



Techno Park Drive

Housing Land Supply Order Report

Department of Communities Tasmania

19 August 2022

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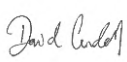



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Introduction

The following report has been prepared by GHD Pty Ltd (GHD) on behalf of Communities Tasmania in accordance with the *Housing Land Supply Act 2018* (HLSA). It is intended to support an application under the HLSA for land identified at Techno Park Drive, Kings Meadows to be declared housing supply land and for that land to be the subject of a Housing Land Supply Order (HLSO). The HLSO would have the effect of changing the zoning of the land to General Residential.

Part 1 of the report provides introductory information and context for the subject land. Part 2 of this report addresses the relevant considerations and an opinion in relation to compliance with the relevant requirements of Part 2, Division 1 of the HLSA. Part 3 identifies interested persons in accordance with Section 11, to support further actions under Part 2, Division 2, to be undertaken by others.

The purpose of the *Housing Land Supply Act 2018* (HLSA), is to:

Assist the acute demand for housing to be met, by enabling the rapid, appropriate rezoning of certain government land, the alteration of planning provisions that apply to such land, the transfer to the Director of Housing of Crown land that is declared to be housing supply land under this Act, and for related purposes

It is considered that the declaration and HLSO would be a significant opportunity to increase supply of land for affordable housing in Launceston and thereby would further the purpose of the HLSA.

Scope and limitations

This report has been prepared by GHD for Communities Tasmania and may only be used and relied on by Communities Tasmania for the purpose agreed between GHD and the Communities Tasmania. GHD otherwise disclaims responsibility to any person other than Communities Tasmania arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring after the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report based on information provided by Communities Tasmania and other who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omission in that information.

Part 1 – Details of the land

1.1 Land information

1.1.1 Subject land and location

The subject land is owned by Tasmania Development and Resources, with the Department of State Growth (Economic Development) as the governing authority. It is located at Techno Park Drive, Kings Meadows and is further described in Certificates of Title Volume 164559, Folio 2 (see Appendix A). It is within the City of Launceston Local Government Area, approximately 6 km south-east of the Launceston city centre. The subject land is the irregularly shaped area outlined in red in Figure 1 below.

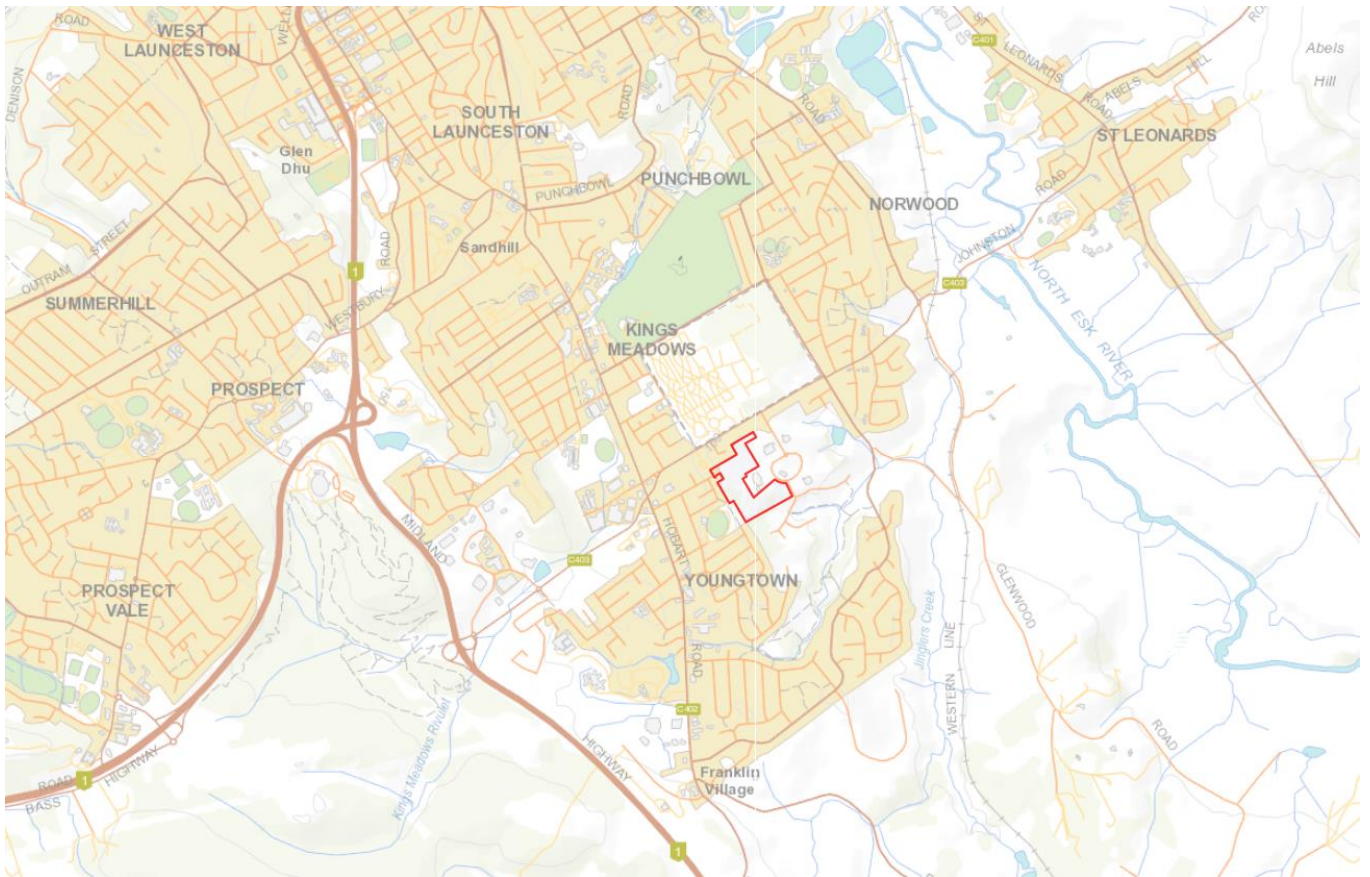


Figure 1 Location map, subject land outlined in red. Image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania

1.1.2 Land area

The subject land has an area of approximately 10.3ha, noting that it does not comprise the whole of the area of Certificate of Title Volume 164559 Folio 2. Figure 2 below is an extract from the Plan of Title showing the spatial extent of the lot area within the thick black line. The spatial extent of the subject land is shaded blue and is hereinafter referred to as the land. Figure 2 also shows an area of land shaded yellow, which the property owner has agreed to sell. The yellow area is not part of the land and no declaration or HLSO is sought for this area of land.

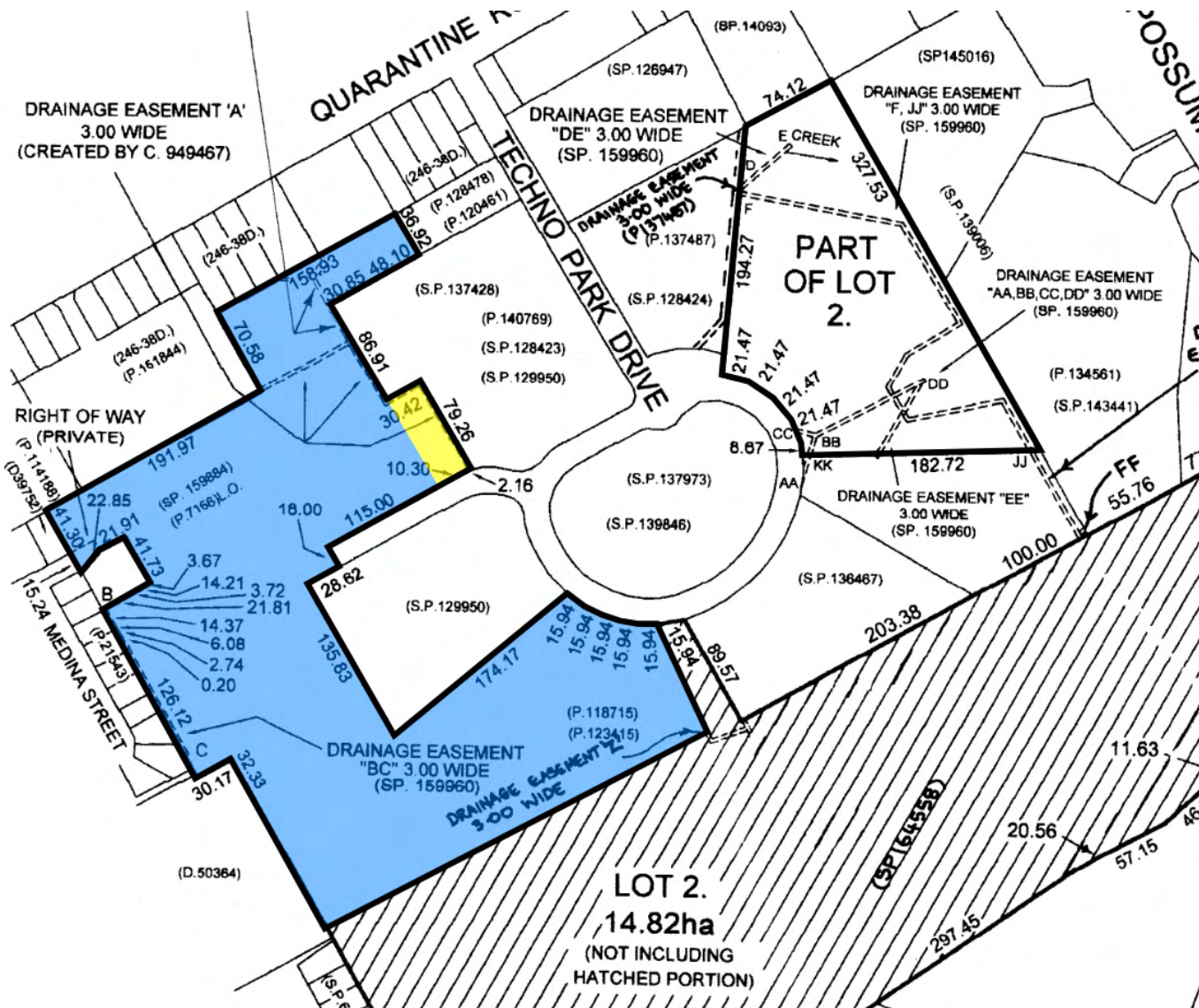


Figure 2 *Extract from title. The lot is defined by the thick black line, the land is shaded blue. Part of the lot, in yellow, is not included within the HLSO land area.*

1.1.3 Land characteristics

The land has a shallow convex slope down towards the north-east. At the top of the site, high-quality and long-range views are available as shown below in Figure 3. Remnant vegetation and pastures for grazing cover most of the land. Old fencing, gates, water troughs, tracks and other farming infrastructure identify the land's agricultural history.



Figure 3 Long range views to the north-east. Photograph taken in western corner of the land, adjacent to the Woolven Street access.

According to the Landslide Hazard Assessment (see Appendix B), the surface of the site is generally undulating and slopes from west to east at 5-10° with localised flat areas and steeper slopes up to 20°. The hummocky surface profile is underlain by the Launceston Group Tertiary sediments in the north-west portion of the site. The south-west portion of the site has a smoother overall profile with a slightly rugged surface underlain by Jurassic Dolerite.

According to the Natural Values Survey (see Appendix C), the property has been highly modified and degraded through historic use including development and grazing from livestock (cows). Much of the native vegetation is degraded and currently exists in 'parkland cleared' condition, with common pasture weeds and some cover from native shrubs. The natural values survey found no significant flora. Whilst the presence of significant fauna could not be ruled out, the report concluded that the condition of the vegetation is highly degraded, fragmented and lacking in sufficient understorey to provide significant fauna habitat.

1.1.4 Surrounding area

The surrounding area comprises a mix of land uses. Notable features in the surrounding area are numbered on Figure 4 and are further described below.



Figure 4 2020 aerial view of the local area. The land is outlined in red with cadastral boundaries in black. Image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania

1.1.4.1 Medium-density residential land (1)

The medium-density residential land to the north and west are accessed by regular suburban residential street networks and are fully developed with housing built from the 1950s through to the 2010s. Figure 4 above shows an abrupt medium-density residential interface to the north and east.

1.1.4.2 OneSchool Global Tas (2)

Protruding into the centre of the land is the OneSchool Global Tas – Launceston campus. The campus was established in 2019 by converting an existing building housing a call centre for a financial institution. Buildings on the site cover an area of over 3000m² and contain a range of different learning and collaboration spaces. To the west of the school building and adjoining the site is a large car park area for staff and to the east is a large playground space.

1.1.4.3 Westpac call centre (3)

Adjacent to the northern corner of the land is a Westpac call centre. The call centre provides technical support for banking products customers. The call centre building covers an area of over 3100m². Surrounding the building is a large car park for staff and generous grounds containing large, grassed areas and remnant native vegetation.

1.1.4.4 Youngtown Memorial Oval (4)

Situated directly west is the Youngtown Memorial Oval. The Youngtown Memorial Oval is a community sporting facility and home of the South Launceston Football Club. It has a capacity of approximately 3,500 and regularly hosts finals for the Northern Tasmania Football Association.

The infrastructure and the community groups that have organised themselves around the Oval provide opportunity for future residents of the land to connect with the local community both as a spectator and participant. The benefits for participants include personal growth and physical development in a competitive environment

1.1.4.5 Jinglers Drive rural living estate (5)

To the south of the land is the rural living estate of Jinglers Drive, Ebba Place, Bevel Court and Deek Street. The estate contains residential lots ranging in size from 1600m² to 9000m². The large lots, remnant vegetation and reserved open space areas give the estate a semi-rural character. Lots within this estate were released from 2015 onwards and most are now developed with modern dwellings.

1.1.4.6 Youngtown Regional Park (6)

The land is connected to the Youngtown Regional Park by a narrow reservation running through the Jinglers Drive rural living estate. The Youngtown Regional Park is a large reserve with a trail linking Alma Street to Poplar Parade. It includes bushland and vegetated open space. It is a medium to high quality open space that has potential to contribute to the amenity, health and wellbeing of future residents of the land. With additional connecting infrastructure, the quality of the lived experience would be improved with better access to spaces for outdoor passive recreational activity.

1.1.4.7 Carr Villa Memorial Park (7)

Carr Villa Memorial Park is located north of the land. It was established in 1905 and is Launceston's major cemetery and crematorium. The crematorium has been in operation since 1938. The 50ha park contains memorials, placement of ashes, monumental and lawn cemeteries. It is a public facility, owned and operated by the City of Launceston.

1.1.4.8 Carr Villa Flora Reserve (8)

The Carr Villa Flora Reserve is located east of the Carr Villa Cemetery. It is 6 hectares in size and contains significant native flora and fauna. In spring there is an abundance of flowering plants including orchids and lilies. The reserve is located approximately 500m from the centre of the land and so can be conveniently accessed by future residents. The Reserve would provide opportunity for residents to experience a nature based passive recreational experiences such as bushwalking, photography and nature study.

1.1.5 Applicable Planning Scheme

The Tasmanian Planning Scheme – Launceston (TPSL) is applicable to valid planning applications made from 29 July 2022. The Site is in the Techno Park Particular Purpose Zone (TPPPZ) of the TPSL, the spatial extent of which is shown below at Figure 5.

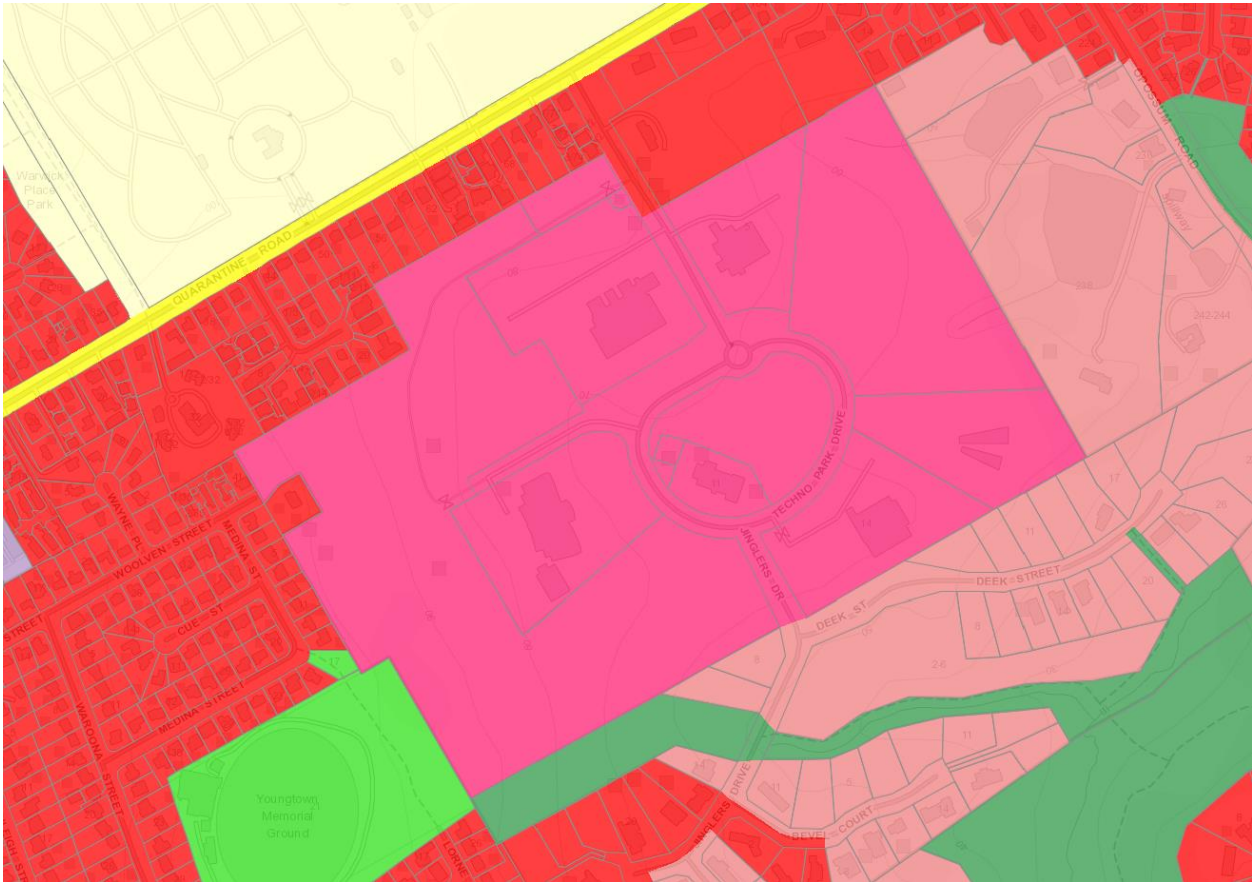


Figure 5 Techno Park precinct in pink. Base image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania

The TPPPZ contains the following Purpose Statements:

- provide for a range of uses and developments for research, development and assembly of high technology goods, information technology and communication services, and
- provide for complementary uses and developments that support the above purpose.

The following table outlines the status of permissible uses:

Table 1 Use Table

No permit required	
Use Class	Qualification
Natural and cultural values management	
Passive recreation	
Permitted	
Use Class	Qualification
Business and professional services	If for a call centre
Research and development	
Utilities	If for minor utilities
Discretionary	

Use Class	Qualification
Business and professional services	If not listed as permitted
Educational and occasional care	
Food services	If not for a restaurant
Manufacturing and processing	If for electronic technology, information technology or biotechnology
Service industry	If for electronic technology, information technology or biotechnology
Utilities	If not listed as permitted
Prohibited	
Use Class	Qualification
All other uses	

The TPPPZ contains regular standards with the objective of maintaining a high standard of residential amenity for adjoining properties and promoting a visual landscape setting with a leafy, spacious character. The Standards contain Acceptable Solutions and Performance Criteria to control external storage, emissions (light, odour, noise), height, building setbacks, external cladding, car parking, fencing, landscaping and subdivision.

The TPSL also contains use and development standards through the applicable Codes, which are discussed below at 1.8.

Part 2 - Division 1 of the HLSA

Part 2 of the HLSA contains the relevant considerations in the making of a declaration of land to be housing supply land and the relevant considerations in the making of a HLSO. This report addresses these relevant considerations and provides an opinion on whether the proposed declaration and HLSO complies with each applicable section.

The applicable sections, relevant to this report, are:

- Section 4 – Housing land supply orders
- Section 5 - Land that may be declared to be housing supply land
- Section 6 - Inclusion of intended zones in housing land supply orders
- Section 7 - Modifications of planning requirements

Each is considered in turn.

1.2 Housing land supply orders (s4 HLSA)

Section 4 of the HLSA states:

- (1) The Minister may make an order (a housing land supply order) declaring to be housing supply land an area of land that is specified in the order and that may, under section 5, be declared to be housing supply land.*
- (2) A housing land supply order may, if such a provision may be included in the order in accordance with section 6, include a provision declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to all or part of an area of land specified in the order to be housing supply land.*
- (3) A housing land supply order may include, in relation to all or part of an area of land specified in the order to be housing supply land, any one or more of the provisions, that may, in accordance with section 7, be included for the purposes of this subsection.*
- (4) A housing land supply order takes effect on the day on which it is notified in the Gazette or a later day that is specified in the notice in the Gazette as the day on which it is to take effect.*
- (5) A housing land supply order is a statutory rule for the purposes of the Rules Publication Act 1953.*

Sections 4(4) and 4(5) are noted. Sections 4(1), 4(2) and 4(3) are considered below in turn:

1.2.1.1 Section 4(1)

The spatial extent of the land proposed to be declared as housing supply land is shown below at Figure 6 and at Appendix D. The remainder of the Techno Park precinct would remain under the control of the TPPPZ.

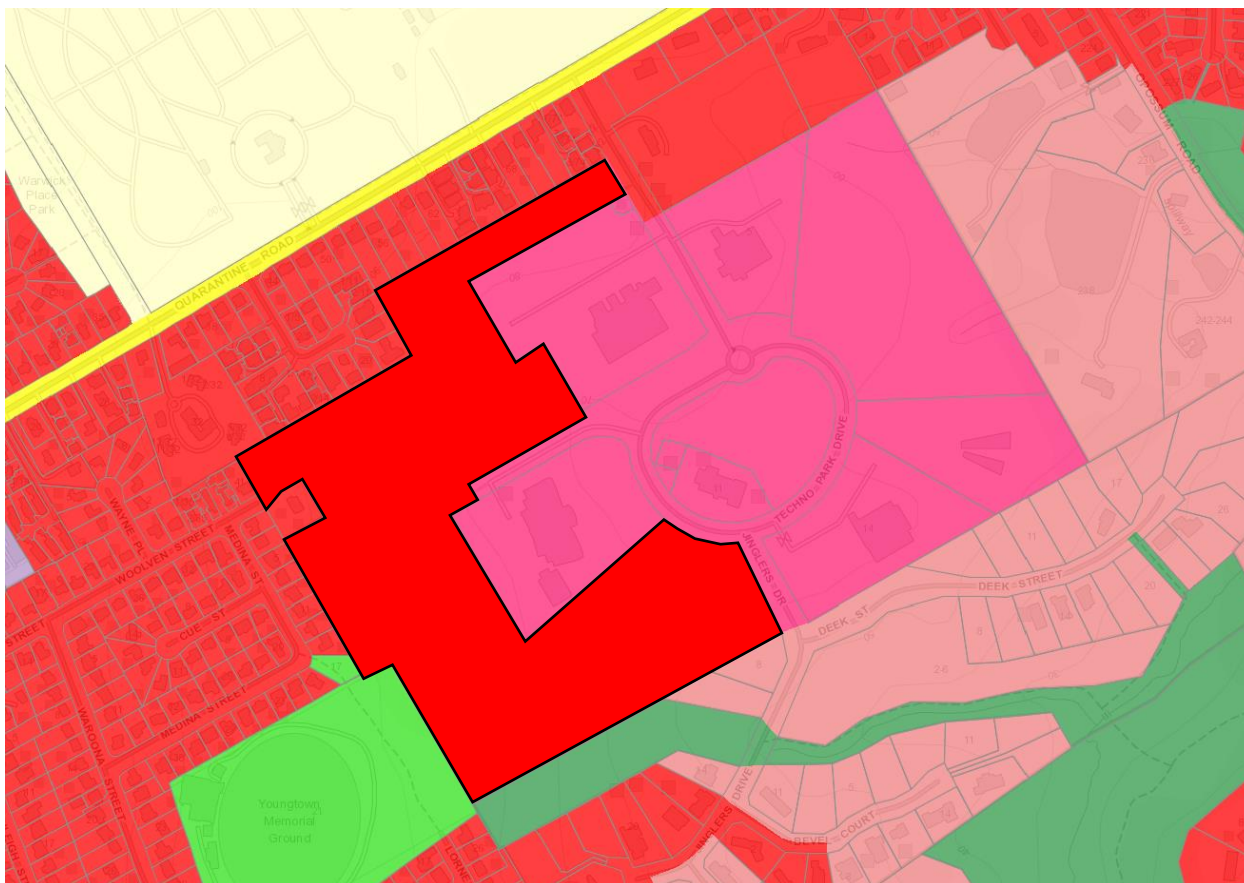


Figure 6 *Proposed General Residential Zone in red with thick black border. Base image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania*

The requirements of Section 5 of the HLSA are satisfied as discussed below at paragraphs 2.2-2.5. In accordance with 4(1), it is proposed that the Minister declare the land to be housing supply land.

1.2.1.2 Section 4(2)

The requirements of Section 6 of the HLSA are satisfied as discussed below at paragraphs 2.6-2.12. In accordance with 4(2), it is proposed that the Minister issue a HLSO that the General Residential Zone be the intended zone in relation to the land.

1.2.1.3 Section 4(3)

In accordance with 4(3), it is proposed that the Minister issue a HLSO, which includes modifications to a relevant housing provision in accordance with Section 7 (discussed below at paragraph 2.13).

This proposed HLSO is for the rezoning of the land and modification of a relevant housing provision within the TPSL. It does not include any development of the land.

1.3 Government land (section 5(1) HLSA)

Section 5(1) of the HLSA establishes a threshold of eligibility for the site to be declared as housing supply land. It states:

- (1) *The Minister must not, in a housing land supply order, declare an area of land to be housing supply land unless –*
 - a. *The area of land is government land; and*
 - b. *The area of land was government land on the commencement day; and*

- c. *The area of government land is not –*
 - i. *Reserved land under the Nature Conservation Act 2002; or*
 - ii. *Managed under the National Parks and Reserves Management Act 2002; or*
 - iii. *Managed under the Wellington Park Act 1993; and*
- d. *The area of government land is not –*
 - i. *Permanent timber production zone land, within the meaning of the Forest Management Act 2013; or*
 - ii. *Future potential production forest land, within the meaning of the Forestry (Rebuilding the Forest Industry) Act 2014; and*
- e. *Not more than 5 years have elapsed since the commencement day.*

1.3.1 Relevant considerations

Each matter in section 5(1) is considered in turn in Table 1 below:

Table 2 *Consideration of Section 5(1) of the Act*

<i>The Minister must not, in a housing land supply order, declare an area of land to be housing supply land unless –</i>	
Clause	Comment
a. <i>The area of land is government land;</i>	Section 3 of the Act provides that 'Government land' includes land that is owned in fee simple by the body corporate continued under section 4 of the <i>Tasmanian Development Act 1983</i> . The registered owner of the site is Tasmania Development and Resource, a body corporate continued under section 4 of the <i>Tasmanian Development Act 1983</i> . The proposal therefore satisfies 5(1)(a).
b. <i>The area of land was government land on the commencement day;</i>	Tasmania Development and Resource has been the registered owner of the land since the 24 May 1996, and was therefore government land on the commencement day, 20 July 2018.
c. <i>The area of government land is not –</i> <ul style="list-style-type: none"> i. <i>Reserved land under the Nature Conservation Act 2002; or</i> ii. <i>Managed under the National Parks and Reserves Management Act 2002; or</i> iii. <i>Managed under the Wellington Park Act 1993; and</i> 	There is no available record indicating that the land is reserved land under the <i>Nature Conservation Act 2002</i> , or land managed under the <i>National Parks and Reserves Management Act 2002</i> . There is no available record indicating that the land is managed under the <i>Wellington Park Management Act 1993</i> .
d. <i>The area of government land is not –</i> <ul style="list-style-type: none"> i. <i>Permanent timber production zone land, within the meaning of the Forest Management Act 2013; or</i> ii. <i>Future potential production forest land, within the meaning of the Forestry (Rebuilding the Forest Industry) Act 2014; and</i> 	The land is not identified as permanent timber production or future potential production forest land on any available record.
e. <i>Not more than 5 years have elapsed since the commencement day.</i>	Approximately 4 years have elapsed since the Act came into force on 20 July 2018.

1.3.2 Opinion on compliance

It is considered the land satisfies each of the eligibility requirements in Section 5(1) of the HLSA. Accordingly, the proposed HLSO would be compliant with section 5(1) of the HLSA.

1.4 Need for the land (s5(2)a HLSA)

Section 5(2)a of the HLSA states:

- (2) *The Minister must not, in a housing land supply order, declare an area of land to be housing supply land unless he or she is satisfied that –*
- a. *There is a need for land to be made available for purposes of the Homes Act 1935; and*

Section 2 of the *Homes Act 1935* states:

The purposes of this Act are -

- a. *To provide, or to enable the provision of, housing assistance to eligible persons; and*
- b. *To assist in the provision of housing support services to eligible persons.*

1.4.1 Relevant considerations

The need for social and affordable housing is largely a response to the failure of the private property market to supply the demand for housing at all levels of affordability. The Director of Housing's ability to provide housing through the private housing market is also limited by the price for housing set by the office of the Valuer General, which is usually below the market rate. Therefore, the need for housing is properly based on the numbers of people on Communities Tasmania Housing Register.

Housing Register demand figures available on 30 June 2021, indicate that 754 applicants are waiting for a home in the Launceston municipality based on first suburb preference. Housing Register figures also show that 1,080 applicants have a preference to live in the Launceston municipality based on all suburb preferences. A total of 15.7 per cent of all suburb preferences are in the Launceston LGA. This data demonstrates the high demand for social and affordable housing in Launceston.

Preliminary subdivision design concepts (see example at Appendix H) indicate that the land could support 109 regular residential lots. If each lot were developed with a single dwelling that was made available for social and affordable, it would satisfy only 10% of demand.

1.4.2 Opinion on compliance

As the present demand for housing in the Housing Register exceeds that which could be satisfied by either the market or the proposed housing land, it is considered that there is a need for land to be made available for purposes of the *Homes Act 1935*. Accordingly, the proposed HLSO would be compliant with section 5(2)a of the HLSA.

1.5 Suitability of the land (s5(2)b HLSA)

Section 5(2)b. of the HLSA states:

- (2) *The Minister must not, in a housing land supply order, declare an area of land to be housing supply land unless he or she is satisfied that –*
- b. *The area of land is suitable for use for residential purposes by virtue of its proximity to public and commercial services, public transport, and places that may provide opportunities for employment.*

1.5.1 Relevant considerations

Travel distances to local features are provided in Table 2 below.

Table 3 Proximity to local public and commercial services and opportunities for employment

Local feature	Driving distance*	Walking distance
Launceston CBD – full range of public and commercial services. Significant employment opportunity.	6km	6km
Kings Meadows High School – public education, sport and recreation opportunity. Employment opportunity.	2.5km	1km
Youngtown Primary School – public education. Employment opportunity	2.3km	1.2km
Kings Meadows Shopping Precinct - contains a broad range of retail services and commercial supplies, business and professional services, food services for daily and weekly needs. Significant employment opportunity.	2.5km	1.5km
Merino Street Industrial Area – contains wholesalers, commercial industry, service industry, commercial retail, bulky goods retail. Significant employment opportunity.	1.5km	750m
Techno Park Precinct – childcare, education, employment.	0m	0m
Connector Park Drive – contains bulky goods, landscaping supplies, industrial machinery. Significant employment opportunity.	2.5km	1.5km
Youngtown Memorial Oval – public sporting facility	0m	0m
Launceston Golf Course – semi-public sporting facility	2.5km	1.75km
Youngtown Regional Park – public passive recreation facility	0m	0m
Carr Villa Flora Reserve – public passive recreation facility	1km	1km

* Driving distance assumes that most of the land will utilise Techno Park Drive in preference to Woolven Street.

The land is well connected to public transport with a limited Metro Tasmania bus service located 275m to the west of the Woolven Street access. A full service is located on Youngtown Road, 450m to the west of the Woolven Street access. This network is detailed below in Figure 7.

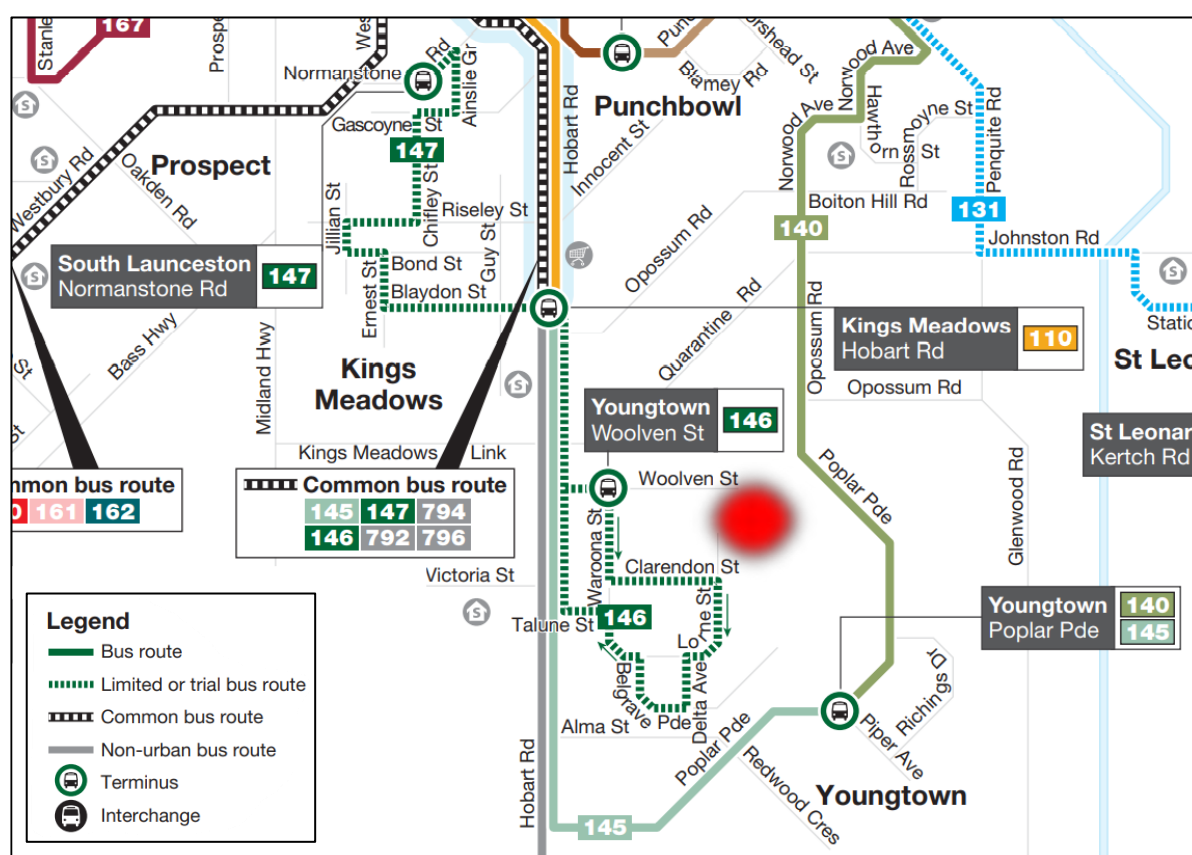


Figure 7 Metro Tasmania bus services map. Not to scale, not proportionate. General location of site in red.

Metro Tasmania operate routes 145, 146, 792, 794 and 796 which have components of their routes in the study area. Collectively these routes service Launceston, Youngtown, Perth, Longford, Cressy and Evandale. In addition to the public services, Metro Tasmania also operate five school bus services that travel in the study area. These are as follows:

- Route 817 operates in the morning and services Kings Meadows High School, Norwood Primary School and Queechy High School.
- Route 824 operates in the afternoon and services Norwood Primary School and Queechy High School.
- Route 830 operates in the afternoon and services Youngtown Primary School.
- Route 833 operates in the morning and services St Patrick's College and Kings Meadows High School.
- Route 848 operates in the afternoon and services St Patrick's College.

These routes are shown below in Figure 8.



Figure 8 Metro Tasmania school bus routes 817 (above left), 824 (above centre), 830 (above right) 833 (below left) and 848 (below right). Site in red.

It is considered that the proximity of places that may provide opportunities for employment is highly suitable for residential development. Walking to work opportunity would be available but most people would find it inconvenient. A high number of employment places are within a short and convenient driving distance. Access to schools is as proximate as can be expected in a suburban area. Access to retail and commercial services is suitable for vehicles but involves significant walking distances, especially if carrying goods. Access to public transport is suitably convenient and considered to be equivalent to most suburban areas in Tasmanian towns and cities. An additional bus route around the Techno Park precinct may be justified should residential development proceed.

1.5.2 Opinion on compliance

It is considered that the land is relatively proximate to public and commercial services, public transport, and places that may provide opportunities for employment and thereby satisfies the requirements of Section 5(2)b of the HLSA. Accordingly, the proposed HLSO would be compliant with section 5(2)b of the HLSA.

1.6 Owner's consent (section 5(5) HLSA)

Section 5(5) of the HLSA states as follows:

The Minister must not, in a housing land supply order, declare to be housing supply land an area of land that is owned in fee simple by the body corporate continued under section 4 of the Tasmanian Development Act 1983, without the consent of the Board, within the meaning of that Act.

1.6.1 Relevant considerations

Appendix E contains the written consent of Mike Wallas, Chair of the Tasmanian Development Board, to a HLSO being applied to the land.

1.6.2 Opinion on compliance

The proposed HLSO would be compliant with section 5(5) of the HLSA.

1.7 State Policies and the Regional Land Use Strategy (s6(1)a HLSA)

Section 6(1)a of the HLSA states as follows:

- (6) *Inclusion of intended zones in housing land supply orders*
- (1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless, -*
 - a. *the Minister is satisfied that to assign the intended zone to the area of land or part would be consistent with –*
 - i. *the State Policies; and*
 - ii. *the regional land use strategy in relation to the area of land or part; and*

1.7.1 Relevant considerations

The applicable State Policies are, and Regional Land Use Strategy is:

- State Policy on the Protection of Agricultural Land 2009
- State Policy on Water Quality Management 1997
- National Environmental Protection Measures
- Northern Tasmania Regional Land Use Strategy

Each is considered in turn.

1.7.1.1 State Policy on the Protection of Agricultural Land 2009

The purpose of the State Policy on the Protection of Agricultural Land 2009 (PAL Policy) is to conserve and protect agricultural land so that it remains available for the sustainable development of agriculture, recognising the particular importance of prime agricultural land.

The site is within the Launceston urban area and hence has no classification in the DPIPWE land capability mapping. The capability of the land for agricultural purposes is presently limited by the PPZTP Table of Use, which prohibits agricultural use (existing non-conforming use rights apply to present agricultural use). It would also be limited by the General Residential Zone, which also prohibits agricultural use. Several factors constrain the use of the site for agricultural purposes, which are considered and addressed in RMCG's letter of 27 October 2021, attached at Appendix F.

It is considered that there would be no inconsistency with the PAL Policy.

1.7.1.2 State Policy on Water Quality Management 1997

The State Policy on Water Quality Management aims to achieve the sustainable management of Tasmania's surface water and groundwater resources by protecting or enhancing their qualities, while allowing for sustainable development in accordance with the objectives of Tasmania's Resource Management and Planning System.

This policy applies to all surface waters, including groundwaters. Assessment against this State Policy is not triggered as this application is for a rezoning of the land and modification of a relevant housing provision and does not include development.

Future development of the site will need to address this State Policy, it is anticipated that future development of the site will be able to satisfy the requirements of the State Policy by applying water quality controls throughout the development application and engineering approval and construction processes.

1.7.1.3 National Environmental Protection Measures

The National Environmental Protection Measures (NEPMs) are automatically adopted as State Policies under S12A of the State Policies and Projects Act 1993 and are administered by the Environment Protection Authority. The key NEPMs for land use in respect to planning schemes relate to:

- Ambient air quality
- Diesel vehicle emissions
- Assessment of site contamination
- Used packaging materials
- Movement of controlled waste between States and territories
- National pollutant inventory

The NEPMs relate to issues that are unlikely to arise in any significant sense as a consequence of any decision in relation to this application.

1.7.1.4 Northern Tasmania Regional Land Use Strategy

When rezoning land or modifying a relevant housing provision, the NTRLUS is essentially seeking regional outcomes related to highest and best use of the land in question. In this sense, the potential impacts of the loss of land within the Techno Park PPZ are as important to consider as the potential impacts from the gain in land within the General Residential Zone.

The four key goals of the NTRLUS framework are based on economic development, liveability, sustainability, and strong governance. These underpin the 20-year Vision and are complemented by an integrated set of strategic planning directions and strategies.

The NTRLUS categorises the land as an urban growth area. Urban growth areas contain growth corridors, priority consolidation areas, supporting consolidation areas and the Launceston central area. The land is within a supporting consolidation area, meaning:

- It has access to reliable and effective public transportation and has potential to be part of an area with reduced vehicle dependency;
- It is physically connected to existing communities and is capable of direct transport linkages to established urban areas and activity centres;
- It is part of a cohesive community with a wide range of services and facilities, comprising suitable and complementary mixes of land uses.

Figure 9 below is an extract from the NTRLUS, with the site identified within the supporting consolidation area.

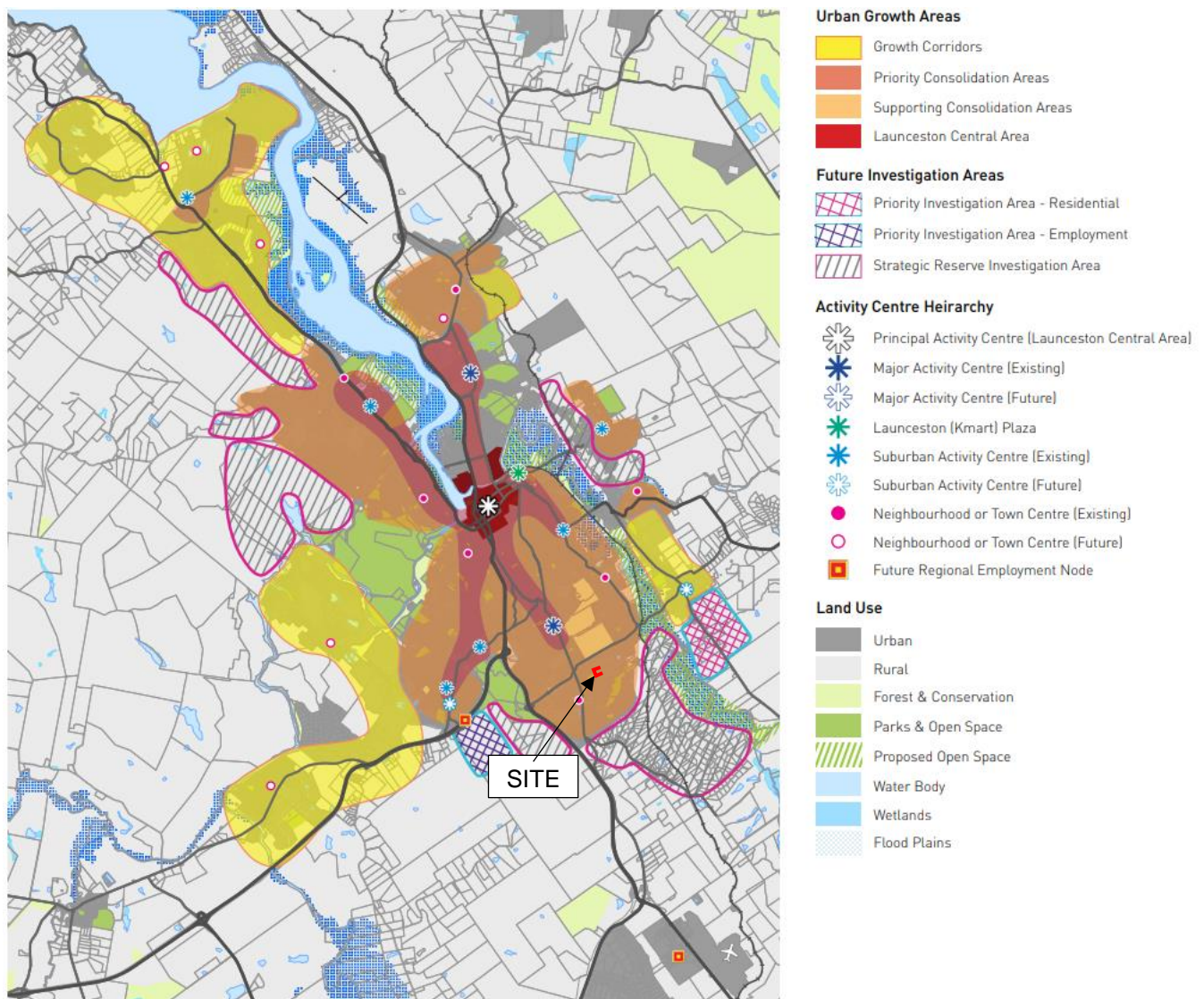


Figure 9 Extract from NTRLUS, showing growth and consolidation areas.

D2.1.1 of the NTRLUS provides the key principles guiding rezoning of land within the urban growth areas. The relevant key principles are that rezoning should:

- lead to the strategic and orderly development of the area;
- be physically suitable;
- exclude areas with unacceptable risk of natural hazards, including predicted impact of climate change;
- exclude areas with significant biodiversity values;
- be appropriately separated from incompatible land uses; and
- be a logical expansion of an existing urban area.

Information relevant to the determination of consistency with these key principles is identified as follows:

- impacts on residential supply and demand;
- impacts on the agricultural estate;

- potential for land use conflict and impacts on nearby uses if residential development were to occur;
- impacts on natural, cultural and landscape values;
- assessment of natural or other hazards; and
- the potential for conflict with State policies.

Broadly, the corresponding policy of the NTRLUS emphasises the need for a sustainable urban settlement pattern. The specific policies and actions relevant to the subject land and a statement in relation to consistency is provided below in Table 4. as follows:

Table 4 *Specific policies and actions relevant to the subject land*

Policy	Action	Comment
Regional Settlement Networks		
RSN-P1 Urban settlements are contained within identified Urban Growth Areas. No new discrete settlements are allowed and opportunities for expansion will be restricted to locations where there is a demonstrated housing need, particularly where spare infrastructure capacity exists (particularly water supply and sewerage).	<p>RSN-A2 Land supply will be provided in accordance with the Key Principles through local strategy for Urban Growth Areas which include:</p> <ul style="list-style-type: none"> – Priority Consolidation Areas – Supporting Consolidation Areas – Growth Corridor – Future Investigation Areas. <p>RSN-A3 Apply zoning that provides for the flexibility of settlements or precincts within a settlement and ability to restructure underutilised land.</p>	<p>The proposal would be located within a supporting consolidation area on a site with attributes that conform with RSN-P1.</p> <p>It is noted that the proposed rezoning of the land and modification of a relevant housing provision under the HLSA is a response to elevated demand for public housing. This elevated demand, to some degree, indicates that the typical market forces of supply and demand are unable to satisfy community housing need. It is further noted that the NTRLUS prioritises containment of the urban form ahead of growth at the urban edge (urban sprawl) and that to some degree, the proposed rezoning of the land and modification of a relevant housing provision meets that objective.</p>
RSN-P2 Provide for existing settlements to support local and regional economies, concentrate investment in the improvement of services and infrastructure, and enhance quality of life.	<p>RSN-A4 Provide for the long-term future supply of urban residential land that matches existing and planned infrastructure capacity being delivered by TasWater, specifically in parallel with existing water and sewerage capacity and required augmentation to meet urban development growth and capacity – both residential and industrial.</p> <p>RSN-A5 - Provide a diverse housing choice that is affordable, accessible and reflects changes in population, including population composition. Ageing populations and single persons should be supported to remain in existing communities as housing needs change; 'ageing in home' options should be provided.</p> <p>RSN-A6 - Encourage urban residential expansion in-and-around the region's activity centre network to maximise proximity to employment, services and the use of existing infrastructure,</p>	<p>Consultations with TasWater will form an integral part of the HLSA process. Nevertheless, there are no known issues associated with the capacity of water or sewage infrastructure to service residential use and development on the site. Any necessary infrastructure changes or upgrades can be addressed through subsequent DA processes.</p> <p>General Residential rezoning of the land and modification of a relevant housing provision of the site would enable a wide range of development options including the provision of diversity in housing choice.</p> <p>General Residential rezoning of the land and modification of a relevant housing provision of the site would enable residential development with proximity and</p>

Policy	Action	Comment
	including supporting greater public transport use and services.	convenient access to employment, public transport, retail and commercial services.
Housing Dwellings and Densities		
RSN-P5 Encourage a higher proportion of development at high and medium density to maximise infrastructure capacity. This will include an increased proportion of multiple dwellings at infill and redevelopment locations across the region's Urban Growth Areas to meet residential demand.	RSN-A10 Apply zoning provisions which provide for a higher proportion of the region's growth to occur in suitably zoned and serviced areas. The application of Urban Mixed Use, Inner Residential and General Residential Zones should specifically support diversity in dwelling types and sizes in appropriate locations.	General Residential rezoning of the land and modification of a relevant housing provision of the site would enable a wide range of development options including the provision of housing at appropriate density.
Integrated Land Use and Transport		
RSN-P8 New development is to utilise existing infrastructure or be provided with timely transport infrastructure, community services and employment.	Prioritise amendments to planning schemes to support new Urban Growth Areas and redevelopment sites with access to existing or planned transport infrastructure. This will support delivery of transit-oriented development outcomes in activity centres and identified transit nodes on priority transit corridors.	Residential activity on the site can be appropriately supported by existing public transport infrastructure (see 1.5.1 above). Post development, public transport could be extended closer to the site if determined necessary.
RSN-P11 Coordinate land use and transport planning and the sequence of development with timely infrastructure provision.	<p>RSN-A15 Planning will be informed by the Northern Integrated Transport Plan (2013). Future iterations of the strategy are to require planning schemes to provide appropriate zoning patterns and support land use activities by:</p> <ul style="list-style-type: none"> Identifying transport demands and infrastructure required; Protecting key transport corridors from incompatible land uses; and Creating sustainable land use patterns that maximise efficient use of all future transportation modes i.e., road/rail, freight routes (including land and sea ports), and public transport, pedestrian and cyclists' networks. 	Residential activity on the site can be appropriately supported by existing public transport infrastructure (see 1.5.1 above). Post development, public transport could be extended closer to the site if determined necessary.
Residential Design		
RSN-P17 Provide accessible and high-quality public open space in all new 'Greenfield' and infill development by creating well-designed public places		General Residential rezoning of the land and modification of a relevant housing provision of the site would enable a wide range of development options including the provision of high-quality and well connected public open space.
Housing Affordability		
RSN-P20 Provide a variety of housing options to meet diverse community needs and achieve housing choice and affordability.	RSN-A19 Review the community needs for housing provision and affordability.	General Residential rezoning of the land and modification of a relevant housing provision of the site would enable a wide range of development options including the provision of housing diversity and choice and affordability.
Industrial Land		

Policy	Action	Comment
<p>ED-P2 Provide for land use planning and infrastructure networks to support the development of:</p> <ul style="list-style-type: none"> – High value agriculture and food products; – Digital economy (including the NBN); – Vibrant, creative and innovative activity centres as places of employment and lifestyle; and – Diverse tourism opportunities <p>ED-P3 Provide a 10-year supply of industrially zoned and serviced land in strategic locations</p>	<p>ED-A3 Identify suitably located land within planning schemes to be zoned for industrial and employment purposes, consistent with the Northern Tasmania Industrial Land Study (2014) and provide for the region to be well placed to capture economic opportunities.</p> <p>ED-A4 Analyse industrial land demand to 2040 and provide a sufficient supply of land zoned for industrial purposes, supported by adequate infrastructure and network requirements (transport, water, sewerage and energy).</p>	<p>The Northern Tasmania Industrial Land Strategy 2014 (NTILS) does not identify the land as either a regionally significant industrial precinct or a locally significant industrial precinct. The NTILS identifies a current oversupply of industrial land in the region for the next 15 years of between 167 and 205 hectares. Supply over the longer term (30 years) is sufficient.</p> <p>The TPPPZ was created to satisfy perceived demand for a range of uses and developments for research, development and assembly of high technology goods, information technology and communication services. Whilst the area of the TPPPZ would be reduced by one-third, anecdotal demand for these uses has not been high, suggesting that adverse impacts on economic development potential would not be significant.</p> <p>Should demand increase, it is considered that it can be appropriately accommodated elsewhere in Launceston in the available Industrial, Commercial and Business Zones.</p>

1.7.2 Opinion on compliance

Matters identified for consideration within the NTRLUS are not substantially different to matters identified for consideration within the requirements of the HLSA. It is considered that the loss of land from the TPPPZ is not likely to create significant impacts on the supply of land for aligned uses. It is also considered that assigning the General Residential Zone to the land and the subsequent use and development of the land for residential purposes would be part of a sustainable development pattern, consistent with the strategic directions of the NTRLUS.

It is also considered that the proposed HLSO would be consistent with relevant State Policies. Accordingly, the proposed HLSO would be compliant with section 6(1)a of the HLSA.

1.8 Applicable Code restrictions (s6(1)b HLSA)

Section 6(1)b. of the HLSA states as follows:

(6) *Inclusion of intended zones in housing land supply orders*

(1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless, -*

b. the Minister is satisfied that, if the intended zone were to be assigned to the area of land or part, the use or development of the land or part for residential purposes would not be significantly restricted by the requirements of any code that applies to the land or part under the applicable planning scheme

1.8.1 Relevant considerations

The applicable codes in the TPSL are:

- C3.0 Road and Railway Assets Code
- C13.0 Bushfire-Prone Areas Code
- C15.0 Landslip Hazard Code

The spatial extent and the potential restrictions on use or development are considered below.

