements in C13.6.2 P1(a).

There is an existing reticulated hydrant water supply on Holland Court to defend the lots, with a proposed hydrant at the end of the new cul-de-sac. Within the property boundaries, access to the perimeter of the buildings will be adequately provided to facilitate firefighting to attempt to defend the building and to allow reasonable egress for occupants. Emergency vehicle access is provided to the lots via direct access to the aforementioned streets. The design of the road will also allow the provision of access to bushfire-prone vegetation to permit the undertaking of hazard management works as per C13.6.2 P1(b) of the planning scheme.

The extension to the existing road is to be developed in accordance with Table C13.1 of the Bushfire-Prone Areas Code the design has been determined under the direction of Council engineers, private engineers and the TFS. Advice from the TFS was sought during the writing of this report, and as such C13.6.2 P1(c) has been satisfied (see below figure 5).

The building areas shown are within 120m of the public road (Holland Court), and as such there are no requirements for private access and driveways.

Subject to the implementation of a BHMP and provision of compliant design work, the proposal will comply with clause 2.3.2 of the Director's Determination.

Hi David,

The proposed turning head specifications are acceptable to TFS. Your report does however need to include justification against C13.6.2 P1 and I recommend you include this prior to submission to Council. This advice can be used in support of your justification for the purposes of C13.6.2 P1(c).

Regards,

Tom O'Connor
Senior Planning & Assessment Officer
Bushfire Risk Unit

Tasmania Fire Service

Service | Professionalism | Integrity | Consideration

Cnr Argyle and Melville Streets | GPO Box 308 Hobart Tasmania 7001
Phone 0438 101 367
tom.oconnor@fire.tas.gov.au | www.fire.tas.gov.au

Figure 5 - Advice received from the TFS as per clause C13.6.2(c) of the planning scheme.

5.4 Water

Arrangements for fire-fighting water supply for the proposed lots must comply with Table C13.4 of the Bushfire Prone Areas Code.

At this stage there is a reticulated water supply available for the lots (from 30 Holland Court and Rokeby Road) but not within the required 120m hose lay (for all proposed lots). For lot 8 (the Church) the water connection to the existing building is compliant and no modification is required.

For all lots the title is not to be sealed unless the water supply has been amended such that the building area to be protected must be located within 120m of a fire hydrant compliant with Table C13.4 of the Code as specified below.

A Certificate of Compliance confirming compliance with the above provisions is attached as Appendix D.

Element		Requirement
<u>A.</u>	Distance between building area to be protected and water supply.	The following requirements apply: (a) the building area to be protected must be located within 120m of a fire hydrant; and (b) the distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.
<u>B.</u>	Design criteria for fire hydrants.	The following requirements apply: (a) fire hydrant system must be designed and constructed in accordance with TasWater Supplement to Water Supply Code of Australia, WSA 03-2011-3.1 MRWA 2nd edition; and (b) fire hydrants are not installed in parking areas.
<u>C.</u>	Hardstand.	A hardstand area for fire appliances must be provided: (a) no more than 3m from the hydrant, measured as a hose lay; (b) no closer than 6m from the building area to be protected; (c) with a minimum width of 3m constructed to the same standard as the carriageway; and (d) connected to the property access by a carriageway equivalent to the standard of the property access.

The proposal will comply with clause 2.3.3 of the Determination.

5.5 Optional Protection Measures

The following recommendations are not specifically regulated under any planning or building standards at present hence do not form part of the Bushfire Hazard Management Plan.

If implemented, however, they will improve bushfire protection for future occupants.

Electrical Infrastructure

Overhead power lines are a common source of unplanned fires, particularly during high wind conditions. Where practicable, electricity connections to properties should be provided underground to remove this potential fire source.

Building Design

Building configuration can be used to improve building resilience. It is recommended that future developers of buildings within the subdivision consider adopting the following design features:

- Simple roof shapes with roof pitch at 18° or greater, to reduce the potential for ember accumulation. This measure ought to be combined with non-combustible gutter guards to prevent accumulation within the guttering;
- Simple building shapes are preferable, as they reduce the opportunity for embers and debris to be trapped against the building within re-entrant corners;
- Keep walls as low as possible. Large expansive walls present greater surface area to wind turbulence and to radiant heat;
- Slab-on-ground construction is generally more resilient than suspended slab construction.

6 Conclusion & Recommendations

The proposed subdivision site is located within a 'bushfire prone area' as defined by C13.3.1. To achieve a tolerable level of residual risk a bushfire hazard management plan has been prepared.

The Bushfire Hazard Management Plan prepared for the subdivision outlines the required protection measures including hazard management areas, building siting and construction, access, and water supply standards. Protection measures reduce bushfire risk to future residents, developments and to firefighters, as outlined in this report and the associated bushfire hazard management plan. The Bushfire Hazard Management Plan is certified as compliant with the Bushfire-Prone Areas Code.

The Bushfire Attack Level construction standard is dependent on the establishment and maintenance of a hazard management area as prescribed on the BHMP and the existing separation from bushfire-prone vegetation.

The Bushfire Hazard Management Plan is certified as being compliant with the Bushfire-Prone Areas Code C13.0 of the *Tasmanian Planning Scheme - Clarence*.

7 References

Department of Primary Industries and Water, The LIST, viewed November 2023, www.thelist.tas.gov.au.

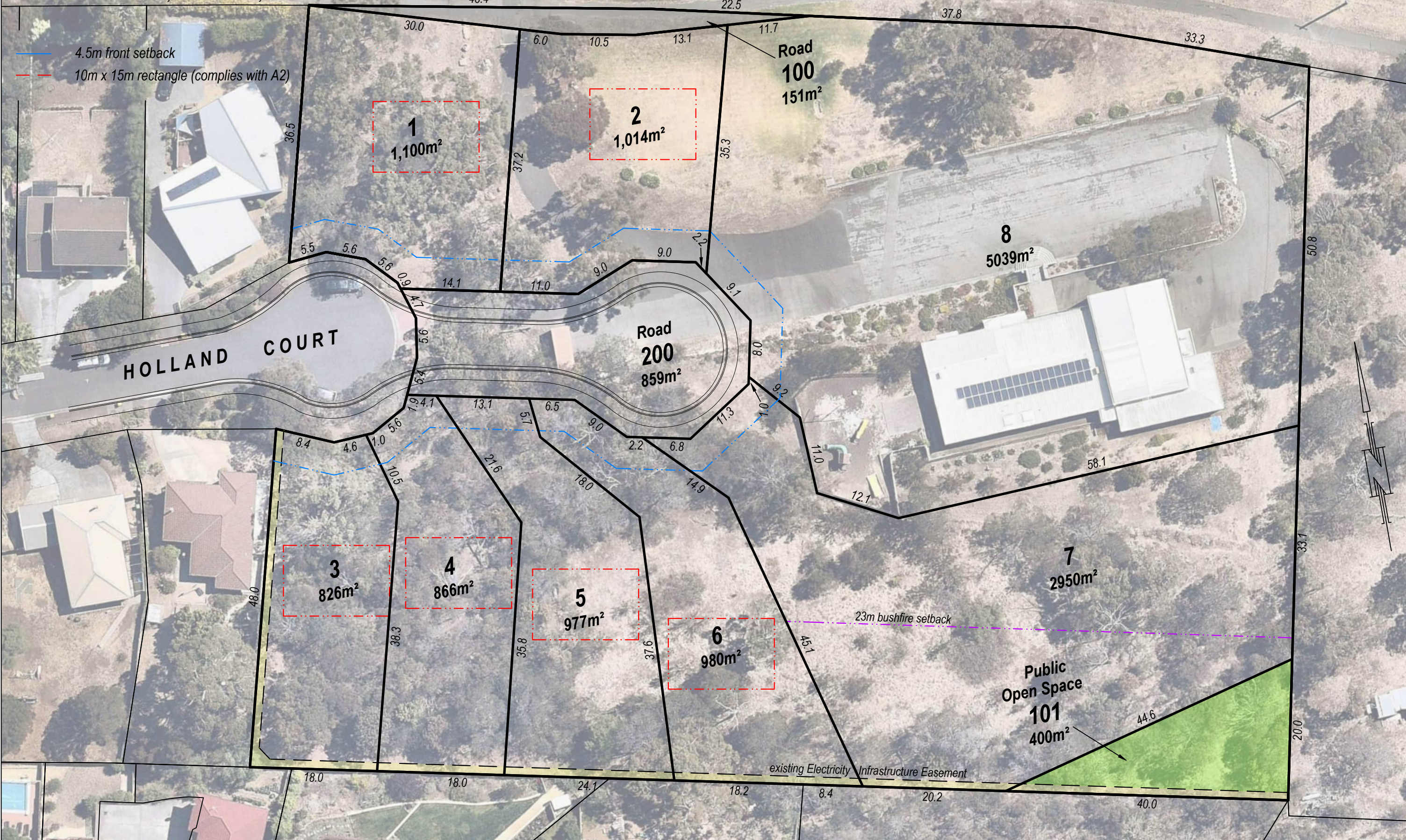
Director of Building Control, 2021, Director's Determination - Bushfire Hazard Areas, Version No. 1.1, Department of Justice (Tasmania).

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

Tasmanian Planning Scheme - Clarence, viewed April 2023, <http://www.iplan.tas.gov.au/>.

APPENDIX A
Subdivision Plan

This plan has been prepared only for the purpose of obtaining preliminary subdivisional approval from the local authority and is subject to that approval. All measurements and areas are subject to the final survey.



REV	DESCRIPTION	DRAWN	DATE	APPR.
L	minor changes - lots 1 & 2	AB	11-8-23	AB
K	changes as per draft conditions of approval	AB	10-8-23	AB
J	P.O.S changes (council RFI)	AB	12-8-22	AB
	see previous plans for details of all revisions			
	AMENDMENTS			

ROGERSON & BIRCH SURVEYORS

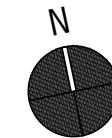
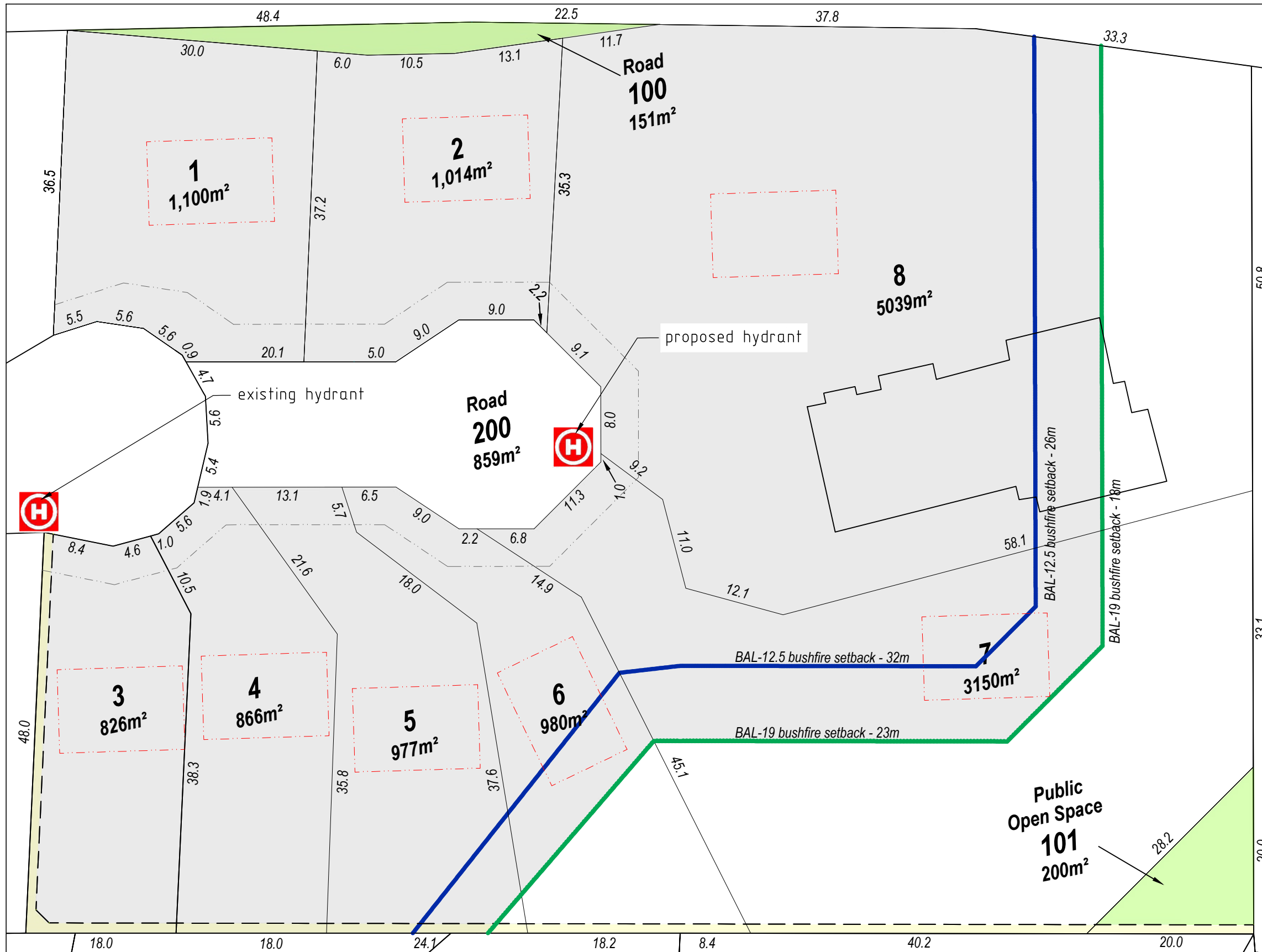
UNIT 1, 2 KENNEDY DRIVE
 CAMBRIDGE 7170
 PHONE: (03)6248 5898
 EMAIL: admin@rbsurveyors.com
 WEB: www.rbsurveyors.com

OWNER: CHURCHES OF CHRIST
TITLE REFERENCE: C.T.35660/1
LOCATION: 30 HOLLAND COURT
HOWRAH

Proposed Subdivision		
Date:	10-8-2023	Reference: HOWCC01 12572-05
Scale:	1:500 (A3)	Municipality: CLARENCE

APPENDIX B

Bushfire Hazard Management Plan



LEGEND

- BAL-19 SETBACK
- BAL-12.5 SETBACK
- BUILDING AREA
- FIRE HYDRANT LOCATION

- BHMP Notes:**
- This plan must be read in conjunction with the Bushfire Hazard Report (BHR) prepared by David Lyne (BFP-144), Bushfire Hazard Practitioner, dated November 2023.
 - The subject property is 30 Holland Court Howrah (CT. 35660/1).
 - This plan demonstrates compliance with the Directors Determination - Bushfire Hazard Areas v1.1.
 - The Hazard Management Areas (HMA) indicated on this plan must be established and maintained in accordance with Section 5.1 of the BHR.
 - Property access arrangements must comply with Section 5.3 of the BHR.
 - Fire fighting water supply arrangements must comply with Section 5.4 of the BHR.