1.8.1.1 Road and Railway Assets Code

The purpose of the Code is to protect the safety and efficiency of the road and railway networks. Considerations in relation to access and traffic movement include the nature and frequency of the traffic generated by the residential as opposed to use aligned with the TPPPZ and the suitability of the roads servicing the site.

It is noted that the Technical Direction of the New South Wales Road Transport Authority Guide to Traffic Generating Developments indicates that regional business parks approximately generate between 100 and 300 vehicle trips per hectare per day. On a 10.3ha site, this equates to approximately 1000 – 3000 vehicle movements per day. The Technical Direction also indicates that a fully developed residential subdivision, with 150 dwellings, generates approximately 8 vehicle movements per day. This equates to 1200 vehicle movements per day. Accordingly, it is noted that the potential traffic generation from development of the site under the existing Particular Purpose Zone – Techno Park may not be significantly different than it would be if it were in the General Residential Zone.

The site has frontage to Woolven Street and Techno Park Drive, which can each provide vehicle access between the site and the wider road network. The capacity of Woolven Street to accommodate additional traffic is limited, particularly by the circumstances of the intersection with Hobart Road. The capacity of Techno Park Drive to accommodate additional traffic is also limited. Under a fully developed scenario, right turns into Techno Park Drive from Quarantine Road and into Quarantine Road from Techno Park Drive may involve delay and may necessitate signalisation. Banking along Quarantine Road may trigger the need for a right turn lane. It is noted that land to the north of Quarantine Road is in Council ownership and may provide adequate geometry for widening to include a right turn from Quarantine Road into Techno Park Drive, should it be needed. It is also noted that the circumstances of the intersection may also permit signalisation, should it be necessary.

It is considered that the Code limitations are likely to be manageable provided the design of the site and the road environment is appropriately responsive to the conditions. Therefore, in accordance with section 6(1)b of the HLSA, it is considered that the Code will not significantly restrict use of the land for purposes aligned with the General Residential Zone.

1.8.1.2 Bushfire-Prone Areas Code

The standards of the Bushfire-Prone Areas Code apply to use and development on the land. The spatial extent of the Bushfire-Prone Areas Code overlay is shown below at Figure 11.

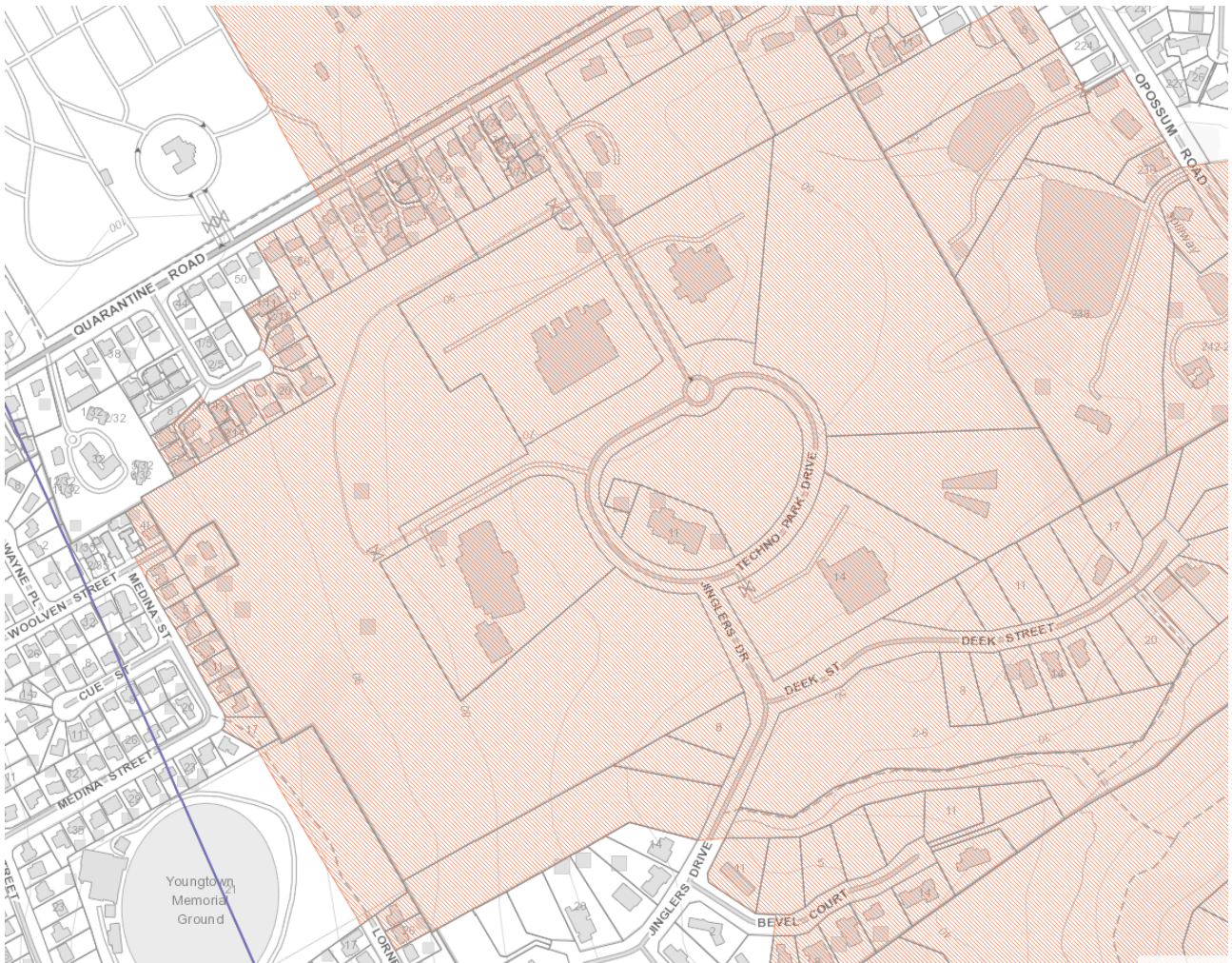


Figure 10 Techno Park site with Bushfire-Prone Areas overlay in red cross hatching. Base image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania

Appendix G contains preliminary bushfire advice from RMCG to support the preliminary design process for subdivision of the site into residential allotments. Initial advice from RMCG is that the preliminary designs can meet the requirements of the Bushfire Code. Notably, the preliminary advice identifies areas on the site that will be suitable for bushfire hazard management areas. Figure 10 below is an extract from that preliminary advice. Note that Figure 12 is based on an earlier subdivision design that has been superseded.

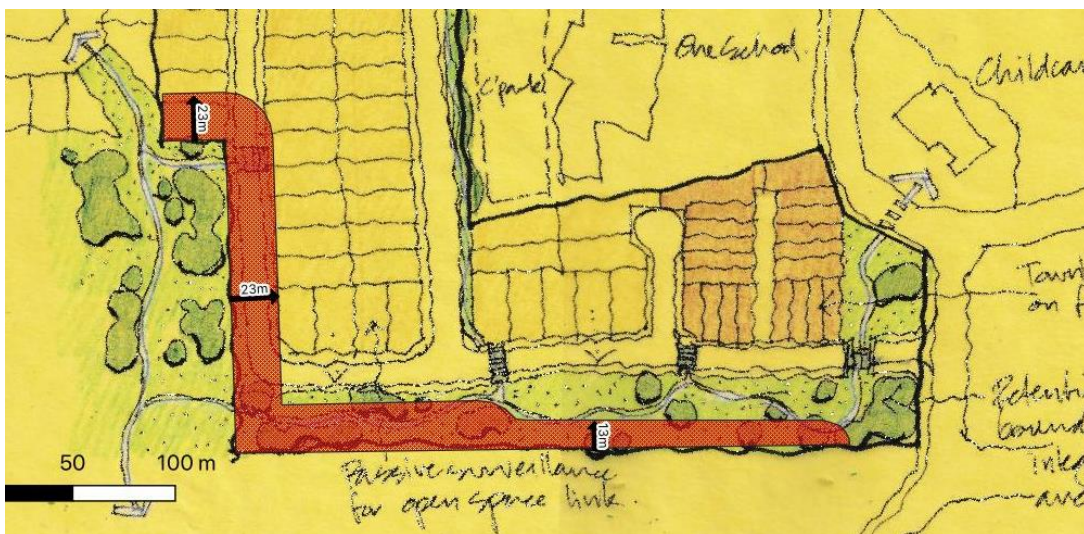


Figure 11 Extract from RMCG advice. Hazard management area (red cross hatch) overlaying superseded subdivision design.

It is considered that preliminary advice to date indicates that the circumstances of the site can support subdivision and subsequent residential use and development with few restrictions other than for buildings located within the hazard management area shown above.

1.8.1.3 Landslip Hazard Code

The site contains land identified in the low and medium landslide hazard bands, which triggers the application of the Code standards to use and development. The spatial extent of the Code overlay is shown below at Figure 13

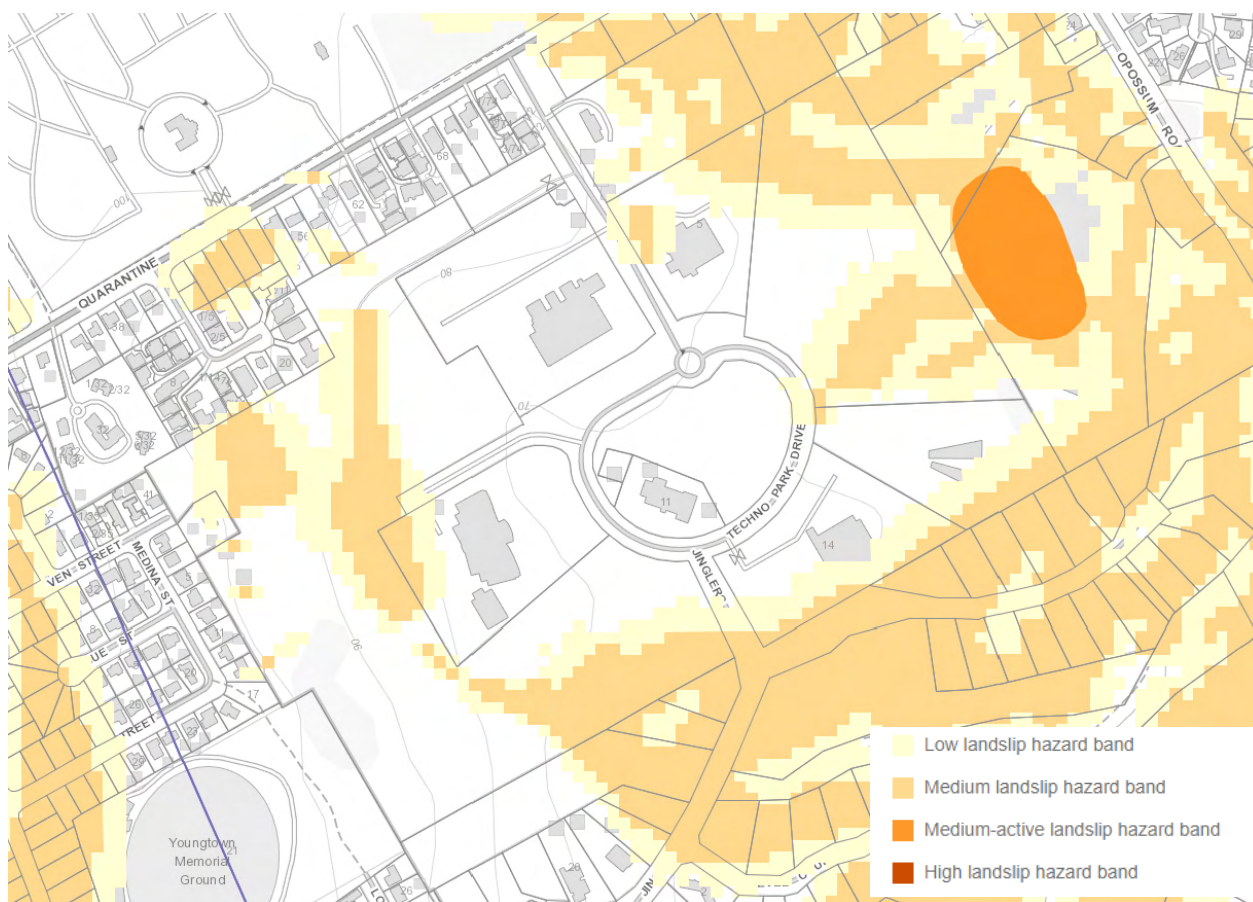


Figure 12 Techno Park site with Landslip Hazard Bands as shown. Base image and data from theLIST (www.thelist.tas.gov.au) © State of Tasmania

In order to meet the standards of the Code and comply with section 6(1)b of the HLSA, there must be an acceptable level of risk to use that is permissible in the General Residential Zone. The Landslip Hazard Assessment of the site (Appendix B) has found a spring along the southern boundary and an area of land adjacent to that which is unsuitable for development and should be avoided. This area of restricted land is minor in context and would be restricted whether the site was used for purposes aligned with the TPPPZ or the General Residential Zone.

It is considered that the Code limitations are likely to be manageable provided that use and development on the site is appropriately responsive to the conditions. Therefore, in accordance with section 6(1)b of the HLSA, it is considered that the Code will not significantly restrict use of the land for purposes aligned with the General Residential Zone.

1.8.2 Opinion on compliance

In accordance with section 6(1)b of the HLSA, no Code within the TPSL contains standards that could be characterised as significantly restricting use or development on the land for residential purposes. An appropriately designed subdivision and subsequent residential use and development on the site would be capable of making a significant contribution to housing land supply. Accordingly, the proposed HLSO would be compliant with section 6(1)b of the HLSA.

1.9 Schedule 1 Objectives of LUPAA (s6(1)c HLSA)

Section 6(1)c. of the HLSA states as follows:

(7) *Inclusion of intended zones in housing land supply orders*

(1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless, -*

c. the Minister is satisfied that to assign the intended zone to the area of land or part would further the objectives set out in Schedule 1 to the Land Use Planning and Approvals Act 1993

1.9.1 Relevant considerations

The following tables considers the proposal against the objectives in Schedule 1 of the *Land Use Planning and Approvals Act 1993* (LUPAA).

Table 5 Part 1 – Objectives of the Resource Management and Planning System of Tasmania (RMPS)

Provision	Comment
a. <i>To promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity</i>	In the circumstances, the impacts on ecological processes and genetic diversity are minor. Use and development of the land for residential purposes is sustainable in that it would align with containment and consolidation policy and strategy found in environmental, social, economic, conservation and resource management policies at State, regional and municipal levels.
b. <i>To provide for fair, orderly and sustainable use and development of air, land and water</i>	The site will represent infill development within an established suburban area with the intent that it will supply housing land for those in need. Fairness and order underpin the process to date. Sustainability is discussed above at Objective a.
c. <i>To encourage public involvement in resource management and planning</i>	Appropriate public involvement and consultation with the relevant interested parties has been undertaken in accordance with the <i>Housing Land Supply Act 2018</i> . This is discussed below at section 2.15 of this report. Future development of the site will be subject to public consultation through the LUPAA process.
d. <i>To facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c)</i>	The rezoning of the land and modification of a relevant housing provision would facilitate suburban residential development involving employment at all levels of the supply chain, and trade and professional service delivery. The proposal will utilise existing services, taking advantage of existing capacity and thereby benefitting economies of scale in service delivery. It is considered that the economic benefit would be significant. The greater availability of affordable housing is considered to have positive economic effects on people, who otherwise may struggle to find shelter, by assisting them to reach their potential to contribute to the economy in their own way.
e. <i>To promote the sharing of responsibilities for resource management and planning between different spheres of Government, the community and industry in the State</i>	The land is currently government land owned by Tasmania Resource and Development, an entity governed by the Tasmanian Department of State Growth. Each utility provider and the Council will take responsibility for different matters related to use and development of the land.

Table 6 Part 2 – Objectives of the Resource Management and Planning System of Tasmania (RMPS)

Provision	Comment
a. <i>To require sound strategic planning and co-ordinated action by State and local government</i>	As discussed at 1.7.1.4, the proposed HLSO would be consistent with the NTRLUS. The proposed HLSO is in response to the State Government Affordable Housing Strategy 2015-2025, indicating consistency there also. The removal of the land from the TPPPZ has a degree of inconsistency with the Launceston Industrial Strategy 2009-2029. The proposed HLSO would apply to 10.7ha of the TPPPZ, representing approximately one third of the 28.6 TPPPZ area. 18.6ha of the TPPPZ would remain.

Provision	Comment
	<p>The Launceston Industrial Strategy 2009-2029 seeks to provide guidance in the supply of industrial land to meet stated objectives. One of the objectives of the strategy is to rationalise the spatial distribution of industrial development with the emphasis of concentrating industrial uses around designated industrial precincts. The TPPPZ could, in some senses, be described as a semi commercial/business/light industrial precinct. At the very least, uses that the Techno Park intends to accommodate are uses that would often be found in commercial/business/light industrial precincts. The uses that have established in the Techno Park precinct (call centres, operating centres, school) are not necessarily uses that align with the strategic intent of the TPPPZ and are uses that could establish successfully elsewhere in Launceston.</p> <p>The Northern Tasmania Industrial Land Strategy 2014 (NTILS) does not identify the land as either a regionally significant industrial precinct or a locally significant industrial precinct. The NTILS identified a current oversupply of industrial land in the region for the next 15 years of between 167 and 205 hectares. Supply over the longer term (30 years) is sufficient.</p> <p>It is considered that the need for housing as outlined by the Deputy-Secretary is high and the supply of suitable housing land has a strategic imperative that would outweigh the adverse impacts caused by a relatively small reduction in the supply of land for purposes aligned with the TPPPZ.</p> <p>Accordingly, it is considered that the strategic objectives outlined as local and State level are appropriately consistent with the proposal.</p>
<i>b. To establish a system of planning instruments to be the principal way of setting objectives, policies and controls for the use, development and protection of land</i>	The proposed HLSO is subject to the requirements of the HLSA. Once rezoned, any future use or development of the site will be subject to the requirements of the TPSL. It is considered that these instruments form an adequate system, fit for purpose.
<i>c. To ensure that the effects on the environment are considered and provided for explicit consideration of social and economic effects when decisions are made about the use and development of land</i>	A desktop natural values survey has been undertaken by GHD (see Appendix C) which has not identified environmental values that would pose significant restrictions on future use and development. Social and economic benefit from additional housing would likely be significant by comparison.
<i>d. To require land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels</i>	Use and development of the land for residential purposes aligns with containment and consolidation policy and strategy found in environmental, social, economic, conservation and resource management policies at State, regional and municipal levels. It also represents opportunity to deliver additional affordable housing in line with State Government Affordable Housing Strategy 2015-2025.
<i>e. To provide for the consolidation of approvals for land use or development and related matters, and the co-ordinate planning approvals with related approvals</i>	The proposal is for a rezoning of the land and modification of a relevant housing provision under the HLSA. Future planning approvals will be undertaken in accordance with the requirements of LUPAA.
<i>f. To promote the health and wellbeing of all Tasmanians and visitors to Tasmania by ensuring a pleasant, efficient and safe environment for working, living and recreation</i>	The General Residential Zone would provide opportunity for safe and amenable suburban living with convenient access to shopping, working and recreational areas.
<i>g. To conserve those buildings, areas or other place which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value</i>	No registered historic or cultural values are identified on the land. On-site observation does not indicate scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value on or near the land.
<i>h. To protect public infrastructure and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community</i>	The site has convenient access to existing electrical, water, sewer and stormwater infrastructure adjacent to the site. The standards of the TPSL and the approvals processes of the services providers provide an adequate level of control to protect public infrastructure and other assets and enable the orderly

Provision	Comment
	provision and co-ordination of public utilities and other facilities for the benefit of the community.
i. <i>To provide a planning framework which fully considers land capability</i>	<p>The capability of the land for agricultural purposes is presently limited by the TPPPZ Table of Use, which prohibits agricultural use (existing non-conforming use rights apply to present agricultural use). It would also be limited by the General Residential Zone, which also prohibits agricultural use.</p> <p>Several factors constrain the use of the site for agricultural purposes, which are considered and addressed in RMCG's letter of 27 October 2021, attached at Appendix F.</p>

1.9.2 Opinion on compliance

In accordance with section 6(1)c of the HLSA and for the reasons discussed above in Tables 4 and 5 above, it is considered that the proposal would appropriately further the objectives set out in Schedule 1, LUPAA.

1.10 Consistency with General Residential Zone purpose and Section 8A Guidelines LUPAA (s6(1)d HLSA)

Section 6(1)d. of the HLSA states as follows:

- (6) *Inclusion of intended zones in housing land supply orders*
- (1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless -*
 - d. *having considered any guidelines under section 8A of the Land Use Planning and Approvals Act 1993, the Minister is satisfied that to assign the intended zone to the area of land or part would be consistent with the zone purpose specified in the SPPs in relation to the intended zones, whether or not the Tasmania Planning Scheme is the applicable planning scheme in relation to the area of land or part;*

1.10.1 Relevant considerations

Table 6 below considers the factors relevant to the guidelines under section 8A of the *Land Use Planning and Approvals Act 1993*.

Table 7 Assessment of proposed HLSO against Zone Application Guidelines.

Zone Application Guidelines	Assessment
<i>General Residential Zone</i>	
<p><i>GRZ 1 The General Residential Zone should be applied to the main urban residential areas within each municipal area which:</i></p> <ul style="list-style-type: none"> <i>(a) are not targeted for higher densities (see Inner Residential Zone); and</i> <i>(b) are connected, or intended to be connected, to a reticulated water supply service and a reticulated sewerage system.</i> 	<p>In accordance with (a), there is no available information indicating that the site is targeted for higher density residential use at local, regional, or State level.</p> <p>In accordance with (b), the land has full access to reticulated water and sewer services.</p>
<p><i>GRZ 2 The General Residential Zone may be applied to green-field, brown-field or grey-field areas that have been identified for future urban residential use and development if:</i></p> <ul style="list-style-type: none"> <i>(a) within the General Residential Zone in an interim planning scheme;</i> <i>(b) within an equivalent zone under a section 29 planning scheme; or</i> 	<p>In accordance with (c), the rezoning of the land and modification of a relevant housing provision would be consistent with the NTLUS, which seeks to direct growth within the applicable Supporting Consolidation Area. See further discussion above at 1.7.1.4.</p> <p>In accordance with (d), the land has full access to reticulated water and sewer services.</p>

Zone Application Guidelines	Assessment
<p>(c) <i>justified in accordance with the relevant regional land use strategy, or supported by more detailed local strategic analysis consistent with the relevant regional land use strategy and endorsed by the relevant council; and</i></p> <p>(d) <i>is currently connected, or the intention is for the future lots to be connected, to a reticulated water supply service and a reticulated sewerage system</i></p>	
<p><i>GRZ 3 The General Residential Zone should not be applied to land that is highly constrained by hazards, natural values (i.e., threatened vegetation communities) or other impediments to developing the land consistent with the zone purpose of the General Residential Zone, except where those issues have been taken into account and appropriate management put into place during the rezoning process.</i></p>	<p>As discussed above at section 1.8.1, the land is impacted by landslide hazard, biodiversity values and bushfire hazard. Each hazard poses a minor constraint on use and development on the site and can be appropriately managed through the General Residential Zone of the SPPs and the applicable Codes.</p>

Section 8.1 of the General Residential Zone of the TPSL states:

The purpose of the General Residential Zone is:

- 8.1.1 *To provide for residential use or development that accommodates a range of dwelling types where full infrastructure services are available or can be provided.*
- 8.1.2 *To provide for the efficient utilisation of available social, transport and other service infrastructure.*
- 8.1.3 *To provide for non-residential use that:*
 - (a) *primarily serves the local community; and*
 - (b) *does not cause an unreasonable loss of amenity through scale, intensity, noise, activity outside of business hours, traffic generation and movement, or other off-site impacts.*
- 8.1.4 *To provide for Visitor Accommodation that is compatible with residential character.*

Each Zone Purpose statement is considered below in turn:

In accordance with 8.1.1 and further to the geotechnical and natural values report, the proposed HLSO would facilitate a typically wide range of residential development that would be subject to acceptable levels of risk and appropriately minimal environmental impacts. Residential development would be fully supported by infrastructure including roads, electricity, telecommunications, water, sewer and stormwater. As an example of the potential of the site to be developed for residential purposes, a preliminary subdivision design is attached at Appendix H. The preliminary design has been prepared in response to identified site constraints and opportunities, with a view to meeting the standards of the General Residential Zone of the SPPs.

In accordance with 8.1.2, the proposed HLSO would facilitate circumstances in which future residents would have access to a wide range of social, transport and other service infrastructure including schools, recreation areas, employment areas, retail and commercial areas.

In accordance with 8.1.3, the proposed HLSO would facilitate use of the land for non-residential use focussed on the local community and with minimised impacts on amenity by the standards of the General Residential Zone.

In accordance with 8.1.4, the proposed HLSO would facilitate use of the land for Visitor Accommodation, limited in impact on residential character by the standards of the General Residential Zone of the SPPs.

1.10.2 Opinion on compliance

In accordance with section 6(1)d of the HLSA, the proposed HLSO would be consistent with the guidelines under section 8A of the *Land Use Planning and Approvals Act 1993* and the Purpose of the General Residential Zone of the SPPs. Accordingly, the proposed HLSO would be compliant with section 6(1)d of the HLSA.

1.11 Heritage, environment, economic and social impacts (s6(1)e HLSA)

Section 6 of the HLSA states as follows:

- (6) *Inclusion of intended zones in housing land supply orders*
- (1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless, -*
 - e. *the Minister has considered the environmental, economic, and social effects, and the effect on Aboriginal and cultural heritage, that assigning the intended zone to the area of land or part may have*

1.11.1 Relevant considerations

A natural values survey (see Appendix C) has been undertaken by GHD, which found no significant flora. The natural values survey concluded that there were no expected impacts on flora because of development of the site for residential purposes. Whilst the presence of significant fauna could not be ruled out, the report concluded that the condition of the vegetation is highly degraded, fragmented and lacking in sufficient understorey to provide significant fauna habitat. In the circumstances, environmental impacts are minor and manageable with appropriate design.

The proposed HLSO represents opportunity to deliver additional affordable housing in line with State Government Affordable Housing Strategy 2015-2025. The social and economic benefit from additional housing would likely be significant and are likely to outweigh the economic impact from loss of the land from the underutilised Techno Park precinct.

An assessment of Aboriginal cultural heritage has been undertaken by Cultural Heritage Management Australia. The assessment found that there are just three registered Aboriginal sites that are located within an approximate 6km radius of the study area. The three sites are all classified as Artefact scatters. None of these three sites are situated within the bounds of the study area. Two of the sites are situated around 6km to the north of the study area, on the margins of the North Esk River. The third site is located 6km to the south-west of the study area. The full report is attached at Appendix I.

1.11.2 Opinion on compliance

It is considered that the environmental impacts would be minor. The economic and social effects would be significant. There would be no significant the effect on Aboriginal and cultural heritage. Accordingly, having considered these matters, the proposed HLSO would be compliant with section 6(1)e of the HLSA

1.12 Land Use Conflicts (s6(1)f HLSA).

Section 6(1)f of the HLSA states as follows:

- 6 *Inclusion of intended zones in housing land supply orders*
- (1) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless, -*
 - f. *the Minister is satisfied that, if the intended zone were assigned to the area of land or part, the use or development of the land or part, respectively, for residential purposes would not be likely to create significant land use conflict with –*
 - i. *an existing use on any part of the land; or*
 - ii. *the use or development of any area of land that is adjacent to the area of land; or*
 - iii. *the use or development of any area of land that, in the opinion of the Minister, is likely to be affected by the use or development of the area of land or part.*

1.12.1 Relevant considerations

In accordance with 6(1)f.i., the land presently contains passive grazing activity. It is considered to be use that would not come into conflict with residential use and development.

In accordance with 6(1)f.i., the established adjacent residential development to the north, west and south of the land is typical suburban residential use, involving typical domestic activity and is not considered to be a source of potential land use conflict with residential use and development on the land.

The adjacent Oneschool Global site contains buildings with a footprint of over 3000m², a large car park and playground areas. The hours of operation for the school would typically be between 8am and 5pm. Levels of noise would be minimal other than arrival times, recess, lunch and departure times, when noise would involve children playing and vehicles. A plant room on the Oneschool site would be situated 21m from the land. Site visits undertaken during, and outside school hours found that the plant emitted no noise that would significantly impact on residential amenity. Schools are commonplace in residential settings, the noises are not high in volume, repetitive or tonal and it is considered that the impact on amenity would be minor.

The land is also adjacent to a Westpac call centre in the northern corner. The building, which is over 3100m² in footprint area would be located 75m from the land, with a degree of landscaping between. The use of the building, including the air conditioning, generates no significant noise. Based on separation, low noise, nil odour or other emissions+, it is unlikely that land use conflicts would arise related to the call centre building. The call centre car park would be located 10m from the land. The most active use is during the daytime, during regular work hours. Some use outside regular hours may occur. The sections of the car park that are closest to the land are also furthest from the call centre building and so are the least used. It is considered that noise and light impacts from departure and arrivals would be low and within usual residential expectations. Impacts are also manageable with simple measures such as appropriate fencing.

No other use or development adjacent or near to the land is likely to pose any significant risk of land use conflict.

1.12.2 Opinion on compliance

In accordance with 6(1)f, it is considered that the use of the land for residential purposes would not be likely to create significant land use conflict. Accordingly, the proposed HLSO would be compliant with section 6(1)f of the HLSA.

1.13 Dwelling and lot density conformity to suburban density (s6(2) HLSA)

Section 6(2) of the HLSA states:

- (6) *Inclusion of intended zones in housing land supply orders*
- (2) *the Minister must not include in a housing land supply order a provision, referred to in section 4(2), declaring a zone, referred to in the applicable planning scheme, to be the intended zone in relation to an area of land or part of an area of land, unless -*
 - (a) *both of the following apply:*
 - (i) *the provisions, of the intended zone, are such that the minimum size of a lot, or the maximum area of land for a dwelling, that complied with those provisions would be no more than the minimum size of a lot, or the maximum area of land for a dwelling, that complied with the provisions of the SPPs in relation to the General Residential Zone;*
 - (ii) *the area of land, or the part of the area of land, is not within the municipality of Flinders; or*
 - (ab) *the area of land, or the part of the area of land, is within the municipality of Flinders and the intended zone is one of the following zones:*
 - (i) *the Residential Zone under the Flinders Planning Scheme 2000;*

(ii) the Low Density Residential Zone under the Tasmanian Planning Scheme;

(iii) the Village Zone under the Tasmanian Planning Scheme –

and the Minister is satisfied that the area, or part, can be adequately supplied with a water supply and wastewater treatment and that stormwater can be appropriately managed; or

(b) the intended zone is to relate to part only of the area of land and is a zone –

(i) that complies paragraph (a) or (ab); or

(ii) that is necessary or appropriate for the purposes of a subdivision of the area of land for residential purposes; or

(iii) that applies to the part of the area of land immediately before the intended zone is specified, in relation to the land, in the order.

It is noted that (a), (ab) and (b) operate to the exclusion of each other and so only (a), (ab) or (b) need be satisfied to satisfy s6(2). Sections (ab) and (b) do not apply in the circumstances.

1.13.1 Relevant considerations

The TPSL is a Planning Scheme that adopts the SPPs. The effect of the HLSO would be to cause a change to the zoning of the land from TPPPZ to General Residential, as provided for in the SPPs, including all minimum size of a lot or the maximum area of land standards.

The area of land, or the part of the area of land, is not within the municipality of Flinders.

1.13.2 Opinion on compliance

Based on the rationale above at, the proposed HLSO would provide for suburban densities in accordance with the General Residential Zone of the SPPs and therefore comply with s6(2) of the HLSA.

1.14 Modifications of planning requirements that may be specified in housing land supply order (s7(2) HLSA)

Section 7 of the HLSA states:

(1) In this section –

relevant housing provision, in relation to an area of land or part of an area of land, means a provision, of the applicable planning scheme in relation to the area of land, that –

(a) specifies a use standard, or a development standard, in respect of a zone that complies with section 6(2)(a); or

(b) specifies whether a permit, within the meaning of the Land Use Planning and Approvals Act 1993, is required in relation to a type of residential use or development in a zone that complies with section 6(2)(a); or

(c) is in the code, in the applicable planning scheme, that deals with parking and access requirements; or

(d) relates to the interpretation of words or phrases;

relevant SPPs provision, in relation to an area of land or part of an area of land, means a provision, of the SPPs, that –

(a) is a use standard, or a development standard, in relation to the General Residential Zone, the Inner Residential Zone, or the Urban Mixed Use Zone, referred to in the SPPs; or

(b) is in the code, referred to as the Parking and Sustainable Transport Code, in the SPPs; or

(c) relates to the interpretation of words or phrases.

- (2) *Any one or more of the following provisions may be, for the purposes of section 4(3), included, in a housing land supply order, in relation to an area of land, or a part of an area of land, that is specified in the housing land supply order to be housing supply land:*
- (a) a provision specifying how a relevant housing provision is to be modified in relation to its application to the area of land or the part;*
 - (b) a provision specifying that a relevant housing provision is not to apply in relation to the area of land or the part;*
 - (c) a provision specifying that there is to apply in relation to the area of land or the part –*
 - (i) a relevant SPPs provision that is specified in the provision in the order; or*
 - (ii) a relevant SPPs provision that is specified, in relation to the area of land or the part, in the provision in the order and that is modified as specified in the provision in the order.*

1.14.1 Relevant considerations

No modifications of a planning requirement is sought in the proposed HLSO.

1.14.2 Opinion on compliance

N/A

Part 3 – Section 11 of the HLSA

Section 11 of the HLSA identifies interested persons for the process for consultation of the HLSO.

2.1 Interested Persons (s11 HLSA)

Section 11 of the HLSA states:

For the purposes of this Act, the interested persons in relation to an area of land are –

- (a) the planning authority in relation to the area of land; and*
- (b) the Head of an Agency that the Minister considers has an interest in whether, or the manner in which, the area of land ought to be used or developed, or both, for residential purposes; and*
- (c) a statutory authority, or other entity, if the Minister considers –*
 - (i) that the authority or entity is likely to be required to provide electricity, gas, sewerage, telecommunications or water to the area of land; or*
 - (ii) that the efficient or effective provision by the authority or entity of electricity, gas, sewerage, telecommunications or water is likely to be affected by the use or development of the land for residential purposes; and*
- (d) any owner, or occupier, of –*
 - (i) land that adjoins the area of land; or*
 - (ii) land that the Minister considers is likely to be affected by the use or development, for residential purposes, of the area of land; and*
- (e) the Tasmania Fire Service within the meaning of the Fire Service Act 1979; and*
- (f) the Heritage Council within the meaning of the Historic Cultural Heritage Act 1995; and*
- (g) the Aboriginal Heritage Council within the meaning of the Aboriginal Heritage Act 1975; and*
- (h) the planning authority in relation to land, if any, that –*
 - (i) is adjacent to the area of land or that, in the opinion of the Minister, may be affected by the use or development, for residential purposes, of the area of land; and*
 - (ii) is not within the same municipal area, within the meaning of the Land Use Planning and Approvals Act 1993, as the area of land.*

2.1.1 Interested entities and persons

The interested persons are:

- City of Launceston, which is the planning, road and stormwater authority and owner of the Youngtown Memorial Oval and Youngtown Regional Park.
- TasNetworks
- TasGas
- TasWater
- NBNCo
- Tasmania Fire Service
- Tasmanian Heritage Council
- Aboriginal Heritage Council
- The owners and occupiers of the residential properties adjacent to the site
- Youngtown Primary School and Kings Meadows High School

Contact details of the interested persons are provided in Appendix J.

Appendices

Appendix A

Title documentation

SEARCH OF TORRENS TITLE

VOLUME 164559	FOLIO 2
EDITION 4	DATE OF ISSUE 12-Apr-2021

SEARCH DATE : 27-May-2021

SEARCH TIME : 03.10 PM

DESCRIPTION OF LAND

City of LAUNCESTON

Lot 2 on Plan 164559

Derivation : Part of 276 Acres Gtd.to Thomas Landale

Prior CT 159960/2

SCHEDULE 1

B950538 C944710 TRANSFER to TASMANIA DEVELOPMENT AND RESOURCES

SCHEDULE 2

B946281, C892420 & C944710 Land is limited in depth to 15 metres, excludes minerals and is subject to reservations relating to drains sewers and waterways in favour of the Crown

C949467 BURDENING EASEMENT: A Right of Drainage (appurtenant to Lot 1 on P151844) over the Drainage Easement 'A' 3.00 wide on P164559 Registered 31-Mar-2011 at noon

SP159960 BURDENING EASEMENT: A Right of Drainage in favour of Launceston City Council over the Drainage Easement DE 3.00 wide on P164559

SP159960 BURDENING EASEMENT: A Right of Drainage in favour of Launceston City Council over the Drainage Easement EE 3.00 wide on P164559

SP159960 BURDENING EASEMENT: A Right of Drainage in favour of Tasmanian Water and Sewerage Corporation (Northern Region) Pty Ltd over the Drainage Easement F, JJ 3.00 wide on P164559

SP159960 BURDENING EASEMENT: Right of Carriageway (appurtenant to Lot 1 on SP159884) over the Right of Way on P164559

SP164558 BENEFITING EASEMENT: Right of Drainage over the Drainage Easement Z 3.00 wide on P164559

SP159960 BENEFITING EASEMENT: (appurtenant to that part formerly comprised in Lot 1 on P137974) A Right of Drainage over the land marked Drainage Easement 3.00 wide on P164559,

SP159960 BURDENING EASEMENT: A Right of Drainage in favour of Launceston City Council over the Drainage Easement KK,

BB, CC, DD 3.00 wide on P164559

SP159960 BURDENING EASEMENT: A Right of Drainage in favour of Tasmanian Water and Sewerage Corporation (Northern Region) Pty Ltd over the Drainage Easement BC 3.00 wide on P164559

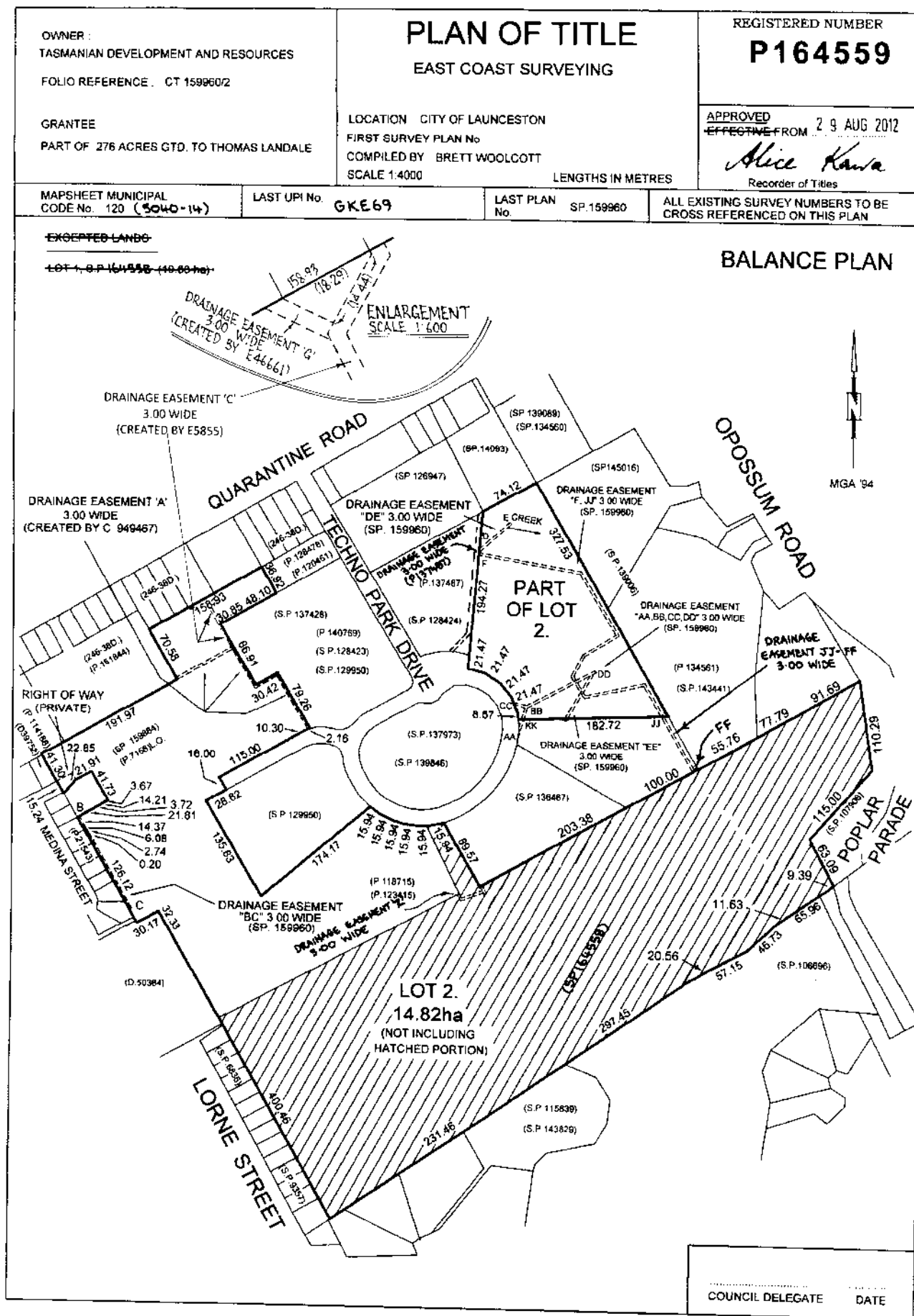
E5855 BURDENING EASEMENT: a right of drainage (appurtenant to Lots 1-4 on Plan 176338) over the land marked Drainage Easement 'C' 3.00 wide on Plan 164559 Registered 05-Jun-2019 at noon

E46661 BURDENING EASEMENT: a right of drainage (appurtenant to Lot 1 on Plan 180920) over the land marked Drainage Easement 'G' 3.00 wide on Plan 164559 Registered 12-Apr-2021 at noon

B950538 & C944710 FENCING PROVISION in Transfer

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



Appendix B

Landslide Hazard Assessment



Techno Park

Landslide Hazard Assessment

Department of Communities Tasmania

02 November 2021

→ The Power of Commitment



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1. Introduction

1.1 Purpose of this report

GHD Pty Ltd (GHD) was engaged by the Department of Communities Tasmania (Communities Tasmania) to undertake the role of lead consultant to provide development design and planning approval services for the subdivision of land at Lot 2 Techno Park, King Meadows.

To facilitate the design of the development and the subsequent planning application, a series of site assessments were undertaken to assist in determining the constraints and opportunities of site development. This report documents a desktop review and walkover survey undertaken to identify the extent of any landslide hazards that may constrain the suitability of the site for the Techno Park development.

The scope of this assessment is defined in Section 1.4.

1.2 Scope and limitations

This report: has been prepared by GHD for Department of Communities Tasmania and may only be used and relied on by Department of Communities Tasmania for the purpose agreed between GHD and Department of Communities Tasmania as set out in section 1.4 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Communities Tasmania arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Proposed development

Project site is Lot 2 Techno Park Drive, King Meadows, Launceston. The site currently forms a large portion of an existing industrial estate. The area is characterised by large, irregularly shaped lots sloping west to east, accessed by Techno Park Drive. The site boundary is defined on Figure A1, Appendix A.

1.4 Scope of work

The scope of work undertaken as part of this assessment consisted of the following works:

- A desktop review of available information relevant to the project site (listed in Section 2.1) to ascertain anticipated subsurface conditions and any existing or potential landslide hazards
- A site walkover to identify surface features which may aid understanding the site conditions including existing landslide hazards
- Provide a description of the landslide hazards, their location and their relevance to the project
- Provide recommendations for further works to aid the project

2. Desktop review

2.1 Available information

In order to develop an understanding of the geological and geotechnical conditions of the site to aid our assessment of landslide risk, a desktop review of the following available information was undertaken:

- Forsyth, S.M. and Calver, C.R. (compilers) 2005. Digital Geological Atlas 1:25,000 Scale Series. Sheet 5040. Prospect. Mineral Resources Tasmania.
- Mazengarb, C. Evandale – part Launceston map 3 – Simplified Geology. Tasmanian Landslide (2021 DRAFT)
- Mazengarb, C. 2013: Launceston, map 5 – Slide Susceptibility. Tasmania Landslide Map Series. Mineral Resources Tasmania, Department of Infrastructure Energy and Resources, Hobart.
- Department of Primary Industries, Water and Environment LISTmap services. Spatial data including Hillshade, Borehole data (Mineral Resources Tasmania), existing landslide features, Landslide Planning Map – Hazard Bands.
- Five historical aerial photographs obtained from the Department of Primary Industries, Parks, Water and Environment. Presented as Figures B1 to B5 in Appendix B
- Pitt & Sherry (2014) Techno Park Drive Geotechnical Investigation Report, ref: HB14503H001
- Department of Mines (1978) Geotechnical investigation data for an investigation conducted on a subdivision east of the site, south of Quarantine Road.
- Matthews, W.L. Stability of a proposed subdivision, Norwood, St Leonards, unpublished report, 1973.
- Matthews, W.L. Stability assessment of land at Opossum Road, Launceston. 1984.
- Matthews, W.L. Stability of land at Glenwood Road, Leichardt, 1986.
- Matthews, W.L. Investigation of a landslide at Pegema Place, Norwood, Mineral Resources Tasmania, Hobart, 1993.
- Stevenson, P.C. Stability assessment of the Leichhardt subdivision proposal, unpublished report, 1984.
- Ezzy, A.R. and Mazengarb, C. 2007. Mineral Resources Tasmania, Lawrence Vale Landslide Investigations: implications for landslide hazard assessment in Launceston.

GIS datasets have been used to create a number of site plans (Figures A1 to A4) which are presented in Appendix A and have been utilised for our assessment. These include: aerial imagery, geological setting, hillshade profile and slope profile

2.2 Regional Geology

The 1:25,000 geological map indicates that the majority of the site is underlain by Tertiary-aged sediments of the Launceston Group (Tsa) comprising: partly consolidated clay, silt, clayey labile (readily erodible) sand with rare gravel and lignite; some iron oxide – cemented layers and concretions; some fossils. Jurassic dolerite (Jd) crops out in the south-west corner of the site. The Jurassic dolerite is inferred to underlie the Tertiary sediments unit. An inferred fault has been mapped trending NNW beneath the site.

The Jurassic dolerite intrudes the permo-triassic Parmeener Group sedimentary rocks which are faulted and tilted along NNW trends. One such fault passes beneath the site. The regional faulting, active in the Early Tertiary created an asymmetric graben which was syntectonically infilled by fluvial and lacustrine Tertiary sediments (Launceston Group). Regional studies suggest the Launceston Group is tilted in a WSW direction as much as 30°. The Launceston Group is recognised as providing significant challenges in regard to geotechnical properties and its propensity for instability by way of landslide generation with minor changes in setting (such as minor earthworks).

The underlying geology with respect to the site boundary is presented on Figure A2 in Appendix A.

The 2021 draft update to the 1:25,000 geological map by Mazengarb and Evandale (2021), kindly provided by MRT as an advance copy, was also reviewed for the proposed site area. There are no significant changes to the geology underlying the site in that update, though the NNW trending inferred fault beneath the site is now mapped as a 'concealed normal fault'.

2.3 Groundwater

Previously collected groundwater data was obtained from the Tasmanian Government groundwater information portal. No records were available within 1 km of the site and so have not been included as part of this assessment. Note however, that the presence of springs across the site has been inferred from site observations.

2.4 LiDAR

A hillshade basemap is provided in LISTmap based on Tasmanian LiDAR data sets, and is presented on Figure A3, Appendix A. The LiDAR hillshade was used to identify potential geomorphic features which may relate to landslide morphology, such as indicated by abrupt slope changes and uneven hummocky surfaces. An annotated extract from Figure 3 is provided in below. The following features have been identified:

- Rough ground surface in the south-west corner of the site. This is inferred likely a feature of the underlying, more resistant dolerite rock present in this part of the site (shown on Figure 2).
- A curved feature and hummocky ground close to the southern boundary. It is inferred possible this represents the headscarp of a previous landslide. The potential extent of the landslide has been highlighted.
- Various areas with hummocky surfaces suggest possible past ground movement.
- The terrain of the site is generally 'smooth' suggesting there has been no recent landslide activity.

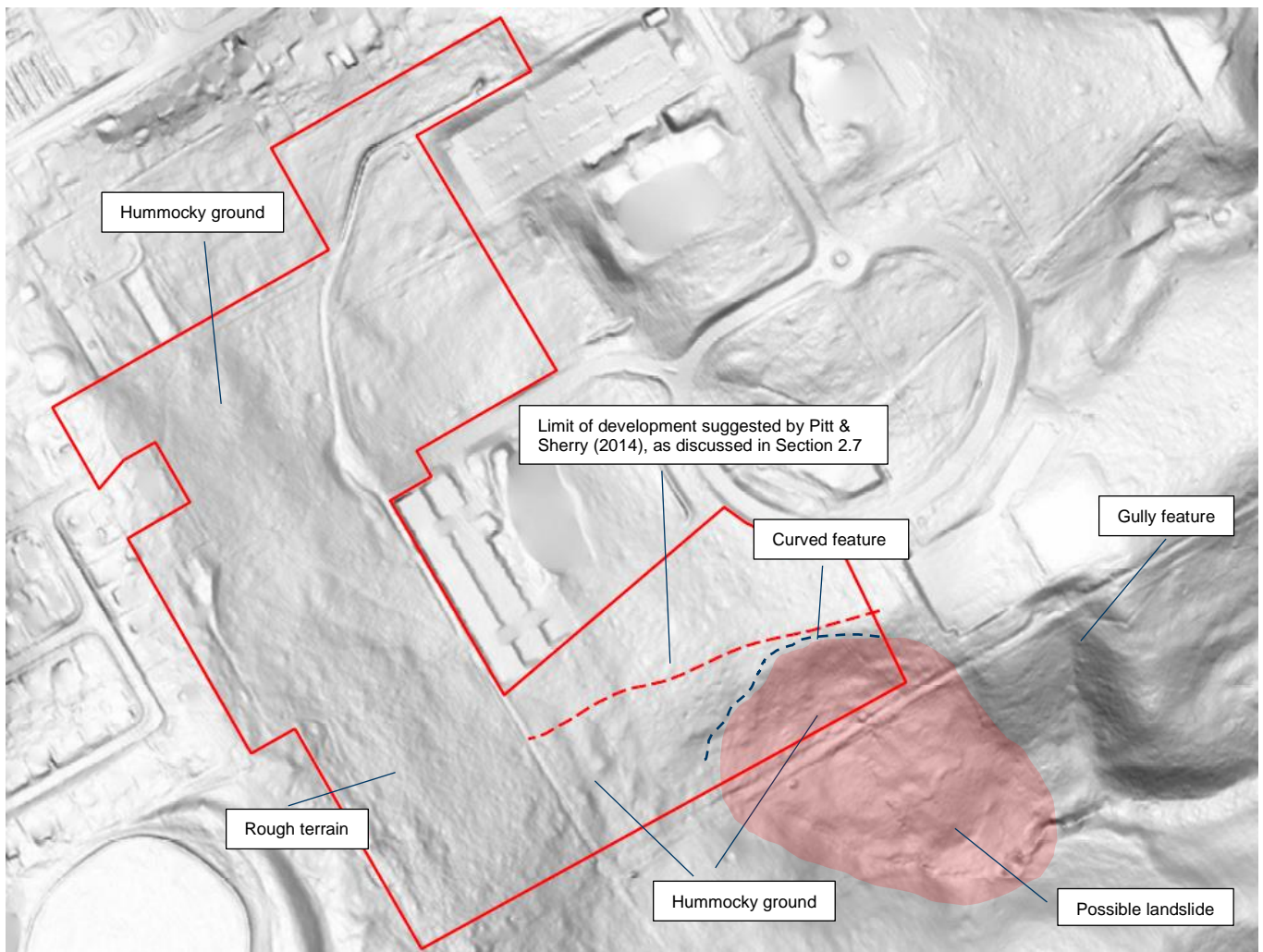


Figure 2-1 Annotated extract from Figure A3, Appendix A.

2.5 Existing Landslide Hazards

2.5.1 Landslide susceptibility and hazard zoning

According to the Launceston Slide Susceptibility (MRT 2013) map there are areas in the south-east and north-west portions of the site which are considered susceptible to landsliding, shown on Figure below. These susceptibility zones have been identified based on the presence of the underlying Launceston Group sediments, together with the slope gradients of the surface terrain (based on digital terrain models). As noted earlier, the Launceston Group is recognised in published literature as problematic in terms of potential instability.

The Landslide Planning mapping, presented on Figure A5 in Appendix A, directly reflects the susceptibility mapping, where (in this instance) medium hazard (orange) zones represent the potential landslide source area (an area of hillside with the potential to form a slope failure, identified largely on the basis of slope angle and geology) and the low hazard (yellow) zones represent potential landslide regression areas (an area up-slope of source area that could fail following a landslide movement) and runout areas (an area down-slope of a source area where the moving earth, debris or rock can potentially travel).