E	26.11.2023	REVISED ISSUE FOR REVIEW
D	19.10.2023	REVISED SUBDIVISION
C	08.06.2023	ISSUED FOR REVIEW
B	01.06.2023	ISSUED FOR REVIEW
A	07.12.2022	ISSUED FOR REVIEW
REV	DATE	REMARK

This plan has been prepared only for the purpose of obtaining planning and building approvals from the local authority and is subject to that approval.

All measurements and areas are subject to the final survey.

PROJECT
30 HOLLAND COURT
HOWRAH - PROPOSED
SUBDIVISION

TITLE
BUSHFIRE HAZARD
MANAGEMENT PLAN

Accepted	Mat Clark (Discipline Head)	Date
Accepted	Matt Clark (Team Leader)	Date
Approved	Matt Clark (Group Manager)	Date

This document must be signed "Approved" by JMG to authorise it for use. JMG accept no liability whatsoever for unauthorised or unlicensed use.

SCALES @ A3	DESIGNED BY	DRAWN BY
1:500	DFL	DFL
	PLOT DATE	26/11/2023

DO NOT SCALE. Use only figured dimensions. Locations of structure, fittings, services etc on this drawing are indicative only. CONTRACTOR to check Architects & other project drawings for co-ordination between structure, fabric, fittings, services etc. CONTRACTOR to site check all dimensions and exact locations of all items. JMG accepts no responsibility for dimensional information scaled or digitally derived from this document.

PLOT DETAILS BHMP.DWG

PROJECT NO.	HOLLAND
DWG NO.	C01
REVISION	E

HAZARD MANAGEMENT AREAS - HMA
Hazard Management Area includes the area to protect the Building as well as the access and water supplies. Vegetation in the Hazard Management area for each lot (as dimensioned and shown) is to be managed and maintained by the respective lot owners in a minimum fuel condition prior to the sealing of titles. Each lot is provided with a building area with separation distances equal to or greater than required for BAL-19 in accordance with C13.6.1 of the Bushfire Prone Areas Code. Each lot will need to be maintained as HMA. All lots, other than the balance lot (Lot 7), needs to be maintained as low threat vegetation to the newly created lots, to ensure that this is maintained a covenant, easement or Part V agreement must be attached to each title.

- MAINTENANCE SCHEDULE**
- Removal of fallen limbs, leaf and bark litter;
 - Cut lawns short (less than 100mm) and maintain;
 - Remove pine bark and other garden mulch;
 - Complete under-brushing and thin out the under storey;
 - Prune low hanging trees to ensure separation from ground litter;
 - Prune larger trees to establish and maintain horizontal & vertical canopy separation;
 - Maintain storage of petroleum fuels;
 - Remove fallen limbs, leaf & bark litter from roofs, gutters & around the building;

PUBLIC & FIRE FIGHTING ACCESS
The existing public roads on Holland Court provide compliant property access from the roads to within 120m of furthest element of the building & to within 3m of each fire-fighting water supply connection point. As the new cul-de-sac cannot meet the acceptable construction standards, it has been discussed with the TFS about off-setting these conditions by implementing further requirements to the construction of the new road. The proposed cul-de-sac will need to have installed roll-top kerbs for the entirety of the turning circle. No parking signs will also need to be installed for the entirety of the turning head with horizontal clearances of 4m, and a vertical clearance of a minimum of 2m around the outer circle with no obstructions.

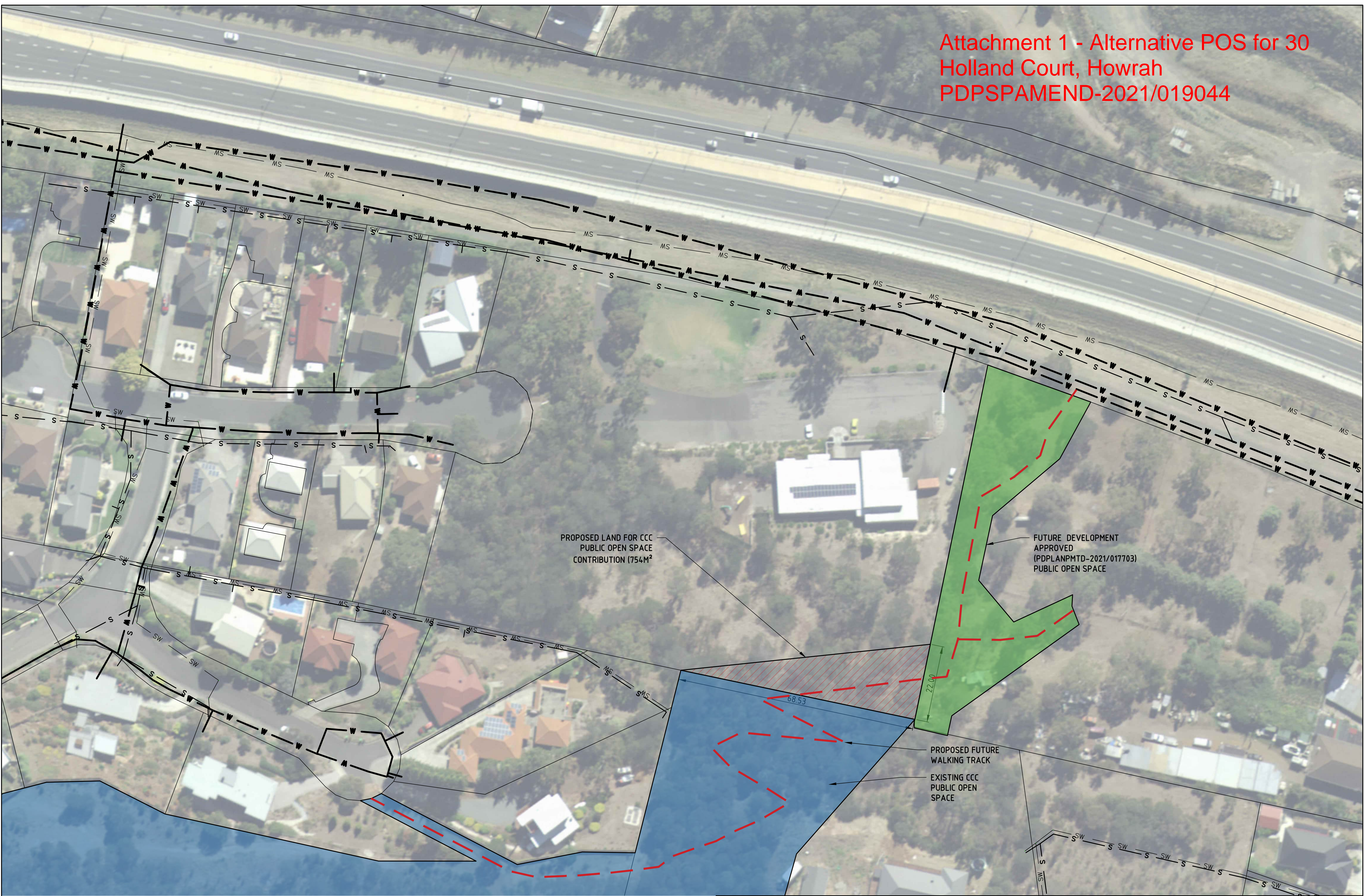
WATER SUPPLY FOR FIREFIGHTING
The proposed fire hydrant shown will be within 120m hose lay of the most disadvantaged part of the building areas.


CONSTRUCTION STANDARDS
Separation distances shown on this plan allow for design of BAL-19 minimum. Buildings and any associated outbuildings located within 6m are to be designed, constructed and maintained in accordance with the relevant construction sections of AS3959-2018 for the determined BAL.

APPENDIX C

POS - Clarence Council

Attachment 1 - Alternative POS for 30
Holland Court, Howrah
PDPSPAMEND-2021/019044



STATUS		####		 <p>Clarence... a brighter place</p> <p>P.O. BOX 98, ROSNY PARK 7018 TELEPHONE: (03) 62 17 9900 www.ccc.tas.gov.au</p>	---
SCALE		####			---
DATUM		GDA2020/AHD	DATE		---
DRAWN		---	---		---
DRAFT CHECK		---	---		---
DESIGN CHECK		---	---		---
APPROVED		---	---	---	
No.	REVISIONS	INITIAL	DATE	ENGINEER	####
				DRAWING NUMBER	####
				PROJECT NUMBER	####
					A1

APPENDIX D

Certificate of Compliance

BUSHFIRE-PRONE AREAS CODE

CERTIFICATE¹ UNDER S51(2)(d) *LAND USE PLANNING AND APPROVALS ACT 1993*

1. Land to which certificate applies

The subject site includes property that is proposed for use and development and includes all properties upon which works are proposed for bushfire protection purposes.

Street address:

30 Holland Court, Howrah

Certificate of Title / PID:

35660/1 / 7276202

2. Proposed Use or Development

Description of proposed Use and Development:

Subdivision – 8 lots

Applicable Planning Scheme:

Tasmanian Planning Scheme – Clarence Council

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Bushfire Hazard Management plan report	David Lyne	November 2023	2.0
Bushfire Hazard Management plan	David Lyne	November 2023	Rev. E

¹ This document is the approved form of certification for this purpose and must not be altered from its original form.

4. Nature of Certificate

The following requirements are applicable to the proposed use and development:

<input type="checkbox"/> E1.4 / C13.4 – Use or development exempt from this Code	
Compliance test	Compliance Requirement
<input type="checkbox"/> E1.4(a) / C13.4.1(a)	Insufficient increase in risk

<input type="checkbox"/> E1.5.1 / C13.5.1 – Vulnerable Uses	
Acceptable Solution	Compliance Requirement
<input type="checkbox"/> E1.5.1 P1 / C13.5.1 P1	<i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i>
<input type="checkbox"/> E1.5.1 A2 / C13.5.1 A2	Emergency management strategy
<input type="checkbox"/> E1.5.1 A3 / C13.5.1 A2	Bushfire hazard management plan

<input type="checkbox"/> E1.5.2 / C13.5.2 – Hazardous Uses	
Acceptable Solution	Compliance Requirement
<input type="checkbox"/> E1.5.2 P1 / C13.5.2 P1	<i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i>
<input type="checkbox"/> E1.5.2 A2 / C13.5.2 A2	Emergency management strategy
<input type="checkbox"/> E1.5.2 A3 / C13.5.2 A3	Bushfire hazard management plan

<input type="checkbox"/> E1.6.1 / C13.6.1 Subdivision: Provision of hazard management areas	
Acceptable Solution	Compliance Requirement
<input type="checkbox"/> E1.6.1 P1 / C13.6.1 P1	<i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i>
<input type="checkbox"/> E1.6.1 A1 (a) / C13.6.1 A1(a)	Insufficient increase in risk
<input checked="" type="checkbox"/> E1.6.1 A1 (b) / C13.6.1 A1(b)	Provides BAL-19 for all lots (including any lot designated as 'balance')
<input type="checkbox"/> E1.6.1 A1(c) / C13.6.1 A1(c)	Consent for Part 5 Agreement

<input checked="" type="checkbox"/>	E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access	
	Acceptable Solution	Compliance Requirement
<input checked="" type="checkbox"/>	E1.6.2 P1 / C13.6.2 P1	<i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i>
<input type="checkbox"/>	E1.6.2 A1 (a) / C13.6.2 A1 (a)	Insufficient increase in risk
<input type="checkbox"/>	E1.6.2 A1 (b) / C13.6.2 A1 (b)	Access complies with relevant Tables

<input type="checkbox"/>	E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes	
	Acceptable Solution	Compliance Requirement
<input type="checkbox"/>	E1.6.3 A1 (a) / C13.6.3 A1 (a)	Insufficient increase in risk
<input checked="" type="checkbox"/>	E1.6.3 A1 (b) / C13.6.3 A1 (b)	Reticulated water supply complies with relevant Table
<input type="checkbox"/>	E1.6.3 A1 (c) / C13.6.3 A1 (c)	Water supply consistent with the objective
<input type="checkbox"/>	E1.6.3 A2 (a) / C13.6.3 A2 (a)	Insufficient increase in risk
<input type="checkbox"/>	E1.6.3 A2 (b) / C13.6.3 A2 (b)	Static water supply complies with relevant Table
<input type="checkbox"/>	E1.6.3 A2 (c) / C13.6.3 A2 (c)	Static water supply consistent with the objective

5. Bushfire Hazard Practitioner

Name:

David Lyne

Phone No:

0421 852 987

Postal Address:

11 Granville Avenue, Geilston Bay

Email Address:

Dave_lyne@hotmail.com

Accreditation No:

BFP – 144

Scope:

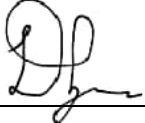
1, 2, 3a, 3b

6. Certification

I certify that in accordance with the authority given under Part 4A of the *Fire Service Act 1979* that the proposed use and development:

- Is exempt from the requirement Bushfire-Prone Areas Code because, having regard to the objective of all applicable standards in the Code, there is considered to be an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measures, or
- The Bushfire Hazard Management Plan/s identified in Section 3 of this certificate is/are in accordance with the Chief Officer's requirements and compliant with the relevant **Acceptable Solutions** identified in Section 4 of this Certificate.

Signed:
certifier



Name:

David Lyne

Date:

26.11.2023

Certificate Number:

1443/23

(for Practitioner Use only)

APPENDIX E

Site Photos



30 Holland Court (entrance) - looking east



30 Holland Court looking south (from cul-de-sac)



Foot path along Rokeby Road (30 Holland Court to the left) - managed by Council



Northern edge of 30 Holland Court (lots 1 ,2 and lot 8)



Rear Fence of 30 Holland Court (south of site)



Upslope vegetation to be cleared for residential development

APPENDIX F

Natural Values Assessment



30 Holland Court,
Howrah
Rezoning and Subdivision

Natural Values Assessment

06 January 2023

For JMG
JMG026

A detailed botanical illustration in the bottom left corner shows a plant with long, thin leaves and several flowers. One flower is in full bloom, while another is a bud. A magnifying glass is positioned over the plant, with its lens focused on a specific part of a flower, showing intricate details of its internal structure. The magnifying glass handle is on the left, and the lens is on the right.

Andrew North anorth@northbarker.com.au **Philip Barker** pbarker@northbarker.com.au
163 Campbell Street Hobart TAS 7000 Telephone 03. 6231 9788 Facsimile 03. 6231 9877

Contributors:

Client Contact: Matthew Clark, Katrina Hill JMG

Field Assessment: Andrew North

Report and mapping: Andrew North

File Control

Version	Date	Author / Comment
First Draft 0.1	15/05/2020	Andrew North
0.2	01/06/2021	Andrew North
1.0	06/01/2023	Andrew North



North Barker Ecosystem Services, 2020- This work is protected under Australian Copyright law. The contents and format of this report cannot be used by anyone for any purpose other than that expressed in the service contract for this report without the written permission of North Barker Ecosystem Services

Address	30 Holland Court, Howrah, TAS 7018
PID	7276202
Volume/Folio	35660/1

Tasmanian Planning Scheme	
Rezoning	8 General Residential
Current Zone	27 Community Purpose
Applicable Overlays	Priority Vegetation Area Relevant Code – Natural Assets
	Bushfire Prone Area Relevant Code – Bushfire E1
	Flood-prone Area Relevant Code – Flood-prone Hazard Areas Code
	Landslip Hazard Area - low Relevant Code – Landslip Hazard Code
Proposal	Subdivision to 8 lots, 2 parcels of public open space and road (extension to Holland Court)
Threatened flora	Cut leaf New Holland daisy – <i>Vittadinia muelleri</i> – Lot 1 Rare <i>Threatened Species Protection Act 1995</i>
Impact	<i>V. muelleri</i> - approx 20 plants (Lot 1)
Threatened fauna and habitat	9 x <i>Eucalyptus ovata</i> - black gums > 40cm DBH Foraging habitat for swift parrot
Impact	Lot 1 – 2 trees
Threatened vegetation	<i>E. ovata</i> dry forest (DOV) – 1111 sqm (0.1 ha) <i>Threatened Nature Conservation Act 2002</i>
Impact	Lot 1 – 675 sqm Lot 2 – 20 sqm Road – 20 sqm POS – 400 sqm
Native vegetation	<i>E. viminalis</i> dry forest (DVG) – 5140sqm
Impact	Lots 3-8 & Road – 495 sqm POS – 200 sqm

Natural Assets Code E27	<p>The Priority Vegetation Area extends over parts of Lots 3-7 and marginally in Lot 8. It does not include threatened vegetation, threatened fauna habitat or threatened flora all of which occur outside the PVA.</p> <p>Conforms to P1.1 (c) Subdivision in General Residential Zone.</p> <p>Partially conforms to P1.2 with adequate controls</p>
EPBC Act	No significant impact to MNES
TSP Act	A permit to take required for <i>Vittadinia muelleri</i>
NCA Act	No permit to take product of wildlife required
Weed Management Act	<p>Declared weeds present in project area including:</p> <p>Zone A</p> <ul style="list-style-type: none"> • Patersons curse - A significant infestation in Lots 5-7 • White weed - Lot 1 <p>Zone B –</p> <ul style="list-style-type: none"> • Blackberry • Boneseed • Slender thistle • African boxthorn

Contents

1	INTRODUCTION.....	1
1.1	Background.....	1
1.2	Study area.....	1
2	METHODS.....	3
2.1	Botanical Survey.....	4
2.2	Fauna survey.....	4
2.3	Limitations.....	4
3	RESULTS - BIOLOGICAL VALUES.....	4
3.1	Vegetation communities.....	4
3.2	Threatened Plants.....	7
3.3	Threatened Fauna Habitat.....	7
3.4	Declared weeds.....	10
4	IMPACT ASSESSMENT and MITIGATION.....	15
4.1	Vegetation communities.....	15
4.2	Threatened plants.....	15
4.3	Threatened fauna habitat.....	15
4.4	Mitigation.....	15
5	LEGISLATIVE REQUIREMENTS.....	15
5.1	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> ...	15
5.2	<i>Tasmanian Threatened Species Protection Act 1995</i>	16
5.3	<i>Tasmanian Nature Conservation Act 2002</i>	16
5.4	<i>Tasmanian Weed Management Act 1999</i>	16
5.5	Tasmanian Planning Scheme.....	17
	REFERENCES.....	20

1 INTRODUCTION

1.1 Background

30 Holland Court is zoned as Community Purpose (Zone 27) under the Tasmanian Planning Scheme. The proponents propose to rezone the land to General Residential (Zone 8) to allow a subdivision of part of the land to form seven new residential lots, Public Open Space, Road Reserve as an extension to Holland Court and the balance that would retain the existing Church of Christ building. (Figure 1)

This report provides ecological assessment of the property and considers implications for the Natural Assets Code of the Tasmanian Planning Scheme to inform the appropriateness of the proposal.

1.2 Study area

The study area is in Howrah in south-eastern Tasmania (Figure 2). It is in the Tasmanian South East bioregion¹ in the Clarence City Council and is approximately 1.52ha in extent. The site is currently zoned as Community Purpose and is subject to the Natural Assets Code (E27) under the Tasmanian Planning Scheme.

The site is at 50-70 m above sea level and is located on the lower slopes of an unnamed drainage line immediately south of Rokeby Road.

Approximately a third of the site is developed with a church, car park and managed lawn. There are also the remnants of an abandoned vegetable garden.

There are remnants of native vegetation, albeit in a modified and degraded state which are connected by a narrow sliver of bushland to extensive native forested areas on the upper slopes of Rokeby Hills to the south.

The geology is Permian siltstone and sandstone to the north, with Jurassic dolerite to the south.

¹ IBRA 7 (2012)

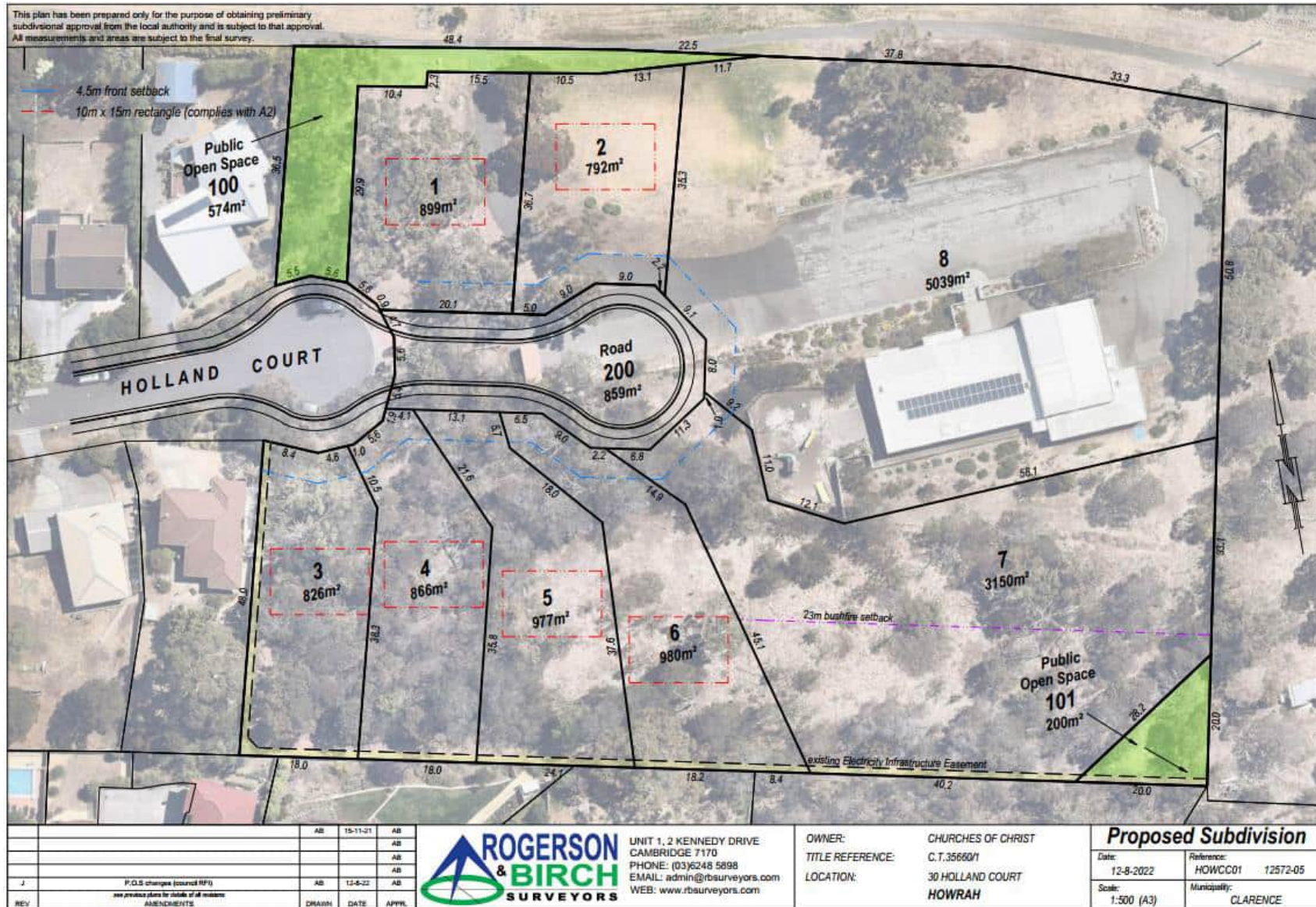


Figure 1: 30 Holland Court subdivision proposal

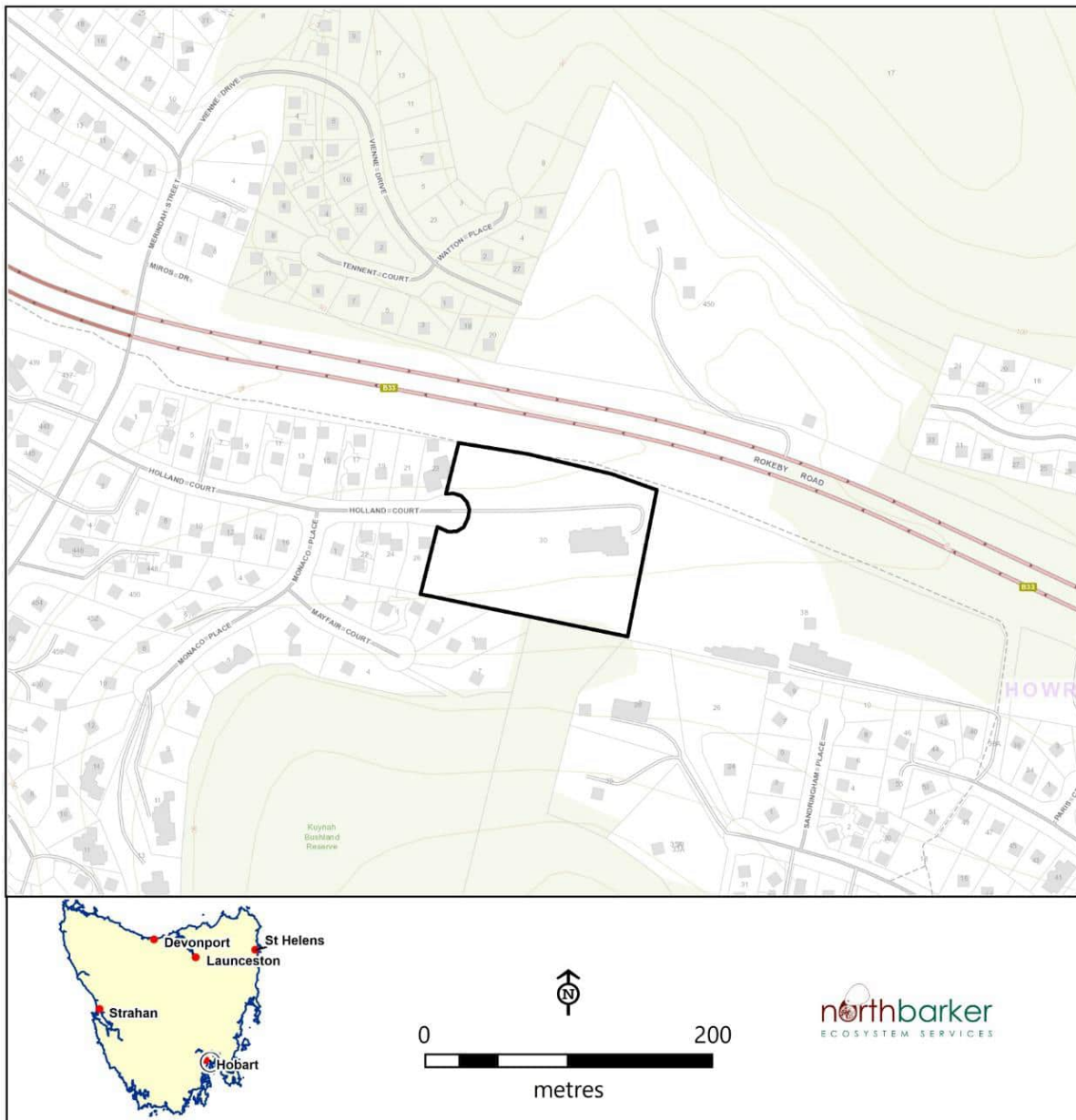


Figure 2: 30 Holland Court Location

2 METHODS

The following sources were used for biological records for the region:

- TASVEG version 4.0 digital layer²,
- Natural Values Atlas (NVA) - all threatened species records within 5 km of the study area and threatened fauna considered possible to occur in suitable habitat³,
- EPBCA Matters of National Environmental Significance database - a 5 km buffer was used to search for potential values⁴.