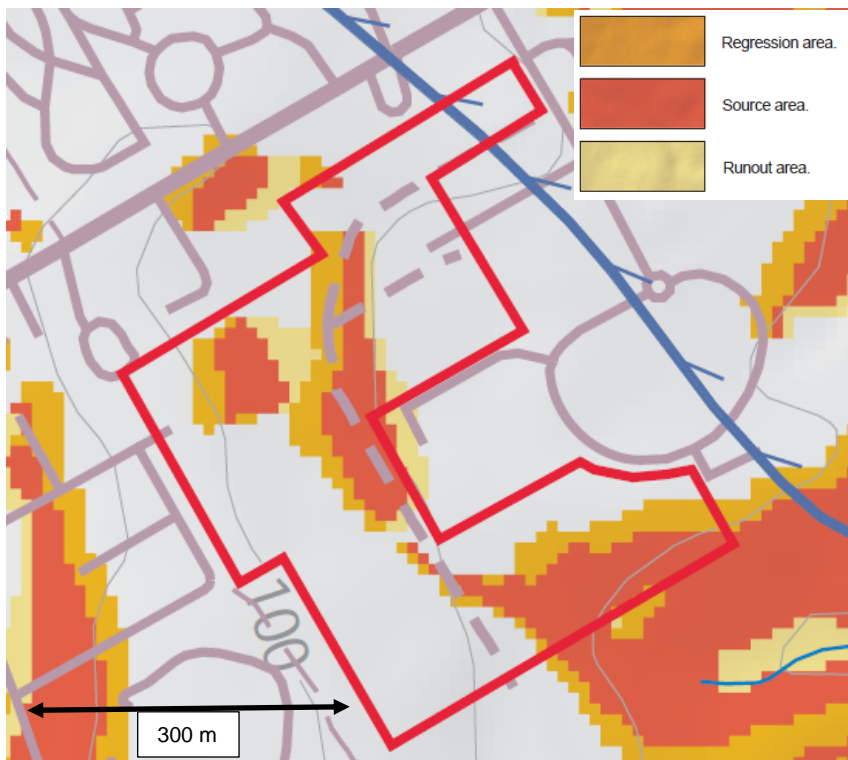


Figure 2-2 Extract from Slide Susceptibility Tasmanian Landslide Map Series (2013)

2.5.2 Historical landslides

The location and extent of landslides based on current, recent or historical activity and mapped features are shown on LISTmap as points and polygons. Figure shows the approximate location of several landslides mapped east of the proposed site. The historical data available reported for these landslides are summarised in Table 1.

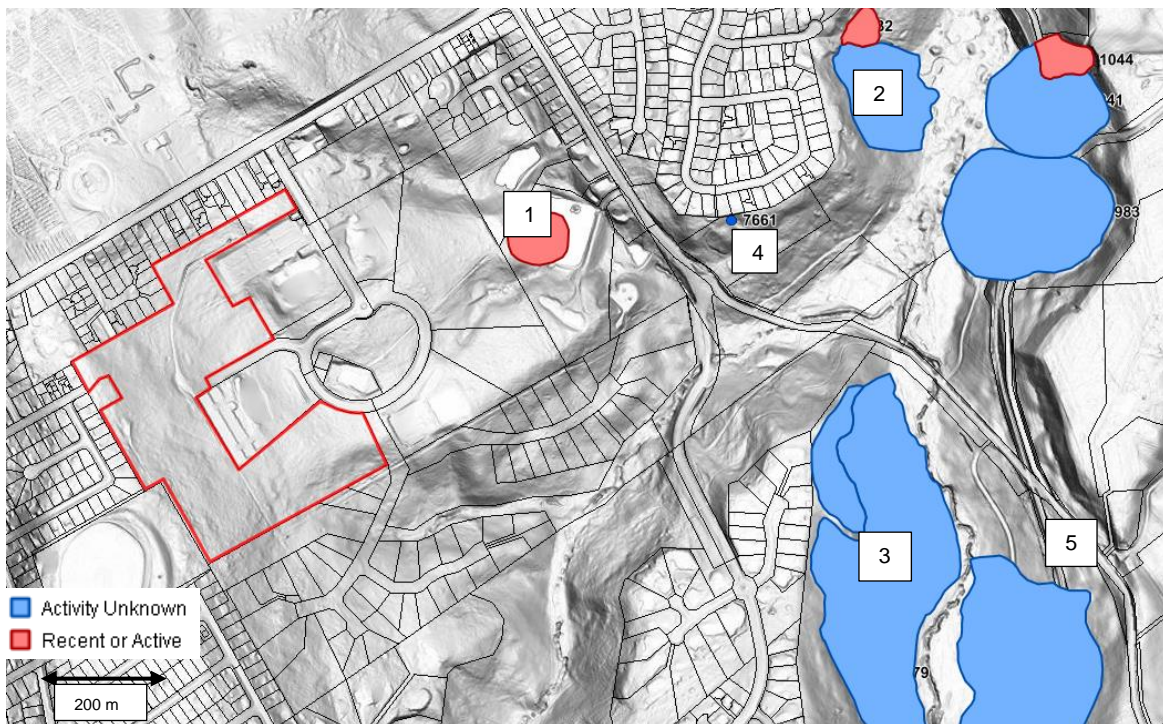


Figure 2-3 Historical mapped landslides as provided by LISTmap

Table 1 Summary of historical landslides (based on historical reports provided by MRT)

Landslide no. and report reference	Location (relative to site)	Geomorphological and geological conditions	Landslide comments	Recommendations contained in the referenced reports
1 'Stability of proposed subdivision, Norwood St Leonards, 1973', MRT ref: UR1973_53	Approx 500 m east	<ul style="list-style-type: none"> Land incised by valleys through area. Valley slopes range from 7° to >15° Tertiary sediments (Launceston Group) consisting mainly of clay with some beds of deeply weathered arkose (feldspathic sandstone). 	<ul style="list-style-type: none"> Clay pit, operated by Launceston brick company, was excavated near the base of one of the valley slopes. Angle of slope was 8° to 9° prior to excavation Tertiary clay beds have a relatively high sensitivity Oversteepening of slope and disturbance of clays likely to have promoted failure, highlighting sensitive nature of the soils to excavation 	<ul style="list-style-type: none"> Create exclusion areas around the active landslide and other steep slopes within proposed subdivision
2 'Investigation of a landslide at Pegema Place, Norwood' 1993, MRT ref: UR1993_37	Approx 1 km east	<ul style="list-style-type: none"> Surface features indicate large old landslides on nearby slopes together with small recent active landslides Tertiary sediments (Launceston Group) generally consisting of clay, silty clay, sandy clay and sand bands Atterberg Limits show high plasticity clay 	<ul style="list-style-type: none"> Landslide movement took place within both fill and natural material Important to note that placement of fill suggests alteration to slope conditions had an adverse effect on slope stability 	<ul style="list-style-type: none"> Installation of drains and tree planting were recommended to improve long term stability
3 'Stability of the Leichhardt subdivision proposal' 1984, MRT ref: UR1984_58	Approx 1 km south-east	<ul style="list-style-type: none"> 100 ha tract of land assessed. Consisting of valleys of Jingers Creek and a tributary, together with high land between creeks Clay and sand of the Tertiary Launceston Group observed in sides of creek valleys 	<ul style="list-style-type: none"> Identification of landsliding on 10° to 25° slopes from active head scarps and toes Small failures observed on man-made cuts Geotechnical properties of the Launceston Group sediments such as strength and presence of water considered highlighted as contributing factors 	<ul style="list-style-type: none"> Considered that failures can occur on slopes >10° 30 m exclusion zone from slopes >10° recommended for dwellings has avoided the 'unusable' areas identified
4 'Stability assessment of land at Opossum Road, Launceston, 1984, MRT ref: UR1984_45	Approx 800 m east	<ul style="list-style-type: none"> The land slopes from a low plateau to the flood plain of Jingers Creek Flattish zones on slopes mapped as old landslips Active slips on nearby slopes observed 	<ul style="list-style-type: none"> Slope stability analyses determined significant portion of the site likely to be unstable 	<ul style="list-style-type: none"> Small section of the site suggested for house development following good sub-surface drainage, avoiding cuts around the slopes below the house site and maintaining tree/vegetation cover
5 'Stability of land at Glenwood Road, Leichardt, 1986' MRT ref: UR1986_55	Approx 1.2 km south-east	<ul style="list-style-type: none"> Generally gentle slopes with steeper >10° areas Ground surface hummocky and uneven Underlain by Launceston Group sediment of clay, silty clay and sandy clay. Sediments overlain in flat area by gravel capping 	<ul style="list-style-type: none"> Most of the area considered to have been subject to landslide in the past Recently active slips observed on adjoining land on similar slopes – ie similar geomorphology 	<ul style="list-style-type: none"> Slopes >10° should be excluded from the development 'Extreme care' should be taken when developing on slopes <10°

Table 1 describes several landslides to the east of the proposed site. Each landslide is within the Tertiary aged Launceston Group sediments, which are similar to those underlying the proposed site and comparable geomorphology.

Another notable landslide to occur in the 1950's is the Lawrence Vale landslide, approximately 3 km north-west of the proposed site. Ezzy, A.R. and Mazengarb, C. (2007) have documented the findings of an investigation which are summarised as follows:

The site is underlain by the Launceston Group sediments which comprises ~10 m sequence of a high plasticity clay layer overlying dominantly clayey sand layers with banded gravel and ironstone, with the clayey sand layers acting as an aquifer. The sediments dip 10°-20° to the west, consistent with regional observations.

The Lawrence Vale landslides were a combination of rotational and translational failure styles and are thought to have occurred due to several factors:

- The hill slopes are cataclinal where the dip of sediment beds is less than or equal to the hillside slope
- Excessive pore pressures developed in the clayey sand beds below the high plasticity clay
- Excavation in the toe areas of the slopes when roads were established, without provision of support
- Launceston group clays are over-consolidated and therefore subject to expansion, fissuring and significant loss of strength when exposed by erosion

2.5.3 Failure mechanisms

Based on historical landslide information, it is recognised that the Launceston Beds represent a specific landslide hazard. As discussed in Section 2.4.2, there are a number of factors which may be attributed to the often-unstable nature of the Launceston Group sediments:

- The presence of over-consolidated, high plasticity clays beds which are sensitive and therefore subject to significant loss in strength when disturbed e.g. excavated into or eroded.
- Excess pore pressures created by the presence of sandy beds/lenses which act as aquifers.
- Where bedding within the Launceston Group sediments (generally 10°-20°) is unfavourably dipping out of the slopes.
- A residual angle of friction (Φ_r) has been reported as approximately 10° for the clay beds in several reports. This highlights the potential for instability where slopes are steeper than 10° and where previous straining has occurred to produce residual shear strength.

2.6 Historical aerial photographs

A series of historical aerial photographs were obtained from the Department of Primary Industries, Parks, Water and Environment which show the site conditions between 1956 and 1994. A summary of each photograph is provided in Table 2 below.

Table 2 Summary of historical aerial photographs

Photograph date	Photograph comments
1956 - 1957	The site is occupied by fields likely used for agricultural purposes and a number of access tracks. The southern section of the site and the slopes below it appear to be bushland.
1966 – 1967	The ground surface in the south-west section of the site appears rough and patchy indicating contrasting geology (underlying dolerite). Much of the bushland on the slopes south of the site has been removed revealing a creek and several possible erosion features. A small area of light shading has appeared along the southern boundary of the site next to the access track.
1971 - 1972	The location of light shading along the southern boundary appears darker than the surrounding terrain.
1981 - 1982	Areas of contrast/lighter shading in the area adjacent to the access track along the southern boundary.
1994 - 1995	The area along the southern boundary identified in earlier photographs has been segregated with fencing and appears to have a different contrast to the surrounding terrain. Some trees in the southern section of the site have been removed. Evidence of a spring feature has appeared outside the southern boundary on the slope below the access track.

No morphological features have been identified from the historical photographs that indicate a significant slope failure has occurred within the site itself during this timeframe. The following features are noted:

- Significant removal of bushland/trees from the slopes to the south of the site between 1957 and 1966.
- The area within the curved feature identified in Figure 2-1 has always been clear of trees and shows contrasting shading in a number of photos suggesting possible surface movement.
- There is evidence of a spring below the curved feature.

2.7 Historical geotechnical investigations

The results of several geotechnical investigations completed within Launceston Group sediments have been reviewed and summarised in Table 3 below.

Table 3 Summary of historical geotechnical investigations relevant to the site

Information source	Location (relative to site)	Investigation scope	Summary of investigation findings
Pitt & Sherry (2014) Techno Park Geotechnical Investigation	South-east corner of the site (area investigated shown on Figure below)	Two test pits to 2.0 and 2.1 m bgl. Geomorphological mapping	<ul style="list-style-type: none"> • A thin layer of clayey sand/gravel overlying stiff high plasticity clay with variable sand content, often in lenses • Water flowing through a sand lense at 1.8 m bgl in one test pit • Site walkover indicated the presence of a spring and a number of features consistent with previous landslips
Quarantine Road, Launceston (1978), MRT	Approx 150 m north-east	Three borehole drilled to 9 m bgl	<ul style="list-style-type: none"> • Launceston group sediments of interbedded stiff highly plastic clay and clayey sand. A layer of approx. 2 m clay overlying clayey sand • Shape of land surface indicated an old landslip in part of the site
W.L. Matthews (1984) Stability assessment of land at Opossum Road, Launceston	Approx 800 m east	Two auger boreholes drilled to 9 m bgl	<ul style="list-style-type: none"> • Stiff, highly plastic clay and silty clay with variable sand and gravel content. Occasional clayey sand bands. Rare dolerite cobbles • Following strength testing, residual strength parameter $c' = 3$ and $\Phi' = 10$ were adopted
W.L. Matthews (1986) Stability of land at Glenwood Road, Leichardt	Approx 1.2 km south-east	10 test pits to depths up to 3.3 m bgl	<ul style="list-style-type: none"> • Interbedded highly plastic clays with sand and gravel layers • A 30 mm thick iron oxide band measured dipping 30° west • 'Slip surfaces' noted in clay layer within two test pits • Strength testing determined a residual strength of $c' = 3$ and $\Phi' = 10$ for clay

The Pitt & Sherry (2014) investigation, which was completed within the site, identified the presence of a possible spring as well as relic landslide features. It concluded that a 10 m buffer zone from the break of slope should be adopted for development. The geomorphological map completed as part of the investigation, showing the location of the two test pits, is shown as Figure below.

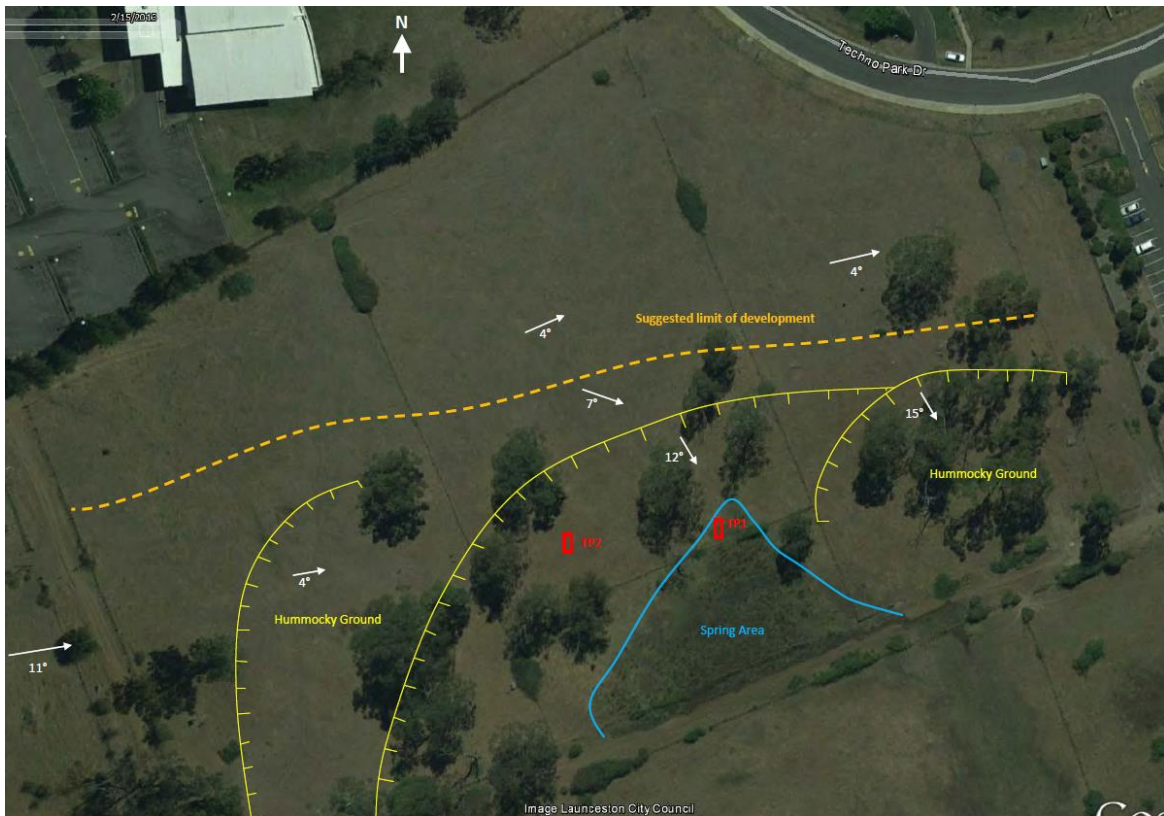


Figure 2-4 Extract from Pitt & Sherry (2014) report showing section of the site investigated

3. Site conditions

3.1 Site walkover

To verify findings from the desktop review, gain appreciation of existing site conditions, and identify potential landslide features, a site walkover was undertaken on 20 October 2021 by a Senior Geotechnical Engineer. The following section summarises the observations and inferred conditions.

The site is occupied by fenced grassy fields with limited mature native vegetation, the vegetation being generally concentrated around the western and southern boundaries. Figure A1 (Appendix A) presents an aerial image of the site, with contours. The surface of the site is generally undulating and slopes from west to east at 5-10° with localised flat areas and steeper slopes up to 20°. The site slope profile (Figure A4 in Appendix A) demonstrates the nature of the slopes showing steeper areas along the west and southern site boundaries and flatter areas in the east portion of the site.

Figure , Figure and Figure 3-3 below show the current site usage and demonstrate the west-east sloping nature of the site. Figure and Figure show a hummocky surface profile underlain by the Launceston Group Tertiary sediments in the north-west portion of the site. This area corresponds to the area mapped as a low to medium landslide hazard zone, whereas Figure 3-3 shows a smoother overall profile with a slightly rugged surface underlain by Jurassic Dolerite in the south-west portion of the site and is not covered by a landslide hazard band.

There were limited exposures of the underlying geology across the site. Figure and Figure below show where a historical cut batter was formed in the slope adjacent to the access track which runs north to south through the site, confirmed by the presence of old concrete footings at its base. The cut batter exposes the Launceston Group Tertiary sediments and comprises high plasticity brown clay with sand and gravel, generally dry exhibiting significant desiccation cracking.

Numerous dolerite boulders were observed exposed at the surface in the south-west portion of the site (Figure). The boulders have a diameter up to approximately 1 m, are very high strength and display no obvious jointing patterns. It is unclear whether some of the dolerite observed is in-situ rock or within a soil matrix and therefore depth to rock could not be confirmed.

Where the slope in the north-west portion of the site starts to flatten localised ponding was observed, as shown in Figure below.

Observations of the potential landslide feature along the southern boundary identified in the desktop review were made during the site walkover. No visible signs of recent slope movement were observed such as tension cracking or a pattern of leaning trees. There is an obvious break in slope south of the mature tree line (Figure). This tree line potentially demarcates the head-scarp of the landslide. The slope below the tree line, shown in Figure 3-9 has a hummocky surface and encompasses an area of moisture loving vegetation (Figure). The area was generally boggy and is thought to represent the location of a spring.

A number of features outside of the site boundary considered relevant to this assessment were observed. A masonry retaining wall constructed for a car park located along the east boundary of the site (Figure), retaining a section of the east-west slope is showing no signs of distress/deformation. The road which runs alongside the car park shows evidence of longitudinal cracking which has since been sealed (Figure).

Since the hillshade data was captured (Figure A3, Appendix A), construction of a new development south of the site has begun which includes a road and a dwelling which are located on the slope identified as a possible landslide (seen in the background of Figure). The road and its associated kerbing is showing signs of distress, demonstrated by cracking shown in Figure and Figure below.

Figure 3-15 shows the recent construction of the dwelling directly downslope of the backscarp and spring identified along the southern boundary of the site. Cut batters approximately 1 m in height have been benched into the existing slope. The cut batters are demonstrating significant signs of failure having been left unsupported for a relatively short amount of time.

Significant seepage is observed on the surface of the downslope side of the newly constructed road (Figure). The road above the seepage zone is showing signs of deformation.



Figure 3-1 Looking south-east from the north-west corner of the site. Undulating west-east slope



Figure 3-2 Looking south-west from the northern site boundary. Slightly hummocky terrain dipping west-east



Figure 3-3 Looking east from the south-west boundary



Figure 3-4 Historical cut batter exposing Launceston Group sediments. Adjacent to access track in north portion of site



Figure 3-5 Exposed Launceston Group sediments



Figure 3-6 Dolerite boulders exposed at surface in south-west portion of site



Figure 3-7 Localised ponding on flatter area adjacent to access track



Figure 3-8 Looking east from above the possible landslide along the southern boundary



Figure 3-9 Looking east across the possible landslide that extends into the site



Figure 3-10 Looking south-east from above possible spring



Figure 3-11 Masonry retaining wall along east boundary of site for existing car park



Figure 3-12 Sealed cracking within existing road east of site



Figure 3-13 Longitudinal cracking within new road south of site



Figure 3-14 Cracking through kerb in new road south of site



Figure 3-15 Cut batter failures on slope south of site



Figure 3-16 Seepage out of slope below new road south of site

3.2 Geological model

Based on the desktop review and the observations from the site walkover, three conceptual geological cross sections have been produced to demonstrate the current understanding of the subsurface conditions and potential landslide hazards present at the site. The cross-sections are presented as Figures C1 to C3 in Appendix C. Due to the limited on-site geotechnical information available to date, the interpretation of the geological model is considered preliminary.

The two geological units that underly the site are the Launceston Group Tertiary sediments and the Jurassic Dolerite. Table 4 provides a summary of each unit based on the results of our assessment.

Table 4 Summary of geological units

Geological unit	Summary
Launceston Group Tertiary Sediments	Underlies most of the site, with its thickness unknown. The unit is expected to consist of over-consolidated, firm to very stiff, high plasticity clay, with variable sand and gravel content and occasional bands of clayey sand. Clay is often fissured and described as sensitive with residual strength values measured as approximately $c_r = 3$ and $\Phi_r = 10^\circ$ (by others). Iron oxide bands are not uncommon. Regional observations suggest the sediments dip ~ 10 - 20° to the west.
Jurassic Dolerite	Makes up the bedrock underlying the site area and outcrops in the south-west portion of the site. Observed as weathered to fresh, very high strength. Thickness of weathering profile and depth to bedrock unconfirmed. Likely an intruded sill.

4. Landslide and geotechnical hazard assessment

Several landslide and geotechnical hazards have been identified at the site based on a combination of the desktop review and observations made during the site walkover. A summary of each hazard, the evidence associated with its identification, and potential consequences for the proposed development is provided in Table 5 below.

Table 5 Landslide and geotechnical hazard summary

Hazard	Evidence	Potential consequence
H1. Existing landslide along the southern boundary of the site and extending downslope of the site <i>(nominal extent of landslide shown as a high hazard zone on Figure A6, Appendix A)</i>	<ul style="list-style-type: none"> Geomorphology of the site including backscarp and hummocky terrain New road which traverses landslide material showing signs of distress and deformation including longitudinal (transverse) cracking Landslides have historically occurred within the Launceston Group sediments on similar slope angles 	<ul style="list-style-type: none"> 'No build' areas may be necessary to avoid construction on landslide material and damage to infrastructure due to slope movement Slope stabilisation such as extensive high-quality sub-soil drainage may be required to provide long term stability Reactivation of the landslide likely should poor hill side practice occur
H2. Existing landslide in the north-west portion of the site <i>(nominal extent of landslide shown as a medium hazard)</i>	<ul style="list-style-type: none"> Hummocky nature of slope suggests possible historical soil movement Landslides have historically occurred within the Launceston Group sediments on similar slope angles 	<ul style="list-style-type: none"> Restrictions on the scale of development in this area Slope stabilisation such as sub-soil drainage and retaining walls may be required

Hazard	Evidence	Potential consequence
zone on Figure A6, Appendix A)		
H3. Shrink-swell movement of Launceston Group clay	<ul style="list-style-type: none"> High plasticity clays of underlying Launceston Group sediments Desiccation cracks and fissures observed in near surface clays within the site Cracking observed in existing roads surrounding the site 	<ul style="list-style-type: none"> Damage to infrastructure such as footings and roads
H4. Unstable batter slopes within Launceston Group sediments	<ul style="list-style-type: none"> Recent cut batters observed south of the site showing signs of significant failure demonstrating unstable nature of Launceston Group sediments Sensitive nature of Launceston Group clays suggest they suffer significant loss in strength once disturbed 	<ul style="list-style-type: none"> Requirement for cut batter stabilisation such as retaining walls, safe batter angles and drainage
H5. Shallow very high strength dolerite rock in south-west portion of the site	<ul style="list-style-type: none"> Numerous dolerite boulders observed at the surface Landform change observed as rugged terrain 	<ul style="list-style-type: none"> Difficulty excavating into slope as opposed to relatively easy excavation in Launceston Group sediments

Based on our current understanding of the site, there are two areas of interest, Hazard H1 and H2 listed in Table 5, which are considered landslide hazard zones and require further assessment. These have been labelled medium and high to reflect their potential consequence to the development. Our preliminary recommendation with regards to these hazard zones is provided in Section 5 below.

5. Recommendations and further work

Most landslides within the region occur on slopes underlain by the Launceston Group sediments, which underlie the majority of this site. As mentioned earlier in the report, a number of factors are attributed to the unstable nature of these sediments. This highlights the unstable nature of the underlying geology at the site and the importance of understanding how the landslide hazards identified impact the proposed development.

It is recommended that a geotechnical investigation be undertaken to improve understanding of the subsurface conditions and better understand the form and nature of potential failure mechanisms controlling slope instability. To achieve this, the following preliminary scope is recommended:

- A series of boreholes to target the medium and high landslide hazard zones on Figure A6, Appendix A (approx. 5 boreholes) along geological cross section lines 1 and 3. The proposed boreholes are depicted by pink vertical lines on Figures C1 and C3 in Appendix C.
- Two boreholes along geological cross section line 2 as depicted on Figure C2, Appendix C to determine the dolerite weathering profile depth, the properties of the dolerite rock and the location of the boundary between the dolerite and Launceston Group sediments.
- A series of test pits within the Launceston Group sediments to observe soil structure (such as slide surfaces) and undertake *in-situ* shear vane testing to appraise soil sensitivity
- Geotechnical laboratory classification and strength testing (including such as: Atterberg Limits, grading (particle size distribution analysis, UCS or triaxial shear strength testing on undisturbed and remoulded samples to determine soil sensitivity), shrink-swell testing to determine the expansiveness of the clay soil and Emerson Tests to provide an indication of clay dispersion potential.

Following completion of the geotechnical investigation, and improving the understanding of the slope-forming processes, a Landslide Risk Assessment in accordance with the AGS (2007) guidelines should be undertaken with

respect to the proposed development plans to understand the risks associated with the landslide hazards identified and to determine potential control measures appropriate to manage or reduce these risks to acceptable levels.

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Appendix A

Site Plans

Figure A1	Aerial Photograph
Figure A2	Geological Setting
Figure A3	Hillshade Profile
Figure A4	Slope Angle Profile
Figure A5	Landslide Risk Hazard Bands
Figure A6	Landslide Hazard Zones



Data source: GHD, Study Area, Inferred Geological Cross Sections, Elevation Contour Lines, 2021; TheList, Aerial Imagery, Hillshade Profile, Cadastral Parcels, 2021.

1:2,500 @ A3

0 25 50 75 100

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Proposed Activity Area
- Contours (1m)
- Geological cross sections

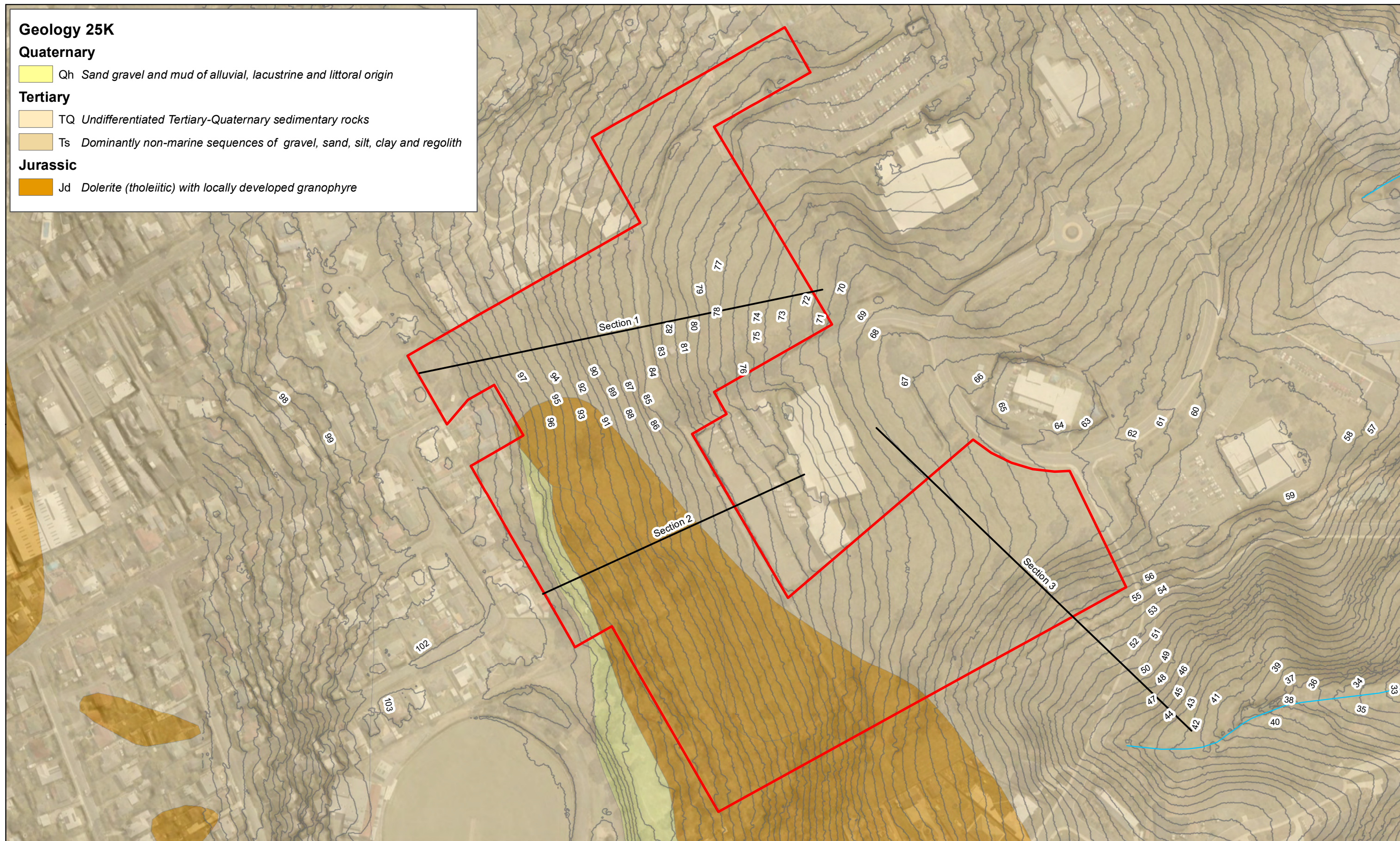
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Kingsmeadows

Job Number 12552740
Revision B
Date 28 Oct 2021

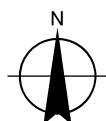
Site Aerial

Appendix A1




Jd *Dolerite (tholeiitic) with locally developed granophyre*



Data source: GHD, Study Area, Inferred Geological Cross Sections, Elevation Contour Lines, 2021; TheList, Aerial Imagery, Hillshade Profile, Watercourses, 2021; MRT, Geology 25K, 2021.



LEGEND

-  Proposed Activity Area
 Watercourses
 Contours (1m)
 Geological cross sections



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Date	01 Nov 2021

Site Geological Setting

Appendix A2

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Data source: GHD, Study Area, Inferred Geological Cross Sections, 2021; TheList, Hillshade Profile, 2021.

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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LEGEND

Proposed Activity Area

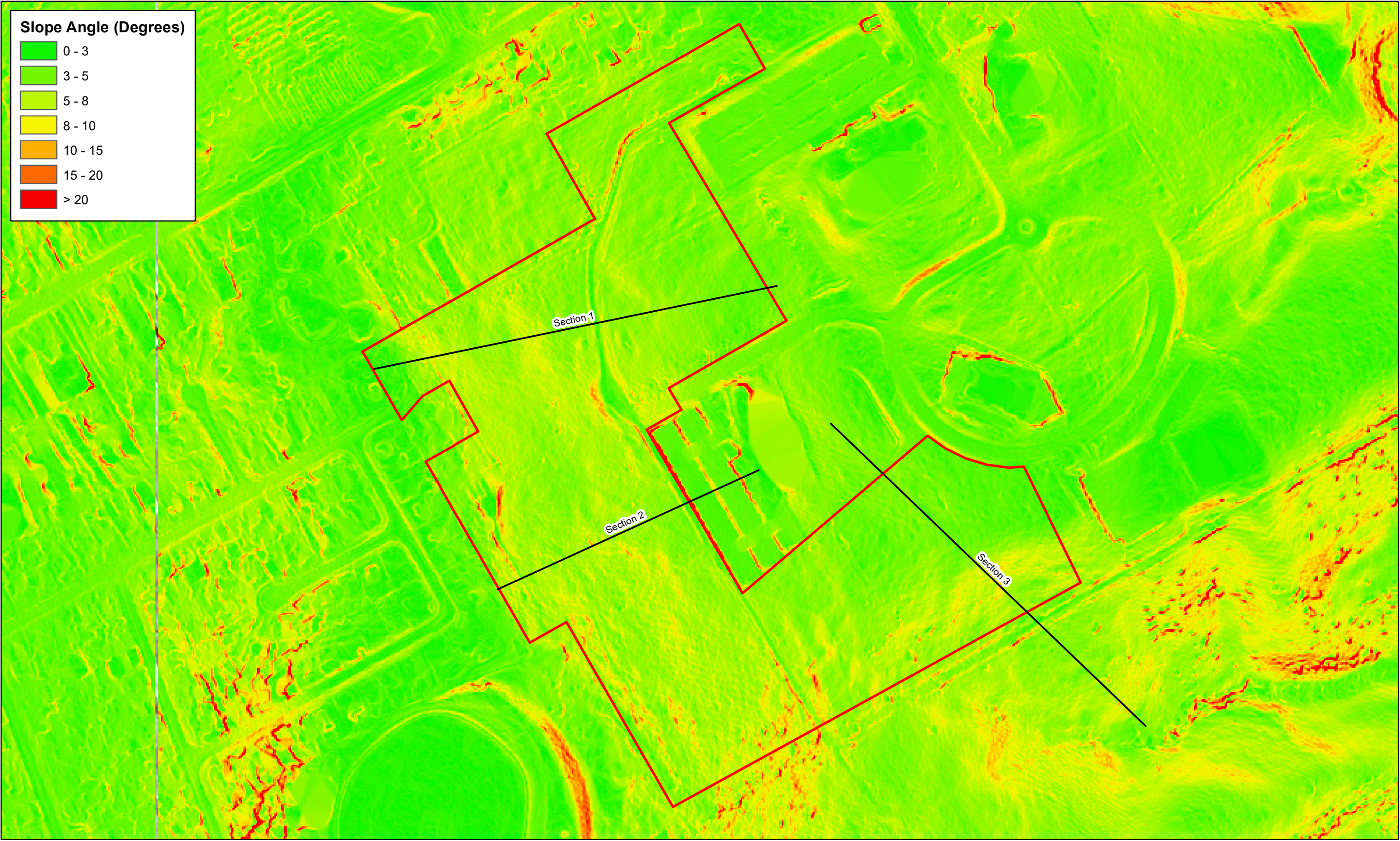
Geological cross sections

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Date 28 Oct 2021

Site Hillshade Profile

Appendix A3



Data source: GHD, Study Area, Inferred Geological Cross Sections, Slope Profile Model, 2021; TheList, Hillshade Profile, 2021; Geoscience Australia, 1m Digital Elevation Model - Launceston, 2021.

1:2,500 @ A3

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Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

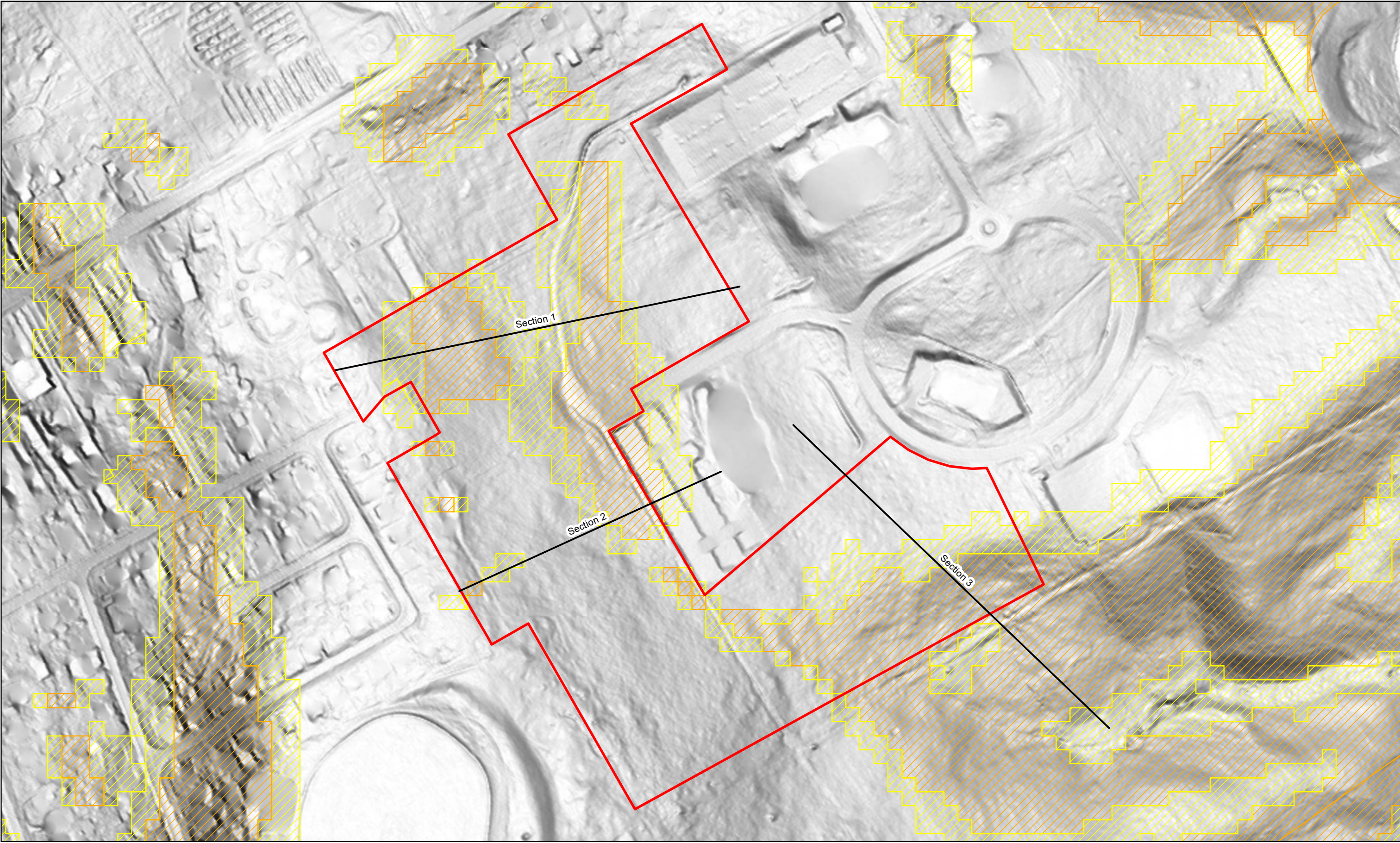
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LEGEND

- Proposed Activity Area
- Geological cross sections

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Kingsmeadows

Job Number	12552740
Revision	B
Date	28 Oct 2021



Data source: GHD, Study Area, Inferred Geological Cross Sections, 2021; TheList, Hillshade Profile, Landslide Hazard Bands, 2021.



Data source: GHD, Study Area, Inferred Geological Cross Sections, Elevation Contour Lines, Areas of Instability, 2021; TheList, Aerial Imagery, Hillshade Profile, 2021.

1:2,500 @ A3

0 25 50 75 100

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

Proposed Activity Area

Contours (1m)

Geological cross sections

Landslide Hazard Zones

Hazard Rating

Medium hazard

High hazard

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Affordable Housing Techno Park
Kingsmeadows

Job Number 12552740
Revision B
Date 28 Oct 2021

Landslide Hazard Zones Appendix A6

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Appendix B

Historical Aerial Photographs

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Figure B2	Historical Aerial Image 1966
Figure B3	Historical Aerial Image 1971
Figure B4	Historical Aerial Image 1981
Figure B5	Historical Aerial Image 1994



Data source: GHD, Study Area, 2021; LIST, Historical Aerial Imagery, 2021.

1:2,500 @ A3

0 25 50 75 100

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

Proposed Activity Area

Department of Communities Tasmania
Affordable Housing Techno Park
Kingsmeadows

Job Number 12552740
Revision A
Date 28 Oct 2021

Historical Imagery Analysis -
Periods 1966 - 1967

Appendix B2



Data source: GHD, Study Area, 2021; LIST, Historical Aerial Imagery, 2021.



Data source: GHD, Study Area, 2021; LIST, Historical Aerial Imagery, 2021.

1:2,500 @ A3

0 25 50 75 100

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

Proposed Activity Area

Department of Communities Tasmania
Affordable Housing Techno Park
Kingsmeadows

Job Number 12552740
Revision A
Date 28 Oct 2021

Historical Imagery Analysis -
Periods 1981 - 1982

Appendix B4

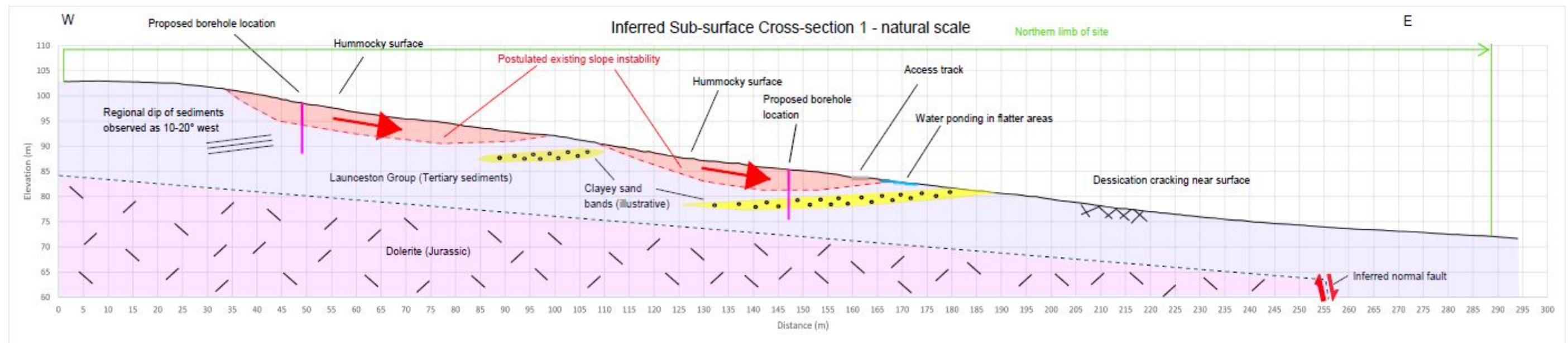


Data source: GHD, Study Area, 2021; LIST, Historical Aerial Imagery, 2021.

Appendix C

Conceptual Geological Cross Sections

Figure C1	Geological Cross Section 1
Figure C2	Geological Cross Section 2
Figure C3	Geological Cross Section 3



Note: This cross-section is illustrative only of the inferred sub-surface, it should be considered as preliminary and indicative only



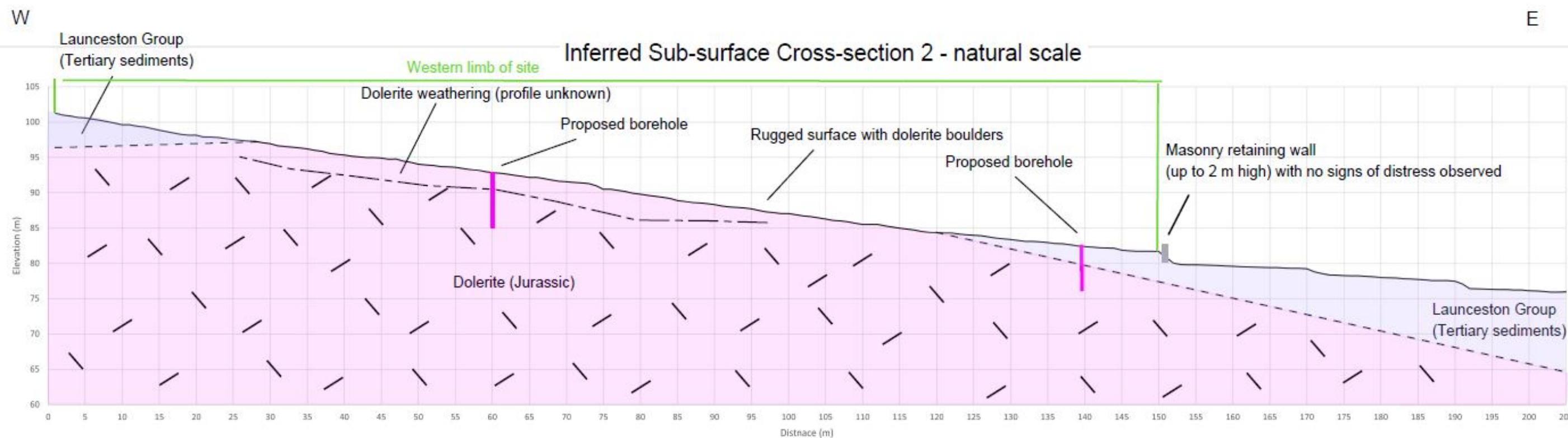
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Inferred Sub-surface Cross-section 1

Appendix C1

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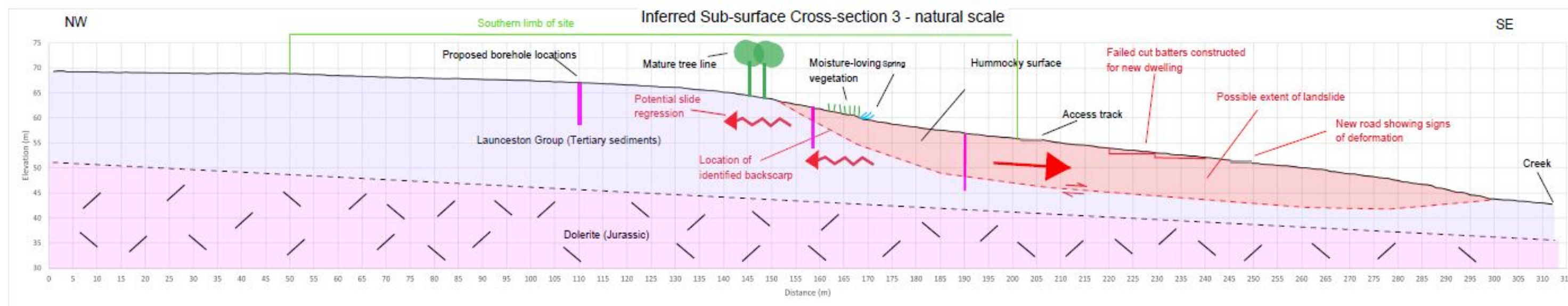
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Inferred Sub-surface
Cross-section 2

Appendix C2

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Date 27 Oct 2021

Inferred Sub-surface
Cross-section 3

Appendix C3



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Appendix C

Natural Values Survey



Affordable Housing – Techno Park

NATURAL VALUES SURVEYS

Department of Communities Tasmania

26 August 2021



The Power of Commitment



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Executive summary

Communities Tasmania has engaged GHD to undertake the design services for the Launceston Techno Park Subdivision including the undertaking of a botanical and fauna values assessment (Natural Values Survey). The primary aim of this work was to identify any potential impacts of the project on ecological values; outline any approvals and permits that may be required; and provide recommendations on minimising impacts to threatened species values if works proceed.

The field assessment confirmed most of the site as agricultural land (FAG) with few natural values. The most notable natural values observed included the presence of large hollow-bearing Eucalypts (particularly *Eucalyptus viminalis*) on the eastern portion of the site which were occupied by wildlife, as well as potential foraging trees (*E. globulus* and *E. ovata*) for threatened species such as the threatened Swift Parrot. The Tasmanian listed (NC Act 2002) threatened vegetation community *Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits* (DAZ) was confirmed on the south-west corner site, although the narrow patch was assessed as being too small and degraded to meet the condition threshold of a defined threatened community.

This assessment has identified large hollow-bearing trees and potential foraging habitat trees for threatened fauna as being key findings that will require further ecological assessment if these values will be disturbed or destroyed as part of the proposed site activity. Prior to the preparation of subdivision detail design a further ecological survey of the site is required to determine whether any tree hollows are being used by threatened species such as the Tasmanian Masked Owl. Establishing if Tasmanian and Federally listed threatened species occur on the site will help to inform what direction the approval pathway will take and what permits may be required.

Based on the natural values observed during this assessment it is anticipated that at a minimum a 'Permit to Take' will be required under section 29(2)(a) of the *Nature Conservation Act 2002* for the removal of the hollow bearing trees at the site. In addition, approval will be required as part of a Launceston City Council Development Application to clear native vegetation on the site.

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1. Introduction

1.1 Background

Communities Tasmania has engaged GHD Pty Ltd (GHD) to undertake the design services for the Launceston Techno Park Subdivision, located at Lot 2, Techno Park Drive in Kings Meadows (Property ID - 3197996). This work requires GHD to assist in obtaining all relevant local, state and Commonwealth government approvals. Part of this approvals process requires a GHD to conduct a botanical and fauna values assessment (Natural Values Survey) of the overall Techno Park site to:

- Identify any potential impacts on ecological values in undertaking vegetation clearance as part of the subdivision.
- Outline any approvals and permits that may be required to undertake the work.
- Provide recommendations on minimising impacts to threatened species values if works proceed.

No previous surveys have been conducted at the site. Lot 2 is predominantly cleared with mapped remnant native vegetation patches surrounded by pasture and agricultural land. Lot 2 also has an eastern portion of the property located separate to the development site, approximately 220-400 meters to the east. This area of the lot is not currently included as part of the survey site.

The property has been highly modified and degraded through historic use including development and grazing from livestock (cows). Much of the native vegetation has degraded and currently exists in 'parkland cleared' condition, with common pasture weeds and some cover from native shrubs. GHD staff conducted a site visit in August 2020 to examine the footprint of the proposed development at the Techno Park site for the purposes supporting this project.

1.2 Project Description

In support of the strategy the State Government has developed Tasmania's Affordable Housing Action Plan 2019-2023. As cited in the Action Plan "*...new supply of affordable homes to prevent low-income Tasmanians from falling into housing stress is a key pillar of the Strategy.*" Fundamental to achieving this outcome and the targets established under the Action Plan is the need to continually review and assess land in areas close to services. The Techno Park site is considered important in the context the current growth and need for affordable housing in Launceston.

GHD has been engaged by the Department of Communities as the lead consultant to provide planning and civil design services for the rezoning of land via the *Housing Land Supply Act 2018* including development design and planning approval for the subdivision of land at Lot 2 Techno Park, Kings Meadows. Through considered and sustainable design and construction practice, the nominated subdivision is to provide new supply of land release for social and affordable housing.

The site investigations relative to environmental values, natural hazards, heritage, and the like will assist in determining the constraints and opportunities of site development.

1.3 Survey area

The proposed development boundary and survey area is outlined in Figure 1. The site is located in Kings Meadows, approximately 5 km south-east from the city centre in the Launceston municipality of northern Tasmania. The western portion of Lot 2 is covers approximately 10.7 hectares (ha) and borders the OneSchool Global Tas – Launceston campus and situated directly east of Youngtown Oval. The property is currently managed by the Department of State Growth.

The survey site records mean annual maximum and minimum temperatures of 18.6°C and 7.4°C (1980-2021) and a mean annual rainfall of 684.2 mm (1980-2021). The topography of the site ranges from a minimum of 60m to a maximum of approximately 98m. Three soil types are mapped at the site and are outlined in the table below.

Table 1 Soil types mapped at the survey area.

Soil type	Description
Jd	Dolerite and related rocks
Jdi	Inferred dolerite beneath soil or Cainozoic deposits
Tsa	Poorly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; some iron oxide-cemented layers and concretions; some leaf fossils ¹

1.4 Purpose of this report

The purpose of this report is to examine the existing environment within the survey area and identify the extent of any environmental values that may constrain the suitability of the site for the Techno Park development. Potential constraints assessed include conservation significant fauna habitat, flora species, and vegetation communities.

The scope of works for the Natural Values Survey was to:

- Complete a desktop assessment to identify Threatened flora, fauna or vegetation communities that may potentially occur within, or in close proximity to the survey area;
- Undertake a field survey to:
 - Ground truth and verify the results of the desktop assessment;
 - Identify evidence of any conservation significant flora, fauna or communities that were not detected during the desktop assessment;
 - Investigate the presence (or likely presence) of specific Commonwealth and State-listed threatened flora and fauna species and communities;
 - Map and describe the vegetation, flora and fauna of the survey area, including fauna habitat and vegetation condition;
 - Identify any key threatening processes within the survey area, including but not limited to:
 - presence of weeds; and
 - presence of invasive fauna species.
 - Outline potential impacts of the proposed works on ecological values;
 - Evaluate the proposed works against relevant ecological policy and legislation; and
 - Provide recommendations to minimise impacts of the proposed works on ecological values.

1.5 Scope and limitations

This report: has been prepared by GHD for Department of Communities Tasmania and may only be used and relied on by Department of Communities Tasmania for the purpose agreed between GHD and Department of Communities Tasmania as set out in section 1.4 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Communities Tasmania arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report:

- *were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report;*
- *were limited to an ecological assessment of vascular plant species (ferns, conifers and flowering plants), terrestrial and migratory vertebrate fauna;*
- *did not include non-vascular flora (e.g. mosses, liverworts, lichens, and fungi), marine fauna habitat and invertebrate habitat, which were not formally surveyed as part of this assessment;*

- included a field survey during late winter which is not considered an optimal time of year to survey for most herbaceous annuals and grass species. Therefore, it is considered possible that a small number of threatened plant species were overlooked during the survey;
- did not include a detailed fauna field survey (i.e. trapping) at the survey area. The fauna investigation instead focussed on fauna habitat, and evidence of animals (e.g. scats, tracks, feathers); and
- did not include an aquatic assessment, with aquatic environment(s) not formally surveyed as part of this assessment.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.6 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

Due to the fact that GHD was only present at specific points within the relevant site(s) on specific dates and certain time periods, this report is only indicative (and not definitive) of flora and fauna present on the site(s). Flora and fauna (whether in type or quantity) can also change and fluctuate at different times throughout the year (due to factors including seasonal changes, external events or third-party intervention), where it is not possible to observe such changes or fluctuations where only discrete site(s) visits have taken place. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

Any reports, drawings, memos, or other deliverables produced by GHD shall be produced in a traditional and generally accepted format. Accessible reports, drawings, memos, or other deliverables can be provided by GHD at an additional cost if necessary.

1.6 Assumptions

GHD has prepared this report on the basis of information provided by Communities Tasmania and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.7 Acknowledgements

- The Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE) for access to its Natural Values Atlas (NVA) database; and
- The Commonwealth Department of the Environment (DOE) for access to its Protected Matters Search Tool (PMST).



2. Methods

2.1 Overview

The survey involved a desktop assessment and a field survey to confirm results, as detailed below.

2.2 Background Research

The primary data sources accessed during the background research included:

- The NVA database¹ – which is the most authoritative repository of information on natural values in Tasmania. A NVA Report will identify threatened fauna and flora records within 500 m and 5000 m from the edge of the survey area. The report will also provide lists of TASVEG vegetation communities, geoconservation sites listed on the Tasmanian Geoconservation Database for any site or area within the State;
- The *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* PMST² – which provides a PMST Report that identifies any matters listed under the EPBC Act within a 5000 m buffer around the survey area;
- The Land Information System Tasmania (LIST) database³ – a web based repository of the State's comprehensive spatial data resources including property and land title information, satellite imagery, topographic maps, geological maps and natural values data; and
- The DPIPWE website – which contains links to biological and ecological information on many of the State's threatened species as well as biosecurity and invasive species information.
- The Tasmanian Threatened Species Link – contains management and conservation advice on Tasmania's threatened species, including species-specific information on survey periods, habitat, activities most likely to cause an impact, and links to DPIPWE notesheets and species recovery plans⁴.

Further literature review in relation to key threatened fauna known to utilise the survey area was also undertaken, and a complete reference list is provided at the end of this report.

2.3 Desktop Assessment

A detailed desktop assessment was undertaken to define the existing environment and identify potential matters of conservation significance to target during the field survey.

The desktop review was informed by publicly available government databases including those listed above in section 2.2. A buffer distance of 500m and 5km was used for database searches and is considered appropriate for detecting conservation significant species 'Tasmanian South East' IBRA Region. The likelihood of occurrence was determined for all conservation significant species and communities identified, using categories outlined in the table below.

Table 2 Categories of likelihood of occurrence for conservation significant species

Likelihood Category	Assessment
Present	Individuals recorded within the survey area during the field assessment or any previous assessment within the boundaries of survey area
Possible	Suitable habitat occurs within the survey area
Unlikely	Suitable habitat unlikely to occur within the survey area, or suitable habitat substantially modified, or suitable habitat present but species not recorded for over 50 years within 5 km of the site

¹ BCB 2012

² Australian Government 2020

³ Service Tasmania 2020

⁴ TSS 2021

Likelihood Category	Assessment
Highly Unlikely	No suitable habitat present within the survey area, and individuals not recorded within the survey area during current or any previous assessment

2.4 Field Survey

2.4.1 Botanical survey and habitat assessment

The survey was conducted over two days on 20 and 21 August 2021 by Dean Heinze (Senior Ecologist) and Mickey Dwyer (Environmental Scientist). The site was traversed on foot through areas of native vegetation and cleared pasture. It is noted that the survey was conducted outside the optimal survey season for some flora species.

All terrestrial flora and fauna species observed (and/or heard) were recorded, along with fauna habitat values, native vegetation communities and weed infestations. Any locations of threatened flora species, evidence of threatened fauna (i.e. scats, diggings), or potentially important elements of threatened fauna habitat (i.e. feed trees, tree hollows) were recorded by GPS (<5m accuracy). Where patches or clusters of individuals occurred, a few GPS waypoints were recorded near the boundaries of the patch and the number of individuals in the patch was noted and this information was transferred on to GIS mapping. The spatial data recorded during the field survey has been provided using the GDA 94 - Zone 55 geographic datum.

2.5 Nomenclature and Assessment of Significance

All plants were identified in accordance with *A Census of the Vascular Plants of Tasmania*⁵. Flora and fauna conservation significance was determined in accordance with the *Tasmanian Threatened Species Protection Act 1995* (TSP) and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Conservation significance of vegetation communities was assessed in accordance with the TASVEG 2013 and *Regional Forestry Agreement* (RFA) classification and associated criteria⁶. Conservation significance of other ecological communities was determined in accordance with the Commonwealth EPBC Act.

Significance of impacts on Matters of National Environmental Significance (MNES) were assessed in accordance with the Australian Government's Significant Impact Guidelines⁷.

3. Results

3.1 Native Vegetation

According to TASVEG 4.0⁸, three vegetation types are mapped within the Lot 2 property boundaries: FAG – *Agricultural Land* covering 8.1 ha, DAZ - *Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits* covering 1.6 ha and FUR – *Urban Areas* covering 1 ha.

The native vegetation community 'DAZ - *Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits*' is mapped in the south-west portion of the site. This patch is mapped to cover a total of 2.3 ha, of which 0.7 ha is located outside the boundary of the site. This mapped community is predominantly contained within the boundaries of Lot 2, with a portion contained in the adjacent property to the south. Of the 2.3 ha of mapped DAZ community, 0.7 ha occurs outside the boundaries of Lot 2.

DAZ is listed as a threatened community under the *Tasmanian Nature Conservation Act 2002* (TNCA 2002), but not the *Environment Protection Biodiversity Conservation Act 1999* (EPBCA 1999). In addition, there are three other threatened native vegetation communities mapped within three (3) km's of the site. These include Wetlands

⁵ Baker & de Salas 2016

⁶ DPIWE 2014

⁷ DotE 2013

⁸ Service Tasmania 2020

(AHL - *Lacustrine herbland*), NME - *Melaleuca ericifolia* swamp forest and DOV - *Eucalyptus ovata* forest and woodland.

During the site visit, GHD staff found the site to be in a highly modified and degraded condition, with the trees on site majority identified as *E. viminalis* with several *E. amygdalina*, *E. ovata* and *E. globulus* in the eastern portion of the site. Several trees of the introduced *E. botryoides* were identified throughout the site. Native vegetation understory was absent through the majority of the site, with small patches and individuals of ground cover and scrub vegetation contained in the south-west corner of the site.



Plate 1 Patch of *Carex appressa* located on the site.

The communities recorded at the survey area are described below as defined by the From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation (Kitchener & Harris 2013), and local characteristics.

Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits (DAZ)

The community is characterised by an uneven-aged canopy dominated by *E. amygdalina* (black peppermint) or locally by *E. viminalis* (white gum) or *E. pauciflora* (cabbage gum) associated with sand, alluvium, Tertiary gravels or ironstone substrates. The understorey composition is variable, depending on physical site characteristics (particularly fertility and drainage), fire history and land use. Secondary trees and tall shrubs include regenerating eucalypts and *Allocasuarina littoralis* (black sheoak), *Banksia marginata* (silver banksia), *Acacia dealbata* (silver wattle) and *Exocarpos cupressiformis* (native cherry). Lower to mid-height shrubs typically include legumes, and species of *Epacris* (heath), *Leucopogon* (beardheath) and *Pimelea* (riceflower). The ground layer is often dominated by *Pteridium esculentum* (bracken) (especially on sandy sites), grasses or graminoids⁹.

DAZ can grade into other dry sclerophyll forest and non-forest communities. As drainage becomes progressively more impeded, forest and woodland dominated by *E. amygdalina*, *E. viminalis* or *E. pauciflora*, usually with co-occurring *E. ovata*, grade into *E. ovata* forest and woodland (DOV) or sedgeland and wetland communities in swamps and lagoons. Tree height is typically less than 25 m and may be considerably less on poorly-drained or relatively infertile sites. DAZ can occur as forest or woodland, and grades into open woodlands on sites where tree density is low because of pre-European or European land management.

This community, which occurs predominantly below 300 m, is strongly associated with lateritic sediments and mainly on the broad flats of the northern Midlands and the Fingal Valley, with some outlying sites in the West

⁹ Kitchener & Harris 2013

Tamar–Westbury area; east coast (Cranbrook–Swansea area); northern Midlands, including Cleveland–Epping Forest area; and the Cressy–Blackwood Creek area.

Approximately 15% of the site is mapped as DAZ and it strictly located to the south-western boundary of the site, shown in Figure 2, all of which was observed to be in a highly degraded or ‘parkland’ cleared condition with evidence that the area has been utilised for grazing livestock over a long period. Few native understory species were observed at the site, consisting of only small remnants of scattered and disconnected individuals. Examples are shown in Plates 1 and 2 which demonstrate that most of the DAZ community with characteristic native understory species exist as a narrow strip (<5 metres wide), and this understory is fragmented and highly degraded due to historical vegetation clearance, grazing and trampling by livestock, and weed infestation (i.e., three-cornered garlic). A detailed condition assessment was not undertaken as part of the site visit, but general observations were noted.



Plate 1 A representative patch of remnant DAZ vegetation on the site, with the patch being a narrow and small strip including small numbers of native understory species



Plate 2 Minimal remnant native understory species adjacent to agricultural grasses and weeds

Agricultural land (FAG)

Agricultural land (FAG) includes exotic grassland pastures and croplands. The pastures are dominated by mixtures of exotic temperate grasses and clovers. FAG can include exotic grassland pastures with scattered trees (less than 5% crown cover). Approximately 76% of the site is mapped as FAG, all of which is in a high degraded or cleared condition and was comprised of exotic pasture species, occasional native paddock trees (i.e, *E. viminalis*) and native grasses and herbs, as well as weed infestations (predominantly blackberry) . An example of the cleared pasture is shown in Plate 3. A patch of *Carex appressa* was identified during the field survey in the south-east of the site, covering approximately 0.13 ha. This is below in shown in Plate 4. The south western corner of the site defined as FAG (TASVEG 4) includes a patch of large hollow-bearing Eucalypts with a introduced pasture understory.



Plate 3 Cleared pasture land located at the site, containing small blackberry infestations, access roads, fencing and agricultural infrastructure



Plate 4 Patch of Carex appressa located in the south-west of the site including small infestations of blackberry and hawthorn

Urban Areas (FUR)

Urban areas (FUR) include urban and suburban landscapes. These areas are largely or wholly devoid of vegetation apart from areas such as suburban gardens, street trees and parks⁹. Approximately 9% of the site is mapped as FUR, all of which is in a highly degraded or cleared condition.

3.2 Native Flora

3.2.1 Desktop Assessment

The results of the PMST conducted in accordance with this survey indicated 24 records of Commonwealth listed threatened flora mapped within 5 km of the Techno Park site. Additionally, the Natural Values Atlas identified four (4) verified records of threatened flora listed under the state *Threatened Species Protection Act 1995* occurring within 500m of the survey area, including *Brunonia australis* (Rare), *Caesia ciliantha* (Rare), *Euphrasia collina* subsp. *deflexifolia* (Rare) and *Senecio squarrosus* (Rare). None of the above species are listed under the Commonwealth EPBC Act. The species identified during the desktop assessment, the known habitat and a likelihood of occurrence is listed in Table 2 below.

Table 3 Threatened flora known or predicted to occur within 5km of the survey area

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
<i>Acacia axillaris</i> Midlands wattle	Vulnerable	Vulnerable	Most stands are associated with watercourses or soaks. However, midlands Acacia is not restricted to this type of environment and extends onto surrounding slopes, such as boulder scree above riparian zones. Unlikely - no suitable habitat present.
<i>Alternanthera denticulata</i> lesser joyweed	Endangered	Not Listed	In Tasmania, the species typically occurs in grassy woodlands and dry sclerophyll forests dominated by black peppermint (<i>Eucalyptus amygdalina</i>) or less commonly white gum (<i>Eucalyptus viminalis</i>) or stringybark (<i>Eucalyptus obliqua</i>). Some smaller populations are found in heathy and shrubby dry forests. The species occurs on well-drained flats and gentle slopes with elevations of between 10 and 350 metres. It is most commonly found on sandy and gravelly alluvial soils with a particular preference for ironstone gravels. Populations found on dolerite are usually small. Possible - some suitable habitat present, albeit in a highly modified and degraded condition.
<i>Barbarea australis</i> native windcress/riverbed windcress	Endangered	Endangered	Known from 23 populations associated with 10 locations (rivers and creeks) extending from northern Tasmania to rivers flowing south from the Central Highlands. Native wintercress is found near river margins, creek beds and along flood channels in shallow alluvial silt on rock slabs, rocky ledges, or between large cobbles. Unlikely - no suitable habitat present.
<i>Boronia gunnii</i> river boronia	Vulnerable	Vulnerable	Gunn's Boronia is known from two populations occurring in Tasmania's Eastern Tiers. This species grows in a riparian habitat, occurring in the flood zone of rivers in rock crevices or in the shelter of boulders, and on a substrate of Jurassic dolerite. Unlikely - no suitable habitat.
<i>Brunonia australis</i> blue pincushion	Rare	Not Listed	In Tasmania, the species typically occurs in grassy woodlands and dry sclerophyll forests dominated by black peppermint (<i>Eucalyptus amygdalina</i>) or less commonly white gum (<i>Eucalyptus viminalis</i>) or stringybark (<i>Eucalyptus obliqua</i>). Some smaller populations are found in heathy and shrubby dry forests. The species occurs on well-drained flats and gentle slopes with elevations of between 10 and 350 metres. It is most commonly found on

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
			sandy and gravelly alluvial soils with a particular preference for ironstone gravels. Populations found on dolerite are usually small. Possible - some suitable habitat present within the site, albeit highly modified and degraded.
<i>Caesia calliantha</i> blue grasslily	Rare	Not Listed	The species is found predominantly throughout the Midlands in grassland or grassy woodland habitat and has also been recorded from grassy roadsides. Unlikely - no suitable habitat present.
<i>Caladenia caudata</i> tailed spider-orchid	Vulnerable	Vulnerable	The species occurs in heathy and open eucalypt forest and woodland, often with sheoaks, and in heathland on sandy and loamy soils. It is most often found on sunny north-facing sites. Unlikely - no suitable habitat present.
<i>Caladenia tonellii</i> robust fingers	Endangered	Critically Endangered	The species occurs in Eucalyptus amygdalina dominated forest with a shrubby understorey on shallow clay loam and shallow gravelly loam over clay. Topography varies from flats to slopes up to about 80 m elevation. Possible - some suitable habitat exists, however in a highly modified and degraded condition. Was not identified during the field survey.
<i>Callitris oblonga</i> subsp. <i>oblonga</i> south esk pine	Vulnerable	Endangered	Callitris oblonga subsp. oblonga is restricted to riparian scrub and woodland in areas with low precipitation and usually sandy soil. Unlikely - no suitable habitat exists.
<i>Colobanthus curtisiae</i> Curtis' colobanth	Rare	Vulnerable	It is a grassland to grassy woodland plant, often found on rocky knolls, and can be found in areas subject to a wide variety of environmental conditions. The species responds to some disturbance. Possible - some suitable habitat present
<i>Dianella amoena</i> mattex flax-lilly	Rare	Endangered	In Tasmania, the species occurs mainly in the Midlands, where it grows in native grasslands and grassy woodlands. Unlikely - given the highly modified and degraded condition of the site.
<i>Epacris exserta</i> south esk heath	Endangered	Endangered	Epacris exserta occurs along the lower reaches of three rivers: the South Esk, North Esk and Supply Rivers. It is a strictly riparian species that occurs in areas subject to periodic inundation. It grows on alluvium amongst Jurassic dolerite boulders within dense riparian scrub, or occasionally in open rocky sites and has been recorded from 10 to 310 m above sea level. Highly unlikely - no suitable habitat present.
<i>Euphrasia collina</i> subsp. <i>deflexifolia</i> eastern eyebright	Rare	Not Listed	<i>Euphrasia collina</i> subsp. <i>deflexifolia</i> occurs in open woodland or heath, often associated with road edges, tracks and depressions near the headwaters of creeks. Its habitat is associated with the availability of open patches of ground maintained by fire or other disturbance, the proximity of low vegetation and relatively high soil moisture in spring. Unlikely - no suitable habitat present
<i>Glycine latrobeana</i> clover glycine	Vulnerable	Vulnerable	In Tasmania, Glycine latrobeana occurs in dry sclerophyll forest, native grassland and

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
			woodland, usually on flat sites with loose, sandy soil. Unlikely - no suitable habitat present.
<i>Lepidium hyssopifolium</i> basalt pepper- cress/soft pepper- cress	Endangered	Endangered	The native habitat of <i>Lepidium hyssopifolium</i> is the growth suppression zone beneath large trees in grassy woodlands and grasslands. In Tasmania, the species is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania at an altitude of 40 to 500 metres in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. Possible - some suitable habitat present, although large areas of the site are sloped.
<i>Leucochrysum albicans</i> <i>subsp. tricolor</i> hoary sunray, grassland pepper-daisy	Endangered	Endangered	In Tasmania, <i>Leucochrysum albicans subsp. tricolor</i> occurs in the west and on the Central Plateau and the Midlands, mostly on basalt soils. This species would have originally occupied <i>Eucalyptus pauciflora</i> (cabbage gum) woodland and tussock grassland, though most of this habitat is now converted to improved pasture or cropland. Unlikely - no suitable habitat present.
<i>Prasophyllum robustum</i> robust leek-orchid	Endangered	Critically Endangered	<i>Prasophyllum robustum</i> is now known only from one small site in grassy and shrubby <i>Eucalyptus amygdalina</i> forest on well-drained brown loam derived from basalt. Unlikely - some suitable habitat present, but unlikely given the highly degraded and modified condition.
<i>Pterostylis commutata</i> midland greenhood	Endangered	Critically Endangered	<i>Pterostylis commutata</i> is restricted to Tasmania's Midlands, where it occurs in native grassland and <i>Eucalyptus pauciflora</i> grassy woodland on well-drained sandy soils and basalt loams. Unlikely - no suitable habitat present.
<i>Pterostylis ziegeleri</i> grassland greenhood	Vulnerable	Vulnerable	<i>Pterostylis ziegeleri</i> is restricted to the east and north of Tasmania. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in <i>Themeda triandra</i> native grassland or grassy woodland on well-drained clay loams derived from basalt. Unlikely - no suitable habitat present.
<i>Senecio macrocarpus</i> largefruit fireweed	Extinct	Vulnerable	<i>Senecio macrocarpus</i> is presumed extinct in Tasmania, having been collected from the north of the State including the South Esk River. In Victoria, the species occurs in basalt grasslands and grassy woodlands. Highly unlikely - presumed extinct.
<i>Senecio psilocarpus</i> swamp fireweed	Endangered	Vulnerable	Species occurs in swampy habitats including broad valley floors associated with the Midlands river systems (Cressy area), edges of farm dams amongst low-lying grazing/cropping ground (Forth area), herb-rich native grassland in a broad swale between stable sand dunes (Nook Swamps, King Island), adjacent to wetlands in native grassland (Mount William), herbaceous marshland (Dukes Marshes), and low-lying lagoon systems (Flinders Island). Unlikely - no suitable habitat.

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
<i>Senecio squarrosus</i> leafy fireweed	Rare	Not Listed	<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. Unlikely - any suitable habitat has been highly modified and degraded.
<i>Xanthorrhoea arenaria</i> sand grasstree	Vulnerable	Vulnerable	<i>Xanthorrhoea arenaria</i> is restricted to coastal areas from Bridport in the north-east to Coles Bay on the East Coast, where it occurs in coastal sandy heath. Highly unlikely - no suitable habitat present.
<i>Xerochrysum palustre</i> swamp everlasting, swamp pepper daisy	Vulnerable	Vulnerable	Within Tasmania, <i>Xerochrysum palustre</i> occurs in sedge- and rush-rich wetlands, grassy to sedgy wet heathlands and heathy open <i>Eucalyptus ovata</i> woodlands, <i>Eleocharis sphacelata</i> wetland, usually in sites inundated for part of the year. Highly unlikely - no suitable habitat present.

Note: Likelihood of occurrence of threatened flora is assessed on a 4-tier scale:

1. Present - individuals recorded within the survey area during the field assessment or any previous assessment within the boundaries of survey area;
2. Possible - suitable habitat occurs within the survey area;
3. Unlikely - suitable habitat unlikely to occur within the survey area, or suitable habitat substantially modified, or suitable habitat present but species not recorded for over 50 years within 5 km of the site;
4. Highly unlikely - no suitable habitat present within the survey area, and individuals not recorded within the survey area during current or any previous assessment.

3.2.2 Field Survey

A total of 27 native flora species were recorded during the field survey^{5 10 11}, with 10 of those likely to have been planted due to location, landscaping or clustering. Several flora were not able to be identified to the species level during the survey (i.e. *Juncus sp.*), however, none were likely to represent any known threatened flora under State or Commonwealth legislation.

No threatened flora species were recorded within the survey area during the survey with the closest records being of blue grasslily (*Caesia calliantha*) and blue pincushion (*Brunonia australis*) in larger patches of DAZ greater than 300 metres to the north and south of the site. The full list of species recorded during the survey is included in Appendix A.

It is noted that Table 2 includes five species that are listed as 'possible' to occur within the survey area but were not found during the site survey. Whilst there remains a possibility that those species could occur within the survey area, the highly degraded and modified condition of the vegetation and existing agricultural and livestock grazing practices significantly reduces the likelihood of any of those species being present.

3.3 Native Fauna

3.3.1 Desktop Assessment

According to the Natural Values Atlas (NVA) report (Appendix B), the following threatened fauna species have been previously recorded within 500 meters of the survey area:

- *Pseudemoia pagenstecheri* (tussock skink)

¹⁰ UTAS 2011

¹¹ Wapstra *et al.*, 2005

Additional species have been recorded, or are predicted to occur based on habitat preferences and the mapped vegetation at the site, within 5 km of the site according to the NVA and PMST reports. These species (except listed coastal/migratory and migratory marine species) and their likelihood of occurrence within the survey area are shown in Table 3.

Table 4 Listed fauna known or predicted to occur within 5 km of the survey area

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
Mammals			
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i> spotted-tailed quoll	Rare	Vulnerable	They can be found in numerous types of vegetation. However, forest elements such as rainforest, and wet and dry eucalypt forest are important components of their habitat. They can also be found in non-forest vegetation types such as coastal scrub and heath, and pastoral areas. This wide range of vegetation types are generally characterised by relatively high and predictable seasonal rainfall. Unlikely - given the lack of forest vegetation type and understory structure.
<i>Dasyurus viverrinus</i> eastern quoll		Endangered	The species' distribution is 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. Dens in burrow, hollow log or rock crevice. Unlikely - given the lack of forest vegetation type and understory structure.
<i>Perameles gunnii</i> subsp. <i>gunnii</i> Eastern barred bandicoot		Vulnerable	Habitat for the Eastern barred bandicoot includes the following elements: within agricultural districts, mosaic habitats of pasture and remnant native forest, often with a significant amount of cover provided by dense-growing weeds such as gorse, blackberry, blackthorn, rose briar, etc; small remnant populations may occur in remnant native grassland and grassy woodland; all records occur below 950 altitude. Possible - suitable habitat present within the site.
<i>Sarcophilus harrisii</i> Tasmanian devil	Endangered	Endangered	Habitat includes the following elements contained across an area of several square kilometres: denning habitat for daytime shelter (e.g. dense vegetation, hollow logs, burrows or caves); hunting habitat (open understorey mixed with patches of dense vegetation); breeding den habitat (areas of burrowable, well-drained soil or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of flooding; windrows and log piles may also be used). Unlikely - given the lack of forest vegetation type and understory and structure.
Bats			
<i>Pteropus poliocephalus</i> grey-headed flying-fox		Vulnerable	The Grey-headed Flying-fox has historically occupied forests and woodlands in the coastal lowlands, tablelands and slopes of eastern

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
			Australia. Unlikely - given the lack of forest vegetation type and understory structure.
Birds			
<i>Accipiter novaehollandiae</i> grey goshawk	Endangered		The species nests in mature wet forest, usually in the vicinity of a watercourse. However birds can also be seen in more open woodland and around urban fringes. Most nests are located in the north and west of the State, but smaller breeding populations also occur in the south-east and north-east. Unlikely - given the lack of forest vegetation type and understory structure. May be an infrequent visitor through the site.
<i>Alcedo azurea subsp. diemenensis</i> azure kingfisher	Endangered	Endangered	Habitat is known to be forested margins of major river systems; usually in shady and often overhanging vegetation of riverine forests dominated by wet sclerophyll and mixed forest. Unlikely - given the lack of adjacent river/creek and highly disturbed forest vegetation type and understory structure.
<i>Aquila audax subsp. fleayi</i> Tasmanian wedge-tailed eagle	Endangered	Endangered	Nesting habitat includes the following elements: patches of mature (including old-growth) forest, or forest with mature/old-growth elements, normally greater than 10 ha in area; nest trees usually tall (25-75 m), large and robust mature eucalypts, generally taller than the canopy; nests are often constructed in the tallest and largest tree at a site, and usually located within the canopy even when the nest tree is taller; nests typically occur on the lee (sheltered) aspect of the site (or where hills shelter an otherwise exposed site), with the nest situated below the ridge level for protection from prevailing winds. Unlikely - given the lack of forest vegetation type and understory structure.
<i>Botaurus poiciloptilus</i> Australian bittern		Endangered	The Australasian bittern is a large, heron-like bird found in shallow and vegetated freshwater or brackish swamps. Unlikely - no freshwater ecosystem located at the site.
<i>Haliaeetus leucogaster</i> white-bellied sea-eagle	Vulnerable		The White-bellied Sea-eagle is distributed around the coastal perimeter and inland lakes of Tasmania. It generally breeds within five kilometres of open water. Prime nesting habitat is found along major estuaries where residential and industrial development is concentrated. Unlikely - site located inland from coast and not in proximity of lakes.
<i>Hirundapus caudacutus</i> white-throated needletail		Vulnerable	In Australia, the White-throated Needletail can occur over most types of habitat, although they are recorded most often above wooded areas, including open forest and rainforest, and may also fly below the canopy between trees or in clearings. When flying above farmland, they are more often recorded above partly cleared pasture, plantations or remnant vegetation at the edge of paddocks. In coastal areas, they have been observed flying over sandy beaches or mudflats, and often around coastal cliffs and other areas with prominent updraughts, such as ridges and sand-dunes. Unlikely - given the

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
			lack of forest vegetation type and highly disturbed condition of the site.
<i>Lathamus discolor</i> swift parrot	Endangered	Critically Endangered	Habitat includes flowering Tasmanian blue gum and black gums (foraging habitat) and any eucalypt forest containing hollow-bearing trees (nesting habitat). Hollow-bearing trees are typically large and old with dead limbs or branches and at least some visible hollows. Possible - minimal suitable foraging habitat exists for the species, albeit in a highly disturbed and degraded condition.
<i>Tyto novaehollandiae castanops</i> masked owl	Endangered	Vulnerable	Habitat for the Tasmanian Masked Owl includes the following elements: foraging habitat - a diverse range of forest, woodland and non-forest vegetation including agricultural and forest mosaics; nesting habitat - eucalypt forests and woodlands containing old growth trees with suitable hollows for nesting/roosting, but will also nest in isolated old growth trees with suitable hollows. Possible - suitable habitat present at the site, albeit in a highly disturbed and degraded condition.
Frogs			
<i>Litoria raniformis</i> green and gold frog	Vulnerable	Vulnerable	Breeding habitat for the Green and Gold Frog includes the following elements: still or slow-moving water bodies (lagoons, lakes, farm dams, ponds, irrigation channels, swamps, and slow-moving sections of rivers and streams); the species prefers the shallow part of lagoons (to approx. 1.5m) with a complex vegetation structure, often containing vegetation communities dominated by emergent plants such as water ribbons (Triglochin) and spikerush (Eleocharis), and submerged plants such as watermilfoil (Myriophyllum), marsh-flower (Villarsia), and pondweed (Potamogeton); however, other plant communities can also form suitable breeding habitat. Unlikely - no suitable habitat present.
Crustaceans			
<i>Engaeus orramakunna</i> Mount Arthur burrowing crayfish	Vulnerable	Vulnerable	Habitat for the Mt Arthur Burrowing Crayfish includes the following elements: moist seeps and flat swampy or marshy land feeding into or next to streams and rivers; can also be found in stream banks, wet pasture, culverts and roadside drains. Unlikely - no suitable habitat present.
Fish			
<i>Prototroctes maraena</i> Australian grayling	Vulnerable	Vulnerable	Habitat for the Australian Grayling includes the following elements: adult Australian Grayling inhabit and breed in rivers and streams, usually in cool waters often with alternating pool and riffle zones; larvae and juveniles inhabit estuaries and coastal seas, although their precise habitat requirements are poorly known. Unlikely - no suitable habitat present.
Mollusc			
<i>Pasmaditta jungermanniae</i>	Vulnerable		Currently known from rocky wet forest, scrub and mossy cliff faces. Nothing is known of life

Species	Tasmanian Status - TSP Act	Commonwealth Status - EPBC Act	Brief habitat description & Likelihood of occurrence within survey area
Cataract Gorge pinhead snail			history parameters (age at maturity, life span, etc). Unlikely – only known from one location in Launceston.
Insect			
<i>Oxyethira mienica</i> caddis fly (ouse river)	Rare		Caddis-flies are typically inconspicuous, crypticcoloured insects associated with most freshwater habitats such as streams, swamps, lakes and springs. Unlikely - no suitable habitat present.
Lizard			
<i>Pseudemoia pagenstecheri</i> tussock skink	Vulnerable		Habitat for the Tussock skink includes the following elements: treeless tussock grassland and grassy open woodland at virtually any elevation where suitable habitat is present; typical habitat in the warmer lowland part of the range is native grassland dominated by <i>Poa labillardierei</i> (tussock grass) and species of <i>Rytidosperma</i> (wallaby grasses), <i>Themeda triandra</i> (kangaroo grass) and <i>Microlaena stipoides</i> (weeping grass). Unlikely - some suitable habitat present i.e. wallaby grass, but species unlikely due to the highly disturbed and degraded condition of the site.
<i>Pseudemoia rawlinsoni</i> glossy grass skink	Rare		Glossy Grass Skink habitat is little known but includes tussock grasses and low dense vegetation in moist situations along the margins of swamps and watercourses. The species has also been found where dry sclerophyll forest meets wet heathland subject to frequent flooding. It shelters in dense vegetation and in rotting logs. Unlikely - no suitable habitat present.

Note: Likelihood of occurrence of threatened flora is assessed on a 4-tier scale:

1. Present - individuals recorded within the survey area during the field assessment or any previous assessment within the boundaries of survey area;
2. Possible - suitable habitat occurs within the survey area;
3. Unlikely - suitable habitat unlikely to occur within the survey area, or suitable habitat substantially modified, or suitable habitat present but species not recorded for over 50 years within 5 km of the site;
4. Highly unlikely - no suitable habitat present within the survey area, and individuals not recorded within the survey area during current or any previous assessment.

3.3.2 Field Survey

A total of 16 fauna species were identified during the field survey, of which five are considered to be invasive species. None of the species identified during the survey are considered to be of conservation significance. These species are outlined in Table 4 below. Given the short duration (two half days) and lack of repeated efforts, this is unlikely to be an exhaustive list of the fauna species inhabiting the survey area.

Table 5 Fauna species identified during the field survey

Species Name	Common Name	Type	Status
<i>Acanthiza pusilla</i> or <i>Acanthiza ewingii</i>	Brown thornbill or Tasmanian thornbill	Bird	E?
<i>Anthochaera paradoxa</i>	Yellow wattlebird	Bird	
<i>Bos taurus</i>	Cow (Livestock)	Mammal	i
<i>Cacatua galerita</i>	Sulfur-crested cockatoo	Bird	

Species Name	Common Name	Type	Status
<i>Corvus tasmanicus</i>	Forest raven	Bird	
<i>Dacelo novaeguineae</i>	Laughing kookaburra	Bird	i
<i>Gymnorhina tibicen</i>	Magpie	Bird	
<i>Malurus cyaneus</i>	Superb fairywren	Bird	
<i>Oryctolagus cuniculus</i>	European rabbit	Mammal	i
<i>Pardalotus striatus</i>	Striated pardalote	Bird	
<i>Phylidonyris novaehollandiae</i>	New-Holland honey-eater	Bird	
<i>Strepera fuliginos</i>	Black currawong	Bird	E
<i>Sturnus vulgaris</i>	European starling	Bird	i
<i>Trichoglossus haemotodus</i>	Rainbow lorikeet	Bird	i
<i>Turdus merula</i>	Common blackbird	Bird	i
<i>Vanellus miles</i>	Masked lapwing	Bird	

State Legislation

- r Rare – Tasmanian TSP Act
- v Vulnerable – Tasmanian TSP Act
- e Endangered – Tasmanian TSP Act

Commonwealth Legislation

- VU Vulnerable – Commonwealth EPBC Act
- EN Endangered – Commonwealth EPBC Act
- CR Critically Endangered – Commonwealth EPBC Act

Fauna Species

- i Introduced
- E Endemic to Tasmania

General fauna habitat values

The survey area is located within an area of majority cleared pasture with some remnant isolated or small groups of Eucalyptus (predominantly *E. viminalis* & *E. amygdalina*) trees. Of the 88 Eucalypt trees mapped and recorded at the site, 28 had confirmed hollows. Many of the native Eucalypt trees indicated greater than one hollow, with several trees containing greater than four hollows. Hollows varied in size from small openings (5-10cm) to large openings (>20cm) sufficient for small to medium sized mammals. Six trees were confirmed to contain brushtail possums (*Trichosurus vulpecula*) currently nesting within hollows, some containing several hollows with different groups of possums on the same tree. A further two trees were identified as likely to contain possums or other small mammals species, indicated by heavy scratching and utilisation marks on the lower portions of the tree. Two trees containing hollows were occupied by bees and closer inspection was not possible.

Other habitat features included woody debris (fallen branches), leaf litter, open grassy areas and scrub/heath vegetation which has the potential to be utilised by small/medium ground dwelling mammals, reptiles and small bird species. Examples of the fauna habitat contained at the site are shown in Plate 5-10. A magpie nest was identified in the row of *E. globulus* (blue gums) to the middle area of the site, directly north of the OneSchool Global TAS campus.

Threatened fauna habitat

Table 3 identifies the threatened fauna which have been previously recorded in the local area and indicates the likelihood that they would be present at the site. Three of those species were considered possible to be present the Techno Park site including *Perameles gunnii gunnii* (Eastern barred bandicoot), *Lathamus discolor* (swift parrot) and *Tyto novaehollandiae castanops* (masked owl)¹².

Some of the cleared pasture and grassy areas covered by dense growing weeds would provide habitat for any *Perameles gunnii gunnii* (Eastern barred bandicoot) located at the site (see Figure 2 for weed locations). Given the

¹² Bryant & Jackson 1999

highly modified and degraded condition of the site and surrounding urban context, this site is not likely to represent significant habitat for the species. There were minimal signs of the species being present at the site (i.e. scratching's, diggings, scats etc) and no individuals were observed during the surveys, however it is considered the species would likely to be present at the site in low abundance.

The site contains foraging habitat for swift parrots (*Lathamus discolor*) in the form *E. globulus* (blue gum) and *E. ovata* (swamp gum). A total of seven blue gum were mapped during the survey, ranging from 300-1800mm Diameter at Breast Height (DBH). Eight swamp gums were mapped during the survey, ranging from 300-700mm DBH. Only two of the mapped swamp gums were located inside the footprint of the proposed development, with the remaining six located outside the property boundary. Blue gum and swamp gum provide foraging habitat when in flower and produce a nectar which is a preferred foraging resource¹³. According to the Forest Practices Authority (FPA)¹⁴, foraging habitat patches are generally assessed at a rough scale of one hectare, however, smaller patches of potential habitat may still provide important resources for the species. Given the limited abundance and distribution of the blue and swamp gums at the site, the trees are unlikely to represent a significant foraging resource for swift parrots. The site is also located outside the core and potential range of the species¹⁵.

None of the identified blue gum trees contained hollows and one of the swamp gums contained a hollow, currently occupied by a brush-tailed possum. The mix of 15 trees appear to have been planted as street trees on the site by past landowners/land managers (refer to Figure 2 for tree locations). No swift parrot individuals were observed on site during the surveys, however the surveys were conducted outside the breeding season for the species. It should also be noted that six of the fifteen mapped swamp gums are located outside the development footprint and would be retained on the site. One of these trees indicated a hollow, as mentioned above, currently occupied by a brushtail possum.

The site contains potential habitat for masked owl's, with hollow bearing trees of a suitable size in the proximity of open and cleared pasture and dense weeds (foraging habitat). The site is located within the core range of the species¹⁵. According to the FPA¹⁶, the vegetation at the site has the potential represent significant habitat for the species despite the highly modified and degraded condition. This is due to the large old hollow-bearing trees present at the site. To be considered high quality habitat, patches are required to contain at least eight trees per hectare over 1000 mm DBH. The site contains 28 hollow bearing trees, however, only seven indicate hollows suitable for masked owls. Therefore, the vegetation on site was considered to be low to very-low quality habitat for masked owls due to the ratio of 0.6 suitable habitat trees per hectare.

Masked owls are highly mobile and indicate large home range and territories (1000-2000 ha), so the broader landscape has been considered for the purposes of this assessment¹⁶. Given the surrounding landscape, which is almost entirely cleared for urban, commercial and residential development, the hollow bearing trees are unlikely to represent significant habitat for the species. No masked owl individuals were identified or recorded as part of the field survey, however, this should not be taken as a definitive record that the species is not located at the site given the daytime period, short duration and lack of repeated surveys.

¹³ TSS 2021a

¹⁴ FPA 2014

¹⁵ BCB 2012

¹⁶ FPA 2016

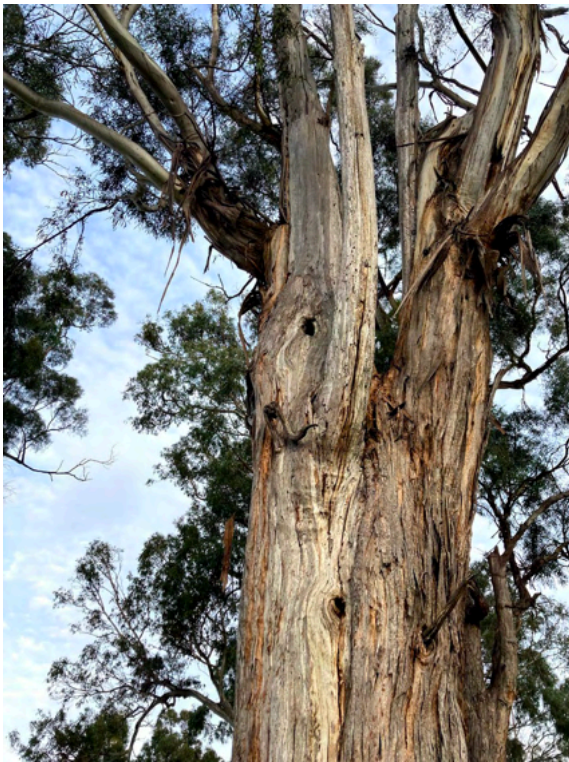


Plate 5 Hollow bearing *E. viminalis*



Plate 7 Hollow likely occupied by a brushtail possum



Plate 6 Hollow bearing *E. viminalis*



Plate 8 Hollow occupied by a brushtail possum

The patch of *C. appressa* has the potential to provide habitat for *Oreisplanus munionga subsp. larana*, commonly known as the Marrawah skipper butterfly. The Marrawah skipper is listed for protection under the *Threatened Species Protection Act 1995* as Endangered and under the *Environment Protection and Biodiversity Conservation Act 1999* as Vulnerable. Known only from the coastal and near-coastal areas of the northwest coast of Tasmania,

it is exclusively associated with the tussock-sedge *C. appressa*, which is its larval host and food plant¹⁷. According to the Natural Values Atlas, the location of the site is outside the core range, and approximately 88 km from the current known potential range of the species¹⁵. Given the location of the site and the known range of the species, it is considered highly unlikely that the species would be present at the site.

3.3.3 Raptor nests and sightings identified by desktop research

No raptor nests or sightings have been previously recorded within 500 meters of the survey area¹⁵. However, verified records of nests and individuals of wedge-tailed eagles, grey goshawks, peregrine falcons, white-bellied sea-eagles and masked owls have been recorded within 5 km of the site.

¹⁷ TSS 2021b



3.4 Invasive Species

44 introduced plant species were recorded within the survey area during the field survey¹⁸, including two declared weeds under the *Tasmanian Weed Management Act 1999* (Appendix A) and three non-declared weeds from the DPIPW non-declared weed index. The broad scale location(s) of declared and non-declared weeds (individuals or minor infestations) is shown in Figure 2.

4. Potential Ecological Impacts

4.1 Vegetation communities

The vegetation community *Eucalyptus amygdalina forest and woodland on Cainozoic deposits* (DAZ) is mapped at the site and is listed as Threatened under the *Nature Conservation Act 2002*, although it is not listed under the Commonwealth EPBC Act. This vegetation community is mapped to cover a total of 1.6 ha of the Techno Park site. It was considered that the vegetation within this area was of a degraded to completely degraded condition due to the minimal or complete lack of understory in some areas, presence of exotic flora species, lack of connected canopy and effects from urbanisation and livestock grazing. Given the highly modified and degraded condition of the site, the vegetation does not meet the requirements to be described as the threatened community¹⁹.

There are no other TASVEG vegetation communities mapped within the site and as such there are no expected impacts to Threatened or conservation significant vegetation communities as a result of the proposed development.

4.2 Significant flora

There was no significant flora identified during the field survey and there is no expected impacts as a result of development of the site.

4.3 Significant fauna and habitat

As discussed in section 3.3.2, the site may provide habitat for three species of conservation significance: *P. gunnii* (Eastern barred bandicoot), *L. discolor* (swift parrot) and *T. novaehollandiae castanops* (Tasmanian masked owl). However, given the highly degraded condition, lack of understory and fragmented vegetation and trees on site, the vegetation is unlikely to represent significant habitat for any of the species.

The blue gums (*E. globulus*) and swamp gums (*E. ovata*) may provide foraging habitat for swift parrots some years, albeit in minor in scale (approx. 9 trees) and is unlikely to represent a significant resource for the species. Some of the hollow bearing trees at the site may provide suitable nesting/breeding habitat for swift parrots, and may be utilised during breeding season (September to January). Given the presence of suitable hollow bearing trees in close proximity to a foraging resource, potential impacts to the species may occur as a result of the development, although they are unlikely to be significant. Precautions should be taken to ensure there are no direct impacts to the species as a result of the removal of the trees.

The masked owl requires a mosaic of forest and open areas for foraging and large old-growth hollow-bearing trees for nests, however, significant habitat is dry forest with mature habitat elements within that range. As mentioned above, the lack of forest structure (e.g. no understory and lack of connected canopy) reduces the likelihood that the species would utilise the site for breeding or nesting, and would not represent significant habitat for the

¹⁸ Richardson *et al.*, 2007

¹⁹ As described in the Vegetation Condition Benchmarks version 2 - Dry Eucalyptus Forest and Woodland - DAZ Eucalyptus amygdalina forest and woodland on Cainozoic deposits (DPIPWE)

species. Given presence of the species cannot be definitively ruled out, potential impacts to the species may occur as a result of the development i.e. removal of many large hollow bearing trees suitable for the masked owl.

Development at the site is not likely to significantly impact on *P. gunnii gunnii* (Eastern barred bandicoot), given the highly degraded condition, lack of understory and fragmented vegetation structure of the site. Future development at the site is likely to increase the abundance and distribution of invasive predators i.e. domestic and feral cats, which may have indirect impacts on any Eastern barred bandicoot which may be present at the site.

5. Recommendations

The following recommendations are suggested to avoid any potential environmental impacts as a result of the proposed development at the site.

5.1 Vegetation Management

The following recommendations are suggested:

- Where possible, retain native vegetation species and trees on site and avoid any unnecessary clearance and/or disturbance of native vegetation, including both trees and understorey vegetation where possible, to preserve the current fauna habitat values present.
- Remove all invasive flora species i.e. blackberry bushes from the site to reduce the propagation of invasive flora throughout the site.
- All vegetation clearing should be conducted in accordance with best practice flora hygiene measures so as to ensure the reduction in the spread of invasive flora species²⁰

5.2 Significant fauna and habitat

Where clearing of trees at the site is unavoidable and necessary for the development of the proposed activity, the clearing of *E. globulus* and *E. ovata* should be conducted outside the flowering period for the species. This will reduce the likelihood of impacts for a foraging resource for swift parrots who may be infrequent visitors to the site.

Similarly, where the clearing of hollow bearing trees is unavoidable and necessary for the development of the proposed activity, the clearing activities should be undertaken outside the breeding periods for both swift parrots and masked owls. Given the current survey was conducted outside the breeding period for both species, it cannot be confirmed that the hollow bearing trees do not provide a breeding site for the species. Although the removal of the trees is unlikely to represent a significant impact for either species, this mitigation measure would act to limit any potential direct impacts on the species.

Future development at the site is likely to increase the abundance and distribution of invasive predators i.e. domestic and feral cats, which may have indirect impacts on any Eastern barred bandicoot which may be present at the site. Mitigation measures should be explored to minimise the impacts to the species as a result of the development in the post construction phase.

5.3 Further Ecological Assessments and Approvals

This assessment has identified large hollow-bearing trees and potential foraging habitat trees for threatened fauna as being key findings that will require further ecological assessment if these values will be disturbed or destroyed as part of the proposed site activity. Under section 29(2)(a) and 29(2)(b) of the *Nature Conservation Act 2002*, special permits are required for 'the taking on specified lands of specified wildlife, specified products of specified wildlife or specified protected plants. Given the hollows contained in 28 trees located at the Techno Park site constitute nesting habitat for fauna species considered to be wildlife, a 'Permit to Take' is required under section 29(2)(a) of the *Nature Conservation Act 2002* for the removal of the hollow bearing trees at the site. This permit should be obtained prior to the clearance and removal of any of the native vegetation at the site. In addition,

²⁰ DPIWE 2004

approval will be required as part of a Launceston City Council Development Application to clear native vegetation on the site, including remnant areas of the DAZ vegetation community and isolated large native paddock trees. Both approval processes will require further detailed ecological assessment of the values at risk and for fauna values, such as tree hollows, it is a requirement that this work is taken within 30 days of the disturbance. Consideration should be given to avoiding and retaining hollow-bearing trees as part of the project design process where possible.

Prior to detail design of the subdivision a further ecological survey of the site is required to determine whether any tree hollows are being used by threatened species such as the Tasmanian Masked Owl. This bird of prey is a cryptic species, hunting at night and rarely observed during the day²¹. Given the current survey was conducted during daylight hours and over the course of one day, it is recommended that a follow up targeted survey for masked owls is conducted. Dedicated surveys for the subspecies generally use a playback system; this involves broadcasting an amplified Masked Owl call (a drawn-out rasping 'cush-cush-sh-sh') which can elicit an answering call from a nearby owl²¹.

Further approvals would be required if there was evidence of occupancy by hollow-requiring species such as the Masked Owl or Swift Parrot listed as threatened under the Federal *EPBC Act 1999*. If so, this would be regarded as a Matter of National Significance requiring further mitigation measures with the possibility of project design changes to avoid impact to the MNES.

²¹ TSS 2021c

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Appendices

Appendix A

Flora species list

Table 6 *Survey details and key to species status*

Job Number	12552740	
Project	Affordable Housing – Techno Park, Kings Meadows	
Client	Communities Tasmania	
Site	Techno Park Drive, Kings Meadows	
Grid Reference	Midpoint of the survey area at approximately GDA94 513354E 5408447N	
Surveyed By	Dean Heinze, Senior Ecologist, GHD Hobart. Mickey Dwyer, Environmental Scientist, GHD Hobart	
Date of Survey	20 th August 2021	
Plant Collection Permit No.	N/A	
Key:		
	<u>STATE LEGISLATION</u>	
r		rare – Tasmanian TSP Act
v		vulnerable – Tasmanian TSP Act
e		endangered – Tasmanian TSP Act
	<u>COMMONWEALTH LEGISLATION</u>	
VU		vulnerable – Commonwealth EPBC Act
EN		endangered – Commonwealth EPBC Act
CR		critically endangered – Commonwealth EPBC Act
	<u>Introduced Species</u>	
i		introduced
P		planted
D		declared weed – Tasmanian <i>Weed Management Act 1999</i>
N-D		non-declared weed – DPIPWE non-declared weed index

Table 7 *Vascular flora recorded within the survey area*

Status	Species Name	Common Name
Native Species		
	<i>Acacia dealbata</i>	silver wattle
	<i>Acacia mearnsii</i>	black wattle
	<i>Acacia melanoxylon</i>	blackwood
	<i>Acaena echinata</i>	sheeps burr
	<i>Acaena novae-zelandiae</i>	common buzzy
	<i>Allocasaurina littoralis</i>	black sheoak
	<i>Astroloma humifusum</i>	native cranberry
	<i>Asperula conferta</i>	woodruff
	<i>Austrodanthonia sp.</i>	wallaby grass
	<i>Austrostipa sp.</i>	spear grass
	<i>Banksia marginata</i>	silver banksia
	<i>Bursaria spinosa</i>	prickly box
	<i>Carex apressa</i>	tall sedge

Status	Species Name	Common Name
	<i>Eucalyptus amygdalina</i>	black peppermint
P	<i>Eucalyptus globulus</i>	blue gum
	<i>Eucalyptus ovata</i>	black gum
	<i>Eucalyptus viminalis</i>	white gum
	<i>Exocarpus cupressiformis</i>	native cherry
	<i>Juncus sp.</i>	rush (broad leaf)
	<i>Juncus sp.</i>	rush (narrow leaf)
	<i>Lomandra longifolia</i>	sagg
	<i>Oxalis perennans</i>	grassland woodsorrel
	<i>Pteridium esculentum</i>	bracken
P	<i>Poa labillardierei</i>	common tussock-grass
	<i>Rumex dumosus</i>	wiry dock
	<i>Styphelia adscendens</i>	golden heath
	<i>Themeda triandra</i>	kangaroo grass
Introduced Species		
i	<i>Agapanthus praecox</i>	Agapanthus
i	<i>Agrostis capillaris</i>	browntop bent
i	<i>Allium triquetrum</i>	three-cornered garlic
i	<i>Anthoxanthum odoratum</i>	sweet vernal grass
i,n-d	<i>Arctotheca calenula</i>	capeweed
i	<i>Avena sp.</i>	wild oats
i	<i>Briza maxima</i>	quaking grass
	<i>Briza minor</i>	shivery grass
	<i>Bromus willdenowii</i>	prairie grass
i,n-d	<i>Cirsium vulgare</i>	spear thistle
i	<i>Cotoneaster glaucophyllus</i>	large-leaf cotoneaster
i	<i>Crataegus monogyna</i>	hawthorn
i	<i>Cynosorus sp.</i>	dogs tail grass
i	<i>Dactylis glomerata</i>	cocksfoot
i	<i>Epilobium ciliatum</i>	glandular willow herb
i	<i>Eucalyptus botryoides</i>	southern mahogany
i	<i>Fumaria muralis</i>	fumitory
i	<i>Galium aparine</i>	cleavers
i	<i>Hedera helix</i>	English ivy
i	<i>Holcus lanatus</i>	Yorkshire fog grass
i	<i>Hypochaeris radicata</i>	rough cat's-ears
i	<i>Hypochaeris sp.</i>	cat's-ears
i	<i>Malva nicaeensis</i>	mallow
i	<i>Myosotis spp.</i>	forget-me-not
	<i>Onopordum acanthium</i>	Scotch thistle
i	<i>Osteospermum fruticosum</i>	white African daisy

Status	Species Name	Common Name
i	<i>Phalaris aquatica</i>	phalaris
i	<i>Pinus radiata</i>	radiata pine
i	<i>Plantago coronopus</i>	buck's horn plantain
i	<i>Plantago lanceolata</i>	ribwort
i	<i>Poa annua</i>	winter grass
i	<i>Prunus cerasifera</i>	cherry plum
i	<i>Romulea rosea</i>	onion grass
i,d	<i>Rubus fruticosus</i>	blackberry
i	<i>Rumex acetosella</i>	sheep sorrel
i,n-d	<i>Rumex obtusifolius</i>	broadleaf dock
i,n-d	<i>Silybum marianum</i>	variegated thistle
i	<i>Solanum nigrum</i>	black nightshade
i	<i>Sonchus hydrophyllus</i>	sow thistle
i	<i>Stellaria media</i>	chickweed
i	<i>Taraxacum officinale</i>	dandelion
i	<i>Trifolium sp.</i>	clover
i,d	<i>Ulex europaeus</i>	gorse
i	<i>Vicia sativa</i>	common vetch
i	<i>Viola odorata</i>	English violet

Appendix B

Natural Values Atlas Report

Natural Values Atlas Report

Authoritative, comprehensive information on Tasmania's natural values.