² DPIPWE (2020)

³ DPIPWE Natural Values Atlas Report (2020) report #: nvr_3_29-Jan-2020

⁴ Commonwealth of Australia, EPBC Protected Matters Search Tool Report (2020) report #: PMST_L297YT

2.1 Botanical Survey

This assessment was undertaken in accordance with the 'Guidelines for Natural Values Surveys – Terrestrial Development Proposals'⁵. The survey was conducted over 2 visits in May 2020.

Native vegetation is mapped in accordance with units defined in TASVEG 4⁶. Vascular plants were recorded in accordance with the current census of Tasmanian plants⁷. The site was mapped using a meandering area search technique⁸. Particular attention was given to habitats suitable for threatened species under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA), and to 'declared' weeds under the Tasmanian *Weed Management Act 1999* (WMA)⁹.

2.2 Fauna survey

The survey was carried out in accordance with DPIPWE's 'Guidelines for Natural Values Surveys – Terrestrial Development Proposals'¹⁰.

The study area was searched for the potential presence, habitat, and sign (e.g. scats, tracks, nests), threatened fauna concurrently with the botanical survey.

2.3 Limitations

Due to various limitations (e.g. variations in species presence and detectability), no biological survey can guarantee that all species will be recorded during a single visit. The field survey was undertaken in summer, so seasonal and ephemeral species/habitat may have been overlooked or are seasonally absent, including summer flowering species or winter ponds. However, we are confident the surveys sufficiently captured community level diversity. We compensate for survey limitations in part by considering all listed threatened species from data from the Tasmanian *Natural Values Atlas* (NVA) and Commonwealth's *EPBCA Protected Matters Search Tool* (MNES)¹¹. These data include records of all threatened species known to occur, or with the potential to occur, up to 5 km from the study area.

3 RESULTS - BIOLOGICAL VALUES

A full inventory of all vascular plant species recorded on site is included in Appendix A.

A total of 73 species were recorded including (39 native and 34 introduced).

3.1 Vegetation communities

TASVEGv4.0 identifies the vast majority of the site as non-native (FUR – Urban Areas) with *E. viminalis* grassy forest (DVG) just extending across the southern boundary.

Our assessment has identified a much more extensive area of DVG plus a small patch of *E. ovata* forest (DOV) (Figure 3).

DOV is listed as a threatened community under the Tasmanian *Nature Conservation Act 2002*.

The northern portion of the site supporting DOV has been maintained in a low fuel state (Plate 1). It retains the canopy but has a cleared understorey. The ground surface is predominantly

⁵ DPIPWE (2015)

⁶ Kitchener and Harris (2013)

⁷ de Salas and Baker (2019)

⁸ Goff *et al.* (1982)

⁹ Tasmanian State Government 1995; Commonwealth of Australia 1999; Tasmanian State Government 1999

¹⁰ DPIPWE (2015)

¹¹ DPIPWE Natural Values Atlas Report (2021) report #: nvr_2_9-March-2021

made up of grasses, native and exotic, with various prostrate native herbs persisting in the layer.

The southern DVG includes a denser secondary shrub layer and understorey although the latter is generally sparse due to shading from the shrubs, notably black wattle *Acacia mearnsii*, drooping sheoak *Allocasuarina verticillata* and hop bush *Dodonaea viscosa*. It also includes a range of native sedges, grasses and herbs.



Plate 1: POS - *Eucalyptus ovata* forest and swift parrot foraging habitat



Plate 2: Understorey of *E. viminalis* forest DVG - Lot 3



Plate 3: Cleared land with remnant *E. viminalis* – Lots 5 & 6

3.2 Threatened Plants

One species of threatened flora listed on the Tasmanian *Threatened Species Protection Act 1995* are present (Figure 3).

- Cut leaf new holland daisy *Vittadinia muelleri*

20 small plants are scattered over a small area close to the turning circle of the cul-de-sac. These are predominantly in Lot 1 although a small number may extend into the adjacent POS.

Vittadinia muelleri is not uncommon in Clarence. There are records of 15 separate observations within 500m of the study area and 158 within 5km. Some of these include very large numbers of plants measured in the thousands. The population at this site is not significant when considered in that context.

Twelve other species of threatened flora have been recorded within 500 m and over 40 within 5 km. These are reviewed in Appendix B. Of these all but nine are considered to have no likelihood of occurrence, due to habitat requirements being absent from site. Of those with low potential to occur the likelihood of their being overlooked or the site providing significant habitat for these species is extremely remote.

3.3 Threatened Fauna Habitat

There are nine black gums (*Eucalyptus ovata*) with trunk diameters (DBH) greater than 40 cm with the largest trees occurring in the large balance lot with DBH of 60 cm.

These provide a potential foraging resource for the endangered nectivorous swift parrot (*Lathamus discolor*). There are no trees supporting hollows likely to be utilised by this species for nesting.

Sixteen other species of threatened fauna have been recorded within 500 m and over 50 within 5 km. These are reviewed in Appendix C. Of these most are considered to have no likelihood of occurrence, due to habitat requirements being absent from site. Of those with low potential to occur the likelihood of their being overlooked or the site providing significant habitat for these species is extremely remote.

One other species is considered to have a moderate likelihood of occurrence. The eastern barred bandicoot *Perameles gunnii* favours the mixed complex of open grassy areas for foraging with vegetated shelter.

The eastern barred bandicoot is not listed under State legislation (TSPA). Its inclusion on the EPBC listing is due to its extreme rarity on mainland Australia where it has suffered predation to European foxes. Bandicoots are not uncommon in urban bushlands around Greater Hobart. Animals may stray onto the property and may also utilise cover in the upper slopes.

There are just two records from within 500 m, the last in 1985. The impact to this species resulting from the proposed subdivision is not significant.



Plate 4: Threatened flora *Vittadinia muelleri* on Lot 1

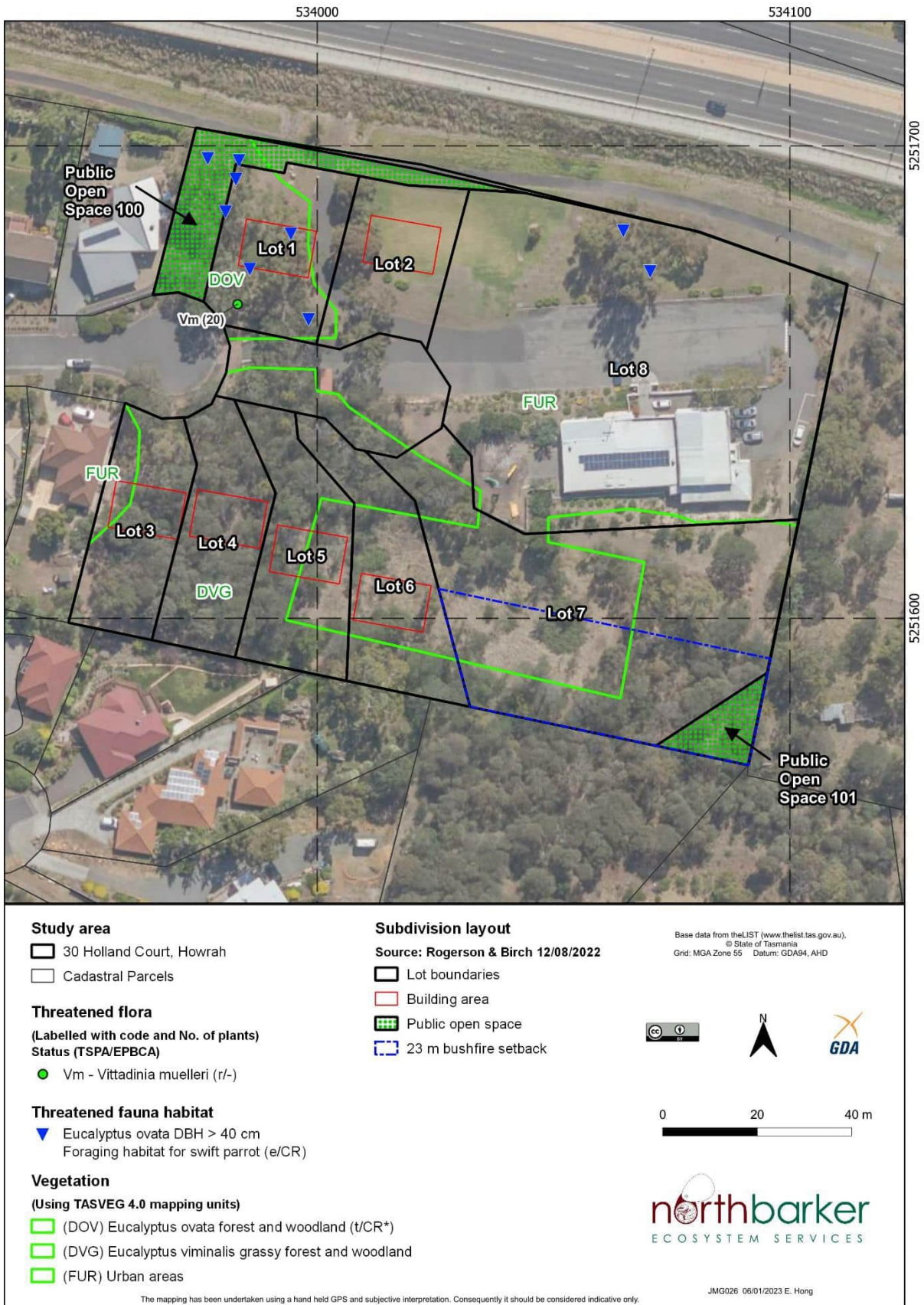


Figure 3: Natural Values

3.4 Declared weeds

Six species of declared weeds listed under the *Tasmanian Weed management Act 1999* were recorded (Figure 4).

- African boxthorn *Lycium ferocissimum*

Occasional plant in edge of cleared land in DVG.

- Boneseed *Chrysanthemoides monilifera*

Scattered in bushland site. Most plants are seedlings and young plants. There is likely to be a significant seed bank in disturbed sections.

- Blackberry *Rubus fruticosus* agg.

Several dense patches throughout

- Slender thistle *Carduus pycnocephalus*

Seedlings in disturbed areas in DVG including one extensive patch.

- Patersons curse *Echium plantagineum*

One very dense infestation in old garden area surrounded by DVG. This is the most significant weed infestation on site.

- White weed *Lepidium draba*

Localised to grassland in POS.

The statutory weed management plans for these species identify Clarence as Zone A for Patersons curse and white weed for which the principal management objective is 'eradication'. It is listed as a Zone B for all others where the objective is 'control'.



Plate 5: Zone A weed: Paterson curse plant



Plate 6: Zone A weed: Paterson curse infestation Lots 6 & 7



Plate 7: Zone A weed : white weed *Lepidium draba* POS



Plate 8: Zone B weed blackberry *Rubus fruticosus* agg.