Reference: Techno Park Drive, Kings Meadow

Requested For: Dean Heinze (GHD)

Report Type: Summary Report

Timestamp: 09:58:55 AM Friday 28 May 2021

Threatened Flora: buffers Min: 500m Max: 5000m

Threatened Fauna: buffers Min: 500m Max: 5000m

Raptors: buffers Min: 500m Max: 5000m

Tasmanian Weed Management Act Weeds: buffers Min: 500m Max: 5000m

Priority Weeds: buffers Min: 500m Max: 5000m

Geoconservation: buffer 1000m

Acid Sulfate Soils: buffer 1000m

TASVEG: buffer 1000m

Threatened Communities: buffer 1000m

Fire History: buffer 1000m

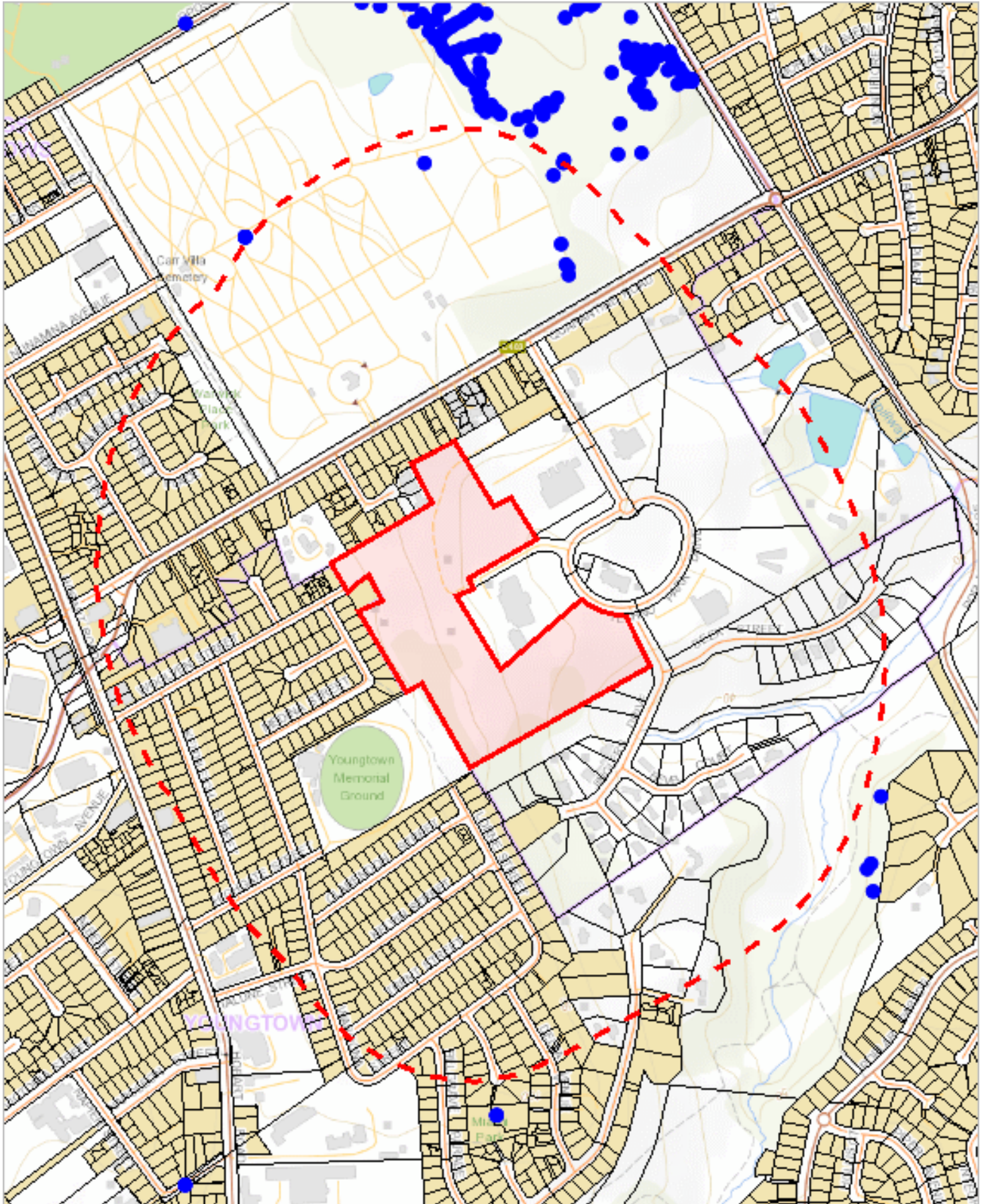
Tasmanian Reserve Estate: buffer 1000m

Biosecurity Risks: buffer 1000m



The centroid for this query GDA94: 514384.0, 5408476.0 falls within:

Property: 1850082



513622, 5407536

Please note that some layers may not display at all requested map scales

Threatened flora within 500 metres

Legend: Verified and Unverified observations

- Point Verified

● Point Unverified

▢ Polygon Verified

▢ Polygon Unverified
- ▬ Line Verified

▬ Line Unverified

Legend: Cadastral Parcels



Threatened flora within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Brunonia australis	blue pincushion	r		n	12	19-Sep-2017
Caesia calliantha	blue grasslily	r		n	1	14-Nov-2020
Euphrasia collina subsp. deflexifolia	eastern eyebright	r		e	1	31-Aug-1892
Senecio squarrosus	leafy fireweed	r		n	1	01-Oct-1943

Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

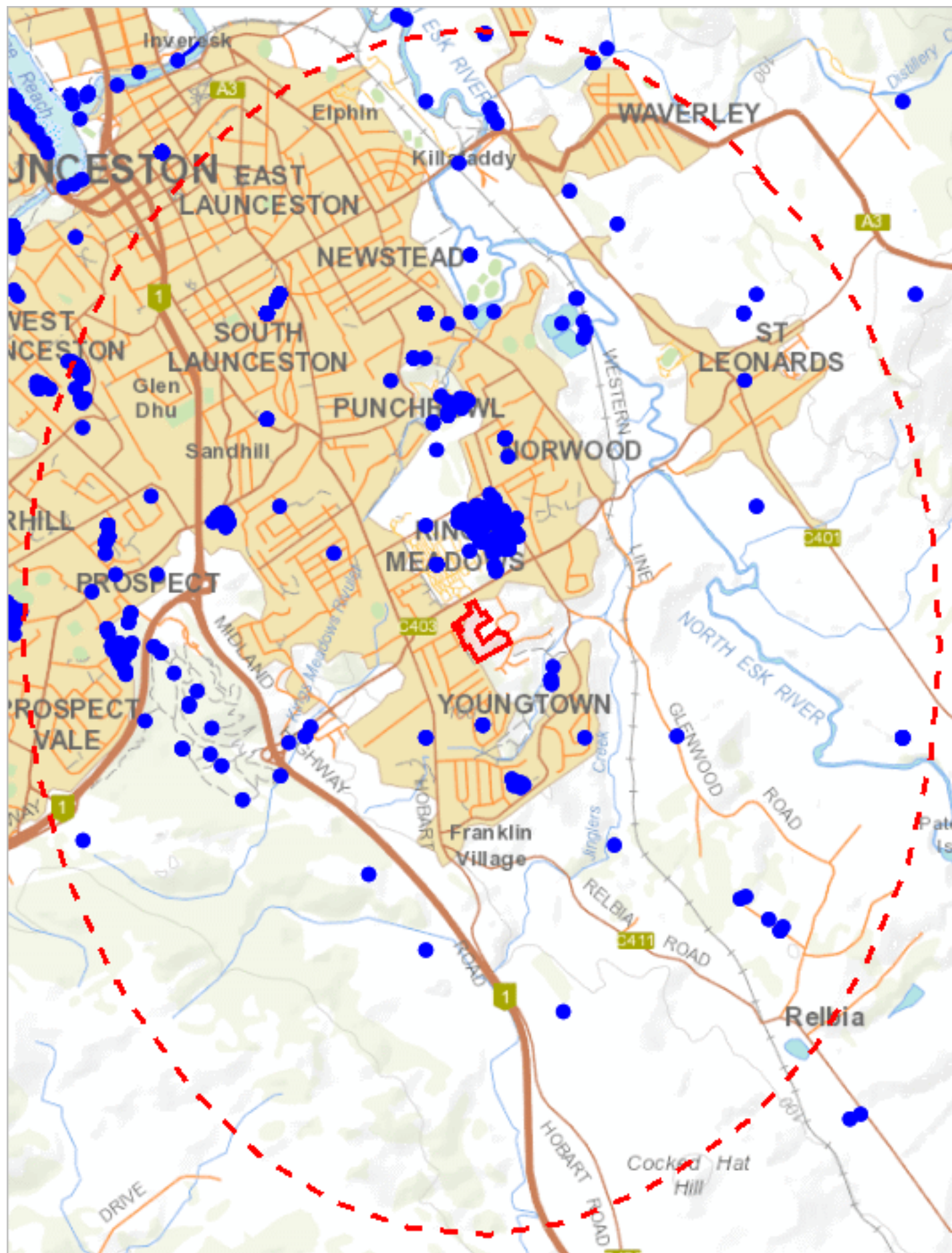
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@dpiwve.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened flora within 5000 metres

518583, 5413961



510238, 5403031

Please note that some layers may not display at all requested map scales

Threatened flora within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

Line Verified

Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels



Threatened flora within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Alternanthera denticulata</i>	lesser joyweed	e		n	18	30-Apr-2010
<i>Aphelia gracilis</i>	slender fanwort	r		n	1	01-Oct-2004
<i>Aphelia pumilio</i>	dwarf fanwort	r		n	5	12-Nov-2020
<i>Asperula subsimplex</i>	water woodruff	r		n	1	30-Mar-2000
<i>Bolboschoenus caldwellii</i>	sea clubsedge	r		n	17	10-Dec-2020
<i>Boronia gunnii</i>	river boronia	v	VU	e	2	14-Jan-1937
<i>Brunonia australis</i>	blue pincushion	r		n	374	19-Oct-2020
<i>Caesia calliantha</i>	blue grasslily	r		n	97	06-Jan-2021
<i>Caladenia filamentosa</i>	daddy longlegs	r		n	4	29-Oct-1893
<i>Caladenia patersonii</i>	patersons spider-orchid	v		n	4	03-Oct-2007
<i>Caladenia tonellii</i>	robust fingers	e	CR	e	1	14-Nov-2017
<i>Callitris oblonga</i> subsp. <i>oblonga</i>	south esk pine	v	EN	e	1	11-Nov-1844
<i>Calocephalus lacteus</i>	milky beautyheads	r		n	1	24-Dec-1844
<i>Calystegia sepium</i> subsp. <i>sepium</i>	swamp bindweed	r		n	5	01-Jan-1912
<i>Carex longebrachiata</i>	drooping sedge	r		n	3	01-Nov-1995
<i>Chiloglottis trapeziformis</i>	broadlip bird-orchid	e		n	1	27-Oct-1974
<i>Corunastylis nuda</i>	tiny midge-orchid	r		n	1	01-Mar-1945
<i>Cryptandra amara</i>	pretty pearlflower	e		n	5	13-Sep-1979
<i>Damasonium minus</i>	starfruit	r		n	1	10-Apr-2000
<i>Deyeuxia lawrencei</i>	lawrences bentgrass	x	EX	e	1	01-Jan-1831
<i>Diuris palustris</i>	swamp doubletail	e		n	2	01-Oct-1942
<i>Epacris exserta</i>	south esk heath	e	PEN	e	11	20-Jan-2010
<i>Epilobium pallidiflorum</i>	showy willowherb	r-		n	2	01-Nov-1892
<i>Euphrasia collina</i> subsp. <i>deflexifolia</i>	eastern eyebright	r		e	1	31-Aug-1892
<i>Euphrasia scabra</i>	yellow eyebright	e		n	2	21-Nov-1887
<i>Gynatrix pulchella</i>	fragrant hempbush	r		n	1	01-Oct-1994
<i>Haloragis heterophylla</i>	variable raspwort	r		n	3	16-Oct-2013
<i>Hovea tasmanica</i>	rockfield purplepea	r		e	5	13-Nov-2020
<i>Hypolepis muelleri</i>	harsh groundfern	r		n	1	10-Mar-1981
<i>Leucopogon virgatus</i> var. <i>brevifolius</i>	shortleaf beardheath	r		n	1	14-Oct-2013
<i>Lythrum salicaria</i>	purple loosestrife	v		n	15	15-Apr-2010
<i>Mentha australis</i>	river mint	e		n	9	15-Apr-2010
<i>Parietaria debilis</i>	shade pellitory	r		n	2	01-Jan-1896
<i>Persicaria decipiens</i>	slender waterpepper	v		n	13	30-Apr-2010
<i>Persicaria subsessilis</i>	bristly waterpepper	e		n	16	15-Apr-2010
<i>Pimelea flava</i> subsp. <i>flava</i>	yellow riceflower	r		n	2	19-Dec-1955
<i>Poa mollis</i>	soft tussockgrass	r		e	99	23-Nov-2018
<i>Pomaderris intermedia</i>	lemon dogwood	r		n	1	02-Apr-1950
<i>Prasophyllum robustum</i>	robust leek-orchid	e	CR	e	4	04-Nov-2020
<i>Prostanthera cuneata</i>	alpine mintbush	x		n	1	03-Feb-1840
<i>Prostanthera rotundifolia</i>	roundleaf mintbush	v		n	8	08-Oct-2009
<i>Pterostylis grandiflora</i>	superb greenhood	r		n	2	01-Jun-1951
<i>Pterostylis ziegeleri</i>	grassland greenhood	v	VU	e	3	01-Jan-1889
<i>Pultenaea prostrata</i>	silky bushpea	v		n	2	01-Nov-1984
<i>Ranunculus pumilio</i> var. <i>pumilio</i>	ferny buttercup	r		n	2	01-Jan-2000
<i>Schenkia australis</i>	spike centaury	r		n	1	01-Nov-1943
<i>Schoenoplectus tabernaemontani</i>	river clubsedge	r		n	1	06-Jan-1894
<i>Scleranthus fasciculatus</i>	spreading knawel	v		n	3	11-Sep-2017
<i>Scutellaria humilis</i>	dwarf skullcap	r		n	1	28-Dec-1937
<i>Senecio campylocarpus</i>	bulging fireweed	v		n	5	21-Mar-2011
<i>Senecio macrocarpus</i>	largefruit fireweed	x	VU	n	1	01-Jan-1837
<i>Senecio squarrosus</i>	leafy fireweed	r		n	33	19-Oct-2020
<i>Siloxerus multiflorus</i>	small wrinklewort	r		n	2	15-Oct-2007
<i>Spyridium vexilliferum</i> var. <i>vexilliferum</i>	helicopter bush	r		n	3	27-Nov-1938
<i>Tetratheca ciliata</i>	northern pinkbells	r		n	1	01-Jan-1896
<i>Teucrium corymbosum</i>	forest germander	r		n	3	08-Dec-2011
<i>Triptilodiscus pygmaeus</i>	dwarf sunray	v		n	2	20-Nov-2007
<i>Velleia paradoxa</i>	spur velleia	v		n	4	01-Sep-1992
<i>Veronica plebeia</i>	trailing speedwell	r		n	1	17-May-2011
<i>Vittadinia gracilis</i>	woolly new-holland-daisy	r		n	2	01-Jan-1868
<i>Vittadinia muelleri</i> (broad sense)	narrow leaf new holland daisy	p		n	1	24-Dec-1946
<i>Westringia angustifolia</i>	narrowleaf westringia	r		e	1	20-Nov-2003

Threatened flora within 5000 metres

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Xerochrysum bicolor	eastcoast paperdaisy	r		n	2	19-Nov-1946

Unverified Records

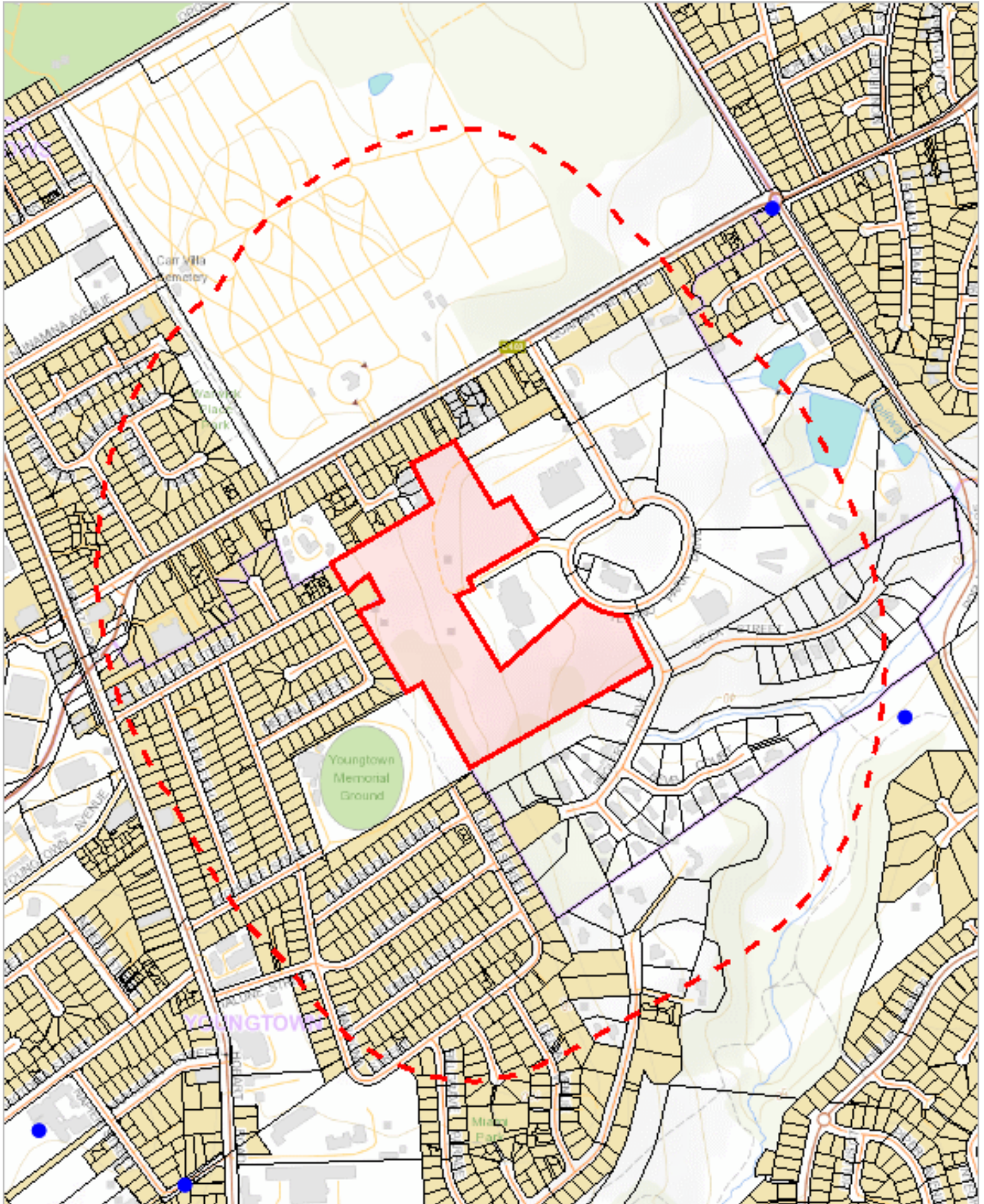
No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@dpiwve.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



513622, 5407536

Please note that some layers may not display at all requested map scales

Threatened fauna within 500 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

Line Verified

Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	26-Feb-2019

Unverified Records

No unverified records were found!

Threatened fauna within 500 metres (based on Range Boundaries)

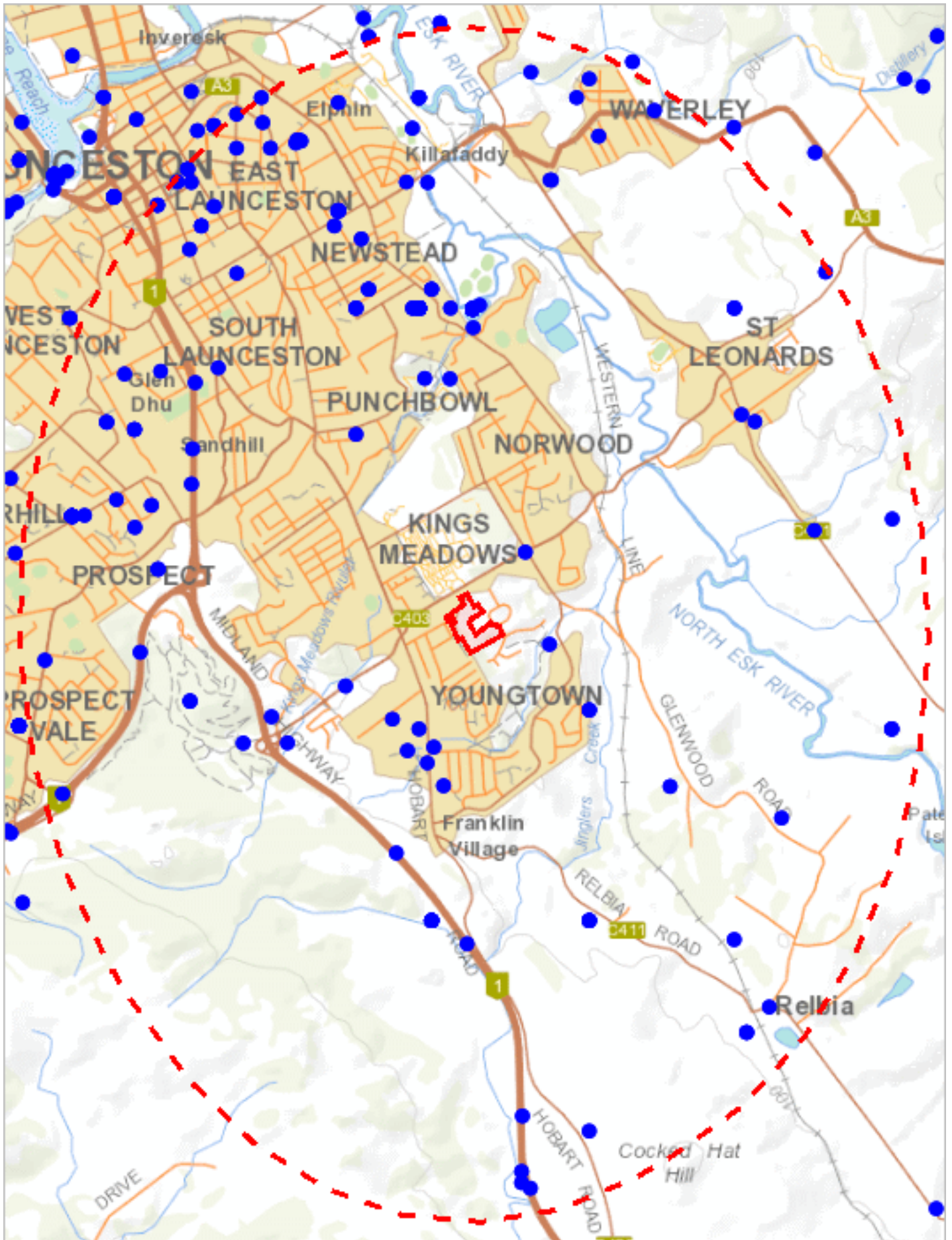
Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Pasmaditta jungermanniae</i>	Cataract Gorge Pinhead Snail	v		e	1	0	0
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	spotted-tail quoll	r	VU	n	1	0	0
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	1	0	1
<i>Prototroctes maraena</i>	australian grayling	v	VU	ae	1	0	0
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (Tasmanian)	e	VU	e	1	0	1
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	1	0	0
<i>Limnodynastes peroni</i>	striped marsh frog	e		n	1	0	0
<i>Catadromus lacordairei</i>	Green-lined ground beetle	v		n	1	0	0
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	1	0	1
<i>Aquila audax</i> subsp. <i>fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1

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Email: ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



510238, 5403031

Please note that some layers may not display at all requested map scales

Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

▬ Line Verified

▬ Line Unverified

▭ Polygon Verified

▭ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Accipiter novaehollandiae	grey goshawk	e		n	41	09-May-2021
Alcedo azurea subsp. diemenensis	azure kingfisher or azure kingfisher (tasmanian)	e	EN	e	1	01-Jan-1910
Aquila audax	wedge-tailed eagle	pe	PEN	n	10	25-Jul-2017
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	7	22-Feb-2021
Botaurus poiciloptilus	australasian bittern		EN	n	2	31-Mar-2010
Dasyurus maculatus	spotted-tail quoll	r	VU	n	5	18-Jan-2020
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	8	09-Nov-2019
Dasyurus viverrinus	eastern quoll		EN	n	9	07-Apr-2017
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	36	10-Sep-2018
Hirundapus caudacutus	white-throated needletail		VU	n	12	07-Mar-2015
Lathamus discolor	swift parrot	e	CR	mbe	13	10-Sep-2011
Litoria raniformis	green and gold frog	v	VU	n	12	25-Sep-2020
Oxyethira mienica	caddis fly (ouse river)	r		e	1	06-Jan-2001
Pasmaditta jungermanniae	Cataract Gorge Pinhead Snail	v		e	3	05-Dec-1963
Perameles gunnii	eastern barred bandicoot		VU	n	23	13-Aug-2020
Perameles gunnii subsp. gunnii	eastern barred bandicoot		VU		1	21-Mar-2015
Prototroctes maraena	australian grayling	v	VU	ae	3	02-Feb-1976
Pseudemoia pagenstecheri	tussock skink	v		n	2	26-Feb-2019
Pseudemoia rawlinsoni	glossy grass skink	r		n	1	19-Dec-1988
Pteropus poliocephalus	grey-headed flying-fox		VU	n	1	05-May-2010
Sarcophilus harrisii	tasmanian devil	e	EN	e	57	18-Feb-2019
Thylacinus cynocephalus	thylacine	x	EX	ex	2	02-Jun-1972
Tyto novaehollandiae	masked owl	pe	PVU	n	11	01-Dec-1999

Unverified Records

No unverified records were found!

Threatened fauna within 5000 metres (based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
Pasmaditta jungermanniae	Cataract Gorge Pinhead Snail	v		e	1	1	0
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	1
Prototroctes maraena	australian grayling	v	VU	ae	1	0	0
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	1
Pseudemoia rawlinsoni	glossy grass skink	r		n	0	0	1
Galaxias fontanus	swan galaxias	e	EN	e	1	0	0
Oxyethira mienica	caddis fly (ouse river)	r		e	1	0	0
Tyto novaehollandiae subsp. castanops	masked owl (Tasmanian)	e	VU	e	1	0	1
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	2	0	0
Limnodynastes peroni	striped marsh frog	e		n	1	0	0
Migas plomleyi	Plomley's trapdoor spider or spider (cataract gorge)	e		e	1	0	0
Beddomeia launcestonensis	hydrobiid snail (cataract gorge)	e		eH	0	1	0
Catadromus lacordairei	Green-lined ground beetle	v		n	1	0	0
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	0
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	1
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

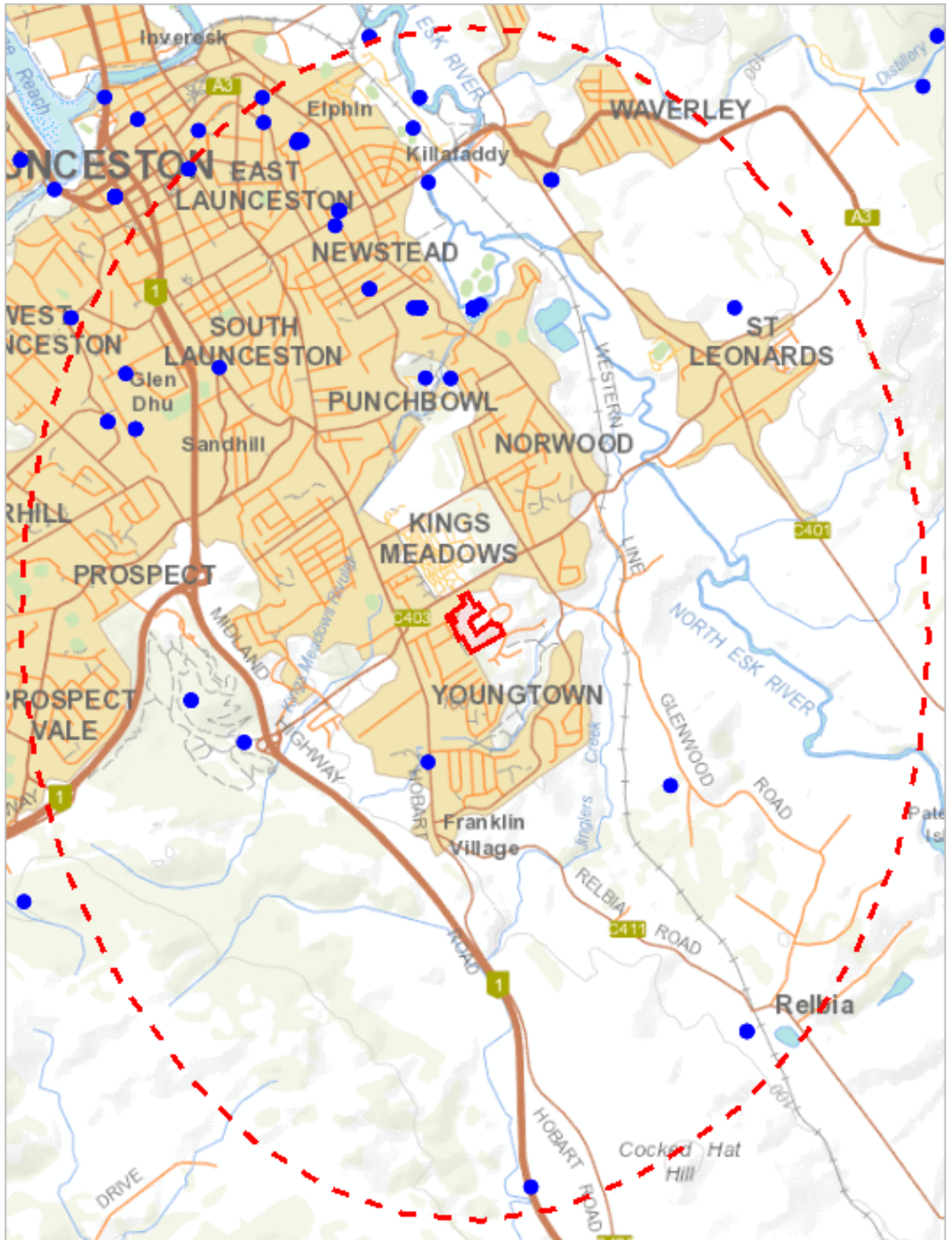
For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@dpiw.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Raptor nests or sightings found within 500 metres. ***



510238, 5403031

Please note that some layers may not display at all requested map scales

Raptor nests and sightings within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

▬ Line Verified

▬ Line Unverified

▭ Polygon Verified

▭ Polygon Unverified

Legend: Cadastral Parcels



Raptor nests and sightings within 5000 metres

Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
2845	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	22-Feb-2021
	Accipiter novaehollandiae	grey goshawk	Carcass	1	29-Jul-2008
	Accipiter novaehollandiae	grey goshawk	HumanObservation	1	09-May-2021
	Accipiter novaehollandiae	grey goshawk	Image	3	16-May-2020
	Accipiter novaehollandiae	grey goshawk	NotRecorded	31	15-Sep-2017
	Accipiter novaehollandiae	grey goshawk	Sighting	6	01-Aug-2020
	Aquila audax	wedge-tailed eagle	Carcass	1	06-Dec-2012
	Aquila audax	wedge-tailed eagle	NotRecorded	8	25-Jul-2017
	Aquila audax	wedge-tailed eagle	Sighting	1	06-Dec-2012
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	6	20-Oct-2020
	Falco peregrinus	peregrine falcon	NotRecorded	5	04-Feb-2017
	Haliaeetus leucogaster	white-bellied sea-eagle	NotRecorded	32	04-Nov-2017
	Haliaeetus leucogaster	white-bellied sea-eagle	Sighting	4	10-Sep-2018
	Tyto novaehollandiae	masked owl	NotRecorded	5	15-Aug-1984
	Tyto novaehollandiae	masked owl	Sighting	6	01-Dec-1999

Unverified Records

No unverified records were found!

Raptor nests and sightings within 5000 metres (based on Range Boundaries)

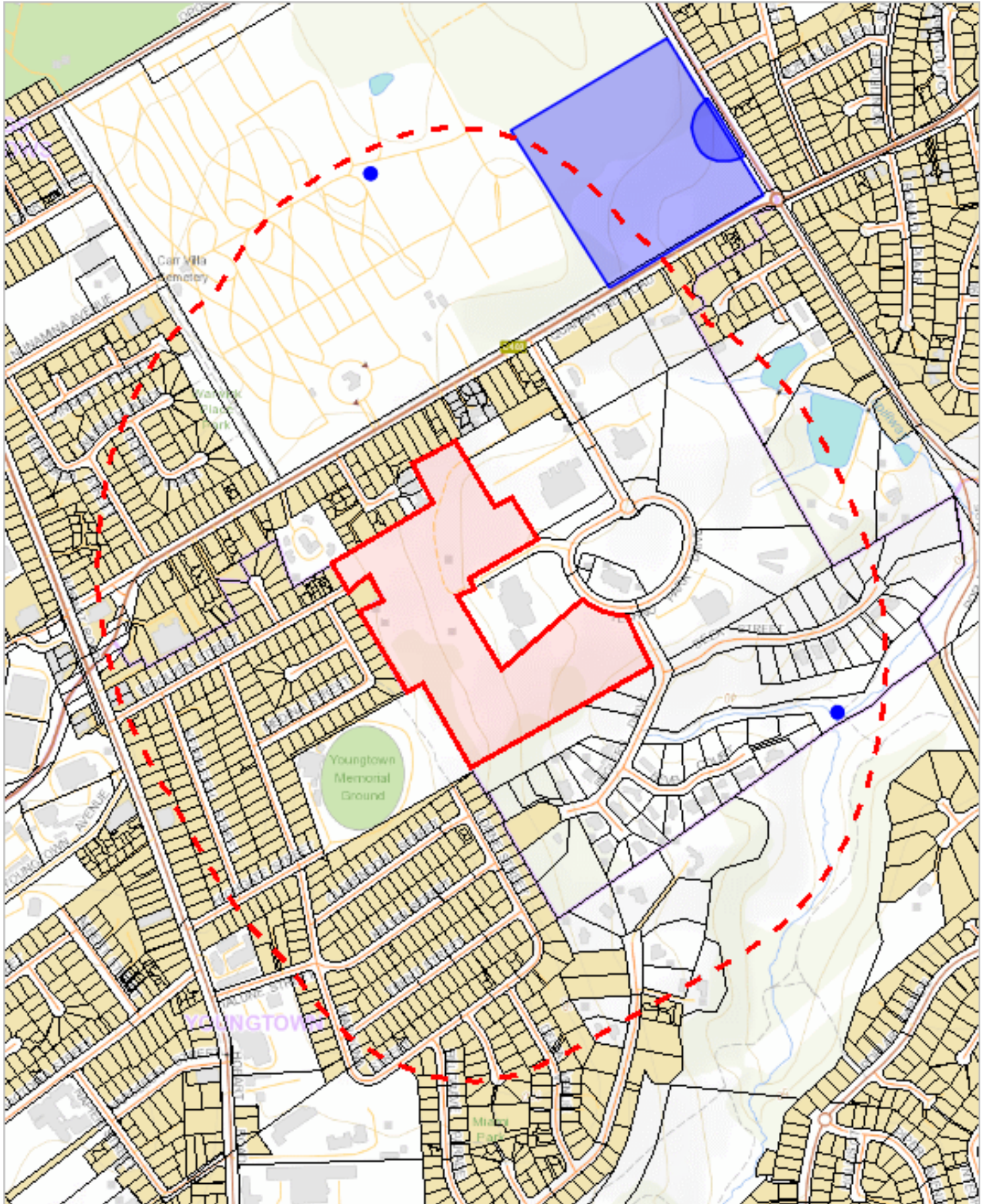
Species	Common Name	SS	NS	Potential	Known	Core
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	1	0	0
Accipiter novaehollandiae	grey goshawk	e		1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		2	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@dpiw.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



513622, 5407536

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 500 m

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

Line Verified

Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 500 m

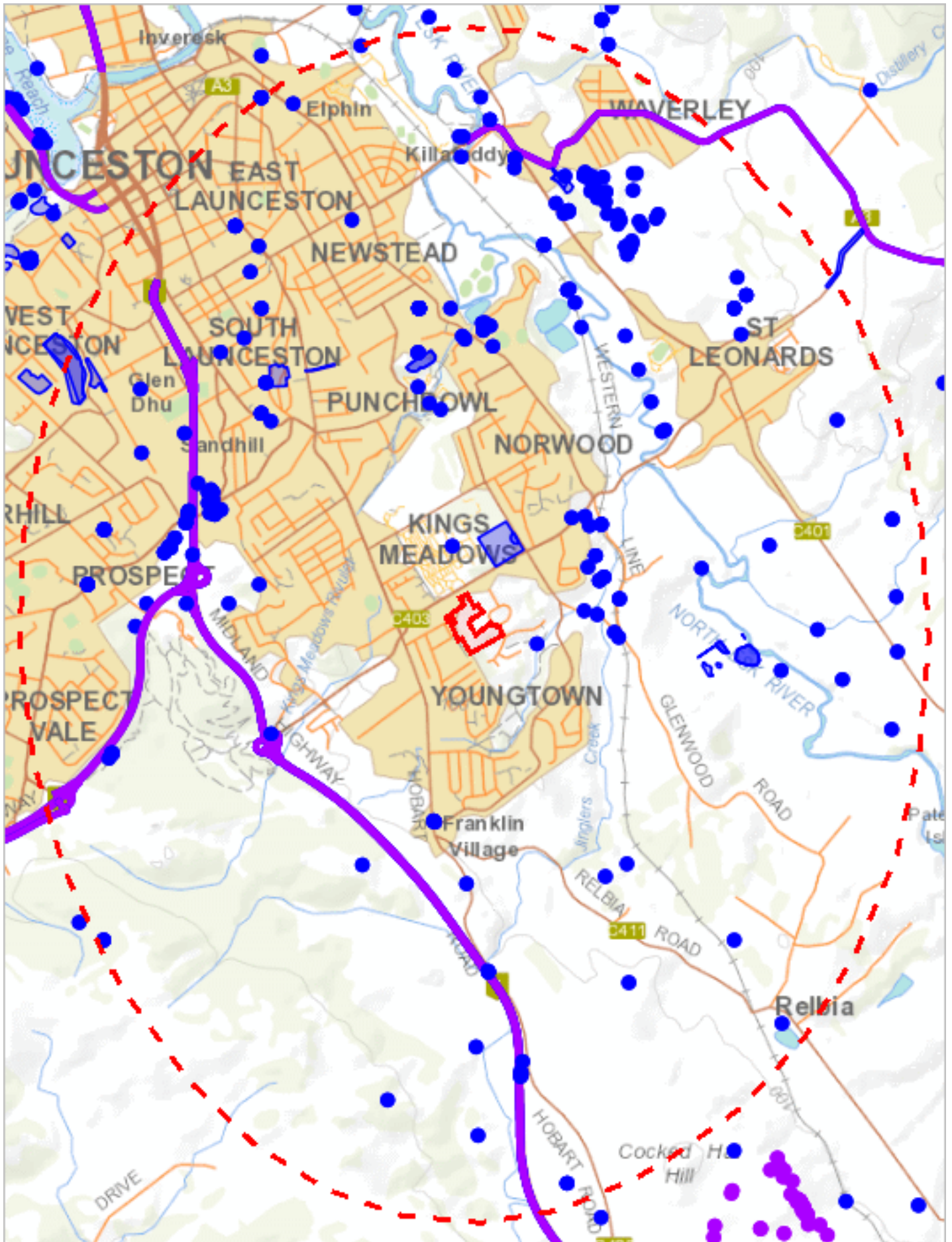
Verified Records

Species	Common Name	Observation Count	Last Recorded
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	1	09-Oct-2007
<i>Cytisus scoparius</i>	english broom	1	01-Oct-1942
<i>Echium plantagineum</i>	patersons curse	1	04-Nov-2016

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.dpipwe.tas.gov.au/invasive-species/weeds>



510238, 5403031

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 5000 m

Legend: Verified and Unverified observations

● Point Verified

● Point Unverified

Line Verified

Line Unverified

■ Polygon Verified

■ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 5000 m

Verified Records

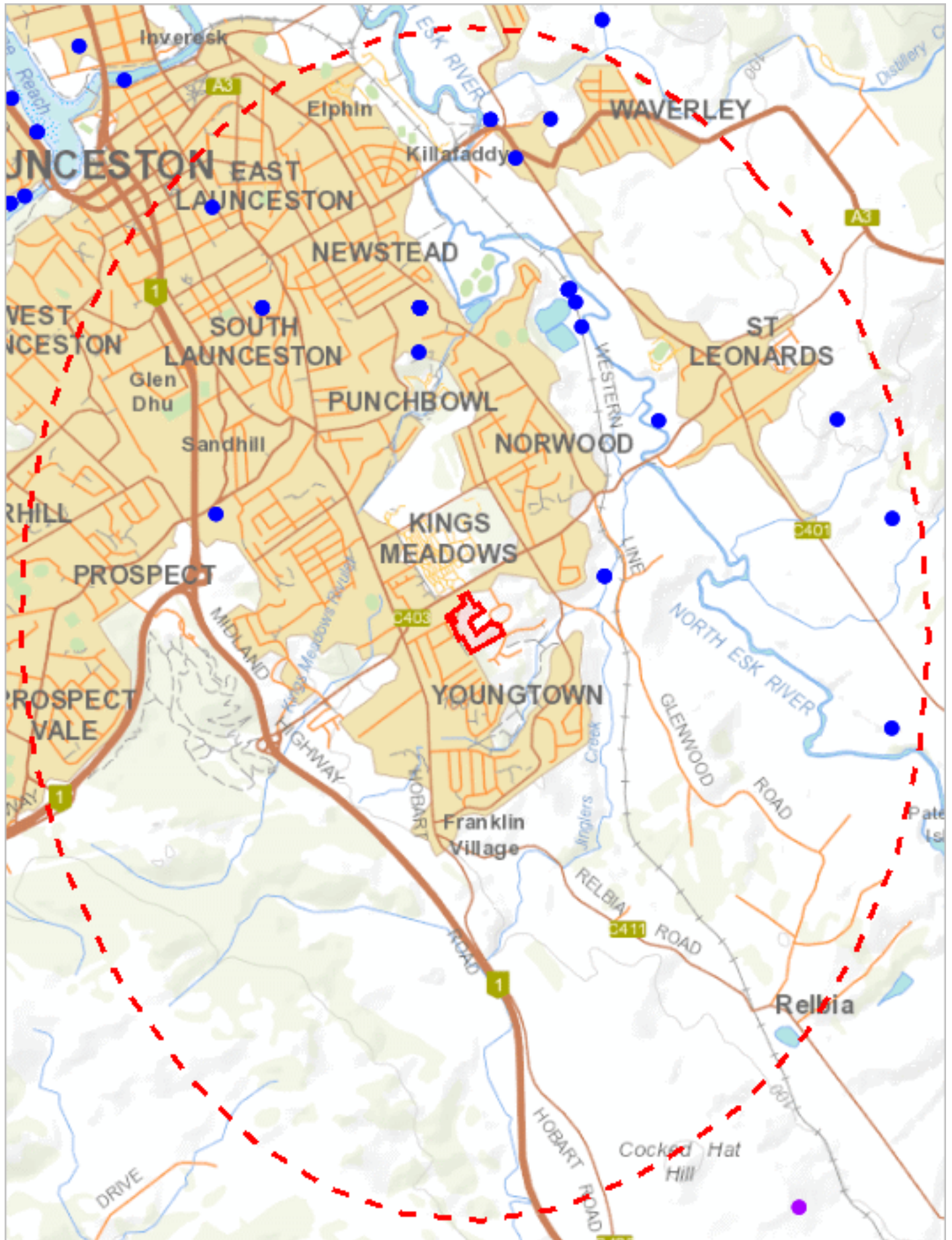
Species	Common Name	Observation Count	Last Recorded
<i>Anthemis cotula</i>	stinking chamomile	5	30-Apr-2010
<i>Asparagus asparagoides</i>	bridal creeper	5	23-Jul-2015
<i>Asphodelus fistulosus</i>	onion weed	5	26-Feb-2008
<i>Calluna vulgaris</i>	heather	1	23-Dec-1947
<i>Carduus tenuiflorus</i>	winged thistle	6	01-Sep-1992
<i>Carthamus lanatus</i>	saffron thistle	1	01-Jan-1993
<i>Cenchrus longisetus</i>	feathertop	2	13-Feb-2009
<i>Centaurea calcitrapa</i>	star thistle	1	24-Mar-1981
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	39	13-Oct-2016
<i>Cirsium arvense</i> var. <i>arvense</i>	creeping thistle	2	15-Mar-1924
<i>Cortaderia jubata</i>	pink pampasgrass	1	08-Jan-1995
<i>Cortaderia</i> sp.	pampas grass	29	14-Feb-2021
<i>Cytisus scoparius</i>	english broom	7	04-Oct-2020
<i>Datura stramonium</i>	common thornapple	2	06-Mar-2015
<i>Echium plantagineum</i>	patersons curse	58	27-Nov-2018
<i>Echium vulgare</i>	vipers bugloss	1	01-Jan-1878
<i>Erica lusitanica</i>	spanish heath	19	08-Aug-2020
<i>Erica scoparia</i>	twig heath	5	23-Jul-2015
<i>Foeniculum vulgare</i>	fennel	2	14-Jan-2010
<i>Genista monspessulana</i>	montpellier broom	7	10-Nov-2015
<i>Lepidium draba</i>	hoary cress	3	28-Oct-1978
<i>Lycium ferocissimum</i>	african boxthorn	2	08-Apr-2016
<i>Myriophyllum aquaticum</i>	parrotfeather	1	29-Nov-1978
<i>Oenanthe pimpinelloides</i>	dropwort	1	16-Dec-2015
<i>Onopordum acanthium</i>	scotch thistle	3	01-Jan-1993
<i>Rubus anglocandicans</i>	blackberry	1	23-Jan-1997
<i>Rubus fruticosus</i>	blackberry	62	08-Oct-2020
<i>Rubus leucostachys</i>	blackberry	2	11-Jan-1977
<i>Salix alba</i> var. <i>caerulea</i>		1	01-Nov-2003
<i>Salix alba</i> var. <i>vitellina</i>	golden willow	1	20-Oct-1953
<i>Salix x fragilis</i> nothovar. <i>fragilis</i>	crack willow	6	25-Nov-2008
<i>Senecio jacobaea</i>	ragwort	10	18-Nov-2016
<i>Solanum marginatum</i>	white-edged nightshade	1	21-Apr-1977
<i>Ulex europaeus</i>	gorse	53	08-Oct-2020
<i>Xanthium spinosum</i>	bathurst burr	2	01-Jan-1962

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.dpipwe.tas.gov.au/invasive-species/weeds>

*** No Priority Weeds found within 500 metres ***



510238, 5403031

Please note that some layers may not display at all requested map scales

Priority Weeds within 5000 m

Legend: Verified and Unverified observations

- Point Verified

● Point Unverified

▮ Polygon Verified

▮ Polygon Unverified
- ▮ Line Verified

▮ Line Unverified

Legend: Cadastral Parcels



Priority Weeds within 5000 m

Verified Records

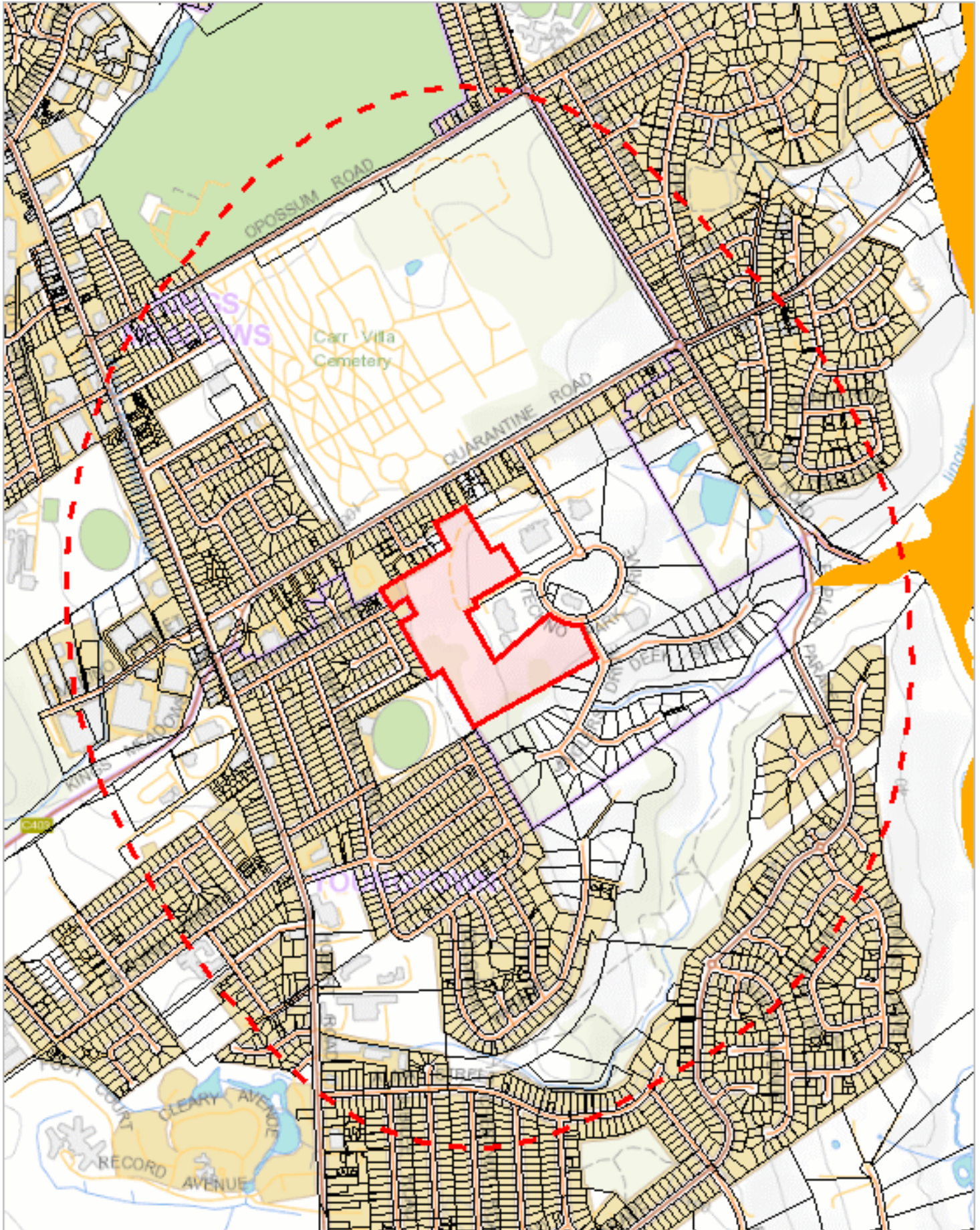
Species	Common Name	Observation Count	Last Recorded
Acacia baileyana	cootamundra wattle	4	14-Jan-2010
Anredera cordifolia	madeira vine	1	03-May-1965
Dipsacus fullonum	wild teasel	6	30-Jul-2020
Dipsacus fullonum subsp. fullonum	wild teasel	2	01-Jan-1900
Grevillea rosmarinifolia	rosemary grevillea	1	16-Oct-1972
Pittosporum undulatum	sweet pittosporum	2	10-Nov-2015
Reseda luteola	weld	4	11-Jun-2010
Rumex obtusifolius	broadleaf dock	3	05-Jun-2020
Salix x pendulina var. pendulina	weeping willow	1	01-Jan-1993
Tradescantia fluminensis	wandering creeper	2	17-Nov-1975
Verbascum thapsus	great mullein	1	11-Jun-2010

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.dpipwe.tas.gov.au/invasive-species/weeds>

*** No Geoconservation sites found within 1000 metres. ***



513245, 5407035

Please note that some layers may not display at all requested map scales

Acid Sulfate Soils within 1000 metres

Legend: Coastal Acid Sulfate Soils (0 - 20m AHD)



High



Low



Extremely Low

Legend: Inland Acid Sulfate Soils (>20m AHD)



High



Low



Extremely Low

Legend: Marine Subaqueous/Intertidal Acid Sulfate Soil



High (Intertidal)



High (Subtidal)

Legend: Cadastral Parcels



Acid Sulfate Soils within 1000 metres

Dataset Name	Acid Sulfate Soil Probability	Acid Sulfate Soil Atlas	Description
Coastal Acid Sulfate Soils	Low	Bg(p3)	Low probability of occurrence (6-70% chance of occurrence in mapping unit). Floodplains >4m AHD, ASS generally below 3m from the surface.generally forests. Includes plains and levees. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.

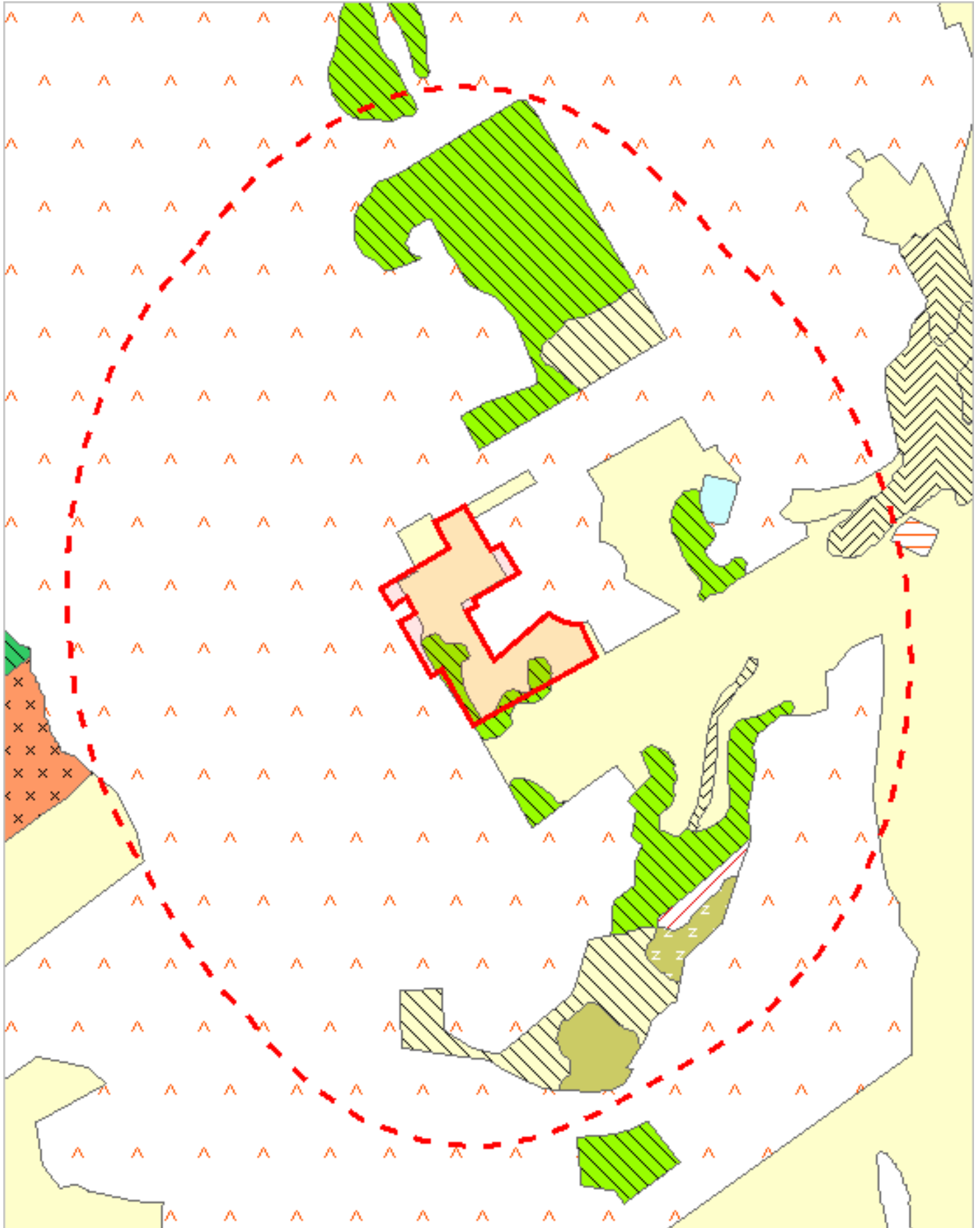
For more information about Acid Sulfate Soils, please contact Land Management Enquiries.

Telephone: (03) 6777 2227

Fax: (03) 6336 5111

Email: LandManagement.Enquiries@dpiwre.tas.gov.au























































Address: 171 Westbury Road, Prospect, Tasmania, Australia, 7250



513245, 5407035

Please note that some layers may not display at all requested map scales


























Legend: TASVEG 4.0

	(AAP) Alkaline pans
	(AHF) Freshwater aquatic herbland
	(AHL) Lacustrine herbland
	(AHS) Saline aquatic herbland
	(ARS) Saline sedgeland / rushland
	(ASF) Fresh water aquatic sedgeland and rushland
	(ASP) Sphagnum peatland
	(ASS) Succulent saline herbland
	(AUS) Saltmarsh (undifferentiated)
	(AWU) Wetland (undifferentiated)
	(DAC) Eucalyptus amygdalina coastal forest and woodland
	(DAD) Eucalyptus amygdalina forest and woodland on dolerite
	(DAM) Eucalyptus amygdalina forest on mudstone
	(DAS) Eucalyptus amygdalina forest and woodland on sandstone
	(DAZ) Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits
	(DBA) Eucalyptus barberi forest and woodland
	(DCO) Eucalyptus coccifera forest and woodland
	(DCR) Eucalyptus cordata forest
	(DDE) Eucalyptus delegatensis dry forest and woodland
	(DDP) Eucalyptus dalrympleana - Eucalyptus pauciflora forest and woodland
	(DGL) Eucalyptus globulus dry forest and woodland
	(DGW) Eucalyptus gunnii woodland
	(DKW) King Island Eucalypt woodland
	(DMO) Eucalyptus morrisbyi forest and woodland
	(DMW) Midlands woodland complex
	(DNF) Eucalyptus nitida Furneaux forest
	(DNI) Eucalyptus nitida dry forest and woodland
	(DOB) Eucalyptus obliqua dry forest
	(DOV) Eucalyptus ovata forest and woodland
	(DOW) Eucalyptus ovata heathy woodland
	(DPD) Eucalyptus pauciflora forest and woodland on dolerite
	(DPE) Eucalyptus perriniana forest and woodland
	(DPO) Eucalyptus pauciflora forest and woodland not on dolerite
	(DPU) Eucalyptus pulchella forest and woodland
	(DRI) Eucalyptus risdonii forest and woodland
	(DRO) Eucalyptus rodwayi forest and woodland
	(DSC) Eucalyptus amygdalina - Eucalyptus obliqua damp sclerophyll forest
	(DSG) Eucalyptus sieberi forest and woodland on granite
	(DSO) Eucalyptus sieberi forest and woodland not on granite
	(DTD) Eucalyptus tenuiramis forest and woodland on dolerite
	(DTG) Eucalyptus tenuiramis forest and woodland on granite
	(DTO) Eucalyptus tenuiramis forest and woodland on sediments
	(DVC) Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
	(DVF) Eucalyptus viminalis Furneaux forest and woodland
	(DVG) Eucalyptus viminalis grassy forest and woodland
	(FAC) Improved pasture with native tree canopy
	(FAG) Agricultural land
	(FMG) Marram grassland
	(FPE) Permanent easements
	(FPF) Pteridium esculentum fernland
	(FPH) Plantations for silviculture - hardwood
	(FPS) Plantations for silviculture - softwood
	(FPU) Unverified plantations for silviculture
	(FRG) Regenerating cleared land
	(FSM) Spartina marshland
	(FUM) Extra-urban miscellaneous
	(FUR) Urban areas
	(FWU) Weed infestation
	(GCL) Lowland grassland complex

TASVEG 4.0 Communities within 1000 metres

	(GHC) Coastal grass and herbfield
	(GPH) Highland Poa grassland
	(GPL) Lowland Poa labillardierei grassland
	(GRP) Rockplate grassland
	(GSL) Lowland grassy sedgeland
	(GTL) Lowland Themeda triandra grassland
	(HCH) Alpine coniferous heathland
	(HCM) Cushion moorland
	(HHE) Eastern alpine heathland
	(HHW) Western alpine heathland
	(HSE) Eastern alpine sedgeland
	(HSW) Western alpine sedgeland/herbland
	(HUE) Eastern alpine vegetation (undifferentiated)
	(MBE) Eastern buttongrass moorland
	(MBP) Pure buttongrass moorland
	(MBR) Sparse buttongrass moorland on slopes
	(MBS) Buttongrass moorland with emergent shrubs
	(MBU) Buttongrass moorland (undifferentiated)
	(MBW) Western buttongrass moorland
	(MDS) Subalpine Diplarrena latifolia rushland
	(MGH) Highland grassy sedgeland
	(MRR) Restionaceae rushland
	(MSW) Western lowland sedgeland
	(NAD) Acacia dealbata forest
	(NAF) Acacia melanoxylon swamp forest
	(NAL) Allocasuarina littoralis forest
	(NAR) Acacia melanoxylon forest on rises
	(NAV) Allocasuarina verticillata forest
	(NBA) Bursaria - Acacia woodland
	(NBS) Banksia serrata woodland
	(NCR) Callitris rhomboidea forest
	(NLA) Leptospermum scoparium - Acacia mucronata forest
	(NLE) Leptospermum forest
	(NLM) Leptospermum lanigerum - Melaleuca squarrosa swamp forest
	(NLN) Subalpine Leptospermum nitidum woodland
	(NME) Melaleuca ericifolia swamp forest
	(OAQ) Water, sea
	(ORO) Lichen lithosere
	(OSM) Sand, mud
	(RCO) Coastal rainforest
	(RFE) Rainforest fernland
	(RFS) Nothofagus gunnii rainforest scrub
	(RHP) Lagarostrobos franklinii rainforest and scrub
	(RKF) Athrotaxis selaginoides - Nothofagus gunnii short rainforest
	(RKP) Athrotaxis selaginoides rainforest
	(RKS) Athrotaxis selaginoides subalpine scrub
	(RKX) Highland rainforest scrub with dead Athrotaxis selaginoides
	(RML) Nothofagus - Leptospermum short rainforest
	(RMS) Nothofagus - Phyllocladus short rainforest
	(RMT) Nothofagus - Atherosperma rainforest
	(RMU) Nothofagus rainforest (undifferentiated)
	(RPF) Athrotaxis cupressoides - Nothofagus gunnii short rainforest
	(RPP) Athrotaxis cupressoides rainforest
	(RPW) Athrotaxis cupressoides open woodland
	(RSH) Highland low rainforest and scrub
	(SAL) Acacia longifolia coastal scrub
	(SBM) Banksia marginata wet scrub
	(SBR) Broad-leaf scrub
	(SCA) Coastal scrub on alkaline sands
	(SCH) Coastal heathland
	(SCL) Heathland on calcareous substrates

TASVEG 4.0 Communities within 1000 metres

	(SED) Eastern scrub on dolerite
	(SHS) Subalpine heathland
	(SHW) Wet heathland
	(SKA) Kunzea ambigua regrowth scrub
	(SLG) Leptospermum glaucescens heathland and scrub
	(SLL) Leptospermum lanigerum scrub
	(SLS) Leptospermum scoparium heathland and scrub
	(SMM) Melaleuca squamea heathland
	(SMP) Melaleuca pustulata scrub
	(SMR) Melaleuca squarrosa scrub
	(SRE) Eastern riparian scrub
	(SRF) Leptospermum with rainforest scrub
	(SRH) Rookery halophytic herbland
	(SSC) Coastal scrub
	(SSK) Scrub complex on King Island
	(SSW) Western subalpine scrub
	(SSZ) Spray zone coastal complex
	(SWR) Western regrowth complex
	(SWW) Western wet scrub
	(WBR) Eucalyptus brookeriana wet forest
	(WDA) Eucalyptus dalrympleana forest
	(WDB) Eucalyptus delegatensis forest with broad-leaf shrubs
	(WDL) Eucalyptus delegatensis forest over Leptospermum
	(WDR) Eucalyptus delegatensis forest over rainforest
	(WDU) Eucalyptus delegatensis wet forest (undifferentiated)
	(WGL) Eucalyptus globulus King Island forest
	(WGL) Eucalyptus globulus wet forest
	(WNL) Eucalyptus nitida forest over Leptospermum
	(WNR) Eucalyptus nitida forest over rainforest
	(WNU) Eucalyptus nitida wet forest (undifferentiated)
	(WOB) Eucalyptus obliqua forest with broad-leaf shrubs
	(WOL) Eucalyptus obliqua forest over Leptospermum
	(WOR) Eucalyptus obliqua forest over rainforest
	(WOU) Eucalyptus obliqua wet forest (undifferentiated)
	(WRE) Eucalyptus regnans forest
	(WSU) Eucalyptus subcrenulata forest and woodland
	(WVI) Eucalyptus viminalis wet forest

Legend: Cadastral Parcels



TASVEG 4.0 Communities within 1000 metres

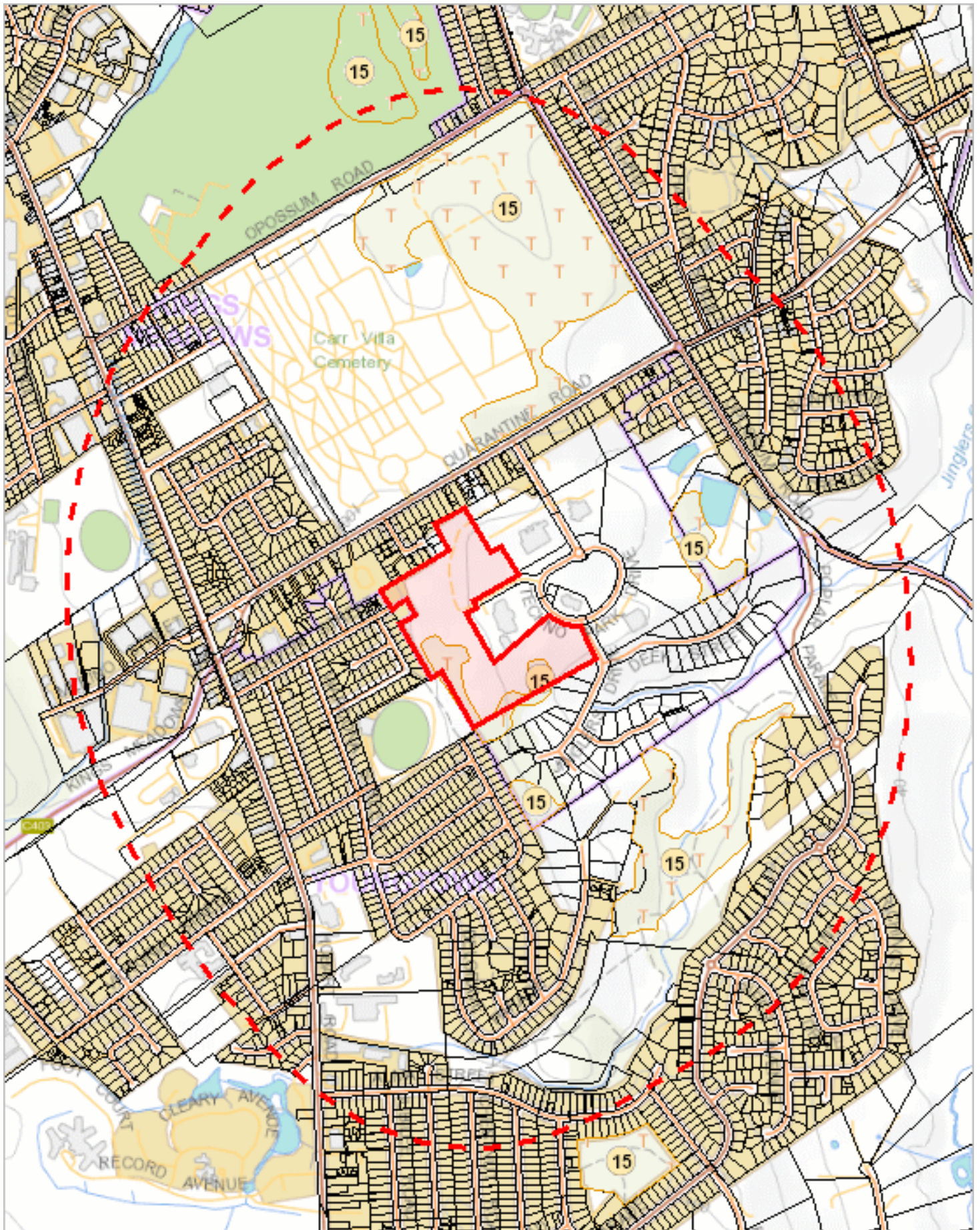
Code	Community	Canopy Tree
DAZ	(DAZ) Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits	
FAG	(FAG) Agricultural land	
FPE	(FPE) Permanent easements	
FRG	(FRG) Regenerating cleared land	EA
FRG	(FRG) Regenerating cleared land	
FUM	(FUM) Extra-urban miscellaneous	
FUR	(FUR) Urban areas	
FWU	(FWU) Weed infestation	
NAD	(NAD) Acacia dealbata forest	
NBA	(NBA) Bursaria - Acacia woodland	
OAQ	(OAQ) Water, sea	

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

Email: TVMMPsupport@dpiwve.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Threatened Communities (TNVC 2020) within 1000 metres

Legend: Threatened Communities

- ☐ 1 - Alkaline pans
- ☐ 2 - Allocasuarina littoralis forest
- ☐ 3 - Athrotaxis cupressoides/Nothofagus gunnii short rainforest
- ☐ 4 - Athrotaxis cupressoides open woodland
- ☐ 5 - Athrotaxis cupressoides rainforest
- ☐ 6 - Athrotaxis selaginoides/Nothofagus gunnii short rainforest
- ☐ 7 - Athrotaxis selaginoides rainforest
- ☐ 8 - Athrotaxis selaginoides subalpine scrub
- ☐ 9 - Banksia marginata wet scrub
- ☐ 10 - Banksia serrata woodland
- ☐ 11 - Callitris rhomboidea forest
- ☐ 13 - Cushion moorland
- ☐ 14 - Eucalyptus amygdalina forest and woodland on sandstone
- ☐ 15 - Eucalyptus amygdalina inland forest and woodland on cainozoic deposits
- ☐ 16 - Eucalyptus brookeriana wet forest
- ☐ 17 - Eucalyptus globulus dry forest and woodland
- ☐ 18 - Eucalyptus globulus King Island forest
- ☐ 19 - Eucalyptus morrisbyi forest and woodland
- ☐ 20 - Eucalyptus ovata forest and woodland
- ☐ 21 - Eucalyptus risdonii forest and woodland
- ☐ 22 - Eucalyptus tenuiramis forest and woodland on sediments
- ☐ 23 - Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
- ☐ 24 - Eucalyptus viminalis Furneaux forest and woodland
- ☐ 25 - Eucalyptus viminalis wet forest
- ☐ 26 - Heathland on calcareous substrates
- ☐ 27 - Heathland scrub complex at Wingaroo
- ☐ 28 - Highland grassy sedge land
- ☐ 29 - Highland Poa grassland
- ☐ 30 - Melaleuca ericifolia swamp forest
- ☐ 31 - Melaleuca pustulata scrub
- ☐ 32 - Notelaea - Pomaderris - Beyeria forest
- ☐ 33 - Rainforest fernland
- ☐ 34 - Riparian scrub
- ☐ 35 - Seabird rookery complex
- ☐ 36 - Sphagnum peatland
- ☐ 36A - Spray zone coastal complex
- ☐ 37 - Subalpine Diplarrena latifolia rushland
- ☐ 38 - Subalpine Leptospermum nitidum woodland
- ☐ 39 - Wetlands

Legend: Cadastral Parcels



Threatened Communities (TNVC 2020) within 1000 metres

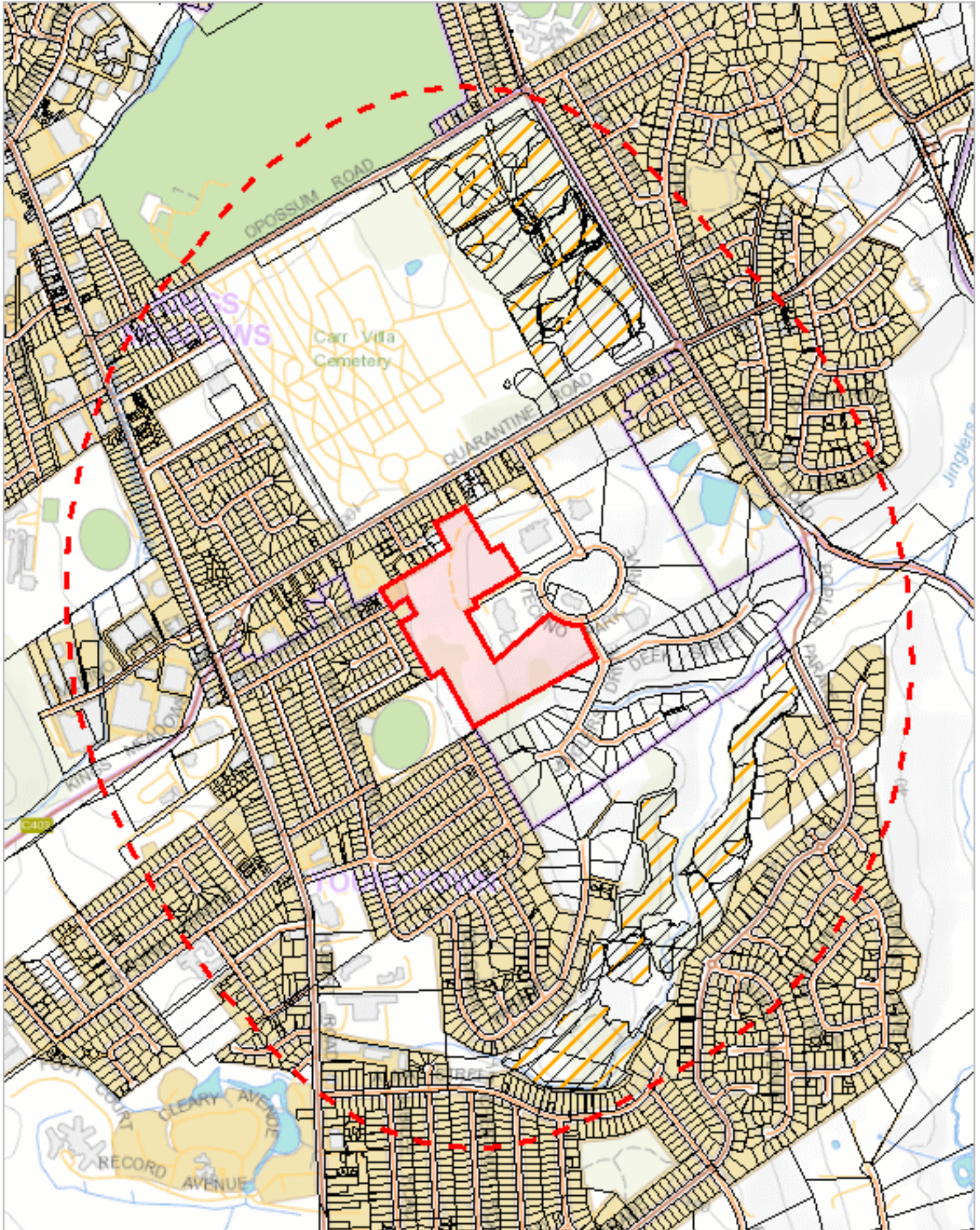
Scheduled Community Id	Scheduled Community Name
15	Eucalyptus amygdalina inland forest and woodland on cainozoic deposits

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

Email: TVMMPsupport@dpiwve.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Fire History (All) within 1000 metres

Legend: Fire History All

- 

Bushfire-Unknown Category
- 

Completed Planned Burn
- 

Bushfire

Legend: Cadastral Parcels



Fire History (All) within 1000 metres

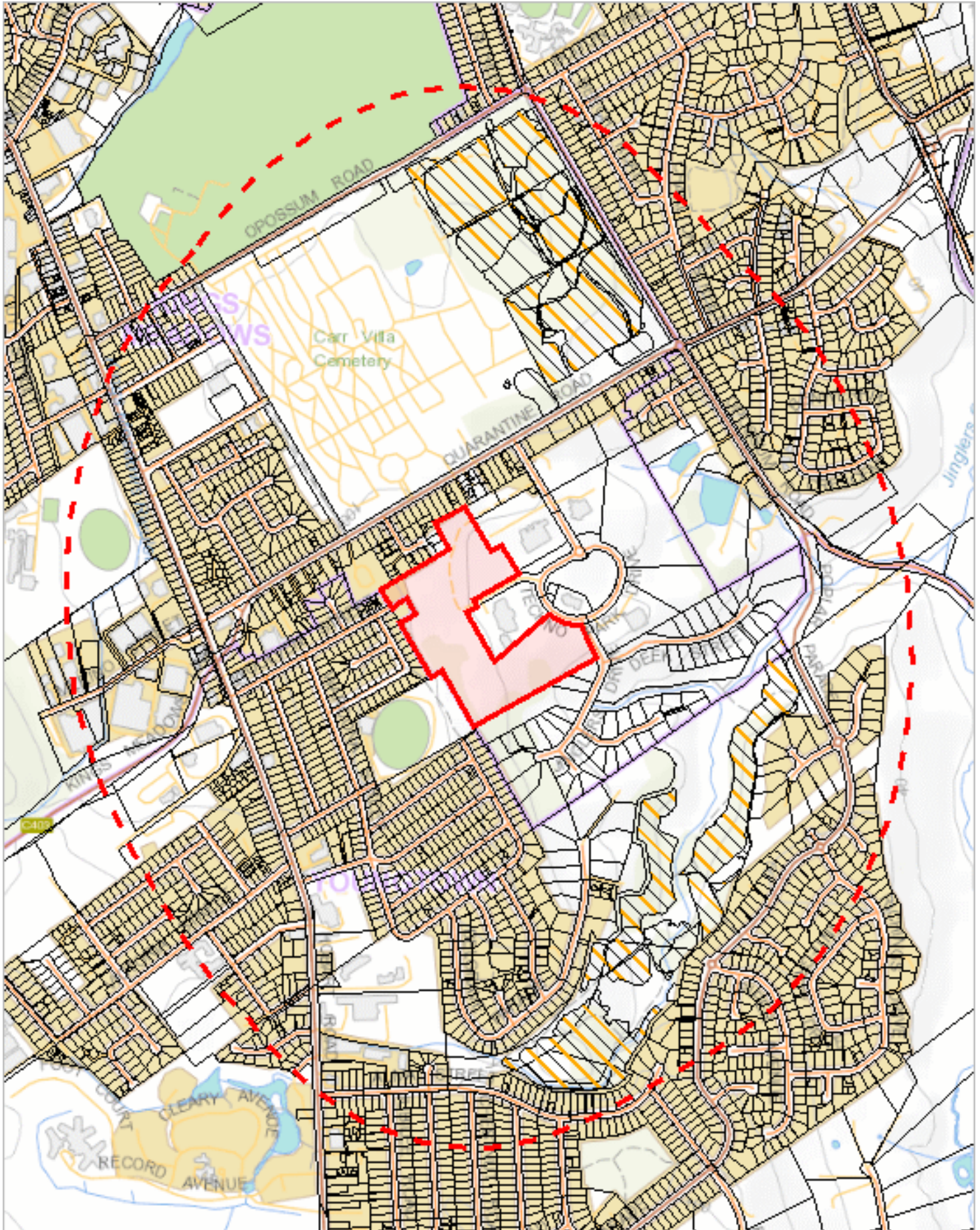
Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
223799	Opposum Rd, Norwood	20-Dec-2014	Bushfire	Deliberate	0.01391755
233778	Nunamina Avenue	18-Nov-2015	Bushfire	Deliberate	0.22007158000000002
LTZ032BU	CVFR001E Carr Villa Flora Reserve	05-May-2017	Planned Burn	Planned Burn	1.32470958
LTZ033BU	YRP001C Youngtown Regional Park	04-May-2017	Planned Burn	Planned Burn	0.54245608
LTZ034BU	YRP001B Youngtown Regional Park	04-May-2017	Planned Burn	Planned Burn	0.38309848
LTZ039BU	Carr Villa Memorial Park	06-Apr-2018	Planned Burn	Planned Burn	1.16707966
LTZ040BU	Youngtown Regional Park	04-Apr-2018	Planned Burn	Planned Burn	4.25516987
LTZ046BU	Youngtown Regional Park North	15-May-2019	Planned Burn	Planned Burn	2.22720475
LTZ052BU	Carr Villa Memorial Park North	05-Apr-2019	Planned Burn	Planned Burn	2.6839531
LTZ055BU	Carr Villa Memorial Park South	01-Mar-2020	Planned Burn	Planned Burn	1.10978624
LTZ056BU	Youngtown Regional Park North East	05-May-2020	Planned Burn	Planned Burn	3.74782643
	Carr Villa Flora Reserve	01-Jan-1996	Bushfire	Deliberate	0.40752561
	Carr Villa Flora Reserve	21-Oct-1997	Planned Burn	Planned Burn	0.4511269
	Carr Villa Flora Reserve	09-Nov-1998	Planned Burn	Planned Burn	0.88170618
	Carr Villa Flora Reserve	02-May-2002	Planned Burn	Planned Burn	0.36289671
	Carr Villa Flora Reserve	27-Nov-2002	Planned Burn	Planned Burn	0.51701533
	Carr Villa Flora Reserve	15-Jan-2003	Bushfire	Deliberate	1.8073815400000002
	Carr Villa Flora Reserve	09-Oct-2006	Planned Burn	Planned Burn	0.51701533
	Carr Villa Flora Reserve	24-Oct-2007	Planned Burn	Planned Burn	0.27016418000000003
	Carr Villa Flora Reserve	18-Nov-2008	Planned Burn	Planned Burn	0.80313469
	Carr Villa Flora Reserve	18-Apr-2012	Planned Burn	Planned Burn	0.16890699
	Carr Villa Flora Reserve	13-Nov-2012	Planned Burn	Planned Burn	0.31029211
	Carr Villa Flora Reserve	06-May-2014	Planned Burn	Planned Burn	1.39217934
	Carr Villa Flora Reserve	29-Apr-2015	Planned Burn	Planned Burn	0.14579899999999998
	Carr Villa Flora reserve	18-Oct-2011	Planned Burn	Planned Burn	1.09698385
	Carr Villa Memorial Park	01-Mar-1996	Bushfire	Deliberate	0.82919046
	Carr Villa Memorial Park	21-Oct-1997	Planned Burn	Planned Burn	1.00388885
	Carr Villa Memorial Park	09-Nov-1998	Planned Burn	Planned Burn	1.63210458
	Carr Villa Memorial Park	20-Jan-2005	Bushfire	Deliberate	0.17641197
	Carr Villa Memorial Park	23-Jan-2005	Bushfire	Deliberate	0.64170165
	Carr Villa Memorial Park	15-May-2007	Planned Burn	Planned Burn	1.92952856
	Carr Villa Memorial Park	14-Mar-2008	Bushfire	Deliberate	0.4413744
	Carr Villa Memorial Park	13-May-2008	Planned Burn	Planned Burn	0.91521308
	Carr Villa Memorial Park	16-Oct-2008	Bushfire	Deliberate	0.03929495
	Carr Villa Memorial Park	27-Oct-2008	Planned Burn	Planned Burn	0.78412109
	Carr Villa Memorial Park	20-May-2009	Planned Burn	Planned Burn	1.3322515799999999
	Carr Villa Memorial Park	18-Apr-2012	Planned Burn	Planned Burn	2.70499593
	LFB_05H	01-Mar-2015	Planned Burn	Planned Burn	0.54596579
	Youngtown Regional Park	29-May-2002	Planned Burn	Planned Burn	1.11678007
	Youngtown Regional Park	26-Apr-2005	Planned Burn	Planned Burn	0.40006706000000003
	Youngtown Regional Park	02-Feb-2006	Bushfire	Deliberate	0.77008795
	Youngtown Regional Park	09-Oct-2006	Bushfire	Deliberate	0.22595756
	Youngtown Regional Park	01-Nov-2006	Planned Burn	Planned Burn	0.82949004
	Youngtown Regional Park	27-Jan-2008	Bushfire	Deliberate	0.48911833
	Youngtown Regional Park	23-Oct-2008	Planned Burn	Planned Burn	0.38240058

For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.

Telephone: 1800 000 699

Email: planning@fire.tas.gov.au

Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000






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Please note that some layers may not display at all requested map scales

Fire History (Last Burnt) within 1000 metres

Legend: Fire History Last

-  Bushfire-Unknown category
-  Completed Planned Burn

 Bushfire

Legend: Cadastral Parcels



Fire History (Last Burnt) within 1000 metres

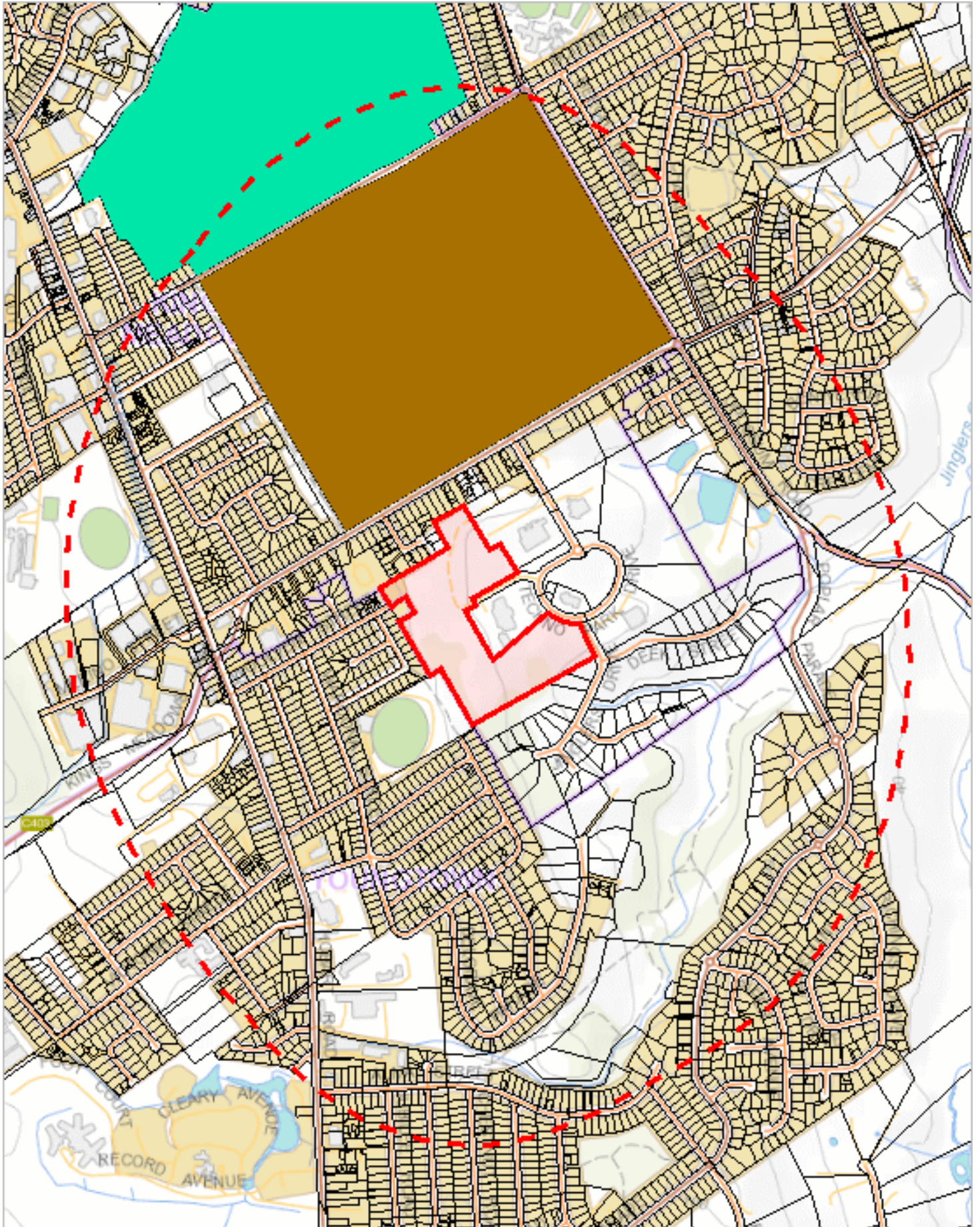
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223799	Opposum Rd, Norwood	20-Dec-2014	Bushfire	Deliberate	0.01391755
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LTZ033BU	YRP001C Youngtown Regional Park	04-May-2017	Planned Burn	Planned Burn	0.54245608
LTZ034BU	YRP001B Youngtown Regional Park	04-May-2017	Planned Burn	Planned Burn	0.38309848
LTZ039BU	Carr Villa Memorial Park	06-Apr-2018	Planned Burn	Planned Burn	1.16707966
LTZ040BU	Youngtown Regional Park	04-Apr-2018	Planned Burn	Planned Burn	4.25516987
LTZ046BU	Youngtown Regional Park North	15-May-2019	Planned Burn	Planned Burn	2.22720475
LTZ052BU	Carr Villa Memorial Park North	05-Apr-2019	Planned Burn	Planned Burn	2.6839531
LTZ055BU	Carr Villa Memorial Park South	01-Mar-2020	Planned Burn	Planned Burn	1.10978624
LTZ056BU	Youngtown Regional Park North East	05-May-2020	Planned Burn	Planned Burn	3.74782643
	Carr Villa Flora Reserve	01-Jan-1996	Bushfire	Deliberate	0.40752561
	Carr Villa Flora Reserve	21-Oct-1997	Planned Burn	Planned Burn	0.4511269
	Carr Villa Flora Reserve	09-Nov-1998	Planned Burn	Planned Burn	0.88170618
	Carr Villa Flora Reserve	02-May-2002	Planned Burn	Planned Burn	0.36289671
	Carr Villa Flora Reserve	15-Jan-2003	Bushfire	Deliberate	1.8073815400000002
	Carr Villa Flora Reserve	09-Oct-2006	Planned Burn	Planned Burn	0.51701533
	Carr Villa Flora Reserve	24-Oct-2007	Planned Burn	Planned Burn	0.27016418000000003
	Carr Villa Flora Reserve	18-Nov-2008	Planned Burn	Planned Burn	0.80313469
	Carr Villa Flora Reserve	18-Apr-2012	Planned Burn	Planned Burn	0.16890699
	Carr Villa Flora Reserve	13-Nov-2012	Planned Burn	Planned Burn	0.31029211
	Carr Villa Flora Reserve	06-May-2014	Planned Burn	Planned Burn	1.39217934
	Carr Villa Flora Reserve	29-Apr-2015	Planned Burn	Planned Burn	0.14579899999999998
	Carr Villa Flora reserve	18-Oct-2011	Planned Burn	Planned Burn	1.09698385
	Carr Villa Memorial Park	01-Mar-1996	Bushfire	Deliberate	0.82919046
	Carr Villa Memorial Park	21-Oct-1997	Planned Burn	Planned Burn	1.00388885
	Carr Villa Memorial Park	09-Nov-1998	Planned Burn	Planned Burn	1.63210458
	Carr Villa Memorial Park	20-Jan-2005	Bushfire	Deliberate	0.17641197
	Carr Villa Memorial Park	23-Jan-2005	Bushfire	Deliberate	0.64170165
	Carr Villa Memorial Park	15-May-2007	Planned Burn	Planned Burn	1.92952856
	Carr Villa Memorial Park	14-Mar-2008	Bushfire	Deliberate	0.4413744
	Carr Villa Memorial Park	13-May-2008	Planned Burn	Planned Burn	0.91521308
	Carr Villa Memorial Park	16-Oct-2008	Bushfire	Deliberate	0.03929495
	Carr Villa Memorial Park	27-Oct-2008	Planned Burn	Planned Burn	0.78412109
	Carr Villa Memorial Park	20-May-2009	Planned Burn	Planned Burn	1.3322515799999999
	Carr Villa Memorial Park	18-Apr-2012	Planned Burn	Planned Burn	2.70499593
	LFB_05H	01-Mar-2015	Planned Burn	Planned Burn	0.54596579
	Youngtown Regional Park	29-May-2002	Planned Burn	Planned Burn	1.11678007
	Youngtown Regional Park	26-Apr-2005	Planned Burn	Planned Burn	0.40006706000000003
	Youngtown Regional Park	02-Feb-2006	Bushfire	Deliberate	0.77008795
	Youngtown Regional Park	09-Oct-2006	Bushfire	Deliberate	0.22595756
	Youngtown Regional Park	01-Nov-2006	Planned Burn	Planned Burn	0.82949004
	Youngtown Regional Park	27-Jan-2008	Bushfire	Deliberate	0.48911833
	Youngtown Regional Park	23-Oct-2008	Planned Burn	Planned Burn	0.38240058

For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.

Telephone: 1800 000 699

Email: planning@fire.tas.gov.au

Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Reserves within 1000 metres

Legend: Tasmanian Reserve Estate

- Conservation Area
- Conservation Area and Conservation Covenant (NCA)
- Game Reserve
- Historic Site
- Indigenous Protected Area
- National Park
- Nature Reserve
- Nature Recreation Area
- Regional Reserve
- State Reserve
- Wellington Park
- Public authority land within WHA
- Future Potential Production Forest
- Informal Reserve on Permanent Timber Production Zone Land or STT managed land
- Informal Reserve on other public land
- Conservation Covenant (NCA)
- Private Nature Reserve and Conservation Covenant (NCA)
- Private Sanctuary and Conservation Covenant (NCA)
- Private Sanctuary
- Private land within WHA
- Management Agreement
- Management Agreement and Stewardship Agreement
- Stewardship Agreement
- Part 5 Agreement (Meander Dam Offset)
- Other Private Reserve

Legend: Cadastral Parcels



Reserves within 1000 metres

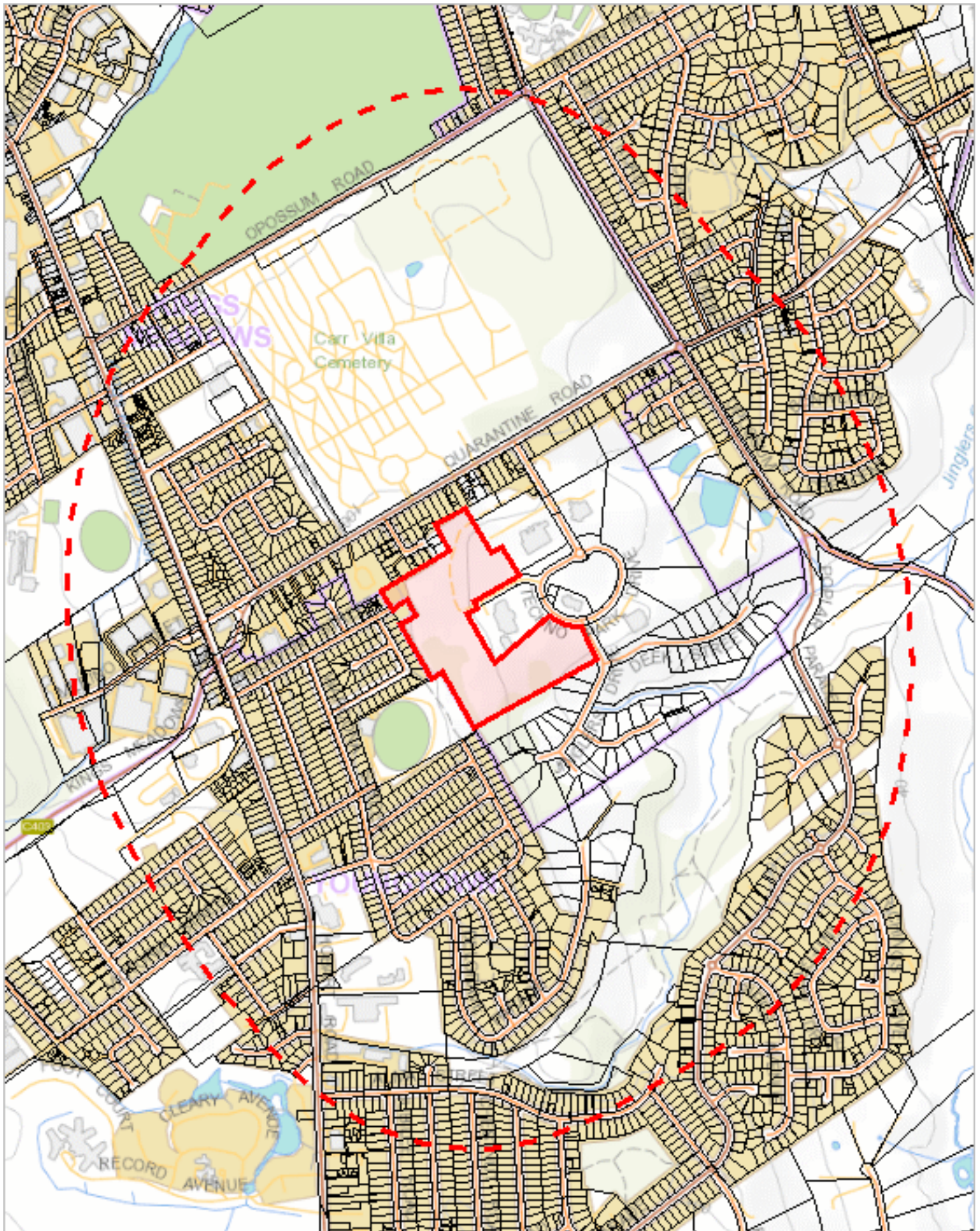
Name	Classification	Status	Area (HA)
	Conservation Area	Other Formal Reserve	61.73897806
	Private Sanctuary	Private Reserve (Perpetual)	56.06347035

For more information about the Tasmanian Reserve Estate, please contact the Sustainable Land Use and Information Management Branch.

Telephone: (03) 6777 2224

Email: LandManagement.Enquiries@dpiwre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



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Please note that some layers may not display at all requested map scales

Known biosecurity risks within 1000 meters

Legend: Biosecurity Risk Species

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Hygiene infrastructure

- Location Point Verified
- Location Point Unverified
- Location Line Verified
- Location Line Unverified
- Location Polygon Verified
- Location Polygon Unverified

Legend: Cadastral Parcels



Known biosecurity risks within 1000 meters

Verified Species of biosecurity risk

No verified species of biosecurity risk found within 1000 metres

Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed <https://www.dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles <https://www.dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant <https://www.dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town through a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

Appendix C

Protected Matters Search Tool Report



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

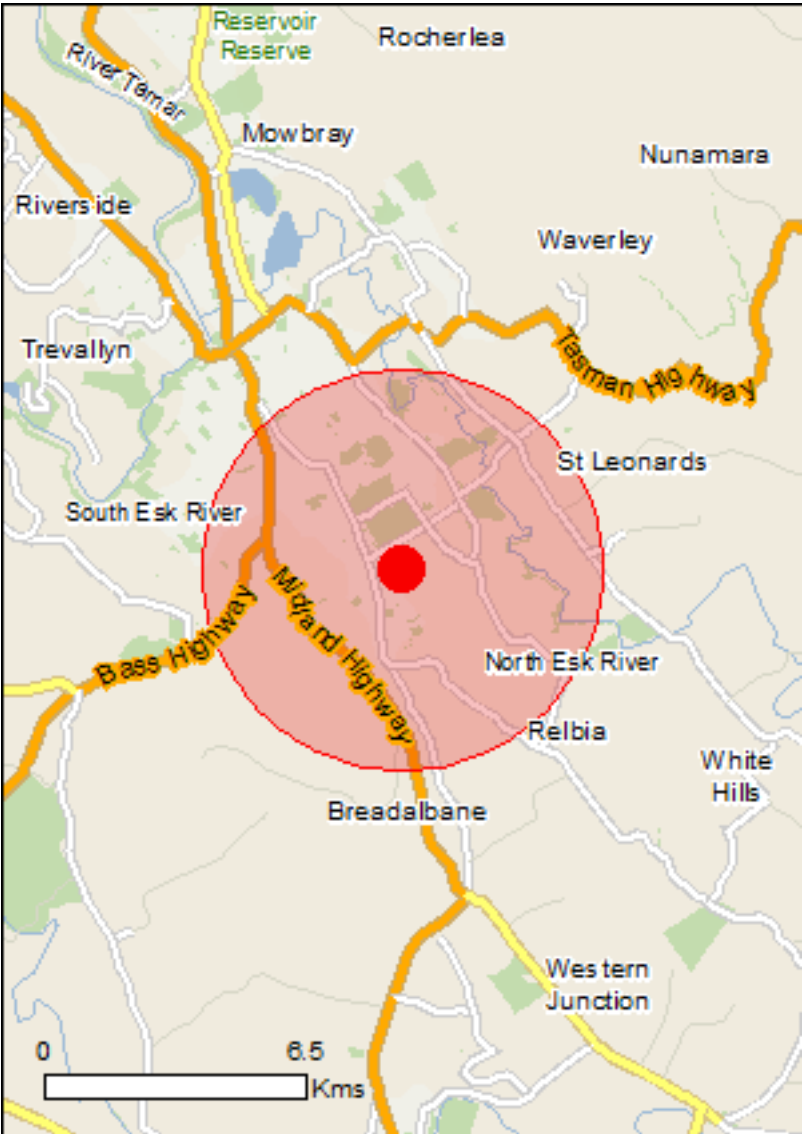
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 25/08/21 10:15:08

- [Summary](#)
- [Details](#)

[Matters of NES](#)[Other Matters Protected by the EPBC Act](#)[Extra Information](#)
- [Caveat](#)
- [Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	31
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	6
Regional Forest Agreements:	1
Invasive Species:	27
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Native Grasslands of Tasmania	Critically Endangered	Community likely to occur within area
Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana)	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		
Aquila audax fleayi Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435]	Endangered	Breeding likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Ceyx azureus diemenensis Tasmanian Azure Kingfisher [25977]	Endangered	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Tyto novaehollandiae castanops (Tasmanian population) Masked Owl (Tasmanian) [67051]	Vulnerable	Breeding known to occur within area
Crustaceans		

Name	Status	Type of Presence
Engaeus orramakunna Mount Arthur Burrowing Crayfish [66778]	Vulnerable	Species or species habitat may occur within area
Fish		
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat known to occur within area
Frogs		
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area
Mammals		
Dasyurus maculatus maculatus (Tasmanian population) Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (Tasmanian population) [75183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus viverrinus Eastern Quoll, Luaner [333]	Endangered	Species or species habitat known to occur within area
Perameles gunnii gunnii Eastern Barred Bandicoot (Tasmania) [66651]	Vulnerable	Species or species habitat known to occur within area
Sarcophilus harrisii Tasmanian Devil [299]	Endangered	Species or species habitat likely to occur within area
Plants		
Acacia axillaris Midlands Mimosa, Midlands Wattle [13563]	Vulnerable	Species or species habitat may occur within area
Barbarea australis Native Wintercress, Riverbed Wintercress [12540]	Endangered	Species or species habitat likely to occur within area
Caladenia caudata Tailed Spider-orchid [17067]	Vulnerable	Species or species habitat may occur within area
Colobanthus curtisiae Curtis' Colobanth [23961]	Vulnerable	Species or species habitat may occur within area
Dianella amoena Matted Flax-lily [64886]	Endangered	Species or species habitat likely to occur within area
Epacris exserta South Esk Heath [19879]	Endangered	Species or species habitat likely to occur within area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area
Lepidium hyssopifolium Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area
Pterostylis commutata Midland Greenhood [64535]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Pterostylis ziegeleri Grassland Greenhood, Cape Portland Greenhood [64971]	Vulnerable	Species or species habitat may occur within area
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area
Xanthorrhoea arenaria Sand Grasstree [21603]	Vulnerable	Species or species habitat may occur within area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species

[Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land

[Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name

Defence - YOUNGTOWN TRAINING DEPOT

Listed Marine Species

[Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Carr Villa	TAS
Kate Reed	TAS
Launceston Golf Course	TAS
Punchbowl	TAS
Punchbowl	TAS
Tamar	TAS

Regional Forest Agreements	[Resource Information]
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Note that all areas with completed RFAs have been included.

Name	State
Tasmania RFA	Tasmania

Invasive Species	[Resource Information]
------------------	--------------------------

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species

Name	Status	Type of Presence
Turdus merula Common Blackbird, Eurasian Blackbird [596]		habitat likely to occur within area Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus		
Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-41.47636 147.17304

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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[Department of Agriculture Water and the Environment](#)

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→ **The Power of Commitment**

Appendix D

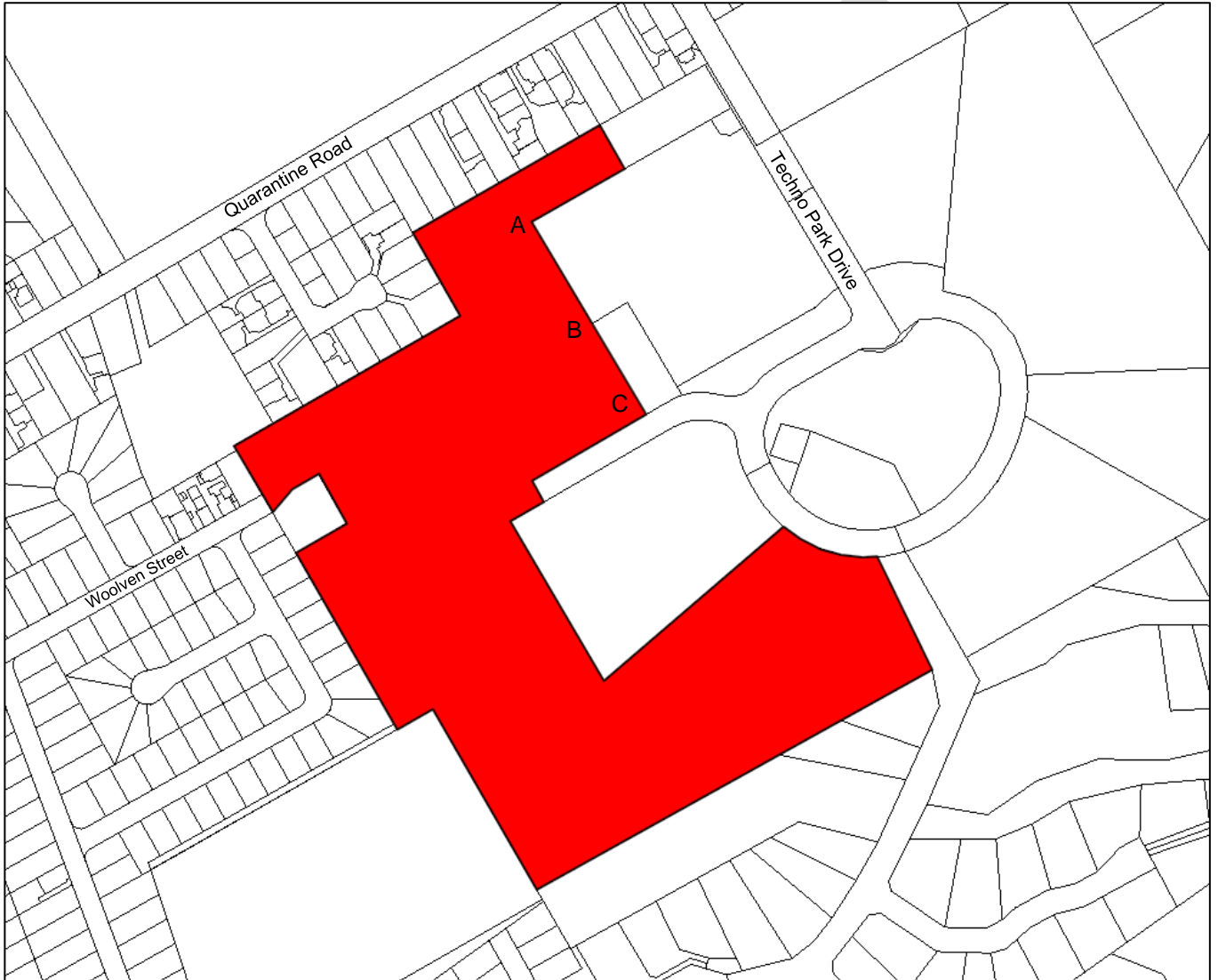
Draft instrument

Tasmanian Planning Scheme - Launceston

HOUSING LAND SUPPLY ORDER

Housing Land

Area to be rezoned is most of 164559/2 at Techno Park Drive, Kings Meadows from Techno Park Particular Purpose Zone to General Residential Zone as shown below:



Note that Point C is where the extension of the boundary marked A-B intersects with the Techno Park Drive road boundary.