Plate 9: Zone B weed slender thistle *Carduus pycnocephalus*



Plate 10: Zone B weed: boneseed *Chrysanthemoides monilifera*

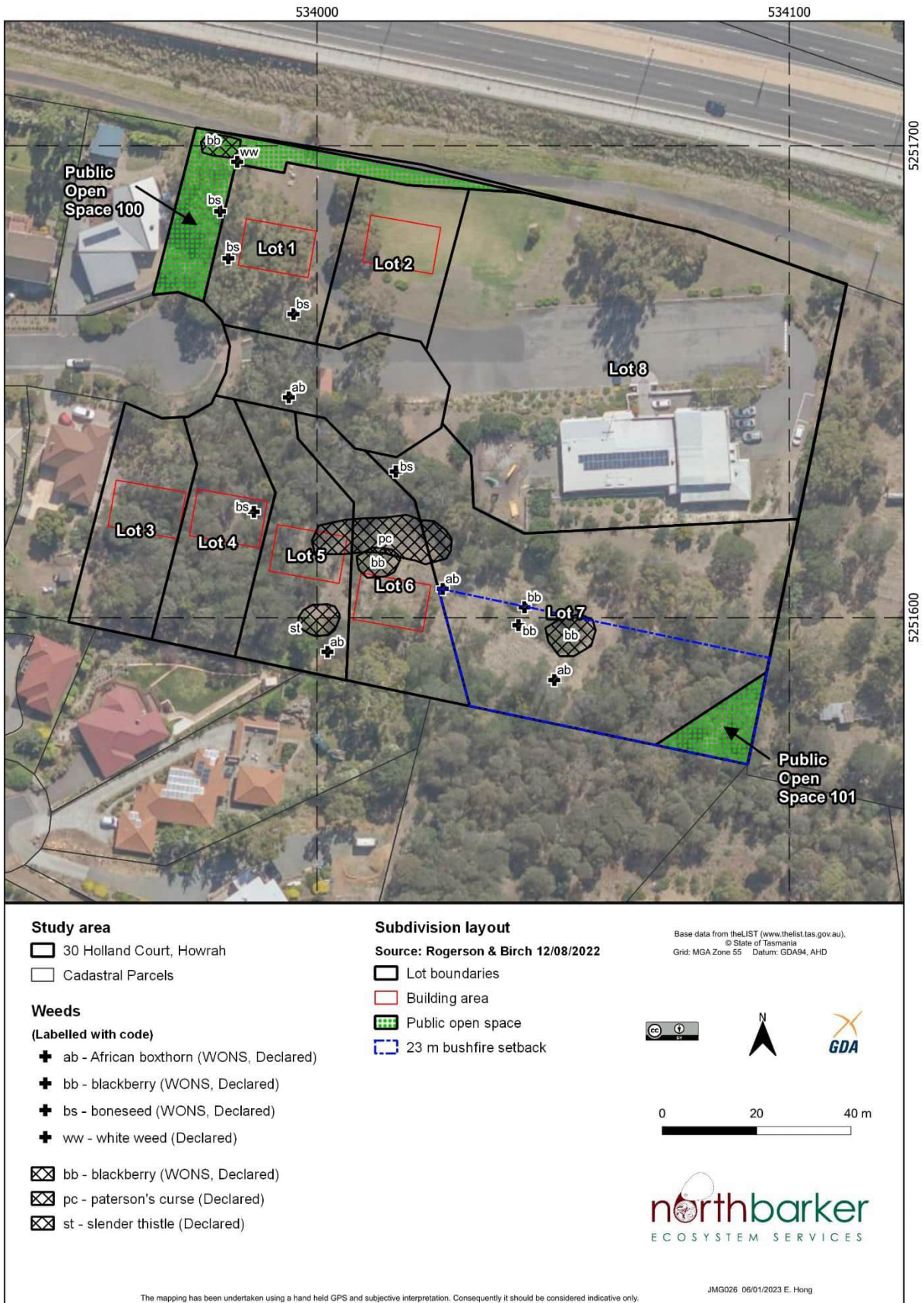


Figure 4: Weeds

4 IMPACT ASSESSMENT and MITIGATION

It is anticipated that the proposal will result in the loss of several habitat trees in Lot 1, although there may be opportunity to retain the trees close or on the boundary of the POS. Such an outcome is evident from the retention of occasional trees on residential lots to the west.

Limited potential for retention of vegetation is likely elsewhere other than large trees on Lot 8.

4.1 Vegetation communities

The high priority vegetation community *Eucalyptus ovata* forest (DOV) is confined to a small patch centred around Lot 1 and adjoining POS. This is highly modified through mowing of understorey but could potentially be retained in the POS.

The vegetation community in Lots 3-7 is not a priority vegetation. The *E. viminalis* grassy forest (DVG) is generally in moderate to poor condition. The central part of it was cleared and established as a vegetable garden resulting in the introduction of weeds that have spread into the surrounding bushland.

4.2 Threatened plants

One threatened plant species is present on Lot 1 where a localised patch of 20 or so plants of cut leaf new holland daisy (*Vittadinia muelleri*) were recorded. It should be expected that the persistence of these plants is very unlikely with anticipated intensification of use following the establishment of a residence and likely gardens.

4.3 Threatened fauna habitat

Black gums (*Eucalyptus ovata*) provide a potential foraging resource for the endangered swift parrot. There are seven *E. ovata* clustered in and around Lot 1. At least three are within the Lot are likely to be lost. One is in POS and three are on the boundary. These could be retained and ideally would be within the POS. The locations of these trees would need to be more accurately surveyed to determine which side of the boundary they occur. Two additional trees occur in the Balance (Lot 8) that need not be impacted.

4.4 Mitigation

There are limited opportunities to apply mitigation measures. Any trees within the POS can be retained subject to Council compliance. Controls could be placed through permit conditions or Part 5 Agreement to require retention of select habitat trees on Lots 1 and 8.

Any development approval would benefit from a weed management plan that:

- Treats all occurrences of declared weeds prior to works.
- Ensures best practice construction hygiene is practiced to prevent the spread of weed propagules in contaminated soil. This should involve cleaning all machinery before leaving the works area, as well as not bringing dirty machinery into the site.
- Follows up weed control implemented 6-12 months after works to treat any individuals that have colonised/recolonised the area.
- Includes provision to eradicate the Paterson's curse from Lots 5-7.

5 LEGISLATIVE REQUIREMENTS

5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBCA is structured for self-assessment; the proponent must determine whether or not the project is likely to have a significant impact on a matter of national environmental significance (MNES) such as a listed threatened species or community. If this is likely then the Department

of Environment and Energy may consider the proposed activity is a 'controlled action' which would require approval from the Commonwealth Minister.

Habitat for one MNES - the critically endangered swift parrot will be impacted should any *E. ovata* trees be removed as is expected. However, the scale of loss is not likely to constitute a significant impact.

5.2 Tasmanian Threatened Species Protection Act 1995

A permit to take plants of the cut-leaf New Holland daisy (*Vittadinia muelleri*) from Lot 1 will be required. Considering the proximity to Holland Court there is potential risk of impact during civil works so the permit should be sought prior to the commencement of these activities.

5.3 Tasmanian Nature Conservation Act 2002

Threatened vegetation communities are listed under Schedule 3A on the NCA.

E. ovata forest (DOV) is listed as a threatened community.

The NCA does not regulate impacts to these communities but informs relevant criteria in the Natural Assets Code of the Tasmanian Planning Scheme (refer 5.5).

5.4 Tasmanian Weed Management Act 1999

Clarence is a Zone B municipality for four of the species of declared weed observed on site (blackberry, African boxthorn, slender thistle and boneseed). According to the provisions of the *Weed Management Act 1999*, Zone B municipalities are those which host widespread infestations where control and prevention of spread is the principle aim.

Clarence is Zone A for patersons curse and white weed for which the principle aim is eradication.

The *Clarence Weed Management Strategy*¹² provides a process and set of priorities for managing weeds throughout Clarence. This reflects the management priorities of the Weed Management Act. The Strategic Management objective 4 specifically relates to "strengthening assessment of weeds under the planning scheme" whereby permit conditions include measures to fund and implement weed management in alignment with the priorities of the Strategy.

¹² Clarence City Council 2016

5.5 Tasmanian Planning Scheme

The proposed rezoning has significant implications for the regulation of priority vegetation. Under the Tasmanian Planning Scheme the Natural Assets Code applies within the Community Purpose Zone for development. However for the General Residential Zone it only applies for subdivision (C7.2(c)xii).

It is therefore important to appreciate that the implications for future development need to be considered at the subdivision stage.

The application of the Natural Assets Code is severely constrained for 30 Holland Court by way that the priority vegetation overlay only covers small proportion of the property (Figure 4) completely missing the three types of priority vegetation that occur on the property.

A literal interpretation of the Natural Assets Code would therefore mean it does not apply to impacts to priority vegetation on the property thus failing to meet the Code Purpose. Considering the application is for a rezoning there would be good sense in having the overlay amended to capture all of the property to ensure it responds appropriately to the priority vegetation (threatened vegetation, threatened fauna habitat and threatened flora) that is present.

The following consideration of the Development Standards for Subdivision(C7.7) is based on the assumption that it is all within a priority vegetation area.

Natural C7.7.2 - Subdivision within a priority vegetation area

A1 – The Acceptable Solution - None of the criteria apply

P1.1 – Following rezoning to General residential clause (c) is met.

P1.2 Works association with subdivision within a priority vegetation area must minimise adverse impacts on priority vegetation, having regard to all of the following:

(a) the design and location of any works, future development likely to be facilitated by the subdivision, and any constraints such as topography or land hazards.

(b) any particular requirements for the works and future development likely to be facilitated by the subdivision;

(c) the need to minimise impacts resulting from bushfire hazard management measures through siting and fire-resistant design of any future habitable buildings;

Adverse impact to threatened vegetation (DOV) is partly minimised through provision of POS100 which captures xx sq m representing xx %. The greatest loss of threatened vegetation is a result of Lot 1

Adverse Impact to threatened flora is not minimised with a very likely loss of *V. muelleri* which is located within Lt 1 and possibly the road extension. NB the population is barely viable at this site.

Adverse impact to Threatened fauna habitat (black gums) is partially minimised by capturing at least 2 trees in POS.

To further minimise adverse impacts the POS100 would need to be extended into much of Lot 1.

(d) any mitigation measures implemented to minimise the residual impacts on priority vegetation;

Mitigation could be achieved through controls to retain *E. ovata* trees in Lot 1 on POS/Lot 1 boundary and on Lot 8.

Weed management across the site will reduce risk of weed spread associated with intensification of activities on site but also reduce the threat weed pose of retained vegetation on site and also to vegetation on adjoining reserve to the south.

(e) any on-site biodiversity offsets.

Opportunities for biodiversity offsets on site are limited. Some limited on-site biodiversity offset could be achieved through the establishment of strict management controls that would ensure any priority vegetation within the POS is managed and protected.

(f) any existing cleared areas on the site.

The consideration of this clause is really only applicable when dealing with large lots where building envelopes could be located in areas already cleared allowing the retention of priority vegetation within the surrounding land. This is not applicable at the scale of lot sizes created by the subdivision.

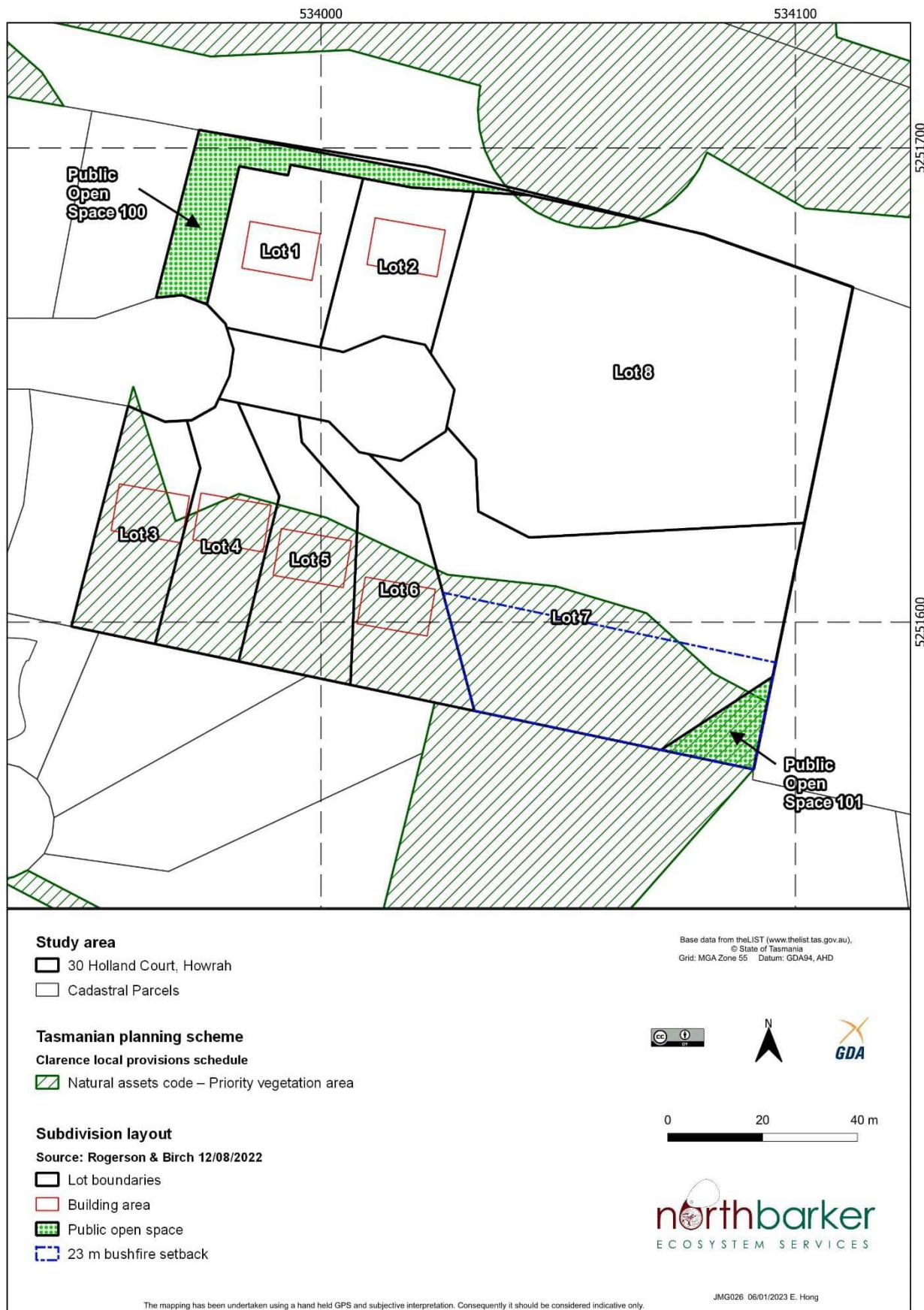


Figure 5: Priority Vegetation

REFERENCES

- Bryant, S. & Jackson, J. (1999) Tasmania's Threatened Fauna Handbook: what, where and how to protect. Threatened Species Unit, Parks & Wildlife Service, Hobart.
- Clarence City Council (2016). Clarence Weed Strategy 2016-2030.
- Commonwealth of Australia (1999) Environment Protection and Biodiversity Conservation Act 1999. No. 91, 1999.
- Commonwealth of Australia (2020) Protected Matters Search Tool, www.environment.gov.au. Report – PMST_L297YT.
- de Salas, M.F. & Baker, M.L. (2020) A Census of the Vascular Plants of Tasmania, Including Macquarie Island. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery, Hobart).
- DPIPWE (2020) Natural Values Report nvr_3_29-Jan-2020, Natural Values Atlas, Threatened Species Section, Department of Primary Industries and Water, Hobart.
- DPIPWE (2020). TASVEG 4.0, Released July 2020. Tasmanian Vegetation Monitoring and Mapping. Department of Primary Industries, Parks, Water and Environment.
- Program, Natural and Cultural Heritage Division. DPIPWE (2015) Guidelines for Natural Values Survey – Terrestrial Development Proposals. Version 1.0. 16th April 2015. Policy and Conservation Advice Branch. Department of Primary Industries, Parks, Water and Environment, Hobart.
- Goff, F.G, Dawson, G.A. & Rochow, J.J. (1982) Site examination for threatened and endangered plant species. *Environmental Management* 6 (4) pp 307-316.
- IBRA 7 (2012) Interim Biogeographic Regionalisation for Australia, Version 7. Map produced by Environment Resources Information Network (ERIN), Australian Government Department of the Environment and Energy, Canberra, Commonwealth of Australia.
- Tasmanian State Government (1995) Threatened Species Protection Act 1995. No.83 of 1995. Government Printer, Hobart, Tasmania

Appendix A: Vascular Plant Species List

30 Holland Court, Howrah

Status codes:

ORIGIN

i - introduced
d - declared weed WM Act
en - endemic to Tasmania
t - within Australia, occurs only in Tas.