Based on the survey data provided by Woolcot Surveys, the easting of point C is 514450.979m and the northing is 5408585.779m, noting the below from Woolcot Surveys:

- Title boundaries were not verified
- Boundaries were compiled from current relevant title surveys of the area
- Horizontal bearing datum is plane MGA scaled around DSM1408-1
- Co-ordinates are plane and based on MGA

Appendix E

Land owner consent

Department of State Growth

Salamanca Building, Parliament Square
4 Salamanca Place, Hobart TAS 7000
GPO Box 536, Hobart TAS 7001 Australia
Phone 1800 030 688 Fax (03) 6233 5800
Email info@stategrowth.tas.gov.au Web www.stategrowth.tas.gov.au
Your Ref: D21/80972 / Our Ref: 063339



Director of Housing
GPO Box 65
Hobart TAS 7001

Subject: Consent from Tasmanian Development Board pursuant to s.5(5) of the Housing Land Supply Act 2018

I refer to your correspondence of 24 November 2021 addressed to the then Chair, Brian Scullin and note my term as current Chair of the Tasmanian Development Board commenced with effect 1 December 2021. Pursuant to s.5(5) of the Housing Land Supply Act 2018 I, as Chair of the Tasmanian Development Board, hereby provide consent for land listed in the table below, to be the subject of an Order under the Housing Land Supply Act 2018.

PID	Title Reference	Street Address	Suburb
3197996	Part of 164559/2 as detailed in the attached plan	Lot 2 Techno Park Drive	Kings Meadows

Sincerely,

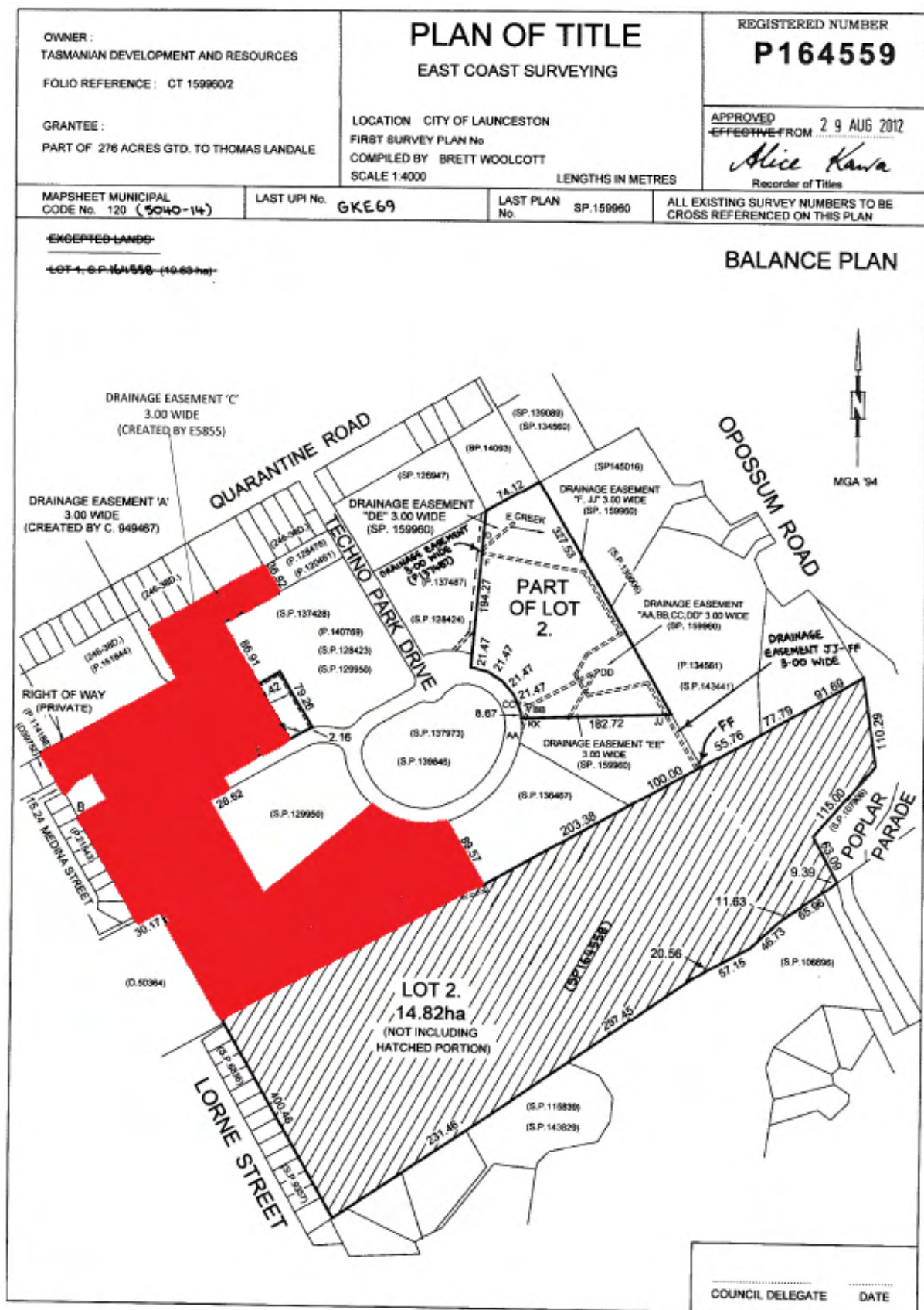
A handwritten signature in blue ink, appearing to read "Mike Wallas".

Mike Wallas
Chair
Tasmanian Development Board

6 December 2021

Attachment: Title plan highlighting land subject to an Order under the Housing Land Supply Act 2018

Attachment: Title plan highlighting land subject to an Order under the Housing Land Supply Act 2018



Land subject to an Order under the Housing Land Supply Act 2018

Appendix F

RMCG letter



#1396

18 August 2022

Director of Housing
C/- Tom Reilly
Senior Planner, GHD
Via email: Tom.Reilly@ghd.com

Dear Tom

Agricultural Assessment – Rezone Land at Lot 2 Techno Park Drive from Techno Park Particular Purpose Zone to General Residential.

I understand you intend to seek approval from council on a proposed rezoning of land at Lot 2 Techno Park Drive, King Meadows (on behalf of the Director of Housing (the client)) from Techno Park Particular Purpose Zone to General Residential under the *Tasmanian Planning Scheme - Launceston*, to facilitate a future multi-lot subdivision. I have undertaken an assessment of the agricultural potential of the associated land at Lot 2 Techno Park Rd and surrounding land. This assessment has been completed because the existing land use is dryland grazing.

Under the Use Table of the Techno Park Particular Purpose Zone in the Planning Scheme, primary production is not listed as an allowable use (either no permit required, permitted or discretionary), so it is assumed to be a prohibited use. For the purpose of this assessment I have assumed the current grazing use to be a non-conforming existing use.

SITE CHARACTERISTICS

Lot 2 Techno Park Rd (CT 164559/2) is Crown-owned land and has a total area of 14.8ha. The land is split into two distinct sections that are separated by Techno Park Dr and existing business and professional services use developments. The proposal to rezone the land is only relevant to the western section of the land (the subject land), and so this area has been the primary focus of this assessment. CT 128478/1 (0.33ha) is also included in the subject land (see Figure A1-1), which is also owned by the Crown.

The subject land is 10.7ha in area and is currently managed as unimproved to semi-improved pasture, with some wooded areas also occurring. The site has a long history of grazing, with the land previously being part of the old Quarantine Station. The area is divided into paddocks, however when onsite, many of the fences appeared to be in disrepair. Approximately 15 cattle were identified when onsite, all internal gates were open, which allowed the cattle the run of the land. It is assumed that the land is currently leased for cattle agistment.

There is no published Land Capability mapping for the subject land. The nearest Land Capability Mapping includes land to the south, which was included in the *Land Capability Survey – Pipers Report 1991*, at a scale of 1:100,000. It is noted that the site was excluded from this assessment, as was existing surrounding residential land at the time of the assessment. The land to the south was assessed as Class 5 land. Class 5 land is defined as land unsuited to cropping and with slight to moderate limitations to pastoral use.

There are no published soils mapping for this area. However, underlying geology for the northern and eastern two thirds of the subject land is mapped as Tsa, which is described as poorly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; some iron oxide-cemented layers and concretions; some leaf fossils. In the southwestern third of the subject land there are two dominant mapped underlying geological groups; Jd – described as dolerite and related rocks, and Jdi -inferred dolerite beneath soil or Cainozoic deposits. While soil profiles were not assessed when on-site, frequent surface dolerite was identified within the mapped Jd and Jdi areas.

A full on-site Land Capability Assessment was not conducted when on-site. However, a visual inspection was conducted and site characteristics available on the LISTMAP have also been considered to provide an indicative Land Capability classification for the site. Frequent surface rock in the southwestern third (see Figures A2-2 & A2-3) and evidence of poorly draining soils (see Figure A2-4) indicate that the Land Capability is most likely limited by surface and subsurface stone as well as drainage. The visual characteristics are commensurate with Class 5 Land Capability limitations. The indicative Land Capability of the site is Class 5 land, which is also in line with nearby Published Land Capability mapping. Further onsite assessments, including augering soils profiles, would be required to confirm this assumption.

Tas Veg 4.0 (available on LIST) maps the majority of the subject land as agricultural land (FAG), there is also approximately 1.6ha along the southwest and southern boundary mapped as *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits (DAZ). DAZ is listed as a threatened community under the *Nature Conservation Act 2002* and is mapped as Priority Vegetation under the Planning Scheme.

The title is not within an Irrigation District. According to DPIPWE's Water Information System of Tasmania (WIST) there are no water allocations associated with the title, there are also no mapped drainage lines associated with the subject land where irrigation water could be sourced from. It may be feasible to utilise town water for irrigation. However, the cost of town water as an irrigation supply is prohibitive even for a high-value agricultural activity such as vines.

The subject land was excluded by the Department of Justice, Agricultural Land Mapping Project (ALMP). The ALMP was completed by the Department of Justice to provide Councils with spatial data to assist with segregating the Rural Resource Zone (and Significant Agriculture Zone where relevant) into the 'Rural' and 'Agriculture' Zones, as required under the new State-wide Planning Scheme. The subject land was excluded from the study area because it is not zoned Rural Resource, as was all surrounding land.

SURROUNDING LAND USE

Surrounding land use and zoning is mixed. To the west, north, and northeast is land that is zoned General Residential. From these directions there are 34 directly adjacent titles, all with existing dwellings. The most eastern title has also had a subdivision approved, which is currently being developed (see Figure A2-7).

Adjacent land to the east is also zoned Techno Park Particular Purpose Zone. In this direction two directly adjacent titles have existing developments located on them (one a school and the other a business and professional services use). There are a further two developments that are only separated by Techno Park Dr (one a childcare centre and one a business and professional services use).

To the southeast are two titles zoned Low-Density Residential, the most eastern title has an existing dwelling. 55m to the southeast is a 2.1ha title, also zoned Low-Density Residential, that has had a mixed-species orchard planted on it (see Figure A2-8). This orchard is on privately owned land and would be described as having 'hobby scale'¹ potential at best. Zoning allowable uses would prohibit the orchard from being developed on a 'commercial scale'.

Directly to the south is council owned land that is zoned as Open Space and would currently be best described as unmanaged grassland and woodland. To the southwest is more council owned land that is associated with the South Launceston Football Ground. This land is zoned Recreation.

The surrounding area would best be described as suburban.

DISCUSSION

The land is utilised for grazing that would best be described as 'hobby farm' scale. It would be challenging to run a 'viable'² enterprise on a land parcel of this size with the existing Land Capability limitations, irrigation limitations and constraints from adjacent residential use.

Land with these characteristics is best farmed in conjunction with other land to be able to realise the benefits of economies of scale. Based on the adjacent land use and zoning it is not feasible to consider that this land could be farmed in conjunction with adjacent land. It can still be farmed in conjunction with the balance of CT 164559/2. However, even this is severely limited by the intervening development, which means stock movement would need to be undertaken by transportation.

It is further noted that the existing zoning of the site prohibits primary industry uses. Grazing is an historical use; however, further intensification is assumed to be prohibited.

¹ As defined by AK Consultants in Ketelaar, A and Armstrong, D. 2012, Discussions paper – Clarification of the Tools and Methodologies and Their Limitations for Understanding the Use of Agricultural Land in the Northern Region which was a paper written for Northern Tasmania Development.

² In our opinion a viable farm is one producing sufficient income to provide for a family and provide full time employment for one person. On this basis the long-term viability of farms producing less than \$200,000 Gross Income is questionable.

CONCLUSION

The subject land is limited for existing and potential primary industry use by size, Land Capability, and surrounding constraints. Furthermore, the existing zoning (Techno Park Particular Purpose Zone) precludes further intensification of the existing land use from low-intensity grazing.

In our opinion, rezoning this land to General Residential will have no impact on the wider regional agricultural estate, considering the subject land is not within a zone that is part of the agricultural estate and is only utilised for low-intensity grazing.

Kind regards

A handwritten signature in black ink, appearing to read 'M. J. Tempest', with a large, stylized flourish extending to the right.

Michael Tempest

SENIOR CONSULTANT

REFERENCES

Department of Justice (2017). Agricultural Land Mapping Project - Background Report, Tasmanian Government.

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Tasmanian Planning Scheme – Launceston.

Appendix 1 – Maps

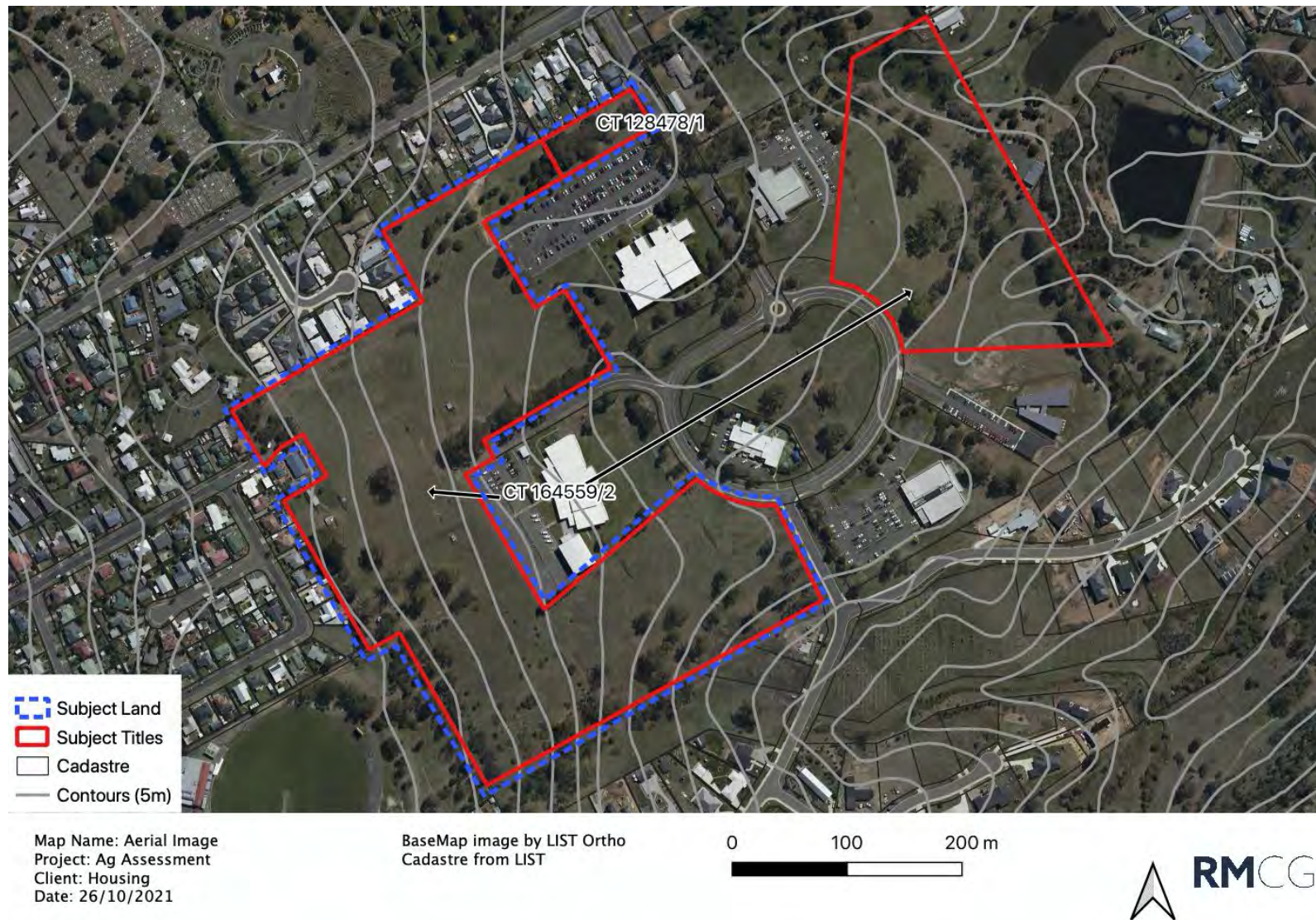
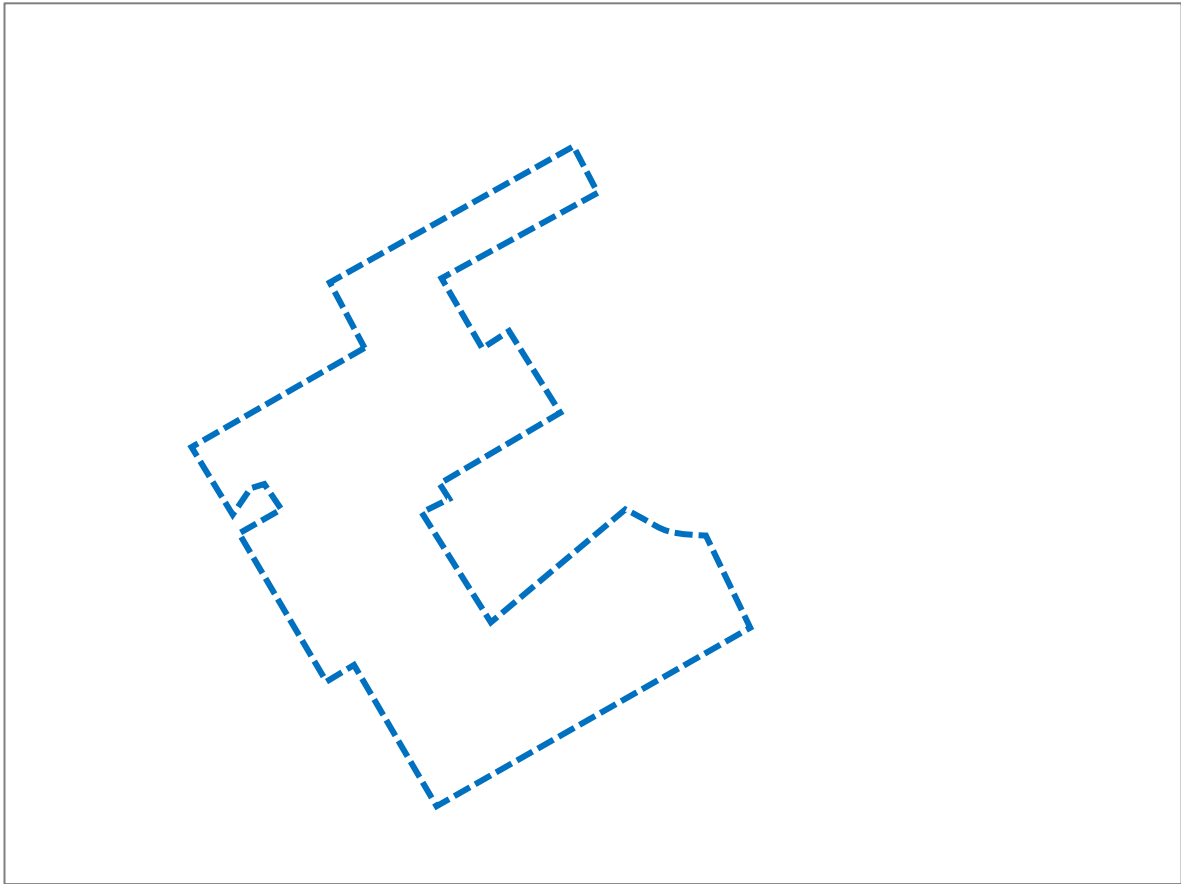


Figure A1-1: Aerial Image.



Appendix A1-2: Existing zoning. Cadastre from LIST © State of Tas

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Appendix 2 – Site photos

Photos taken by M. Tempest, 11/10/2021



Figure A2-1: Photo from the approximate centre of the title looking north at the existing cattle that are agisted on the land. Note existing pasture and fences in disrepair.



Figure A2-2: Example of existing surface stone.



Figure A2-3: Further example of existing surface stone.



Figure A2-4: Example of pugging from stock movement occurring on poorly drained soils.



Figure A2-5: Existing business and professional services use adjacent to the subject land to the east.



Figure A2-6: Adjacent dwellings to the north west.



Figure A2-7: Subdivision being developed to the northeast of the subject land.



Figure A2-8: Small mixed species orchard to the southeast, in the Low Density Residential Zone.

This report has been prepared by:

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Document review and authorisation

Project Number: #1396

Doc Version	Final/Draft	Date	Author	Project Director review	BST QA review	Release approved by	Issued to
1.0	Final	27/10/2021	M. Tempest	A. Ketelaar	E. Kelly	A. Ketelaar	T. Reilly, GHD
2.0	Final	18/08/2022	M Tempest	A. Ketelaar		A. Ketelaar	T. Reilly, GHD

Appendix G

RMCG preliminary bushfire advice

Tom Reilly

From: Michael Tempest <michaelt@rmcg.com.au>
Sent: Friday, October 29, 2021 10:55 AM
To: Tom Reilly
Subject: Techno Park Dr - Bushfire Advice
Attachments: No Build Area.jpg; Bushfire Prone Vegetation.jpg

Hi Tom,

I've now had a chance to review the proposed subdivision layout against the Bushfire Code. I can confirm that the site is considered bushfire prone. Please see the two attached maps:

- Existing Bushfire Prone Vegetation
- BAL 19 no build areas

Vegetation and Setbacks

The entire site is currently covered in bushfire prone vegetation. This is predominantly grassland, with 3 patches of woodland and 2 small patches of forest. The site plan indicates that all of these areas will be converted as part of the proposal. The most likely adjacent bushfire prone vegetation that may have an effect on the building areas within the proposed subdivision is forest and woodland vegetation to the southwest and grassland to the south.

The existing forest vegetation to the southwest on Council owned land, associated with the South Launceston Football Ground, would exclude a dwelling to be able to be constructed on the adjacent lot to the north west. However, I note that the site plan indicates that this area on the Council land will be managed as park lands and connect to the proposed park lands within the development site? If this is the case, then we can consider this area as managed land, as long as it is managed in a low fuel state (regularly mown, tree canopy separation), which means no setbacks would be required from it. I'd suggest that a Part 5 Agreement or some sort of commitment from Council to maintain this land will be required.

For the park lands within the development area, these will all also need to be maintained in a low fuel state, which will also most likely require a commitment from Council.

Access

It is good that there are two entry/exit roads for the subdivision (via Techno Park Dr & Woolven St). From a bushfire perspective, for such a large subdivision this is very important, especially as there is some risk that Techno Par Dr could be cut off by a localised fire. Internal roads and cul-de-sacs appear to be compliant with bushfire requirements. But please refer to Table E1 of the Bushfire Code, which has the following minimum requirements:

- Roads with a 7m width, or if less, have no parking down one side.
- Cul-de-sacs must end in a turning circle with a minimum outer radius of 12m.
- Maximum gradient of 15 degrees.

Water Supply:

Being General Residential, all lots will be required to be connected to town water. This means a reticulated water supply for fire will be able to be installed. There must be a hydrant placed within 120m as the hose lays of all areas of all lots.

Staging

My assumption is that the subdivision will be developed in stages. Because of this there will be temporary bushfire measures that will need to be applied for each stage. This will include the development of temporary turning circles at

dead-end roads, as well as requirements for managing some areas of the balance undeveloped land in a low fuel state to ensure suitable setbacks from bushfire prone vegetation can be achieved.

If this site plan is progressed, I recommend developing a staging plan for me to review and incorporate into my Bushfire Report and Bushfire Hazard Management Plan as part of Phase B.

If you have any queries regarding the above information, please don't hesitate to contact me.

Regards.

Michael Tempest
SENIOR CONSULTANT



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Appendix H

Preliminary subdivision design

SCHEMATIC DESIGN (1:2000)

New road connection
to Woolven St and onto
Hobart Rd

Potential smaller lots on flatter areas of the site

Potential to retain existing trees within oversized lots

Oversize lot to accommodate BAL no build area

BAL 19 no build area

Dashed Line denotes
no build area due to
potential landslip





Create new shared path links

Path connection to Lorne St & Bus stop

Maximise passive surveillance of new open space with lot frontages

Proposed playground on flatter area

Lot Schedule

	330 - 450 sq.m	8
	450 - 550 sq.m	62
	550 - 650 sq.m	22
	650 - 1000 sq.m	17
<hr/>		
	TOTAL	109



Appendix I

Desktop Aboriginal and Historic Heritage Report

Executive Summary

Project Details

Lot 2 Techno Park Drive, Kings Meadows (164559/2) is a 10.7ha area that has been identified for the potential development of affordable housing. The site is owned by the Tasmanian Development and Resources corporation (TDR) but is in the process of being purchased by the Director of Housing. The site forms a large portion of an existing industrial estate located in Launceston. The area is characterised by large, irregularly shaped lots sloping west to east, accessed by Techno Park Drive. The project site is adjoined by a One-School Global campus and Westpac Bank call centre to the east, general residential development to the north and west, the Youngstown Memorial sports oval and public open space to the southwest and low-density residential developments further south. Figure 1 shows the general location of the study area, with Figure 2 showing the spatial boundaries of the site.

CHMA Pty Ltd has been engaged by GHD to undertake a desktop Aboriginal heritage assessment for Lot Techno Park Drive (the study area). This report presents the key findings of the Aboriginal and Historic heritage desktop assessment.

Results of the Aboriginal Heritage Register Search

As part of Stage 1 of the desktop assessment a search was carried out of Aboriginal Heritage Register (AHR) to determine the extent of registered Aboriginal heritage sites located within and in the general vicinity of the study area.

The AHR search results shows that there are just three registered Aboriginal sites that are located within an approximate 6km radius of the study area (search results provided on the 23/9/2021 by Emily Smith from AHT). The three sites are all classified as Artefact scatters. None of these three sites are situated within the bounds of the study area. Two of the sites (AH11150 and AH11152) are situated around 6km to the north of the study area, on the margins of the North Esk River. The third site (AH4928) is located 6km to the south-west of the study area. The detailed AHR search results are presented in section 4.2 of this report.

The study area is situated on the eastern side slopes of a low relief hill. It is over 1km from the nearest named water course and 2km from the nearest major river system and is 5km inland (south) from the Tamar Estuary. The results of the regional studies summarised in section 4.1 of this report indicates that site and artefact densities within this type of landscape setting, which is located away from major river valley resource zones, will typically be low to very low. This is supported to some extent by the AHR search results which show that there are only three registered Aboriginal sites located within a 6km radius of the study area. If Aboriginal sites are present in the study area, they are likely to be low density artefact scatters or isolated artefacts, representing sporadic activity.

Results of the Historic Heritage Registers Search

As part of Stage 1 of the desktop assessment a search was carried out of a number of historic registers and databases in order to determine the extent of historic sites

and features in the vicinity of the study area. The search results shows that there are no heritage places located within or in the immediate surrounds of the study area that are listed on any of the local, State or National heritage registers.

The absence of any registered historic heritage sites within and in the immediate surrounds of the study area indicates that there is a low to very low potential for historic heritage features to be present. If there are features present, they are likely to be associated with the early pastoral settlement of the outskirts of Launceston.

Management Recommendations

The following management recommendations have been established on the basis of the findings of the desk top assessment for the Lot 2 Techno Park, Kings Meadows study area. The recommendations are aimed at ensuring that the proponent is compliant with the relevant legislative guidelines and statutory requirements for Aboriginal and historic heritage in Tasmania.

Recommendation 1 (Aboriginal Heritage)

The desk top assessment has confirmed that there are no registered Aboriginal heritage sites that are located within or in the immediate vicinity of the bounds of the study area. It is assessed that there is a low potential for undetected Aboriginal heritage sites to be present. If Aboriginal sites are present in the study area, they are likely to be low density artefact scatters or isolated artefacts, representing sporadic activity.

It is recommended that the proponent should make contact with Aboriginal Heritage Tasmania (AHT) to seek advice regarding the requirements for any further Aboriginal heritage assessments (including field surveys) within the study area.

Recommendation 2 (Unanticipated Discovery Plan for Aboriginal Heritage)

It is assessed that there is generally a very low potential for undetected Aboriginal heritage sites to occur within the study area. However, if, during the course of the proposed construction works, previously undetected archaeological sites or objects are located, the processes outlined in the Unanticipated Discovery Plan should be followed (see Appendix 1). A copy of the Unanticipated Discovery Plan should be kept on site during all ground disturbance and construction work. All construction personnel should be made aware of the Unanticipated Discovery Plan and their obligations under the *Aboriginal Heritage Act 1975* (the Act).

Recommendation 3 (Historic Heritage)

The historic heritage registers search results shows that there are no heritage places located within or in the immediate surrounds of the study area that are listed on any of the local, State or National heritage registers. The absence of any registered historic heritage sites within and in the immediate surrounds of the study area indicates that there is a low to very low potential for historic heritage features to be present. If there are features present, they are likely to be associated with the early pastoral settlement of the outskirts of Launceston.

On the basis of the above it is advised that there are no known historic heritage constraints or requirements for the study area.

Recommendation 4 (Unanticipated Discovery Plan for Historic Heritage)

The procedures outlined in Practice Note No 2 issued by the Tasmanian Heritage Council, processes should be followed should any unexpected archaeological features and/or deposits be revealed during development works.

1.0 Project Details

1.1 Project Outline

The Tasmanian Government has committed to substantial capital investment in order to improve housing affordability, to assist those who are most vulnerable to housing stress and homelessness, and to access affordable and appropriate housing. This investment is framed under the terms of Tasmania's Affordable Housing Strategy 2015-2025.

Lot 2 Techno Park Drive, Kings Meadows (164559/2) is a 10.7ha area that has been identified for the potential development of affordable housing. The site is owned by the Tasmanian Development and Resources corporation (TDR) but is in the process of being purchased by the Director of Housing. The site forms a large portion of an existing industrial estate located in Launceston. The area is characterised by large, irregularly shaped lots sloping west to east, accessed by Techno Park Drive. The project site is adjoined by a One-School Global campus and Westpac Bank call centre to the east, general residential development to the north and west, the Youngstown Memorial sports oval and public open space to the southwest and low-density residential developments further south. Figure 1 shows the general location of the study area, with Figure 2 showing the spatial boundaries of the site.

CHMA Pty Ltd has been engaged by GHD to undertake a desktop Aboriginal heritage assessment for Lot Techno Park Drive (the study area). This report presents the key findings of the Aboriginal and Historic heritage desktop assessment.

1.2 Project Aims

The principal aims of this desk top heritage assessment are as follows.

- To review the available heritage information to determine the extent and nature of historic and Aboriginal heritage values that may be present in the study area.
- To ascertain the heritage sensitivity of the study area.
- To provide advice regarding any heritage constraints or additional requirements.

1.3 Project Methodology

A three stage project methodology was implemented for this desk top heritage assessment.

Stage 1 (Background Research)

As part of Stage 1 the following research was carried out and background information was collated for this project:

- A review of the relevant heritage registers and the collation of information pertaining to any registered Aboriginal and historic heritage sites located within the general vicinity of the study area.
- Maps of the study area.
- Relevant reports documenting the outcomes of previous Aboriginal heritage studies in the vicinity of the study area.

- Ethno-historic literature for the region
- References to the land use history of the study area.
- Geotechnical information for the study area, including soil and geology data.

Stage 2 (Review of Documentation and Gap Analysis)

The heritage information obtained through the Stage 1 works was reviewed, with the purpose of undertaking a gap analysis of the investigations carried out within the study area, and creating an audit of the heritage values present in the study area.

Stage 3 (Desk Top Report)

Stage three of the assessment involved the production of a Draft and Final desk top report. The report has been prepared by Stuart Huys (CHMA archaeologist).

1.4 Project Limitations

The current Aboriginal heritage assessment is a desk top report only. It is based solely on information generated from heritage register searches, previous Aboriginal and historic heritage assessments and relevant environmental information. No field survey work, or site ground truthing has been undertaken as part of the desk top assessment.

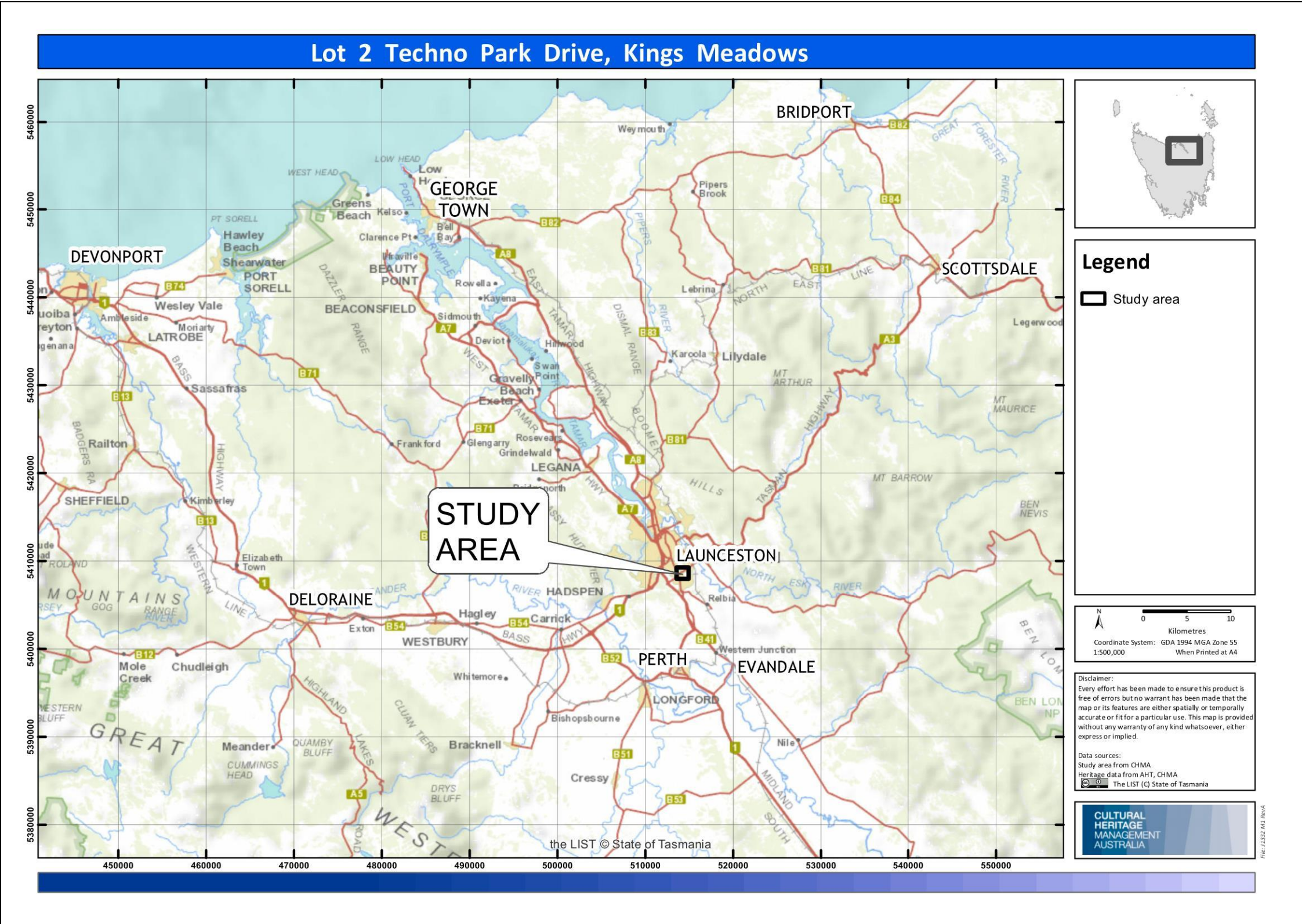


Figure 1: Topographic map showing the general location of the study area

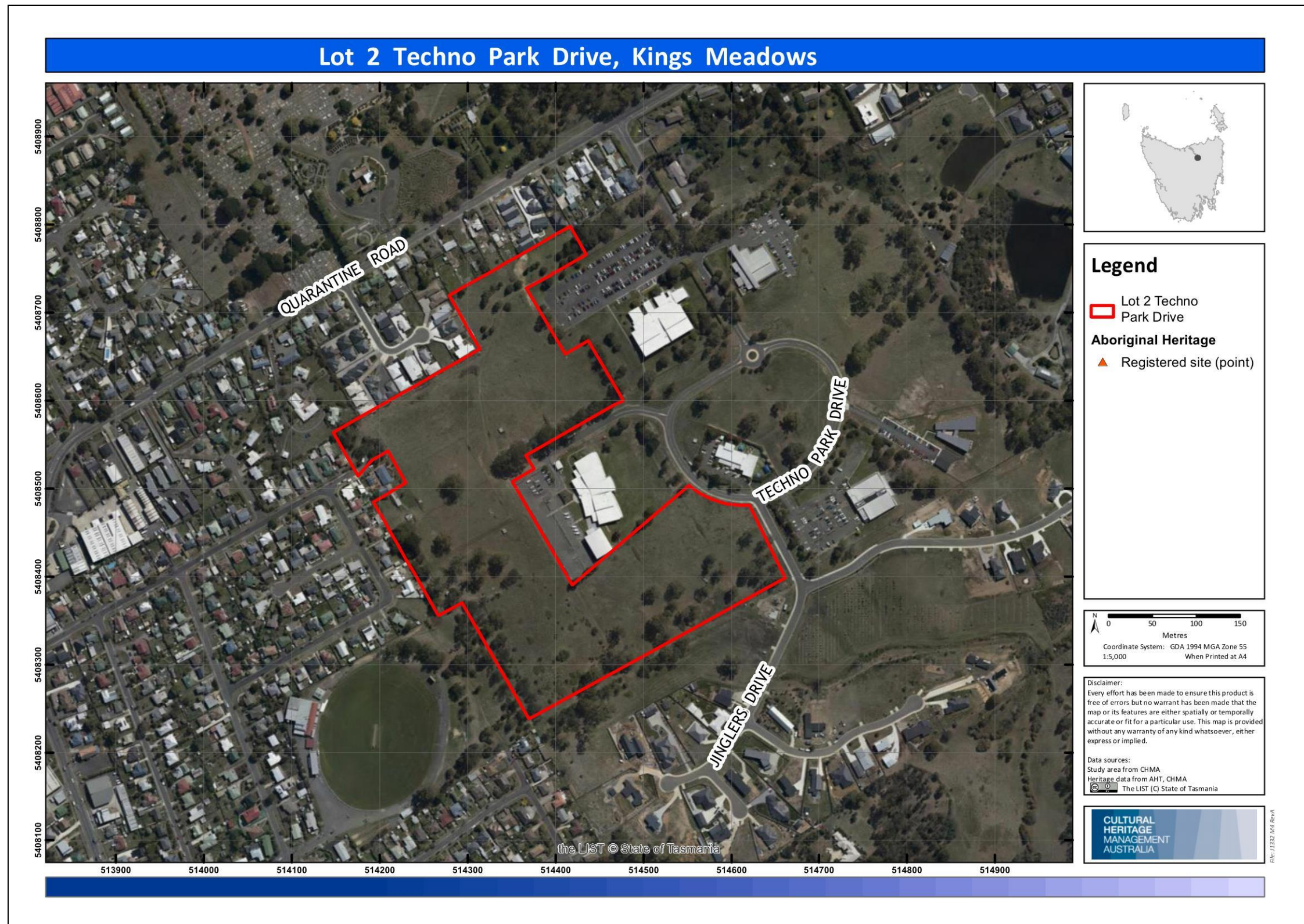


Figure 2: Aerial image showing the boundaries of the Lot 2 Techno Park, Kings Meadows study area

2.0 Environmental Setting of the Study Area

The study area encompasses approximately 10.7ha and is located in Kings Meadows, on the southern outskirts of the city of Launceston, in the Northern Midlands region of Tasmania (see Figure 3).

The Northern Midlands region is characterised by extensive lowland plains and rounded topography which ranges from gently sloping to steep. The northern portion of the region is bounded by the dolerite-capped escarpment of the Great Western Tiers to the west, and the Ben Lomond Plateau in the north-east. The valley between these landforms is known as the Launceston Basin. The River Tamar, the South Esk River, the North Esk River and their tributaries, including the Macquarie, St Pauls, Elizabeth and the Blackman Rivers, drain all the northern portion of the Midlands area (Matthews *et al* 1996). The closest major river to the study area is the North Esk, which is 2km to the east. The closest named water course is Jinglers Creek, a tributary of the North Esk, which is 1km to the east.

The city of Launceston is situated within the Launceston Basin, in the southern portion of the Tamar Valley (see Figure 3). The Tamar Valley is a broad south-east to north-west orientated valley system that is approximately 40km in length and is fringed to the east and west by a series of prominent hills and ranges. The South Esk and North Esk Rivers converge in the southern portion of the Tamar Valley (around the Launceston CBD area), to form the River Tamar. The River Tamar is a 'ria' or drowned river valley formed by coastal submergence about 6,000 years ago. The shoreline of the estuary in the surrounds of Launceston is low-energy, with mudflats and shoals exposed at low tide. The River Tamar and the lower reaches of the North and South Esk Rivers are estuarine at this point, and subject to tidal influences.

The study area is positioned around 5km to the south of the Tamar Estuary and the confluence of the North and South Esk Rivers. It is positioned on the eastern side slopes of a low relief hill. Slope gradients across the study area are typically in the range of between 3° and 10°, with slope direction generally from west to east.

The underlying geology across the study area comprises poorly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; some iron oxide-cemented layers and concretions. To the south and west of the study area there are pockets of dolerite beneath soil or Cainozoic deposits. Soils comprise dark brown podzolic clays.

The study area comprises a small parcel of rural land which is surrounded on all sides by residential and industrial development. The majority of the native vegetation across the study area has been cleared as part of past farming activities and re-planted with introduced grasses. There are a few remnant mature eucalypt trees (*Eucalyptus amygdalina*) scattered throughout the study area. There are a number of rural sheds and water tanks scattered across the site.

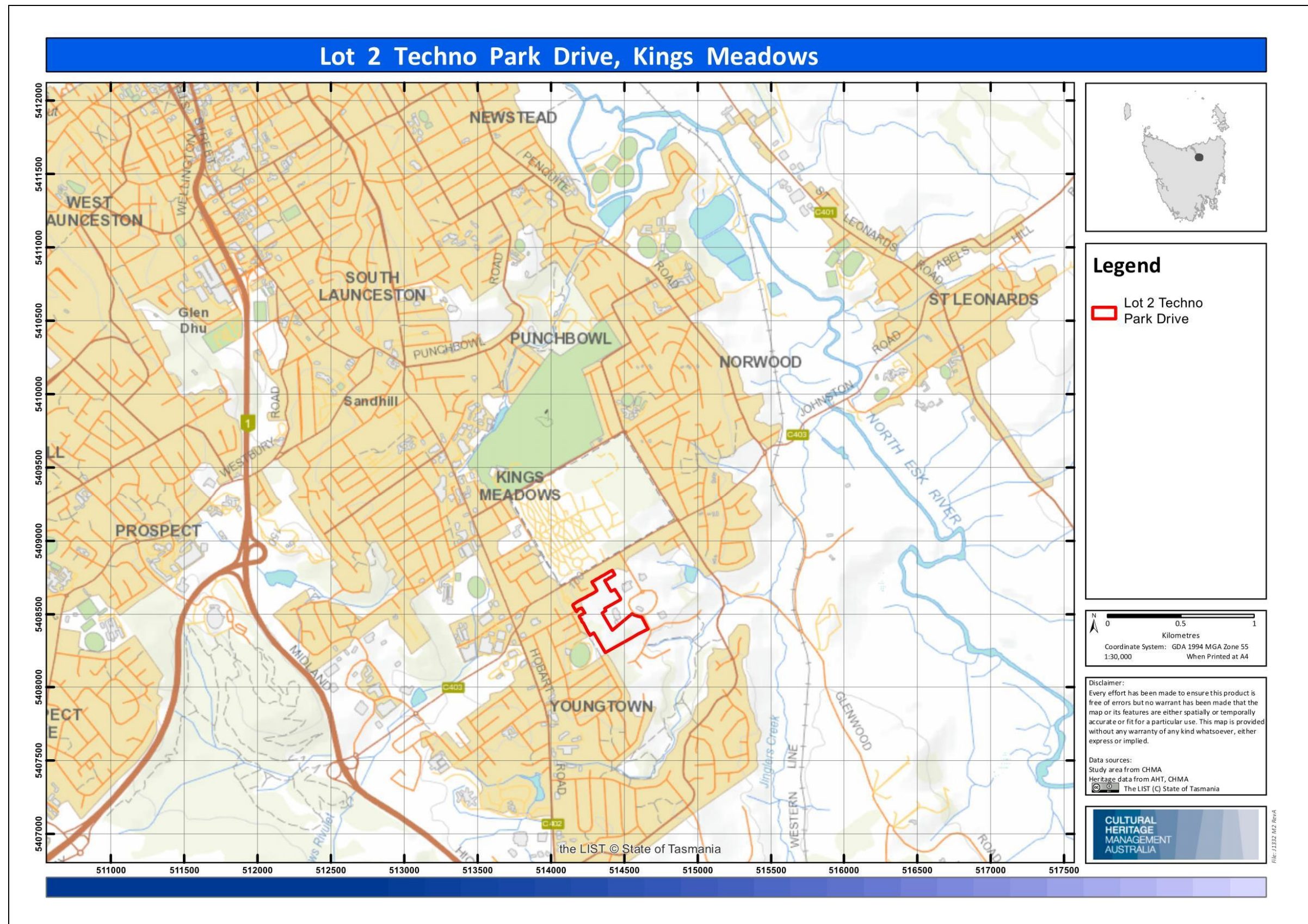


Figure 3: Topographic Map showing the landscape setting of the study area

3.0 Ethno-historic Background

3.1 Aboriginal Social Organisation in Tasmania

Ryan (2012) explains that the terms 'nation' and 'clan' are the preferred terms used by the Tasmanian Aboriginal community in place of 'tribe' and 'band' respectively. This terminology has been adopted in the following discussion.

According to Jones (1974), the social organisation of Tasmanian Aboriginal society appears to have consisted of three social units, these being the hearth group, the band (clan) and the tribe (nation). The hearth group was the basic family unit and would generally have consisted of a man and woman, their children, aged relatives and sometimes friends and other relatives. The size of hearth groups would generally range from between 2-8 individuals (Jones 1974: Plomley 1983). Plomley (1983) provides a description made by Peron of a hearth group he encountered at Port Cygnet:

There were nine individuals in this family, and clearly they represented a hearth group, because Peron visited their campsite with its single hut. The group comprised an older man and wife, a younger man and wife, and five children, one a daughter (Oure-Oure) of the older man and wife, and the other four the children of the younger man and wife. (Plomley 1983:168).

The clan appears to have been the basic social unit and was comprised of a number of hearth groups (Jones 1974). Jones (1974:324-325) suggests that the clan owned a territory and that the boundaries of this territory would coincide with well-marked geographic features such as rivers and lagoons. Whilst the clan often resided within its territory, it also foraged widely within the territories of other clans. Brown (1986:21) states that the band was led by a man, usually older than the others and who had a reputation as a formidable hunter and fighter. Brown also suggests that the clan (as well as the hearth group) was ideally exogamous, with the wife usually moving to her husband's band and hearth group.

Each clan was associated with a wider political unit, the nation. Jones (1974:328-329) defines the tribe (or nation) as being:

...that agglomeration of bands which lived in contiguous regions, spoke the same language or dialect, shared the same cultural traits, usually intermarried, had a similar pattern of seasonal movement, habitually met together for economic and other reasons, the pattern of whose peaceful relations were within the agglomeration and of whose enmities and military adventures were directed outside it. Such a tribe had a territory, consisting of the sum of the land owned by its constituent bands...The borders of a territory ranged from a sharp well defined line associated with a prominent geographic feature to a broad transition zone. (Jones 1974:328-329)

According to Ryan (2012:11), the Aboriginal population of Tasmania was aligned within a broad framework of nine nations, with each nation comprised of between six and fifteen clans (Ryan 2012:14). The mean population of each nation is estimated to have been between 350 and 470 people, with overall population estimates being in

the order of between seven to ten thousand people prior to European occupation (Ryan 2012:14).

Based on the information collated by Ryan (2012), the study area appears to be located within the boundaries of the North Midlands Nation (see Figure 4). The territory of the North Midlands Nation ran from approximately St Peters Pass to Quamby Bluff in the west, along the Western Tiers through the Deloraine district through to the west edge of the Tamar Valley, and along the north coast of Tasmania. From here it ran south-east along the Pipers River, through to Launceston, then eastwards along the South Esk River through to St Paul's Dome. In total, the North Midlands nation occupied an area of approximately of 6,750km², and incorporated around 160km of coastline (Ryan 2012:29).

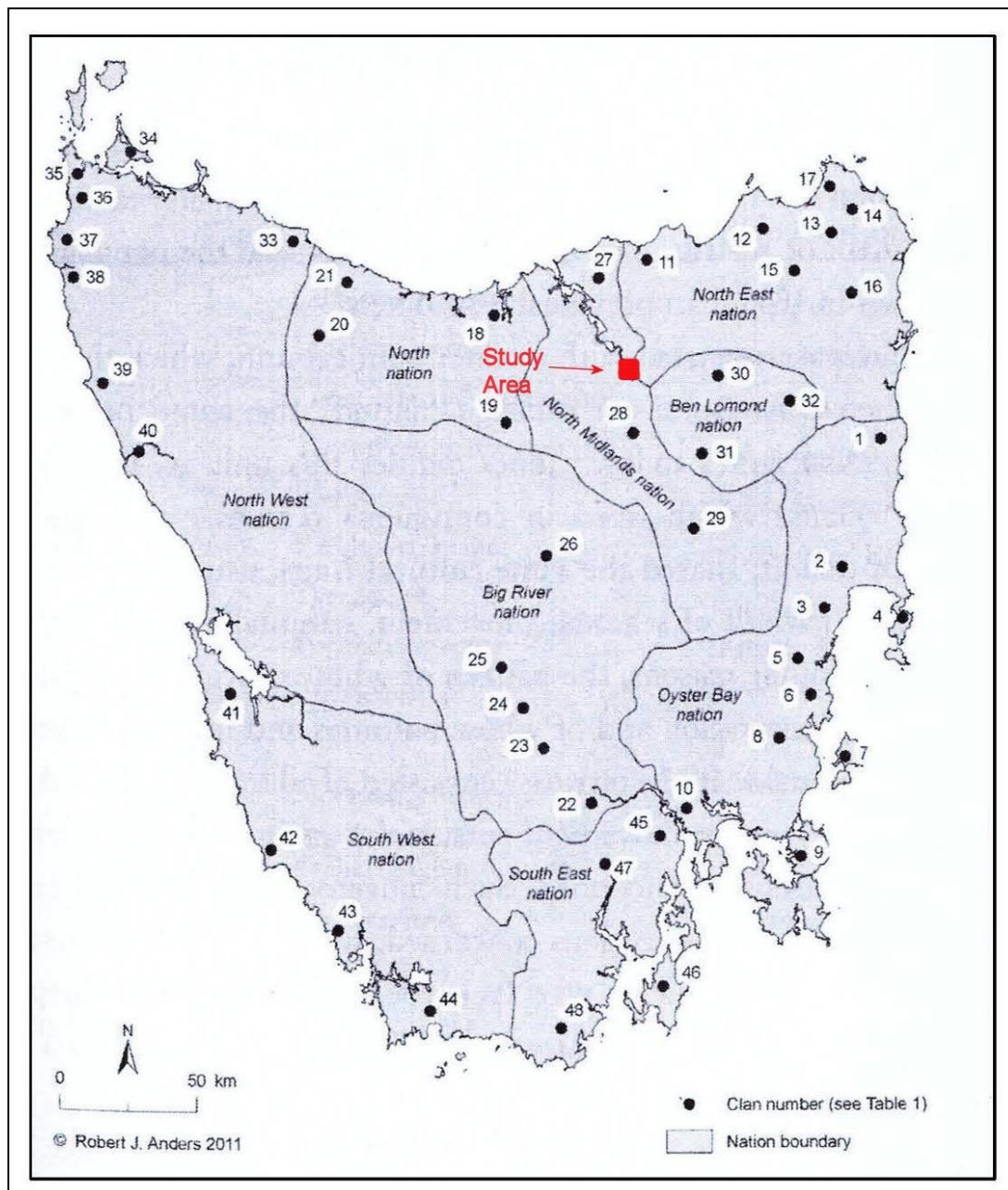


Figure 4: The Aboriginal Nations of Tasmania in relation to the study area (Ryan 2012:15)

The North Midlands Nation was comprised of at least three clans. These were the Leterremairrener (Port Dalrymple people) who were located around the east Tamar, the Panninher (Norfolk Plains people) located around the Norfolk Plains, and the Tyerrernotepanner (Stoney Creek or Campbell Town people) who were situated in the vicinity of Campbell Town. There was possibly a fourth clan around the York Town area, west of the Tamar, and a fifth around the Isis River (Ryan 2012:29). Each clan is thought to have been comprised of between 50-80 people, with the overall population of the North Midlands nation estimated at between 300-400 people (Ryan 2012:29). The North Midlands nations were among the first to experience British invasion in northern Tasmania in 1804, and as such, insufficient information exists as to the exact location of each clan. However, the clan most likely to have occupied the area around the study area was the Leterremairrener (Port Dalrymple people)

The largest kangaroo hunting grounds in Tasmania lay in the heart of North Midland country at Campbell Town, Norfolk Plains and Launceston, together with the rich marine and bird life provided by the Tamar River. As such, the North Midland nation had extensive relations with neighbours of the North, North East, Big River, Ben Lomond and Oyster Bay nations (Ryan 2012:31). These connections in turn facilitated seasonal access of the North Midland nation to the east coast at Oyster Bay through negotiations with the Oyster Bay Nation (Ryan 2012:31) and the existence of other seasonal travel routes to the east venturing into the territory of the Ben Lomond Nation to exchange ochre (Ryan 2012:31). Other major ochre sources in Tasmania were in the Western Tiers, in the territory of the North Nation. The Panninher (Norfolk Plains clan) are said to have spent the winter on the lower reaches of the west bank of the Tamar exploiting available shellfish and swan eggs, before returning to their own country to exploit the hunting grounds in spring (Ryan 2012:31). Seasonal movement to the Great Western Tiers to obtain ochre in autumn is also recorded (see Figure 5).