NATIONAL SCHEDULE

EPBC Act 1999
CR - critically endangered
EN - endangered
VU - vulnerable

STATE SCHEDULE

TSP Act 1995
e - endangered
v - vulnerable
r - rare

Sites:

1 DVG - E. viminalis dry forest - E533990, N5251620 4/05/2020 Andrew J. North
2 DOV Eucalyptus ovata dry forest - E533980, N5251680 11/05/2020 Andrew J. North

Site	Name	Common name	Status
DICOTYLEDONAE			
AIZOACEAE			
1	<i>Carpobrotus rossii</i>	native pigface	
1	<i>Mesembryanthemum cordifolium</i> <i>cordifolium</i>	heartleaf iceplant	i
ASTERACEAE			
1	<i>Carduus pycnocephalus</i>	slender thistle	d
2	<i>Cassinia aculeata</i> subsp. <i>aculeata</i>	dollybush	
2	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	d
2	<i>Chrysocephalum apiculatum</i>	common everlasting	
1	<i>Cirsium vulgare</i>	spear thistle	i
1 2	<i>Cotula australis</i>	southern buttons	
1 2	<i>Dimorphotheca fruticosa</i>	trailing daisy	i
1	<i>Leontodon saxatilis</i>	hairy hawkbit	i
2	<i>Senecio glomeratus</i>	shortfruit purple fireweed	
1	<i>Silybum marianum</i>	variegated thistle	i
1	<i>Sonchus asper</i>	prickly sowthistle	i
2	<i>Sonchus oleraceus</i>	common sowthistle	i
2	<i>Taraxacum officinale</i>	common dandelion	i
2	<i>Vittadinia muelleri</i>	narrowleaf new-holland-daisy	r
BORAGINACEAE			
1 2	<i>Cynoglossum suaveolens</i>	sweet houndstongue	
1	<i>Echium plantagineum</i>	patersons curse	d
BRASSICACEAE			
1	<i>Hirschfeldia incana</i>	hoary mustard	i
1	<i>Lepidium didymum</i>	lesser swinecress	i
2	<i>Lepidium draba</i>	hoary cress	d
2	<i>Lepidium pseudotasmanicum</i>	shade peppergrass	
CARYOPHYLLACEAE			
1	<i>Polycarpon tetraphyllum</i>	fourleaf allseed	i
1	<i>Stellaria media</i>	garden chickweed	i
CASUARINACEAE			
1 2	<i>Allocasuarina verticillata</i>	drooping sheoak	
CHENOPODIACEAE			
1 2	<i>Einadia nutans</i> subsp. <i>nutans</i>	climbing saltbush	
CRASSULACEAE			
1	<i>Crassula</i> sp.		i
ERICACEAE			
2	<i>Astroloma humifusum</i>	native cranberry	
1	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>	peachberry heath	

	EUPHORBIACEAE		
1	<i>Euphorbia peplus</i>	petty spurge	i
	FABACEAE		
2	<i>Acacia howittii</i>	howitt's wattle	i
1 2	<i>Acacia mearnsii</i>	black wattle	
2	<i>Pultenaea pedunculata</i>	matted bushpea	
1	<i>Vicia tetrasperma</i>	smooth vetch	i
	FUMARIACEAE		
1	<i>Fumaria sp.</i>	fumitory	i
	GERANIACEAE		
1	<i>Erodium cicutarium</i>	common heronsbill	i
	HEMEROCALLIDACEAE		
1 2	<i>Dianella revoluta</i>	spreading flaxlily	
	LINACEAE		
2	<i>Linum marginale</i>	native flax	
	MALVACEAE		
1	<i>Malva sp.</i>	mallow	i
	MYRTACEAE		
1	<i>Eucalyptus amygdalina</i>	black peppermint	en
1 2	<i>Eucalyptus ovata var. ovata</i>	black gum	
1	<i>Eucalyptus viminalis subsp. viminalis</i>	white gum	
	OXALIDACEAE		
1	<i>Oxalis perennans</i>	grassland woodsorrel	
	PITTOSPORACEAE		
1	<i>Billardiera heterophylla</i>	bluebell creeper	i
1	<i>Bursaria spinosa subsp. spinosa</i>	prickly box	
2	<i>Pittosporum undulatum</i>	sweet pittosporum	i
1	<i>Pittosporum undulatum subsp. undulatum</i>	sweet pittosporum	i
	PLANTAGINACEAE		
2	<i>Plantago lanceolata</i>	ribwort plantain	i
	RHAMNACEAE		
1	<i>Pomaderris pilifera</i>	hairy dogwood	
	ROSACEAE		
1 2	<i>Acaena echinata</i>	spiny sheeps burr	
1	<i>Rosa rubiginosa</i>	sweet briar	i
1 2	<i>Rubus fruticosus</i>	blackberry	d
	RUBIACEAE		
2	<i>Galium gaudichaudii</i>	rough bedstraw	
	SANTALACEAE		
1 2	<i>Exocarpos cupressiformis</i>	common native-cherry	
	SAPINDACEAE		
1 2	<i>Dodonaea viscosa subsp. spatulata</i>	broadleaf hopbush	
	SOLANACEAE		
1 2	<i>Lycium ferocissimum</i>	african boxthorn	d
1	<i>Solanum nigrum</i>	blackberry nightshade	i
	URTICACEAE		
1	<i>Urtica incisa</i>	scrub nettle	
	MONOCOTYLEDONAE		
	ASPARAGACEAE		
1 2	<i>Lomandra longifolia</i>	sagg	

CYPERACEAE			
2	<i>Carex breviculmis</i>	shortstem sedge	
1	<i>Lepidosperma curtisiae</i>	little sword sedge	
JUNCACEAE			
1	<i>Juncus pallidus</i>	pale rush	
POACEAE			
1	<i>Anthosachne scabra</i>	rough wheatgrass	
2	<i>Austrostipa flavescens</i>	yellow speargrass	
1	<i>Austrostipa mollis</i>	soft speargrass	
1	<i>Austrostipa sp.</i>	speargrass	
1	<i>Dactylis glomerata</i>	cocksfoot	i
1 2	<i>Ehrharta erecta</i>	panic veldtgrass	i
2	<i>Poa rodwayi</i>	velvet tussockgrass	
2	<i>Rytidosperma caespitosum</i>	common wallabygrass	
1	<i>Rytidosperma sp.</i>	wallabygrass	
1	<i>Themeda triandra</i>	kangaroo grass	

Appendix B: Flora species of conservation significance known to occur within a 5 km radius of the study area¹³

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
Known from within 500 m			
<i>Asperula scoparia</i> subsp. <i>scoparia</i> prickly woodruff	Rare/ -	Low	<i>Asperula scoparia</i> subsp. <i>scoparia</i> is widespread in Tasmania and is mainly found in native grasslands and grassy forests, often on fertile substrates such as dolerite-derived soils. Forested sites are usually dominated by <i>Eucalyptus globulus</i> and <i>E. viminalis</i> (lower elevations) and <i>E. delegatensis</i> (higher elevations).
<i>Atriplex suberecta</i> sprawling saltbush	Vulnerable/ -	None	<i>Atriplex suberecta</i> occurs in a wide range of habitats on most soil types, including saline areas, but is most commonly found in disturbed areas.
<i>Austrostipa bigeniculata</i> doublejointed speargrass	Rare/ -	Low	<i>Austrostipa bigeniculata</i> is found mainly in the south-east and Midlands in open woodlands and grasslands on fertile soils, where it is often associated with <i>Austrostipa nodosa</i> .
<i>Austrostipa blackii</i> crested speargrass	Rare/ -	None	The habitat of <i>Austrostipa blackii</i> is poorly understood because of confusion with other species. In its "pure" form (i.e. long coma), <i>A. blackii</i> is a species of very near-coastal sites such as the margins of saline lagoons, creek outfalls and vegetated dunes. Further inland, where it seems to grade into other species, it occurs in open grassy woodlands.
<i>Bolboschoenus caldwellii</i> sea clubsedge	Rare/ -	None	<i>Bolboschoenus caldwellii</i> is widespread in shallow, standing, sometimes brackish water, rooted in heavy black mud.
<i>Caladenia filamentosa</i> daddy longlegs	Rare / -	None	<i>Caladenia filamentosa</i> occurs in lowland heathy and sedgy eucalypt forest and woodland on sandy soils and finer grained sediments such as mudstones.
<i>Dianella amoena</i> grassland flaxlily	Rare / ENDANGERED	None	<i>Dianella amoena</i> occurs mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands.
<i>Eucalyptus risdonii</i> risdon peppermint	Rare / -	None	<i>Eucalyptus risdonii</i> is restricted to the greater Hobart area (particularly the Meehan Range), with an outlying population at Mangalore and on South Arm. It occurs on mudstone, with an altitudinal range from near sea level to 150 m above sea level. It can occur as a dominant in low open forest with a sparse understorey on dry, insolated ridgelines and slopes (e.g. with a north-west aspect), and individuals can extend into other forest types typically dominated by <i>E. tenuiramis</i> or <i>E. amygdalina</i> (but occasionally by other species) on less exposed sites.

¹³ DPIPWE Natural Values Atlas Report (2021) report #: nvr_2_9-March-2021

¹⁴ Tasmanian *Threatened Species Protection Act 1995* and Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
<i>Scleranthus fasciculatus</i> spreading knawel	Vulnerable/ -	Low	<i>Scleranthus fasciculatus</i> is only recorded from a few locations in the Midlands and south-east. The vegetation at most of the sites is Poa grassland/grassy woodland. <i>Scleranthus fasciculatus</i> appears to need gaps between the tussock spaces for its survival and both fire and stock grazing maintain the openness it requires. Often found in areas protected from grazing such as in the shelter of fallen trees and branches.
<i>Senecio squarrosus</i> leafy fireweed	Rare / -	Low	<i>Senecio squarrosus</i> occurs in a wide variety of habitats. One form occurs predominantly in lowland damp tussock grasslands. The more widespread and common form occurs mainly in dry forests (often grassy) but extends to wet forests and other vegetation types.
<i>Sirophysalis trinodis</i> three-node seaweed	Rare / -	None	Marine environments
<i>Stenopetalum lineare</i> narrow threadpetal	Endangered/ -	None	The prime habitat for <i>Stenopetalum lineare</i> appears to be grass-covered low dunes but it also extends to scrub-covered dunes (coast wattle) and there is one inland site on a rocky outcrop in dry sclerophyll forest.
<i>Vittadinia muelleri</i> narrowleaf new-holland-daisy	Rare / -	Present	<i>Vittadinia muelleri</i> occurs in dry native grasslands and grassy woodlands particularly in open areas with lighter grass cover and patches of bare ground such as rock plates. It freely colonises disturbed sites such as roadside cuttings. It is widely dispersed through the Midlands and South East.
Known from within 5 km and not listed above			
<i>Acacia ulicifolia</i> Juniper wattle	Rare/-	None	<i>Acacia ulicifolia</i> is found in sandy coastal heaths and open heathy forest and woodland in the north and east of Tasmania. Populations are often sparsely distributed and most sites are near-coastal but it can occasionally extend inland (up to 30 km).
<i>Austroparmelina whinrayi</i> lichen	Rare / -	None	Foliose lichen known from very few sites in scrub and woodland dispersed around coastal Tasmania
<i>Caladenia caudata</i> tailed spider-orchid	Vulnerable/ VULNERABLE	Low	<i>Caladenia caudata</i> has highly variable habitat, which includes the central north: <i>Eucalyptus obliqua</i> heathy forest on low undulating hills; the north-east: <i>E. globulus</i> grassy/heathy coastal forest, <i>E. amygdalina</i> heathy woodland and forest, <i>Allocasuarina</i> woodland; and the south-east: <i>E. amygdalina</i> forest and woodland on sandstone, coastal <i>E. viminalis</i> forest on deep sands. Substrates vary from dolerite to sandstone to granite, with soils ranging from deep windblown sands, sands derived from sandstone and well-developed clay loams developed from dolerite. A high degree of insolation is typical of many sites
<i>Calocephalus citreus</i> lemon beautyheads	Rare / -	None	<i>Calocephalus citreus</i> inhabits disturbed dry grasslands and is found from a few locations in the south-east of the State.

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
<i>Carex longebrachiata</i> drooping sedge	Rare / -	None	<i>Carex longebrachiata</i> grows along riverbanks, in rough grassland and pastures, in damp drainage depressions and on moist slopes amongst forest, often dominated by <i>Eucalyptus viminalis</i> , <i>E. ovata</i> or <i>E. rodwayi</i> .
<i>Comesperma defoliatum</i> leafless milkwort	Rare / -	None	The habitat of <i>Comesperma defoliatum</i> includes wet heathland/sedgeland, buttongrass moorland, coastal low scrub and on the crests of dunes. It has also been recorded from flat alkaline pans. The predominant substrates include peat, quartzite and sand.
<i>Cotula vulgaris</i> var. <i>australasica</i> slender buttons	Rare / -	None	<i>Cotula vulgaris</i> var. <i>australasica</i> habitat includes saline herbfields, rocky coastal outcrops, and wet or brackish swamps.
<i>Cuscuta tasmanica</i> golden dodder	Rare / -	None	<i>Cuscuta tasmanica</i> is known from saline areas and brackish marshes often, but not exclusively, on plants of <i>Wilsonia backhousei</i> (narrowleaf wilsonia).
<i>Damasonium minus</i> starfruit	Rare / -	None	<i>Damasonium minus</i> occupies swampy habitat and farm dams and prefers slow-flowing or stationary water.
<i>Eryngium ovinum</i> blue devil	Vulnerable/ -	None	<i>Eryngium ovinum</i> occurs in a range of lowland vegetation types most often on fertile heavy clay soils derived from dolerite. Vegetation types include open grasslands usually dominated by <i>Themeda triandra</i> (kangaroo grass), grassy forests and woodlands on slopes, ridges and broad flats, and also roadside verges (representing remnant populations).
<i>Eucalyptus morrisbyi</i> morrisbys gum	Endangered/ ENDANGERED	None	<i>Eucalyptus morrisbyi</i> occurs in coastal, dry sclerophyll woodland on gentle to hilly slopes with poor drainage. It tends to be restricted to gullies that offer some relief in this drought-prone, low rainfall area. It is associated with poor soils. The Calverts Hill subpopulation and associated remnant stands occurring on recent sands overlying dolerite and the Risdon subpopulation on Permian mudstone.
<i>Eutaxia microphylla</i> spiny bushpea	Rare / -	None	On Flinders Island, <i>Eutaxia microphylla</i> mainly occurs in windswept coastal heathland on calcarenite. On mainland Tasmania, the species usually occurs in low open coastal shrubbery and on cliff edges (various substrates). The local record is of a historic collection – 1931 from Cambridge
<i>Haloragis heterophylla</i> variable raspwort	Rare / -	Low	<i>Haloragis heterophylla</i> occurs in poorly-drained sites (sometimes only marginally so), which are often associated with grasslands and grassy woodlands with a high component of <i>Themeda triandra</i> (kangaroo grass). It also occurs in grassy/sedgy <i>Eucalyptus ovata</i> forest and woodland, shrubby creek lines, and broad sedgy/grassy flats, wet pasture and margins of farm dams.
<i>Hyalosperma demissum</i> moss sunray	Endangered/ -	None	<i>Hyalosperma demissum</i> grows on rock pavements or shallow sandy soils in some of Tasmania's driest regions, and also in scalded patches in <i>Eucalyptus amygdalina</i> heathy/grassy woodland. The underlying substrate is mostly Jurassic dolerite, with occasional occurrences on

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
			Triassic sandstone and also Cainozoic sediments with a laterite lag. The elevation range of recorded sites in Tasmania is 30-470 m above sea level, with an annual rainfall range of less than 600 mm.
<i>Isolepis stellata</i> star clubsedge	Rare / -	None	<i>Isolepis stellata</i> has been recorded from near-coastal areas in the State's north and east, and also in the Northern Midlands near Conara. Habitat includes the margins of sedgy wetlands, wet soaks and seasonally inundated heathy sedgelands; the altitude of recorded sites in Tasmania ranges from close to sea level to elevations of 240 m above sea level.
<i>Lachnagrostis robusta</i> tall blowgrass	Rare / -	None	<i>Lachnagrostis robusta</i> occurs in saline situations such as the margins of coastal and inland saline lagoons.
<i>Lepidium hyssopifolium</i> soft peppergrass	Endangered/ ENDANGERED	Low	The native habitat of <i>Lepidium hyssopifolium</i> is the growth suppression zone beneath large trees in grassy woodlands and grasslands (e.g. over-mature black wattles and isolated eucalypts in rough pasture). <i>Lepidium hyssopifolium</i> is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 metres above sea level in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent.
<i>Lepilaena patentifolia</i> spreading watermat	Rare / -	None	<i>Lepilaena patentifolia</i> occurs in coastal lagoons, creeks, inlets and estuaries and brackish inland lagoons.
<i>Lepilaena preissii</i> slender watermat	Rare / -	None	<i>Lepilaena preissii</i> occurs in fresh and brackish lagoons, and estuaries.
<i>Limonium australe</i> var. <i>australe</i> yellow sea-lavender	Rare / -	None	<i>Limonium australe</i> var. <i>australe</i> occurs in succulent or graminoid saltmarsh close to the high water mark, typically near small brackish streams.
<i>Lobelia pratioides</i> poison lobelia	Vulnerable/ -	None	<i>Lobelia pratioides</i> occurs in seasonally inundated to waterlogged soils at the margins of swamps, wetlands and drainage lines, and also in damp depressions within grassland and grassy woodland.
<i>Olearia hookeri</i> crimsontip daisybush	Rare / -	None	<i>Olearia hookeri</i> is found on dry hills around Hobart in the State's south and also along the central east coast. It grows within eucalypt woodlands with a mixed grassy-shrubby understorey, favouring north-north-westerly slopes on mudstone (except for an atypical occurrence on dolerite at Templestowe flats near Seymour). In the south of the State the habitat is dominated by <i>Eucalyptus amygdalina</i> , <i>Eucalyptus risdonii</i> or <i>Eucalyptus tenuiramis</i> ; in the central east near Mt Peter the habitat is dominated by <i>Eucalyptus sieberi</i> over a very sparse understorey.

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
<i>Poa mollis</i> soft tussockgrass	Rare / -	None	<i>Poa mollis</i> is relatively widespread in the eastern half of the State, in dry sclerophyll forest and woodland (often dominated by <i>Eucalyptus amygdalina</i> , <i>E. viminalis</i> or <i>Allocasuarina verticillata</i>). Sites are often steep and rocky (e.g. Cataract Gorge).
<i>Pterostylis wapstrarum</i> fleshy greenhood	Endangered/ CRITICALLY ENDANGERED	None	<i>Pterostylis wapstrarum</i> is restricted to the Midlands and south-east of Tasmania where it occurs in native grassland and possibly grassy woodland. It has been reported from basalt soils.
<i>Ranunculus pumilio</i> var. <i>pumilio</i> fern buttercup	Rare / -	None	<i>Ranunculus pumilio</i> var. <i>pumilio</i> occurs mostly in wet places (e.g. broad floodplains of permanent creeks, "wet pastures") from sea level to altitudes of 800-900 m above sea level.
<i>Ruppia megacarpa</i> largefruit seatassel	Rare / -	None	<i>Ruppia megacarpa</i> occurs in estuaries and lagoons along the east and south-east coasts, and brackish lagoons in the Midlands; there is also an historic record from the Tamar estuary in the States' north.
<i>Ruppia tuberosa</i> tuberous seatassel	Rare / -	None	<i>Ruppia tuberosa</i> has been recorded from the State's south-east at Ralphs Bay and Blackman Bay, where it grows in holes and channels in saltmarshes.
<i>Scleranthus diander</i> tufted knawel	Vulnerable/ -	None	<i>Scleranthus diander</i> is found from the Central Midlands area to Hobart with most of the records from the Ross and Tunbridge areas. This species inhabits grassy woodland and is associated with dolerite and basalt substrates. Local record is dubious - unsubstantiated observation from Mt Rumney
<i>Stuckenia pectinate</i> fennel pondweed	Rare / -	None	<i>Stuckenia pectinata</i> is found in fresh to brackish/saline waters in rivers, estuaries and inland lakes. It forms dense stands or mats, particularly in slow-flowing or static water. The species grows in water of various depth.
<i>Teucrium corymbosum</i> forest germander	Rare / -	Low	<i>Teucrium corymbosum</i> occurs in a wide range of habitats from rocky steep slopes in dry sclerophyll forest and <i>Allocasuarina</i> (sheoak) woodland, riparian flats and forest.
<i>Thelymitra bracteata</i> leafy sun-orchid	Endangered/ -	None	<i>Thelymitra bracteata</i> occurs in open grassy and heathy forest/woodland on mudstone and sandstone. At Rosny Hill site, <i>Thelymitra bracteata</i> is most abundant on the top of the hill on open ground with dense exotic grasses and sparse in a remnant patch of native grass close to <i>Allocasuarina verticillata</i> woodland. At Conningham, the species occurs in a canopy gap created by a rough track amongst heathy <i>Eucalyptus amygdalina</i> forest on Triassic sandstone.
<i>Triglochin minutissima</i> tiny arrowgrass	Rare / -	None	<i>Triglochin minutissima</i> inhabits fresh or brackish mudflats or margins of swamps in lowland, mostly coastal areas.
<i>Velleia paradoxa</i> spur velleia	Vulnerable/ -	Low	<i>Velleia paradoxa</i> is known from the Hobart and Launceston areas, and the Midlands and the Derwent Valley, where it occurs in grassy woodlands or grasslands on dry sites. It has been recorded up to 550 m above sea level at sites with an annual rainfall range of 450-750 mm.

Species	Status TSPA / EPBCA ¹⁴	Potential to occur in study area	Observations and preferred habitat
<i>Vittadinia cuneata</i> var. <i>cuneata</i> fuzzy new-holland-daisy	Rare / -	Low	<i>Vittadinia cuneata</i> var. <i>cuneata</i> occurs in native grassland and grassy woodland on fertile soils, typically overlying basalt. It is confined to the Derwent Valley, Central Midlands and central East Coast on areas of lowest rainfall in Tasmania.
<i>Vittadinia gracilis</i> woolly new-holland-daisy	Rare / -	Low	<i>Vittadinia gracilis</i> occurs in dry grassy habitats, often in relatively degraded grasslands and grassy woodlands. It has been found to occur in low- rainfall areas, on a range of substrates.
<i>Wilsonia rotundifolia</i> roundleaf wilsonia	Rare / -	None	<i>Wilsonia rotundifolia</i> is found in coastal and inland saltmarshes in the eastern part of the State.
<i>Xerochrysum palustre</i> swamp everlasting	- (v pending)/ VULNERABLE	None	<i>Xerochrysum palustre</i> has a scattered distribution with populations in the north-east, east coast, Central Highlands and Midlands, all below about 700 m elevation. It occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy <i>Eucalyptus ovata</i> woodlands. Sites are usually inundated for part of the year.

Appendix C: Fauna species of conservation significance previously recorded, or which may potentially occur, within 5 km of the study area¹⁵

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
Known from 500 m			
MAMMALS			
<i>Eubalaena australis</i> Southern right whale	Endangered/ ENDANGERED	None	Marine species
<i>Megaptera novaeangliae</i> Humpback whale	Endangered/ VULNERABLE	None	Marine species
<i>Mirounga leonina subsp. Macquariensis</i> Southern elephant seal	Endangered/ VULNERABLE	None	Marine species
<i>Perameles gunnii gunnii</i> Eastern-barred bandicoot	-/VULNERABLE	Moderate	Inhabits grassy woodlands, native grasslands, and mosaics of pasture and shrubby ground cover favouring open grassy areas for foraging with thick vegetation cover for shelter and nesting. It has a widely dispersed range with concentrations in SE, NE and NW Tasmania and some areas of the State from where it is absent or in very low densities. It extends into the urban fringe where it can survive in large gardens and bushland reserves. It favours a mosaic of open grassy areas for foraging and thick vegetation cover for shelter and nesting.
<i>Pteropus poliocephalus</i> Grey-headed flying-fox	-/VULNERABLE	None	Vagrant
BIRDS			
<i>Accipiter novaehollandiae</i> Grey goshawk	Endangered/ -	Low	Inhabits large tracts of wet forest and swamp forest, particularly patches with closed canopies above an open understorey, but with dense stands of prey habitat nearby. Mature trees provide the best nesting sites. Most nests have been recorded from blackwoods and occasional myrtle beech.
<i>Aquila audax fleayi</i> Wedge-tailed eagle	Endangered/ ENDANGERED	Low	Wedge-tailed eagles nest in a range of old growth native forests and the species is dependent on forest for nesting. Territories can contain up to five alternate nests usually close to each other but

¹⁵ DPIPWE Natural Values Atlas Report (2021) report #: nvr_2_9-March-2021

¹⁶ Tasmanian *Threatened Species Protection Act 1995* and Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*, which includes ROKAMBA, JAMBA, CAMBA and Migratory species.