Very few available ethno-historic accounts exist, that relate to aspects the material culture of the North Midlands Nation. One description of the huts used by the Aboriginal people of the Midlands is provided by John Bass in 1799 at Port Dalrymple:

'Their huts, of which seven or eight were frequently found together like a little encampment, were constructed of bark torn in long strips from some neighbouring tree, after being divided transversely at the bottom, in such breadths as they judge their strength would be able to disengage from its adherence to the wood, and the connecting bark on each side. It is then broken in convenient lengths, and placed, slopingwise against the elbowing part of some dead branch that has fallen off from the distorted limbs of the gum tree; and a little grass is sometimes thrown over the top. But after all their labour, they have not ingenuity sufficient to place the slips of bark in such a manner as to preclude the free admission of rain'

(Collins 1971, as reported in Kee 1990:17).

In a diary entry dated 22/10/1831, Robinson provides a comparatively detailed description of the clothes and tool kits used by people of the North Midlands Nation:

'The costume of the native women is a mantle made of kangaroo skin. Their implements consist of a short stick eighteen inches long sharpened at the end similar to a chisel, and with this implement they bark the tree and use it in the same way a carpenter would use the same sort of tool. Instead of the mallet they use a stone. The wooden chisel is made to answer the purpose of a lever, hence we may call them mechanics. It is the business of the woman especially of the inland tribes to fetch wood for the fire. If the woman is married she carries her own and her husband's burden. Part of their luggage consists of a mull, a flat stone which the men use for the purpose of preparing the pomatum to dress their hair with. The woman also carried with her for this purpose a large quantity of ochre. It is the business of the women also to hunt and catch opossum and for this purpose they carry a rope which they make of the long cutting grass of the iris. They also hunt other small animals, look for eggs &c. They carry with them also a sharp stone with which the men make their spears and waddies. The men carry their spears and waddies, their only weapons except stones which they throw with great dexterity. It is the business of the men to hunt kangaroo. The men also wear a mantle of kangaroo skin' (Plomley 1966:531).

In an earlier diary entry dated 20/9/1831, Robinson describes that tea trees were procured to provide relatively straight timber with which spears were manufactured (Plomley 1966:215).

Robinson also records a number of instances of Aboriginal people in the Midlands using ochre for hair and body decoration. In one account, Robinson observes:

'Previous to setting off the natives ochred or painted themselves. It might appear ludicrous to civilised society to see people daub their hair with a thick substance of ochre and grease, but I observe that my natives at Campbell Town procured some soft red brick which they pound into dust mixing it with grease to anoint their heads. I have not yet ascertained their particular motive for this custom and it is particular to only a few tribes' (Plomley 1966:501).

In terms of food resources, Robinson provides a series of accounts in his diary entries of the range of foods eaten by the North Midlands Tribe. Birds and eggs appear to have formed a major component of the diet of the local inhabitants, with swans, ducks and red bills being some of the main species targeted (Plomley 1966: 217). A range of mammal species are also documented as having been hunted and eaten, including forester kangaroo, wallaby, kangaroo rat (possibly bandicoots), and possums (Plomley 1966). In a diary entry dated 22/10/1831, Robinson provides an interesting account of a kangaroo hunt undertaken by Aboriginal men:

'...when the natives hunt...they surround the animal, and hence it is driven from one position to another till at length it becomes exhausted, when they rush upon it and seize the prey' (Plomley 1966:555-6).

Only a few plant foods are documented in the ethno-historic accounts as having been eaten. This includes a bulbous plant known as 'native bread' and a plant that has the appearance of asparagus that was found by the roots of peppermint trees (Plomley 1966). It is very likely that many more plant foods were eaten by the local Aboriginal population.

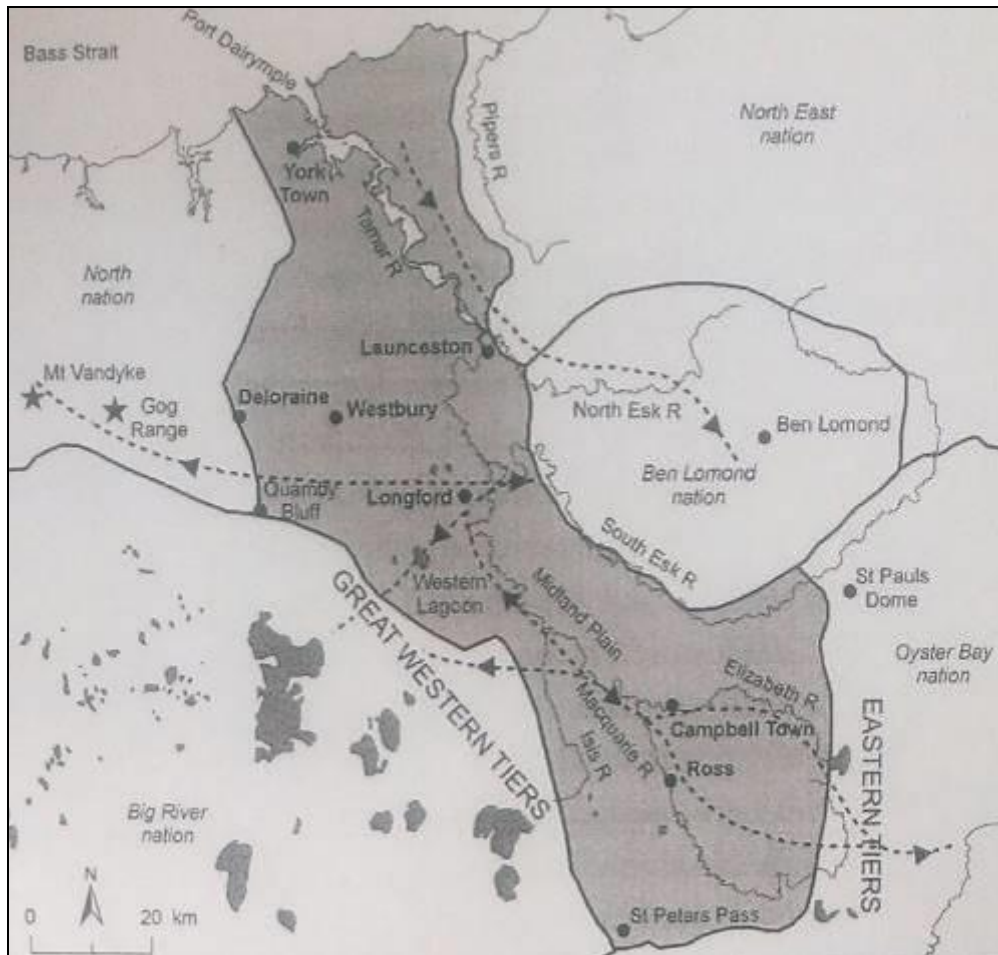


Figure 5: Settlement and movement patterns of the Midland Plain clans (Ryan 2012:30)

3.2 Culture Contact and Frontier Violence

The first recorded meeting between Europeans and the Aboriginal people of north east Tasmania was in 1773 when Tobias Furneaux sailed into, and named, the Bay of Fires for the smoke he saw along the coast (Kee 1987:15). A quarter of a century later Jean-Baptiste-Louis Clarke Theodore also recorded smoke on the north east coast (Plomley 1966, in Kee 1991:8). In 1800 Matthew Flinders observed smoke on the northern coast, but noted that the Furneaux Islands appeared uninhabited (Kee 1987:15). Bass accompanied Flinders on further voyages later in 1800 and he observed that while smoke was often visible from ships, the people ran into the bush at the approach of Europeans (Kee 1987:15).

In 1804 Lieutenant Colonel William Patterson founded the European settlement at George Town. This camp was short-lived, with the party moving within a few weeks to the west bank of the River where they established York Town. The Port Dalrymple

(Launceston) settlement was established in 1806. Hence, the study area was impacted from the very earliest phase of European settlement of Tasmania. The Leterremairrener people would have been among those Aboriginal clans that bore the brunt of the contact period.

By the early nineteenth century sealers and whalers had established hunting grounds in the Bass Strait and inhabited islands and parts of the coast. In 1816 a sealer James Kelly met up to 300 people at George Rocks. Kelly traded culled seals with the Aboriginal people of the coast in exchange for kangaroo (Kee 1987:19).

While there are some suggestions that initial contact between Aboriginal people and the whalers and sealers may have been friendly, Ryan's research on the North Midland nation indicates that 'at least 300 were probably killed outright by the settlers between 1820 and 1830' (Ryan 2012:19) and by the time George Augustus Robinson was moving through the area in 1830 – 1831, the sealers had instilled widespread terror among the Aboriginal people (Kee 1987:16). The sealers typically abducted women to be wives and to work on the sealers camps, and Robinson recorded that people along the northern coast referred to the murder of Aboriginal people at all the places where the sealers camped (Kee 1987:16).

This violent contact between Aboriginal people and Europeans, especially sealers, along the north east coast had disastrous implications for the North Midlands nation. Apart from individual, emotional devastation, the loss of large numbers of women disrupted social organisation, as well as impacting on economic systems of gender-based division of labour (Kee 1987:16).

4.0 Background Archaeology

4.1 Previous Archaeological Investigations in the Region

The study area is located in the Northern Region of Tasmania, just at the transition with the Northern Midlands Region. A number of regional archaeological investigations have been undertaken in the region over the past three decades. The most comprehensive, and pertinent investigations are those of Kee (1990) and Jackman (Entura 2011).

Kee (1990)

In 1990 Kee implemented the Midlands Regional Aboriginal archaeological site investigation, which was funded through the National Estate Grants Program. The primary objectives of the study were primarily to establish (on the basis of literary and field research) a predictive model of site location for the Midlands Region, and secondly to carry out a limited archaeological excavation with the aim of providing a temporal context for the information generated for the study.

As part of the study, Kee (1990) surveyed 72km within the Midlands area. This survey resulted in the identification of 236 Aboriginal sites. This brought the total number of known Aboriginal sites in the Midlands to 350. The vast majority of these sites are classified as isolated artefacts or artefact scatters. The exception is the coastal fringes in the midlands where shell midden sites tend to predominate. Stone quarries and suitable stone sources for procurement were identified in many locations throughout the Midlands, and a small number of rock shelters were also identified (Kee 1990).

As part of the analysis of the distribution of sites throughout the Midlands, Kee (1990) divided the Midlands into seven separate landscape divisions. These are Aeolian lunettes, coastal dunes and beaches, estuaries, lakes (uplands and lowlands), lowland hills and plains, upland hills and plains and rivers. The highest number of sites were identified in the Aeolian lunettes and coastal dunes, accounting for around 50% of the total number of sites recorded in the Midlands. Between 20 and 30 Aboriginal sites were recorded in each of the other five landscape divisions. Kee (1990) is of the opinion that the observed pattern of distribution accurately reflects true differences or variations in site densities throughout these different landscape divisions, and is not merely a product of skewed visibility or survey coverage.

Kee (1990) also noted a distinct difference in the distribution of site types within the Midlands Region, which she believes is also suggestive of differences in occupation patterns throughout the region. For example, the sites recorded around the margins of Lake Dulverton comprise mostly artefact scatters and rock shelters. Some of these sites are quite large (in terms of artefact numbers), and suggest intensive occupation. In contrast, the sites associated with the Aeolian lunettes were mostly small campsites located adjacent to lagoons, and are interpreted as being the product of short term visitations to the area by small groups of people exploiting the resources of these lagoons and the associated hinterland areas.

One of the features of Kee's (1990) investigations is that the vast majority of sites identified as part of the field survey were recorded within ploughed farm paddocks, where the surface visibility is improved and the soils have been churned. This pattern of site location highlights the importance of good surface visibility in identifying sites during field surveys, and demonstrates how varying conditions of surface visibility can potentially skew the results of survey investigations. Kee (1990) does not really adequately address this factor in her assessment. It is plausible that the factor of surface visibility variations could be a major contributor to the pattern of site distribution observed for the Midlands, with site densities being highest in the Aeolian dunes and coastal areas where surface visibility is improved and lowest in the Riverine and Uplands areas where surface visibility is poor. The only way to adequately determine how accurate the perceived pattern of site distribution is in the Midlands region would be through extensive sub-surface investigations within the various landscape divisions.

The summary interpretation provided by Kee (1990) for the observed archaeological record of the Midlands Region is that the areas with observed higher site and artefact densities correlate with areas where there is an increase in available resources, making these areas attractive for human habitation, and facilitating prolonged periods of occupation. Those areas with lower site and artefact densities also correlate with areas of decreased resource availability, resulting in shorter, less frequent occupation of these areas by small groups of people.

Taking into account historic records for the region, Kee (1990) presents a seasonal model of occupation for the Midlands Region. This model involves the movement of Aboriginal people around inland resource rich zones such as lagoons and lakes in the spring and early summer months, with summer time spent on the north coast areas. It is suggested that the winter months may have been spent in the inland parts of the Uplands where there was good soil drainage.

Entura (2011)

In 2011, Jackman (Entura archaeologist) undertook a comprehensive survey of the Midlands for the Midlands Water Scheme (2011). The survey by Entura (2011) covered an extensive area, with over 130km of survey transects across the Central Highlands and Midlands. The survey recorded 136 Aboriginal heritage sites that demonstrate the nature of past Aboriginal use of these regions.

Based on analysis of the 48 sites recorded by Jackman in the Midlands as part of the Midlands Water Scheme survey, Entura archaeologist Greg Jackman suggested several potential site distribution patterns (Entura 2011:43). In the Midlands, Jackman argues that the dominant site type will be Artefact Scatters and Isolated Artefacts. Open Artefact Scatters may be large and there is potential for stratified sites to occur. Other site types include quarries and stone procurement sites and rock shelters and rock overhangs with associated archaeological deposits (Entura 2011:49).

Jackman suggests that open sites are likely to be closely correlated with permanent watercourses, with the majority of open sites recorded by Jackman situated within 500m of water. Moreover, large Artefact Scatters are most likely to be located along the margins of lakes, lagoons and floodplains where a range of other plant and terrestrial resources were available (Entura 2011:49). Occupation sites, such as artefact scatters, were often found to be located on benched terraces or low rises. Aeolian sand banks bordering lagoons and rivers have increased potential to contain archaeological deposits, as these provide elevated, well drained camp sites with close proximity to fresh water (Entura 2011:49).

Jackman noted that concentrations of sites also often occur in small, sheltered valleys at the foot of the various ranges, including Black Tier, south of Tunbridge (Entura 2011:50). This reflects the choice of sheltered camp sites along pathways used by groups of Aboriginal people moving between seasonal resource zones along ethnographically documented pathways.

One such clustering of sites occurs at the Salt Pan Plains and Kitty's Creek area at the foot of the Black Tier. At the gap between Salt Pan Plains and Kitty's Creek, there are a series of small artefact scatters and isolated artefacts. Jackman suggests that this may indicate that people regularly passed through this gap when travelling between the Central Tiers and the Midlands (Entura 2011:43). Jackman records this area as being of high archaeological sensitivity (Entura 2011:53). Jackman also suggests that the name Black Tier may be a reference to Aboriginal people living in this area at the time of European settlement, however, there is no documented historical basis to this tempting assertion (Entura 2011:43).

Quarry sites in the Midlands tend to target chert and hornfels outcrops occurring at the contact points of Jurassic dolerite and Permo-Triassic mudstone and siltstone deposits (Entura 2011:49). Chert quarries occur in outcrops of Tertiary claystone (Entura 2011:50).

4.2 Registered Aboriginal Sites in the Vicinity of the Study Area

As part of Stage 1 of the desktop assessment a search was carried out of Aboriginal Heritage Register (AHR) to determine the extent of registered Aboriginal heritage sites located within and in the general vicinity of the study area.

The AHR search results shows that there are just three registered Aboriginal sites that are located within an approximate 6km radius of the study area (search results provided on the 23/9/2021 by Emily Smith from AHT). The three sites are all classified as Artefact scatters. None of these three sites are situated within the bounds of the study area. Two of the sites (AH11150 and AH11152) are situated around 6km to the north of the study area, on the margins of the North Esk River. The third site (AH4928) is located 6km to the south-west of the study area.

Table 1 provides the summary details for these three registered Aboriginal sites, with Figure 6 showing the location of these sites in relation to the study area.

Table 1: Summary details for registered Aboriginal sites located within an approximate 6km radius of the study area (Based on the AHR search results dated 23/9/2021)

AH Number	Site Type	Locality	Grid Reference Easting (GDA94)	Grid Reference Northing (GDA94)
11150	Artefact Scatter	St Leonards	514902	5412006
11152	Artefact Scatter	St Leonards	514774	5411982
4928	Artefact Scatter	Prospect	510889	5406867

4.3 A Predictive Model of Site Type Distribution for the Study Area

As described in section 2 of this report, the study area is situated on the eastern side slopes of a low relief hill. It is over 1km from the nearest named water course and 2km from the nearest major river system and is 5km inland (south) from the Tamar Estuary.

The results of the regional studies summarised in section 4.1 of this report indicates that site and artefact densities within this type of landscape setting, which is located away from major river valley resource zones, will typically be low to very low. This is supported to some extent by the AHR search results which show that there are only three registered Aboriginal sites located within a 6km radius of the study area.

If Aboriginal sites are present in the study area, they are likely to be low density artefact scatters or isolated artefacts, representing sporadic activity. A definition for these site types is provided below.

Other site types such as Aboriginal rock shelters, stone quarries and shell middens have been recorded in the broader surrounds of the study area. However, these site types are highly unlikely to occur within the study area.

The underlying geology across the study area and broader surrounds is entirely comprised of poorly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; some iron oxide-cemented layers and concretions. To the south and west of the study area there are pockets of dolerite. These lithologies were generally not well suited for aboriginal artefact manufacturing and as such it is highly unlikely that Aboriginal stone quarries will be present in the study area. The absence of rock outcrops in the study area also means that there is no possibility of Aboriginal rock shelters being present. Given the distance of the study area from the Tamar Estuary it is very unlikely that shell midden sites will be present.

Artefact Scatters and Isolated artefacts

Definition

Isolated artefacts are defined as single stone artefacts. Where isolated finds are closer than 50 linear metres to each other they should generally be recorded as an artefact scatter. Artefact scatters are usually identified as a scatter of stone artefacts lying on the ground surface. For the purposes of this project, artefact scatters are defined as at least 2 artefacts within 50 linear metres of each other. Artefacts spread beyond this can be best defined as isolated finds.

It is recognised that this definition, while useful in most instances, should not be strictly prescriptive. On some large landscape features for example, sites may be defined more broadly. In other instances, only a single artefact may be visible, but there is a strong indication that others may be present in the nearby sediments. In such cases it is best to define the site as an Isolated Find/Potential Archaeological Deposit (PAD).

Artefact scatters can vary in size from two artefacts to several thousand, and may be representative of a range of activities, from sporadic foraging through to intensive camping activity. In rare instances, campsites which were used over a long period of time may contain stratified deposits, where several layers of occupation are buried one on top of another.

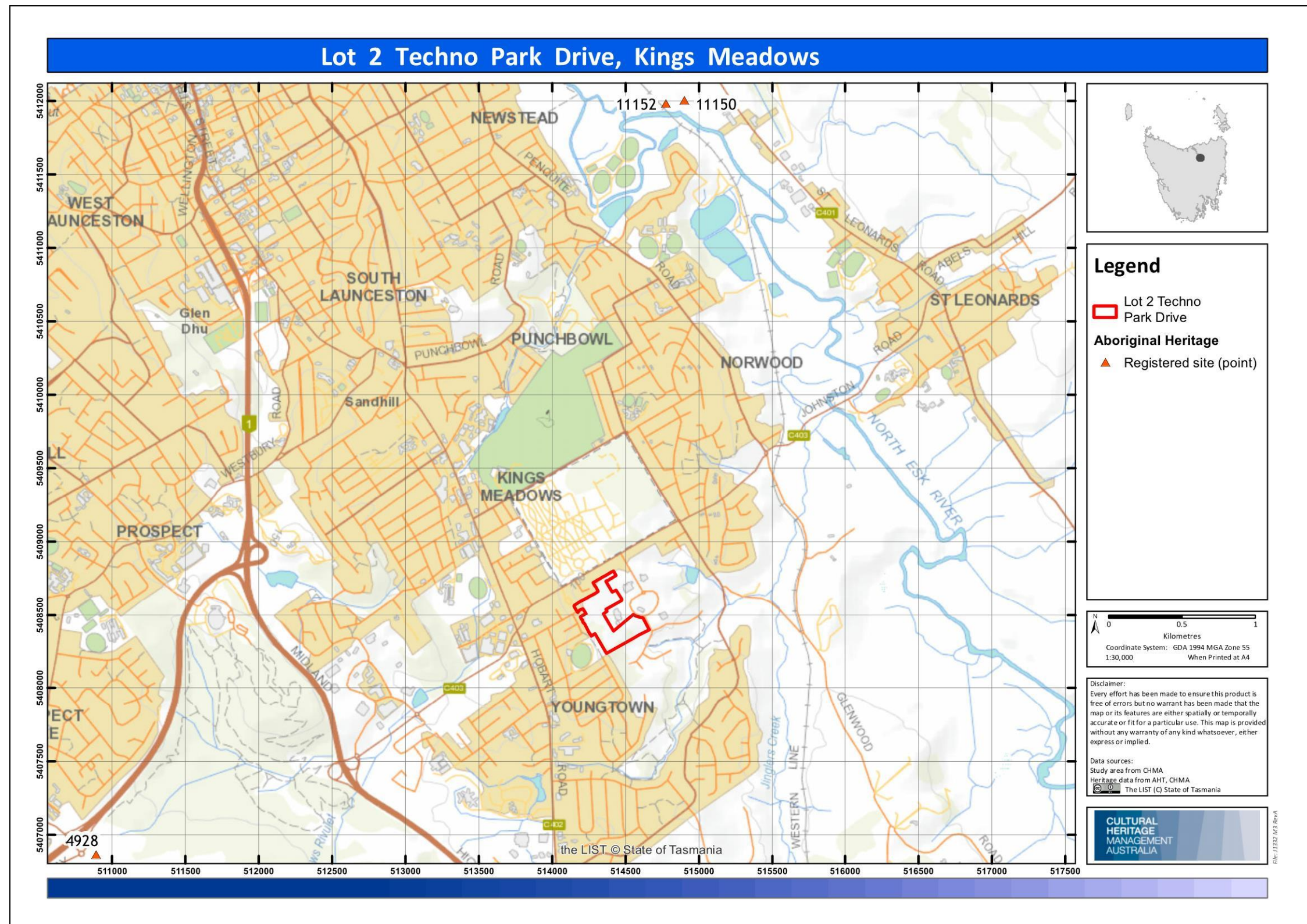


Figure 6: Topographic map showing the location of registered Aboriginal sites located within an approximate 6km radius of the study area (Based on the AHR search results dated 23/9/2021)

5.0 Historic Context of the Study Area

5.1 The Development of Launceston

The first non Aboriginal visitors to arrive in the Northern Region of Tasmania were George Bass and Mathew Flinders, who were sent to explore the possibility that there was a strait between Australia and Van Diemen's Land in 1798. They originally landed in Port Dalrymple, sheltering from bad weather at the mouth of the Tamar River, in the immediate vicinity of present day George Town.

Significant settlement of the area however did not begin until the early 1800s. On 1 June 1804, the order came from London to reduce the population on Norfolk Island and move residents to Van Diemen's Land (Tasmania), and contemporaneously 'forestall French settlement' of the island (Robson 1983:43). On 15 October 1804, an expedition sailed from Port Jackson. It included HMS *Buffalo*, HM brig *Lady Nelson* and schooners *Francis* and *Integrity*. The 'invasion party' arrived in Outer Cove, subsequently the site of George Town, on 5 November 1804. Clergyman, Edward Main, was discharged from the *Buffalo* to 'perform divine service' (ibid). Six days later stores arrived and land clearing for settlement commenced. But the party leader, Lieutenant-Governor Paterson, grew 'dissatisfied with the site' and by 1805 most had moved to the western side of the Tamar to York town (Phillips 2005:157; Robson 1983:44). A year later (1806) the settlement was again shifted to the current position of Launceston. The settlement was initially known as Patersonia, however, was later changed by Paterson to Launceston in honour of the New South Wales Governor Captain Philip Diley King, who was born in Launceston, Cornwall. Administrative power was moved from York Town to Launceston in 1807, under the command of William Peterson. At the end of 1809 Paterson was recalled to Port Jackson, where he served as Lieutenant Governor of NSW (and Van Diemen's Land) until superseded by Governor Macquarie a year later.

In 1812 the Governor of New South Wales, Major General Lachlan Macquarie, toured Van Diemen's Land:

... he disapproved of the site fixed from Launceston and ordered that George Town be developed instead, on the basis that it would clearly be a superior port to Launceston because it was situated close to the open sea and not at the end of a tortuous estuary formed by the union of the two Esk Rivers.
(Robson 1983:102)

In 1815 Macquarie moved the headquarters of government to Outer Cove, renaming the site George Town (Phillips 2005:157). According to Robson, despite government intervention George Town failed to thrive—primarily because Launceston was agriculturally superior, there was 'continual personal conflict' between government personnel, and life there was generally 'precarious in the extreme' (Robson 1983:102-3).

Also opposing Macquarie's insistence that the settlement be relocated to George Town, were the settlers themselves. From 1815, the few convicts who completed their sentences, settled not in and around the heavily-timbered country of George

Town but instead chose to build their huts in the more open and fertile areas around Launceston and the Esk Rivers (Nyman 1996:12). The more fertile soil around Launceston also attracted the majority of free settlers, and by 1820, the entire population of the Tamar area, both convict and free men, numbered five hundred and forty three (Nyman 1996:12).

In 1820 Commissioner J.T. Bigge was sent out from London to inquire into the colonies of New South Wales and Van Diemen's Land. Bigge's conclusions on the settlement of George Town were scathing:

... he was not at all impressed with the stubbornness of Macquarie in insisting on the development of George Town. In eighteen months only one free inhabitant moved from Launceston to George Town, exclaimed the commissioner; the soil of George Town was not good, he judged... (Robson 1983:104).

By the 1820s the perseverance of settlers in Launceston paid off, with the richer soils of the area pushing produce into high yields, turning production levels beyond the point of subsistence and into profits. In 1824, Commissioner Bigge made conclusive recommendations that Launceston be the centre for northern colonial administration, with the northern headquarters accordingly moved back to Launceston in that year.

Lieutenant-Governor of Van Diemen's Land, William Sorrell, was replaced by George Arthur in May 1824. Arthur inquired about the state of religion and education in the colony—this exchange revealed that there was a chaplain (replete with a 'spacious residence') in George Town but not in Launceston. Shortly after this, St John's Church was opened for worship in Launceston in December 1825, rapidly followed by churches of other denominations with their own churches; Scots Church in Lower Charles Street and Wesleyan Chapel in Paterson Street.

By 1827, the population of Launceston had increased to 2000 and the town had become an export centre, primarily servicing the colony's northern pastoral industry. Small hotels and breweries began to emerge c1820s, such as the Cornwell Hotel (c1824) and Launceston Hotels, with more substantial and larger hotels established by the c1830s.

From 1825 a signalling system existed which advised Launceston of the movement of ships in the river. It was begun from Low Head by semaphore. Low Head signalled to George Town, George Town to Mount George, Mount George to Mount Direction and Mount Direction to Windmill Hill in Launceston. In 1829, when the first issue of the Launceston Advertiser went on sale (under John Pascoe Fawkner), Fawkner recorded:

'Excepting about three months in summer, vessels drawing twelve feet can and do lie in a fresh-water stream (at Launceston; no boats are used, but goods are landed or shipped direct from the wharf.... Vessels of 500 to 600 tons burthen can come up within five or six miles of the town and lay in perfect safety, and vessels of 300 to 400 tons may come to the very verge of

the town, that is to the bar which is at the entrance to the canal or North Esk as it is called'. (Cited in Bethell 1957:38).

By the 1830s, three industries thrived in the area; Whaling and Sealing in the Bass Strait produced good returns in oil, making men such as Henry Reed very wealthy. Agriculture had produced large grains stores, with the area supplying both the NSW and later Victorian settlements. The third industry became wool, which produced massive profits, coinciding with the advent of mechanized textile production in Britain which saw small scale cottage industries transformed into mass production and mass profit (Green 2006).

Launceston's exports were booming, exceeding that of Hobart. It became a place of enterprise for free immigrants and not just a penal settlement. The riverfront developed to maximize the new trades, with the introduction of wharves along the North Esk River by men such as Griffiths and Reibey (Green 2006). A brewery, tannery and flourmill were successively constructed.

As the export industries expanded, so did the transport industries, with the ship building industry booming along the length of the Tamar Valley. So too did carriage makers, saddlers and harness makers who no longer relied solely on repairing British gear, but instead began their own production. John Williams established his foundry in 1833.

In 1833 the Tamar Street bridge (now Victoria Bridge) was constructed by John Griffiths. His original bridge lasted until 1899 before it was replaced by the current structure. Griffiths had received a grant of land on the North Esk, upon which were located built houses, stores and a steam flour mill (Bethell 1957:45).

Accompanying the economic prosperity was leisure activities; with the Cornwall Turf Club being formed in 1830. Cricket became a game of the well to do, initially played on the land at the race track. The first Tamar Regatta was held in January 1840.

Economically and socially, the town began to boom, with the prices of property and livestock beginning to soar. This period of economic confidence inspired men such as John Batman and John Fawkner to look towards Port Phillip. In 1835 both made successful trips to establish the village of Melbourne. Though initially a financial drain on Launceston, the new settlement ultimately resulted in new trade, with the town supplying the new settlement with all its goods, including foodstuffs, clothing, timber, livestock and carts (Green 2006).

Come 1840, however, the boom was over and the colony's first major depression began. The three main sources of income failed with declining whaling supplies, decreased value for wool in England and the collapse of the mainland market for foodstuffs as the drought ended in NSW and Port Phillip became self-sufficient (Green 2006). Employers became bankrupt and employees unemployed, with bounty emigrants also arriving in 1841 and further glutting the labour market (Green 2006).

Economic problems lead to political unrest and the formation of the Launceston Association for the Promotion of Cessation of Transportation in 1847 and the Launceston Chamber of Commerce in 1849, to boost the town's economy (Green 2006). The economy gradually improved, but finally received relief with the discovery of gold in NSW and Victoria. The resulting mass exodus of the male population to the goldfields provided a return to financial stability as huge quantities of goods were exported and the agricultural industry had a new lease of life.

In 1853 Launceston was declared a municipality, with William Button appointed the town's first Mayor. In 1854, Henry Stoney visited the town, recording it as
'a large and busy town:- hundreds of vessels crowding the wharves; steamers and ships hastening to or hurrying from the port; - all is life and bustle, with crowded streets in all the turmoil of daily toil and traffic' (Green 2006 ref 37).

The money flowing into the township from the goldfields enabled Launceston's leaders to embark on several projects, including the advanced underground sewerage system and the St Patrick's River water scheme, which solved the ongoing problem of fresh water to the township. For the first time, the town had a permanent water supply. The success was commemorated with the purchase of a new water fountain which was installed in St John's Square in 1859. The Marine Board was created in 1857 to cope with the increasing trade and the Launceston Gas Company was formed in 1858 to light the town's streets.

Following the 1850s period of boom, the town was again plunged into depression with the 1860s marked as the gloomiest period in Tasmania's history. Returns from the goldfields declined and markets slowed, unemployment became wide-spread and many workers abandoned farming in favour of moving to the mainland. Wool prices declined and fluke disease spread through the sheep. Some Town works were nevertheless progressed. In 1864 the Council commissioned the design and construction of a Town Hall which was subsequently built and occupied by 1867. The South Esk Bridge (now Kings Bridge) was opened in 1864, with a second span of the bridge established in 1904. The bridge was an enormous improvement to the punt which had served the region for the previous 28 years. The bridge was welcomed by all producers within the West Tamar region and had been the subject of petition for decades (beginning in 1833) (Nyman 1996:72). The toll for using the bridge was one shilling, to be paid to the West Tamar Road Trust. The bridge opened up markets for produce and goods throughout the region, especially from the outlying districts.

Seen as a scheme for ending the depression was the Launceston and Western Railway, which was to open up the rich agricultural lands of Evandale, Westbury, and Longford which were often difficult to reach due to impassable roads (Green 2006). Discussions were extensive, beginning as early as 1856 and resulting in the need for landholders adjoining the railway to contribute a rate levy if the railway was unable to meet interest repayments. Construction began in January 1868 and the Launceston to St Leonard's line was opened the following year. In 1871 the line was completed, but delays to the build meant significant increases in cost, forcing the railway rate to

be recovered from landowners who, in the middle of the depression could least afford it.

The discovery of tin in December 1871 by James Smith and the development of the Mount Bischoff Tin Mining Company in 1873 changed Launceston's fortunes. The directors of the Company favoured building smelters and Launceston, a financial coup for the town. The smelters began operation in 1875 and from then Launceston boomed. Primary producers, merchants and investors all capitalized as Launceston became the industrial centre of the colony. The subsequent discovery of gold at Brandy Creek (Beaconsfield) in 1876 was the icing on the cake (Green 2006).

The Bischoff mineral boom supported a vast array of other industries and expanded others. The early foundries expanded and new companies such as Salisbury's and Glasgow Engineering began. Miners came to town on their time off and freely spent their money. The township itself also changed, built on the back of Mt Bischoff money; the Custom House, Post Office, the Queen Victoria Museum and Art Gallery plus the high end suburbs of Trevallyn and East Launceston all grew. The Tasmanian Government was now able to borrow freely, resulting in the expansion of the rail network, with Launceston at the centre and lines to agricultural areas of Scottsdale and Ulverstone as well as the mining area of Fingal.

Migration increased as did tourism with a zigzag path built to the First Basin in 1885 and after that a path along the side of the Gorge, and the construction of primitive huts such as Crusoe Hut which was completed in 1892.

The economic confidence supported other fledgling industries, with Waverly Woollen Mills opened in 1874, the expansion of Campbell's pottery and James Boag and son going into partnership in the Esk Brewery. In 1876 William Coogan moved to Launceston beginning a furniture business.

When Launceston became a city in 1889 it was known as the 'self styled commercial capital of Tasmania' (Green 2006:26).

The depression of 1890 began in Victoria and rapidly spread to Tasmania. To the surprise of the colony, the Bank of Van Diemen's Land, established in 1823, collapsed in August 1891. Launceston fared better than most of Tasmania during this period, boosted by the copper at Mount Lyell and Zeehan's silver mines which began early in the 1890s. Dairying in the north east and northwest also supported the economy with the formation of the Tasmanian Dairy Company in August 1892 and its new factory in Cameron Street by 1895.

In 1893 the Duck Reach hydro electric power scheme was begun after a referendum of Launceston citizens passed the project with a two-thirds majority (Green 2006).

Post 1900 Launceston

With the arrival of Federation, industry again boomed and the suburban areas of Trevallyn, Mowbray, East and West Launceston expanded. The building trade

expanded and by 1911 the Launceston's tram system opened and remained in operation until 1952. Trams began running regularly to Trevallyn (sharing the Kings Bridge with cars) in 1913.

As trade improved, the old wharves proved inadequate and Henry Hunter's report of 1912 recommended the construction of a new wharf in Long Reach, a dry dock, dredging and altering the river's course. The wharf was eventually completed, though the onset of the First World War retarded both public works and industry. A total of 1750 Launcestonians served in the war.

Post war recovery was provided by two new industries; the textile manufacturers Kelsall and Kemp and Patons and Baldwins, both of whom chose to establish factories at Launceston on the back of cheap and readily available female labour and the presence of cheap hydro-electric power. Employment by these companies eased the impact of the Depression.

However, in 1929 Launceston was struck by the worst floods in Tasmania's history, displacing 4000 people through Invermay, Inveresk and Margaret St. Approximately 1000 buildings were damaged, causing a need for extensive repair. In 1930 7LA began radio broadcasting, in 1932 the Majestic Cinemas were established and in 1933 commercial flights between Launceston and Melbourne were introduced by Ivan and Victor Holyman (McLoughlin 2006).

The city was again disrupted by the Second World War, but this provided the opportunity for many more women to enter the work force. Dorothy Edwards was elected as Tasmania's first woman mayor in 1956. The Launceston Railway workshops in Inveresk were expanded to include both an ammunition and a tool and gauge annex and to provide for the war effort.

In the post-war period the town again prospered with migration, with new suburbs such as Newnham, Riverside, Waverly and Prospect developing. European migrants contributed to the construction of the Trevallyn Dam Power Station, and a combination trolley and diesel bus service was introduced in 1952, making trams redundant.

Flood levees were constructed between 1962 and 1965 by the Launceston Flood Protection Scheme, which reduced the impact of the 1969 flood but removed the river from the cityscape.

As industry declined, commerce, education and tourism became the prominent economies, with the Australian Maritime College opening in 1980 and the Tasmanian College of Advanced education becoming the Tasmanian State Institute of Technology and then part of the University of Tasmania in 1991. Toward the close of the century, the Inveresk rail yards were incorporated into the Museum and University, with the waterfront being proactively regenerated (McLaughlin 2006).

5.2 Results of the Historic Heritage Registers Search

As part of Stage 1 of the desktop assessment a search was carried out of a number of historic registers and databases in order to determine the extent of historic sites and features in the vicinity of the study area. Agency databases searched included:

- The Australian Heritage Database (AHD);
- Tasmanian Heritage Register (THR);
- The Register of the National Estate (RNE);
- Australian Heritage Places Inventory (AHPI);
- The National Trust (NT);
- The Tasmanian Planning Scheme.

The search results shows that there are no heritage places located within or in the immediate surrounds of the study area that are listed on any of the local, State or National heritage registers.

The absence of any registered historic heritage sites within and in the immediate surrounds of the study area indicates that there is a low to very low potential for historic heritage features to be present. If there are features present, they are likely to be associated with the early pastoral settlement of the outskirts of Launceston.

6.0 Management Recommendations

The following management recommendations have been established on the basis of the findings of the desk top assessment for the Lot 2 Techno Park, Kings Meadows study area. The recommendations are aimed at ensuring that the proponent is compliant with the relevant legislative guidelines and statutory requirements for Aboriginal and historic heritage in Tasmania.

Recommendation 1 (Aboriginal Heritage)

The desk top assessment has confirmed that there are no registered Aboriginal heritage sites that are located within or in the immediate vicinity of the bounds of the study area. It is assessed that there is a low potential for undetected Aboriginal heritage sites to be present. If Aboriginal sites are present in the study area, they are likely to be low density artefact scatters or isolated artefacts, representing sporadic activity.

It is recommended that the proponent should make contact with Aboriginal Heritage Tasmania (AHT) to seek advice regarding the requirements for any further Aboriginal heritage assessments (including field surveys) within the study area.

Recommendation 2 (Unanticipated Discovery Plan for Aboriginal Heritage)

It is assessed that there is generally a very low potential for undetected Aboriginal heritage sites to occur within the study area. However, if, during the course of the proposed construction works, previously undetected archaeological sites or objects are located, the processes outlined in the Unanticipated Discovery Plan should be followed (see Appendix 1). A copy of the Unanticipated Discovery Plan should be kept on site during all ground disturbance and construction work. All construction personnel should be made aware of the Unanticipated Discovery Plan and their obligations under the *Aboriginal Heritage Act 1975* (the Act).

Recommendation 3 (Historic Heritage)

The historic heritage registers search results shows that there are no heritage places located within or in the immediate surrounds of the study area that are listed on any of the local, State or National heritage registers. The absence of any registered historic heritage sites within and in the immediate surrounds of the study area indicates that there is a low to very low potential for historic heritage features to be present. If there are features present, they are likely to be associated with the early pastoral settlement of the outskirts of Launceston.

On the basis of the above it is advised that there are no known historic heritage constraints or requirements for the study area.

Recommendation 4 (Unanticipated Discovery Plan for Historic Heritage)

The procedures outlined in Practice Note No 2 issued by the Tasmanian Heritage Council, processes should be followed should any unexpected archaeological features and/or deposits be revealed during development works.

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Appendix 1

Unanticipated Discovery Plan

Unanticipated Discovery Plan

Procedure for the management of unanticipated discoveries of Aboriginal relics in Tasmania

For the management of unanticipated discoveries of Aboriginal relics in accordance with the *Aboriginal Heritage Act 1975* and the *Coroners Act 1995*. The Unanticipated Discovery Plan is in two sections.

Discovery of Aboriginal Relics other than Skeletal Material

Step 1:

Any person who believes they have uncovered Aboriginal relics should notify all employees or contractors working in the immediate area that all earth disturbance works must cease immediately.

Step 2:

A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal relics, where practicable. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal relics have been assessed by a consulting archaeologist, Aboriginal Heritage Officer or Aboriginal Heritage Tasmania staff member.

Step 3:

Contact Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible and inform them of the discovery. Documentation of the find should be emailed to **aboriginal@heritage.tas.gov.au** as soon as possible. Aboriginal Heritage Tasmania will then provide further advice in accordance with the *Aboriginal Heritage Act 1975*.

Discovery of Skeletal Material

Step 1:

Call the Police immediately. Under no circumstances should the suspected skeletal material be touched or disturbed. The area should be managed as a crime scene. It is a criminal offence to interfere with a crime scene.

Step 2:

Any person who believes they have uncovered skeletal material should notify all employees or contractors working in the immediate area that all earth disturbance works cease immediately.

Step 3:

A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal material, where practicable. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected skeletal remains have been assessed by the Police and/or Coroner.

Step 4:

If it is suspected that the skeletal material is Aboriginal, Aboriginal Heritage Tasmania should be notified.

Step 5:

Should the skeletal material be determined to be Aboriginal, the Coroner will contact the Aboriginal organisation approved by the Attorney-General, as per the *Coroners Act 1995*.

Guide to Aboriginal site types

Stone Artefact Scatters

A stone artefact is any stone or rock fractured or modified by Aboriginal people to produce cutting, scraping or grinding implements. Stone artefacts are indicative of past Aboriginal living spaces, trade and movement throughout Tasmania. Aboriginal people used hornfels, chalcedony, spongelite, quartzite, chert and silcrete depending on stone quality and availability. Stone artefacts are typically recorded as being 'isolated' (single stone artefact) or as an 'artefact scatter' (multiple stone artefacts).

Shell Middens

Middens are distinct concentrations of discarded shell that have accumulated as a result of past Aboriginal camping and food processing activities. These sites are usually found near waterways and coastal areas, and range in size from large mounds to small scatters. Tasmanian Aboriginal middens commonly contain fragments of mature edible shellfish such as abalone, oyster, mussel, warrener and limpet, however they can also contain stone tools, animal bone and charcoal.

Rockshelters

An occupied rockshelter is a cave or overhang that contains evidence of past Aboriginal use and occupation, such as stone tools, middens and hearths, and in some cases, rock markings. Rockshelters are usually found in geological formations that are naturally prone to weathering, such as limestone, dolerite and sandstone.

Quarries

An Aboriginal quarry is a place where stone or ochre has been extracted from a natural source by Aboriginal people. Quarries can be recognised by evidence of human manipulation such as battering of an outcrop, stone fracturing debris or ochre pits left behind from processing the raw material. Stone and ochre quarries can vary in terms of size, quality and the frequency of use.

Rock Marking

Rock marking is the term used in Tasmania to define markings on rocks which are the result of Aboriginal practices. Rock markings come in two forms; engraving and painting. Engravings are made by removing the surface of a rock through pecking, abrading or grinding, whilst paintings are made by adding pigment or ochre to the surface of a rock.

Burials

Aboriginal burial sites are highly sensitive and may be found in a variety of places, including sand dunes, shell middens and rock shelters. Despite few records of pre-contact practices, cremation appears to have been more common than burial. Family members carried bones or ashes of recently deceased relatives. The Aboriginal community has fought long campaigns for the return of the remains of ancestral Aboriginal people.

Further information on Aboriginal Heritage is available from:

Aboriginal Heritage Tasmania
Natural and Cultural Heritage Division
Department of Primary Industries, Parks, Water and Environment
GPO Box 44 Hobart TAS 7001

Telephone: **1 300 487 045**

Email: **aboriginal@heritage.tas.gov.au**

Web: **www.aboriginalheritage.tas.gov.au**

This publication may be of assistance to you but the State of Tasmania and its employees do not accept responsibility for the accuracy, completeness, or relevance to the user's purpose, of the information and therefore disclaims all liability for any error, loss or other consequence which may arise from relying on any information in this publication.



Appendix J

**Contact details of the suggested
interested entities and persons**

Interested Party	Contact name	Email address (or postal address)	Phone no.
Taswater	Development Services	development@taswater.com.au	13 6992
Tasmania Fire Services		fire@fire.tas.gov.au 339 Hobart Road, Youngtown, Tas, 7249	Head office: 03 6173 2740 Launceston: 03 6777 3666
Aboriginal Heritage Council		aboriginal@heritage.tas.gov.au	1300 487 045
Launceston City Council		contactus@launceston.tas.gov.au	03 6323 3000
Youngtown Primary School	Tas Gov Dept Education (Principal: Troy Roberts)	youngtown.primary@education.tas.gov.au	03 6341 3222
Kings Meadows High School	Tas Gov Dept Education (Principal: Maree Pinnington)	kings.meadows.high@education.tas.gov.au	03 6343 1000
Department of State Growth		info@stategrowth.tas.gov.au	1800 030 688
Tasmania Development and Resources	C/o Department of State Growth	info@stategrowth.tas.gov.au	1800 030 688
10 Techno Park Dr, Kings Meadows	Oakwood School – Northern Campus Pty Ltd	10 Techno Park Dr, Kings Meadows	1300 760 360
6 Techno Park Dr, Kings Meadows	Ambrose Nominees (No 1) Pty Ltd (leased by Westpac)	6 Techno Park Dr, Kings Meadows	1800 222 543
11 Techno Park Dr, Kings Meadows	Sandhurst Trustees Limited (leased by ABC Learning Centre)	11 Techno Park Dr, Kings Meadows	
14 Techno Park Dr, Kings Meadows	Ballanclea Holdings Pty Ltd (leased by Telstra)	14 Techno Park Dr, Kings Meadows	
68 Quarantine Rd, Kings Meadows	Barry George Long Annette Noreen Long	68 Quarantine Rd, Kings Meadows, Tas, 7249	
Unit 3/66 Quarantine Rd, Kings Meadows	Lakeview Property No 1 Pty Ltd	12 Baldwin Cl, Ellis Lane, NSW, 2570	
64-66 Quarantine Rd, Kings Meadows	Samuel Peter Grainger Krystal Elizabeth Dawn Temple	64A Quarantine Rd, Kings Meadows, Tas, 7249	

Interested Party	Contact name	Email address (or postal address)	Phone no.
Unit 5/64 Quarantine Rd, Kings Meadows	Samuel Patrick Quinn Gabriella Jane Carling	Unit 5/64 Quarantine Rd, Kings Meadows, Tas, 7249	
62 Quarantine Rd, Kings Meadows	Albert Alfred Arthur McKenzie Dalice Elizabeth McKenzie	62 Quarantine Rd, Kings Meadows, Tas, 7249	
Unit 3/60 Quarantine Rd, Kings Meadows	Rachel Helene Peck-Israel Patrick Thomas Killalea	Unit 3/60 Quarantine Rd, Kings Meadows, Tas, 7249	
58 Quarantine Rd, Kings Meadows	Kaine Joshua Arkley Belinda Skye Officer	58 Quarantine Rd, Kings Meadows, Tas, 7249	
56 Quarantine Rd, Kings Meadows	Mark David Wilcox Sharon Maree Wilcox	56 Quarantine Rd, Kings Meadows, Tas, 7249	
54 Quarantine Rd Kings Meadows	Lawrence Mickleborough	54 Quarantine Rd, Kings Meadows, Tas, 7249	
Unit 2/11 Gilmont Cl, Kings Meadows	Margaret Rose Kuhl	Unit 2/11 Gilmont Cl, Kings Meadows, Tas, 7249	
13 Gilmont Cl, Kings Meadows	Timothy Michael Barrett Amanda Louise Barrett	11 Clarke St, Bridport, Tas, 7262	
24 Gilmont Cl, Kings Meadows	Michelle Anna-Maree Wilson Jack Alan Moss	8 Chungon Cr, South Launceston, Tas, 7249	
22 Gilmont Cl, Kings Meadows	Beaumont Brian Green Sarah Louise Green	22 Gilmont Cl, Kings Meadows, Tas, 7249	
20 Gilmont Cl, Kings Meadows	David Peter McCormack Lace Molly May Digney	Unit 2/12 Gilmont Cl, Kings Meadows, Tas, 7249	
18 Gilmont Cl, Kings Meadows	Housing Choices Tasmania Limited	5 Steele St, Devonport, Tas, 7310	
16 Gilmont Cl, Kings Meadows	Kent Raymond Hateley Christine Elizabeth Hateley	73 Benvenue Rd, St Leonards, Tas, 7250	
Unit 2/14 Gilmont Cl, Kings Meadows	Martin Donald Gilmour Christine Anne Gilmour	Unit 2/14 Gilmont Cl, Kings Meadows, Tas, 7249	
12 Gilmont Cl, Kings Meadows	John Garry Farrow Helen Louise Anne-Maree Burley	11 Leonard St, South Launceston, Tas, 7249	

Interested Party	Contact name	Email address (or postal address)	Phone no.
Unit 3/10 Gilmont Cl, Kings Meadows	Brandon Henry Elmer	One Agency, Shop 4/17-19 Abbott St, East Launceston, Tas, 7250	
32 Quarantine Rd, Kings Meadows	Motor Accidents Insurance Board	Po Box 590, Launceston, Tas, 7250	
41 Woolven St, Youngtown	Glenn John Hartland Kelsey Jayne Hartland	41 Woolven St, Youngtown, Tas, 7249	
40 Woolven St, Youngtown	Janet Lisa Lehner	Po Box 739, Kings Meadows, Tas, 7249	
1 Medina St, Youngtown	Esther Jacquelin Counsel	1 Medina St, Youngtown, Tas, 7249	
3 Medina St, Youngtown	Pamela Rae Skeggs	3 Medina St, Youngtown, Tas, 7249	
5 Medina St, Youngtown	Geoffrey Raymond Titley	Po Box 45, Perth, Tas, 7300	
7 Medina St, Youngtown	Adam Michael Scott Rebekah Jane Freeman	7 Medina St, Youngtown, Tas, 7249	
9 Medina St, Youngtown	Richard Letcher Chapman Bernadette Kathryn Chapman	9 Medina St, Youngtown, Tas, 7249	
11 Medina St, Youngtown	Elliott James Del Grande	11 Medina St, Youngtown, Tas, 7249	
13 Medina St, Youngtown	Anthony Keith Martin	13 Medina St, Youngtown, Tas, 7249	
15 Medina St, Youngtown	Duncan Ian Smith	15 Medina St, Youngtown, Tas, 7249	
17 Medina St, Youngtown	Launceston City Council	Po Box 396, Launceston, Tas, 7250	
21 Highgate St, Youngtown	Launceston City Council	Po Box 396, Launceston, Tas, 7250	
21 Highgate St, Youngtown	Launceston City Council	Po Box 396, Launceston, Tas, 7250	
12 Jinglers Dr, Kings Meadows	Launceston City Council	Po Box 396, Launceston, Tas, 7250	
10 Jinglers Dr, Kings Meadows	Peter Alan Wilkins Narelle Judith Page	10 Winifred Jane Cr, Hadspen, Tas, 7290	
8 Jinglers Dr, Kings Meadows	Gavin Heath Nation Ria Villagrancia Mariano-Nation	Po Box 833, Launceston, Tas, 7250	



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