¹⁷ Bryant & Jackson 1999

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
			may be up to 1 km apart where habitat is locally restricted. Wedge-tailed eagles prey and scavenge on a wide variety of fauna including fish, reptiles, birds and mammals.
<i>Haliaeetus leucogaster</i> White-bellied Sea Eagle	Vulnerable/-	Low	Requires large trees for nesting and is sensitive to disturbance during the breeding season. Occurs in coastal habitats and large inland waterways.
<i>Lathamus discolor</i> Swift parrot	Endangered/ CRITICALLY ENDANGERED	Moderate	The Swift Parrot spends its winter in south-eastern mainland Australian before migrating to Tasmania in late winter/early spring to breed. During the breeding season, nectar from Tasmanian blue gum (<i>Eucalyptus globulus</i>) and black gum (<i>Eucalyptus ovata</i>) flowers is the primary food source for the species. These eucalypts are patchily distributed and their flowering patterns are erratic and unpredictable, often leading to only a small proportion of Swift Parrot habitat being available for breeding in any one year. Swift Parrots breed in tree hollows in mature eucalypts within foraging range of a flower source.
<i>Podiceps cristatus</i> Great crested grebe	Vulnerable/-	None	The Great Crested Grebe inhabits wetlands, deep lakes, rivers and swamps and prefers a combination of open water and dense reedbeds. This species is relatively rare in Tasmania but can have minor irruptions and periods of regular sightings in some areas.
<i>Thinornis rubricollis</i> <i>rubricollis</i> Hooded Plover	-/VULNERABLE	None	Widely distributed in Tasmania. Inhabits sandy ocean beaches. Nests on or near beaches, with nests located on flat beaches above the high tide mark, on stony terraces adjacent to beaches, or on the sides of sparsely vegetated dunes.
<i>Tyto novaehollandiae</i> <i>castanops</i> Tasmanian masked owl	Endangered/ VULNERABLE	None	Found in a range of habitats which contain some mature hollow-bearing forest, usually below 600 m altitude. This includes native forests and woodlands as well as agricultural areas with a mosaic of native vegetation and pasture. Significant habitat is limited to large eucalypts within dry eucalypt forest in the core range.
AMPHIBIAN			
<i>Litoria raniformis</i> Green and gold frog	Vulnerable/ VULNERABLE	None	In Tasmania is found in lowland areas, primarily coastal. They require permanent or temporary water bodies for survival and tend to inhabit ones containing emergent plants such as <i>Triglochin procera</i> or species of <i>Juncus</i> or sedge. They are rarely seen in open water and spend most of their time in vegetation at the water's edges. They depend upon permanent fresh water for breeding, which occurs in Spring and Summer. The green and gold frog is not known to occur in the very low fertility habitats to be found in wetlands associated with the western moorland of quartzite derivation. They generally prefer more fertile habitats
REPTILE			
<i>Caretta caretta</i> Loggerhead turtle	Endangered/ ENDANGERED	None	Marine species.
FISH			

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
<i>Brachionichtys hirsustus</i> Spotted handfish	Endangered/ CRITICALLY ENDANGERED	None	The Spotted Handfish is found in parts of the Derwent Estuary, as well as Frederick Henry, Ralphs and North West Bays. They occur in a limited number of colonies on soft substrates often in shallow depressions or near rocks or other projections. Found at depths of 2 to 30 m. Spawning from Sep-Oct.
<i>Seriolella brama</i> Blue Warehou	-/Conservation Dependent	None	Known from Australian and New Zealand Waters. Occurs at depths between 3 and 550 m, though is more abundant in waters shallower than 200 m.
GASTROPOD			
<i>Gazameda gunnii</i> Gunn's Screwshell	Vulnerable/-	None	Lives subtidally and offshore on sand. Widespread in Tasmanian waters but only locally common as a beached shell.
Potential to occur based on habitat mapping only			
MAMMALS			
<i>Dasyurus maculatus maculatus</i> Spotted-tailed quoll	Rare /VULNERABLE	Very low	This naturally rare forest-dweller most commonly inhabits rainforest, wet forest and blackwood swamp forest. It forages and hunts on farmland and pasture, travelling up to 20 km at night, and shelters in logs, rocks or thick vegetation. Important habitat includes large patches of forest containing adequate denning sites and high densities of mammalian prey.
<i>Dasyurus viverrinus</i> Eastern quoll	-/ENDANGERED	Very low	This species was previously widespread in mainland south-eastern Australia, but is now restricted to Tasmania. Records from the Tasmanian Natural Values Atlas indicate that the eastern quoll occurs in most parts of Tasmania, but is recorded infrequently in the wetter western third of the state. The species' distribution is positively associated with areas of low rainfall and cold winter minimum temperatures. Within this distribution, it is found in a range of vegetation types including open grassland (including farmland), tussock grassland, grassy woodland, dry eucalypt forest, coastal scrub and alpine heathland, but is typically absent from large tracts of wet eucalypt forest and rainforest.
<i>Sarcophilus harissii</i> Tasmanian devil	Endangered/ ENDANGERED	Very low	The Tasmanian devil occupies a wide range of habitats across Tasmania and exploits landscapes with a mosaic of pasture and forest with elevated prey densities and is attracted to roadkill hotspots with concentrated scavenging resource. Populations have declined substantially since the first observations of the infectious cancer Devil Facial Tumour Disease (DFTD). DFTD has now spread across much of Tasmania. The reduced population is also likely to be more sensitive to additional threats such as death by roadkill, competition with cats and foxes, and loss or disturbance of areas surrounding traditional dens where young are raised. The protection of breeding opportunities is particularly important for the species due to the mortalities from demographic pressures.
BIRDS			
<i>Pardalotus quadragintus</i> Forty-spotted pardalote	Endangered/ ENDANGERED	Very low	The forty-spotted pardalote is endemic to Tasmania and occurs in only a few small areas within the State. It is relatively restricted to dry grassy forest and woodland along the east coast containing

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
			mature white gum (<i>Eucalyptus viminalis</i>). [1] Cooper and Clemens et al. (2012); Reid and Park (2003)
REPTILES			
<i>Pseudemonia pagenstecheri</i> Tussock skink	Vulnerable/-	None	A ground-dwelling lizard, occurring in grassland and grassy woodland habitats at a range of elevations. Records in Tasmania a few disconnected patches of habitat from Midlands, inland Cradle Coast, and eastern Bass Strait islands.
FISH			
<i>Prototroctes maraena</i> Australian Grayling	Vulnerable/ VULNERABLE	None	In Tasmania, the diadromous Australian Grayling has been found in northern, eastern, and western rivers. Little is known of the population size. The major threat to the species is the construction of barriers than prevent adult fish moving upstream and juveniles downstream.
INVERTEBRATES			
<i>Antipodia chaostola</i> Chaostola skipper	Endangered/ ENDANGERED	None	The Chaostola skipper is restricted to dry forest and woodland supporting sedges of the Gahnia genus, and occurs in isolated populations in south-eastern and eastern Tasmania
<i>Chrysolarentia decisaria</i> Tunbridge looper moth	Endangered/-	None	Saltmarsh species
Known from 5 km			
MAMMALS			
<i>Arctocephalus forsteri</i> Long-nosed fur seal	Rare /-	None	Marine species
<i>Arctocephalus tropicalis</i> Subantarctic Fur Seal	Endangered/ VULNERABLE	None	Marine species
BIRDS			
<i>Botaurus poiciloptilus</i> Australasian bittern	-/ENDANGERED	None	Australasian bitterns are a highly cryptic species, utilising wetlands and lakes with a dense cover of vegetation. Whilst once common on Tasmania's north/east coasts, the numbers of Australasian bitterns in the state during the last two decades have declined significantly in both their range and numbers due to habitat loss and extended periods of dryness
<i>Calidris canutus</i> Red knot	-/ENDANGERED	None	Coastal species
<i>Calidris ferruginea</i> Curlew sandpiper	-/CRITICALLY ENDANGERED	None	The curlew sandpiper was once a common visitor to Tasmania, but their numbers have declined significantly since the 1950's. It frequents intertidal mudflats in sheltered coastal areas, with the most important sites for them in Tasmanian centred on the north and east coast of Tasmania. However, they are also occasionally recorded inland, along the open edges of ephemeral and permanent lakes and other water bodies.

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
<i>Charadrius leschenaultia</i> Greater sand plover	-/VULNERABLE	None	Coastal species
<i>Hirundapus caudacutus</i> White-throated needletail	-/VULNERABLE	None	The white-throated needletail is a migratory species, breeding in central and north-eastern Asia in Siberia, Mongolia, northern-eastern China and northern Japan. It migrates south through eastern China, Korea and Japan spending its non-breeding season in eastern and south-eastern Australia including Tasmania. This species is almost exclusively aerial, occurring over most types of habitat with a preference to wooded areas, open forests, heathland and rainforests.
<i>Limosa lapponica subsp. Baueri</i> Western Alaskan bar-tailed godwit	-/VULNERABLE	None	Coastal species
<i>Numenius madagascariensis</i> Eastern curlew	Endangered/ CRITICALLY ENDANGERED	None	Much like the curlew sandpiper, the eastern curlew was once a common visitor to Tasmania, but their numbers have declined significantly since the 1950's. It frequents intertidal mudflats in sheltered coastal areas, with the most important sites for them in Tasmanian centred on the north and east coast of Tasmania. However, they are also occasionally recorded inland, along the open edges of ephemeral and permanent lakes and other water bodies.
<i>Pterodroma lessonii</i> White-headed Petrel	Vulnerable/-	None	The White-headed petrel breeds in colonies on subantarctic islands including Australia's Macquarie Island. They are a pelagic species foraging between the subantarctic and Antarctic convergence zones. At sea this species is mostly solitary.
<i>Sterna nereis nereis</i> Fairy Tern	Vulnerable/ VULNERABLE	None	The fairy tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. It has been found in a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and coastlines. The bird roosts on beaches at night.
<i>Tyto novaehollandiae castanops</i> Tasmanian masked owl	Endangered/ VULNERABLE	Very low	Found in a range of habitats which contain some mature hollow-bearing forest, usually below 600 m altitude. This includes native forests and woodlands as well as agricultural areas with a mosaic of native vegetation and pasture. Significant habitat is limited to large eucalypts within dry eucalypt forest in the core range.
REPTILE			
<i>Pseudemonia pagenstecheri</i> Tussock skink	Vulnerable/-	None	A ground-dwelling lizard, occurring in grassland and grassy woodland habitats at a range of elevations. Records in Tasmania a few disconnected patches of habitat from Midlands, inland Cradle Coast, and eastern Bass Strait islands.
AMPHIBIAN			
<i>Litoria raniformis</i> Green and gold frog	Vulnerable/ VULNERABLE	None	In Tasmania is found in lowland areas, primarily coastal. They require permanent or temporary water bodies for survival and tend to inhabit ones containing emergent plants such as <i>Triglochin procera</i> or species of <i>Juncus</i> or sedge. They are rarely seen in open water and spend most of their time in vegetation at the water's edges. They depend upon permanent fresh water for breeding,

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
			which occurs in Spring and Summer. The green and gold frog is not known to occur in the very low fertility habitats to be found in wetlands associated with the western moorland of quartzite derivation. They generally prefer more fertile habitats
INVERTEBRATES			
<i>Amelora acontistica</i> Chevron looper moth	Vulnerable/-	None	Obligate saltmarsh species
<i>Dasybela achroa</i> Saltmarsh looper moth	Vulnerable/-	None	Obligate saltmarsh species
<i>Parvulastra vivipara</i> Live-bearing seastar	Vulnerable / VULNERABLE	None	Confined to rocky substrates on the upper littoral zone on low energy shores in south east Tasmania. Range from just below the highwater mark to 1.2m at high water. Recorded under both dolerite and sandstone rocks on gently sloping shores.
<i>Theclinesthes serpentata</i> subsp. <i>lavara</i> Chequered Blue	Rare/-	None	Coastal environments with larval foodplant coastal saltbush – <i>Rhagodia candolleana</i> and species of <i>Atriplex</i> .
Potential to occur in 5km based on habitat mapping only			
MAMMAL			
BIRD			
<i>Ceyx azures diemenensis</i> Tasmanian azure kingfisher	Endangered/ ENDANGERED	None	The azure kingfisher is found along rivers in the south, west, north and northwest of Tasmania with outlying occurrences in the northeast, east, centre and Bass Strait islands. This species occurs in the forested margins of major river systems where it perches on branches overhanging rivers waiting for prey items such as small fish, insects and freshwater crayfish to come down the river.
FISH			
<i>Thymichthys politus</i> Red Handfish	Endangered/ CRITICALLY ENDANGERED	None	
INVERTEBRATES			
<i>Antipodia chaostola</i> subsp. <i>Leucophaea</i> Chaostola skipper	Endangered/ ENDANGERED	None	The Chaostola skipper is restricted to dry forest and woodland supporting sedges of the <i>Gahnia</i> genus, and occurs in isolated populations in south-eastern and eastern Tasmania
<i>Orphninostrichia maculata</i> Caddis fly (wedge river)	Rare/-	None	Aquatic habitats.

Species	Status ¹⁶ TSPA/EPBCA	Potential to occur in study area	Observations and preferred habitat ¹⁷
<i>Lissotes menalcas</i> Mount Mangana stag beetle	Vulnerable/-	None	This occurs in south east Tasmania including parts of the Wellington range, South Bruny and the Forester and Tasman Peninsulas. Confined to wet forest with large logs although much of potential habitat is unoccupied.
<i>Pseudalmenus chlorinda</i> <i>myrsilus</i> Tasmanian hairstreak (butterfly)	Rare/-	Low	Dry forest and woodland associated with species of wattle including <i>A dealbata</i> and <i>A mearnsii</i> . Confined to occasional sites in south east Tasmania. Habitat is present although scarcity of records suggest presence is very unlikely.
GASTROPOD			
Ammonite Pinwheel Snail <i>Discocharopa vicens</i>	Endangered/ CRITICALLY ENDANGERED	None	This snail has been recorded from the following seven locations in the Hobart metropolitan area: Mount Wellington, Mount Nelson, The Domain, Hillgrove, Grasree Hill, South Hobart and Austins Ferry. Species is thought to be extinct from Mt Nelson. Habitat of the species includes dry and wet eucalypt forests below 400 m in altitude. To date the species has only been found under dolerite rocks.